verizon
4700 MacCorkle Ave. S.E.
Charleston, WV 25304
304-356-3395

December 5, 2018

Department of Administration
Purchasing Division
2019 Washington St E
Charleston, WV 25305

Attention: Crystal Rink
RE: DOT1900000034

Dear Ms. Rink:

Verizon is pleased to submit its proposal for Structured Cabling for DOT/DOH/DMV in response to RFQ DOT1900000034.

Verizon is the undisputed network leader. In wireless, we offer the largest 4G LTE network in America and the nation's largest high-speed 3G network. For large businesses, Verizon is a global IP leader, operating one of the worlds' most connected public Internet backbone networks, delivering solutions that let customers securely connect, communicate and collaborate around the globe.

Verizon uses this power of integrated assets to create unique solutions that empower customers to personalize their communications to meet their particular needs. These customized solutions include cloud services, energy management, smart communities, connected homes, telemedicine, work-at-home applications and mobile commerce – just to name a few.

Verizon commits to provide the services as described in this Proposal. I also give my personal commitment of service to the State of West Virginia. I look forward to continuing our business relationship and building an even stronger partnership with the State of West Virginia.

Sincerely,

Sandra K. Hawkins

Sandra Hawkins
Senior Account Manager
Authorized Contact
Verizon
304-356-3395
sandra.k.hawkins@verizon.com

NATURE OF PROPOSAL

This RFQ response is submitted to the West Virginia Purchasing Division on behalf of WVDOT (referred to herein as "Customer") by Verizon Business Network Services Inc. on behalf of its affiliate Verizon Select Services Inc. (referred to herein as "Verizon"). Verizon does not take exception to any of the RFQ's terms and conditions. However, Verizon does not consider this RFQ response as legally binding to provide the services until all documents herein have been mutually accepted and signed by both parties. In addition, as permitted in the RFQ and the WV Purchasing Division's Procedures Handbook, Section 7.2.19, Verizon also submits additional industry-specific terms and conditions reflected in Verizon's US Service Agreement, which is incorporated and included in Verizon's response. Verizon is also willing to sign a WV-96 Agreement Addendum and understands Verizon's additional terms and conditions are in the last order of precedence and shall not supersede the RFQ and WV-96 terms and conditions where a conflict arises.

DOT1900000034

PART 1

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 — Info Technology

Proc Folder: 493476

Doc Description: STRUCTURED CABLING FOR DOT/DOH/DMV (63190023)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-10-18	2018-12-05 13:30:00	CRFQ 0803 DOT1900000034	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Verizon Business Network Services Inc., on behalf of Verizon Select Services Inc.
4700 MacCorkle Av SE., Charleston, WV 25304
304-356-3395

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature X Senita S Houston **FEIN #** 16-1337624 **DATE** 11/28/2018

All offers subject to all terms and conditions contained in this solicitation

Sr. Analyst - Billing

FORM ID : WV-PRC-CRFQ-001

ADDITIONAL INFORMATION:

THE STATE OF WEST VIRGINIA PURCHASING DIVISION IS SOLICITING BIDS ON BEHALF OF THE DEPARTMENT OF TRANSPORTATION TO ESTABLISH A CONTRACT FOR THE INSTALLATION OF STRUCTURED CABLING PATHWAYS AND SPACES SYSTEMS AT NINETEEN (19) DOT/DOH/DMV PER THE ATTACHED DOCUMENTS.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NETWORK CABLING, INSTALLATION, TESTING &				

Comm Code	Manufacturer	Specification	Model #
83111601			

Extended Description :

TO PROVIDE STRUCTURED CABLING NETWORK DISTRIBUTION SYSTEM, INSTALLATION, TESTING & ACCEPTANCE

SCHEDULE OF EVENTS

Line	Event	Event Date
1	MANDATORY PRE-BID MEETING	2018-11-07
2	MANDATORY PRE-BID MEETING	2018-11-08
3	MANDATORY PRE-BID MEETING	2018-11-09
4	QUESTION DEADLINE	2018-11-16

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. REVIEW DOCUMENTS THOROUGHLY: The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. PREBID MEETING: The item identified below shall apply to this Solicitation.

☐ A pre-bid meeting will not be held prior to bid opening

☐ **A NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

☑ **A MANDATORY PRE-BID** meeting will be held at the following place and time:

Vendor or representative must attend all of the following mandatory pre-bid meetings:
November 7, 2018 at 10:00 AM EST 1334 Smith Street Charleston, WV 25301

November 8, 2018 at 10:00 AM EST 801 Madison Ave, Huntington, WV 25704

November 9, 2018 at 10:00 AM EST 270 Hardwood Lane, Princeton, WV 24740

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Mandatory Pre-bid Meetings

Vendor or representative must attend all three mandatory pre-bid meetings at the following locations on the date and time listed:

November 7, 2018 at 10:00 AM EST
DOH DISTRICT 1 HEADQUARTERS:
1334 Smith Street Charleston, WV 25301

November 8, 2018 at 10:00 AM EST
DOH DISTRICT 2 HEADQUARTERS:
801Madison Ave., Huntington, WV 25704

November 9, 2018 at 10:00 EST
DOH DISTRICT 10 HEADQUARTERS:
270 Hardwood Lane Princeton, WV 24740

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. VENDOR QUESTION DEADLINE: Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: November 16, 2018 at 10:00 AM EST

Submit Questions to: Crystal Rink
2019 Washington Street, East
Charleston, WV 25305
Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)
Email: Crystal.G.Rink@wv.gov

5. VERBAL COMMUNICATION: Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. BID SUBMISSION: All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:
BUYER: Crystal Rink
SOLICITATION NO.: CRFQ DOT1900000034
BID OPENING DATE: December 5, 2018
BID OPENING TIME: 1:30 PM EST
FAX NUMBER: 304-558-3970

The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression or Interest or Request for Proposal is not permitted in wvOASIS.

For Request For Proposal ("RFP") Responses Only: In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus n/a convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)
☐ Technical
☐ Cost

7. BID OPENING: Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: December 5, 2018 at 1:30 PM EST

Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. ADDENDUM ACKNOWLEDGEMENT: Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. BID FORMATTING: Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

10. ALTERNATE MODEL OR BRAND: Unless the box below is checked, any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

☐ This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

11. EXCEPTIONS AND CLARIFICATIONS: The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. COMMUNICATION LIMITATIONS: In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

13. REGISTRATION: Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the $125 fee, if applicable.

14. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. PREFERENCE: Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and should include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at:
http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf.

15A. RECIPROCAL PREFERENCE: The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. A request form to help facilitate the request can be found at:
http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf.

16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES: For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

17. WAIVER OF MINOR IRREGULARITIES: The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

18. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

19. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance."

20. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b."

21. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

22. INTERESTED PARTY DISCLOSURE: West Virginia Code § 6D-1-2 requires that the vendor submit to the Purchasing Division a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least $1 Million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

23. WITH THE BID REQUIREMENTS: In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or **"Proposal"** means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☐ **Term Contract**

Initial Contract Term: Initial Contract Term: This Contract becomes effective on _____ and extends for a period of _____year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

☐ **Alternate Renewal Term** – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☑ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within ____365 calendar____days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ year(s) thereafter.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☐ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☑ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☑ **BID BOND (Construction Only):** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☑ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

☑ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under $100,000. Personal or business checks are not acceptable. Notwithstanding the foregoing, West Virginia Code § 5-22-1 (d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☑ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

☐ BICSI -RCDD with OSP (outside plant) designation

☑ Valid West Virginia Contractors' License

☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below and must include the State as an additional insured on each policy prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.

Vendor must maintain:

☑ **Commercial General Liability Insurance** in at least an amount of: $1,000,000.00 or more per occurrence.

☑ **Automobile Liability Insurance** in at least an amount of: $500,000.00 or more per occurrence.

☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: _____ per occurrence.

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of: _____ per occurrence.

☐ **Cyber Liability Insurance** in an amount of: _____ per occurrence.

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

☐ **Pollution Insurance** in an amount of: _____ per occurrence.

☐ **Aircraft Liability** in an amount of: _____ per occurrence.

☑ **STATE OF WV MUST BE ADDITIONAL INSURED ON CERTIFICATE**

**CERTIFICATE HOLDER SHALL READ AS FOLLOWS:

☑ STATE OF WV
1900 KANAWHA BLVD E, BLDG 5
CHARLESTON, WV 25305

☑ WORKERS' COMPENSATION INSURANCE SHALL BE PROVIDED PER THE FOLLOWING SECTION 9 REQUIREMENT

☐

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. [Reserved]

11. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ _____ for _____

☐ Liquidated Damages Contained in the Specifications

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

14. PAYMENT IN ARREARS: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

15. PAYMENT METHODS: Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

19. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

20. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

21. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

22. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

> **SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

23. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

24. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

25. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

26. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

27. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

28. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

29. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/default.html.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

> **SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. PURCHASING AFFIDAVIT: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

38. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE: This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"), provided that both the Other Government Entity and the Vendor agree. Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

39. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

40. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☐ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

41. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

42. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

43. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a

"substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

44. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least $1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

ADDITIONAL TERMS AND CONDITIONS (Construction Contracts Only)

1. CONTRACTOR'S LICENSE: West Virginia Code § 21-11-2 requires that all persons desiring to perform contracting work in this state be licensed. The West Virginia Contractors Licensing Board is empowered to issue the contractor's license. Applications for a contractor's license may be made by contacting the West Virginia Division of Labor. West Virginia Code § 21-11-11 requires any prospective Vendor to include the contractor's license number on its bid. If an apparent low bidder fails to submit a license number in accordance with this section, the Purchasing Division will promptly request by telephone and electronic mail that the low bidder and the second low bidder provide the license number within one business day of the request. Failure of the bidder to provide the license number within one business day of receiving the request shall result in disqualification of the bid. Vendors should include a contractor's license number in the space provided below.

Contractor's Name: Verizon Select Services Inc

Contractor's License No.: WV- 037918

The apparent successful Vendor must furnish a copy of its contractor's license prior to the issuance of a contract award document.

2. DRUG-FREE WORKPLACE AFFIDAVIT: W. Va. Code § 21-1D-5 provides that any solicitation for a public improvement contract requires each Vendor that submits a bid for the work to submit an affidavit that the Vendor has a written plan for a drug-free workplace policy. If the affidavit is not submitted with the bid submission, the Purchasing Division shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the affidavit within one business day of the request. Failure to submit the affidavit within one business day of receiving the request shall result in disqualification of the bid. To comply with this law, Vendor should complete the enclosed drug-free workplace affidavit and submit the same with its bid. Failure to submit the signed and notarized drugfree workplace affidavit or a similar affidavit that fully complies with the requirements of the applicable code, within one business day of being requested to do so shall result in disqualification of Vendor's bid. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

2.1. DRUG-FREE WORKPLACE POLICY: Pursuant to W. Va. Code § 21-1D-4, Vendor and its subcontractors must implement and maintain a written drug-free workplace policy that complies with said article. The awarding public authority shall cancel this contract if: (1) Vendor fails to implement and maintain a written drug-free workplace policy described in the preceding paragraph, (2) Vendor fails to provide information regarding implementation of its drug-free workplace policy at the request of the public authority; or (3) Vendor provides to the public authority false information regarding the contractor's drug-free workplace policy.

Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

3. DRUG FREE WORKPLACE REPORT: Pursuant to W. Va. Code § 21-1D-7b, no less than once per year, or upon completion of the project, every contractor shall provide a certified report to the public authority which let the contract. For contracts over $25,000, the public authority shall be the West Virginia Purchasing Division. For contracts of $25,000 or less, the public authority shall be the agency issuing the contract. The report shall include:

(1) Information to show that the education and training service to the requirements of West Virginia Code § 21-1D-5 was provided;

(2) The name of the laboratory certified by the United States Department of Health and Human Services or its successor that performs the drug tests;

(3) The average number of employees in connection with the construction on the public improvement;

(4) Drug test results for the following categories including the number of positive tests and the number of negative tests: (A) Pre-employment and new hires; (B) Reasonable suspicion; (C) Post-accident; and (D) Random.

Vendor should utilize the attached Certified Drug Free Workplace Report Coversheet when submitting the report required hereunder. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

4. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the attached AIA documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein.

4A. PROHIBITION AGAINST GENERAL CONDITIONS: Notwithstanding anything contained in the AIA Documents or the Supplementary Conditions, the State of West Virginia will not pay for general conditions, or winter conditions, or any other condition representing a delay in the contracts. The Vendor is expected to mitigate delay costs to the greatest extent possible and any costs associated with Delays must be specifically and concretely identified. The state will not consider an average daily rate multiplied by the number of days extended to be an acceptable charge.

5. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July 1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

6. LOCAL LABOR MARKET HIRING REQUIREMENT: Pursuant to West Virginia Code §21-1C-1 et seq., Employers shall hire at least seventy-five percent of employees for public improvement construction projects from the local labor market, to be rounded off, with at least two employees from outside the local labor market permissible for each employer per project.

Any employer unable to employ the minimum number of employees from the local labor market shall inform the nearest office of Workforce West Virginia of the number of qualified employees needed and provide a job description of the positions to be filled.

If, within three business days following the placing of a job order, Workforce West Virginia is unable to refer any qualified job applicants to the employer or refers less qualified job applicants than the number requested, then Workforce West Virginia shall issue a waiver to the employer stating the unavailability of applicant and shall permit the employer to fill any positions covered by the waiver from outside the local labor market. The waiver shall be in writing and shall be issued within the prescribed three days. A waiver certificate shall be sent to both the employer for its permanent project records and to the public authority.

Any employer who violates this requirement is subject to a civil penalty of $250 per each employee less than the required threshold of seventy-five percent per day of violation after receipt of a notice of violation.

Any employer that continues to violate any provision of this article more than fourteen calendar days after receipt of a notice of violation is subject to a civil penalty of $500 per each employee less than the required threshold of seventy-five percent per day of violation.

The following terms used in this section have the meaning shown below.

(1) The term "construction project" means any construction, reconstruction, improvement, enlargement, painting, decorating or repair of any public improvement let to contract in an amount equal to or greater than $500,000. The term "construction project" does not include temporary or emergency repairs;

(2) The term "employee" means any person hired or permitted to perform hourly work for wages by a person, firm or corporation in the construction industry; The term "employee" does not include:(i) Bona fide employees of a public authority or individuals engaged in making temporary or emergency repairs;(ii) Bona fide independent contractors; or(iii) Salaried supervisory personnel necessary to assure efficient execution of the employee's work;

(3) The term "employer" means any person, firm or corporation employing one or more employees on any public improvement and includes all contractors and subcontractors;

(4) The term "local labor market" means every county in West Virginia and any county outside of West Virginia if any portion of that county is within fifty miles of the border of West Virginia;

(5) The term "public improvement" includes the construction of all buildings, roads, highways, bridges, streets, alleys, sewers, ditches, sewage disposal plants, waterworks, airports and all other structures that may be let to contract by a public authority, excluding improvements funded, in whole or in part, by federal funds.

7. DAVIS-BACON AND RELATED ACT WAGE RATES:

☐ The work performed under this contract is federally funded in whole, or in part. Pursuant to _____, Vendors are required to pay applicable Davis-Bacon wage rates.

☐ The work performed under this contract is not subject to Davis-Bacon wage rates.

8. SUBCONTRACTOR LIST SUBMISSION: In accordance with W. Va. Code § 5-22-1, the apparent low bidder on a contract valued at more than $250,000.00 for the construction, alteration, decoration, painting or improvement of a new or existing building or structure shall submit a list of all subcontractors who will perform more than $25,000.00 of work on the project including labor and materials. (This section does not apply to any other construction projects, such as highway, mine reclamation, water or sewer projects.) The subcontractor list shall be provided to the Purchasing Division within one business day of the opening of bids for review. If the apparent low bidder fails to submit the subcontractor list, the Purchasing Division shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the subcontractor list within one business day of the request. Failure to submit the subcontractor list within one business day of receiving the request shall result in disqualification of the bid.

If no subcontractors who will perform more than $25,000.00 of work are to be used to complete the project, the apparent low bidder must make this clear on the subcontractor list, in the bid itself, or in response to the Purchasing Division's request for the subcontractor list.

a. Required Information. The subcontractor list must contain the following information:

i. Bidder's name

ii. Name of each subcontractor performing more than $25,000 of work on the project.

iii. The license number of each subcontractor, as required by W. Va. Code § 21-11-1 et. seq.

iv. If applicable, a notation that no subcontractor will be used to perform more than $25,000.00 of work. (This item iv. is not required if the vendor makes this clear in the bid itself or in documentation following the request for the subcontractor list.)

b. Subcontractor List Submission Form: The subcontractor list may be submitted in any form, including the attached form, as long as the required information noted above is included. If any information is missing from the bidder's subcontractor list submission, it may be obtained from other documents such as bids, emails, letters, etc. that accompany the subcontractor list submission.

c. Substitution of Subcontractor. Written approval must be obtained from the State Spending Unit before any subcontractor substitution is permitted. Substitutions are not permitted unless:

i. The subcontractor listed in the original bid has filed for bankruptcy;

ii. The subcontractor in the original bid has been debarred or suspended; or

iii. The contractor certifies in writing that the subcontractor listed in the original bid fails, is unable, or refuses to perform his subcontract.

Subcontractor List Submission (Construction Contracts Only)

Bidder's Name: Verizon Select Services Inc.

☐ **Check this box if no subcontractors will perform more than $25,000.00 of work to complete the project.**

Subcontractor Name	License Number if Required by W. Va. Code § 21-11-1 et. seq.
Mon Valley Technologies LLC	WV035204

Attach additional pages if necessary

Revised 06/08/2018

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Sandra Hawkins, Senior Client Partner

(Name, Title)
Sandra Hawkins, Senior Client Partner

(Printed Name and Title)
4700 MacCorkle Av SE., Charleston, WV 25304

(Address)
304-356-3395/304-356-3590

(Phone Number) / (Fax Number)
sandra.k.hawkins@verizon.com

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Verizon Business Network Svc., Inc., on behalf of Verizon Select Services Inc

(Company)

Cenita S. Houston Sr. Analyst - Billing

(Authorized Signature) (Representative Name, Title)

Cenita S. Houston

(Printed Name and Title of Authorized Representative)

11/28/2018

(Date)

304-356-3395/304-356-3590

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CRFQ DOT1900000034

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- [x] Addendum No. 1
- [x] Addendum No. 2
- [ ] Addendum No. 3
- [ ] Addendum No. 4
- [ ] Addendum No. 5
- [ ] Addendum No. 6
- [ ] Addendum No. 7
- [ ] Addendum No. 8
- [ ] Addendum No. 9
- [ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Verizon Business Network Svc Inc on behalf of Verizon Select Services Inc

Company

Cenetta S. Austin — Sr. Analyst-Billing

Authorized Signature

11/28/2018

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

REQUEST FOR QUOTATION
CRFQ DOT1900000034
INSTALLATION OF STRUCTURED CABLING (63190023)

GENERAL CONSTRUCTION SPECIFICATIONS (No AIA Documents)

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the Department of Transportation to establish a contract for the following:

   For the installation of structured cabling pathways and spaces systems at nineteen (19) DOT/DOH/DMV Locations listed below

   The Vendor shall furnish all materials, labor, and equipment necessary to complete all Construction Services. The Vendor shall furnish any incidental work, materials, labor, and equipment that are necessary to complete the Construction Services, even if such incidental work is not explicitly included in the Project Plans.

   1.1. Locations

   WVDOH District 1

   DOH DISTRICT 1 HEADQUARTERS:
   1334 Smith Street Charleston, WV
   (REFER TO ATTACHMENT D1-A, D1-B, D1-C)
   DOH COUNTY HQ OFFICES:
   Boone | Clay | Mason | Putnam
   (REFER TO ATTACHMENT C)
   DOH AREA HEADQUARTERS and SUBSTATIONS:
   St. Albans | North Charleston | Elkview Area Headquarters | Corridor G, Section 3 | I-77 Sissonville | I-79 Amma | Chelyan | Putnam County Sub-Headquarters | I-64, Maintenance, Section 2-Scary | Seth
   (REFER TO ATTACHMENT C)
   DMV REGIONAL OFFICES:
   5707 MacCorkle Ave. S.E., Suite 400, Charleston, WV
   Point Pleasant - 1408 Kanawha Street Point Pleasant WV
   Winfield - 116 Liberty Square Hurricane, WV
   (REFER TO ATTACHMENT DMV-B, DMV-C)

   WVDOH District 2

   DOH DISTRICT 2 HEADQUARTERS:
   801Madison Ave., Huntington, WV
   (REFER TO ATTACHMENT D2-A, D2-B, D2-C)
   DOH COUNTY HQ OFFICES:
   Cabell | Lincoln, Logan, Mingo | Wayne
   (REFER TO ATTACHMENT C)
   DOH AREA HEADQUARTERS and SUBSTATIONS:

I64-Sec. 1 Huntington Substation | Yawkey Substation | Corridor G-Sec. 2 Substation |Gilbert Substation
(REFER TO ATTACHMENT C)
DMV REGIONAL OFFICES:
Huntington, 801 Madison Ave. Huntington, WV
Logan, 428 Main St, Logan, WV
Williamson, 225 E 3rd Ave, Williamson, WV
(REFER TO ATTACHMENT DMV-B, DMV-C)

WVDOH District 10

DOH DISTRICT 10 HEADQUARTERS:
270 Hardwood Lane Princeton, WV 24740-2737
(REFER TO ATTACHMENT D10-A, D10-B, D10-C)
DOH COUNTY HQ OFFICES:
Mercer | McDowell | Raleigh | Wyoming
(REFER TO ATTACHMENT C)
DOH AREA HEADQUARTERS and SUBSTATIONS:
Johnny Cake Substation | Bolt Substation | I-64 Sec. 7 (Shady Spring) Substation | Hanover Substation | Still Run Substation
(REFER TO ATTACHMENT C)
DMV REGIONAL OFFICES:
Beckley - 107 Pinecrest Drive, Beckley, WV 25801
Princeton - 198 Davis St, Princeton, WV 24740
Welch - 92 McDowell St. Welch, WV 24801
(REFER TO ATTACHMENT DMV-B, DMV-C)

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions and in the Project Plans as defined below.

   2.1 **"Construction Services"** means installation, testing, and acceptance of structured infrastructure cable telecommunications distribution system as more fully described in the Project Plans.

   2.2 **"Pricing Page"** means the pages contained in wvOASIS, attached hereto as Exhibit A, or included in the Project Plans upon which Vendor should list its proposed price for the Construction Services.

2.3 "Solicitation" means the official notice of an opportunity to supply the State with Construction Services that is published by the Purchasing Division.

2.4 "Project Plans" means documents developed by an architect, an engineer, the Agency, or another design professional, which are attached hereto as Exhibit B and Attachments D1-A, D2-A, D10-A,D2-A, D2-B, D2-C, D10-A, D10-A, D10-B, D10-C, DMV-B, DMV-C, Attachment B and C that provide detailed instructions on how the Construction Services are to be performed. In the event that Project Plans contain drawings or other documents too large to attach in Exhibit B, Vendors can obtain copies in accordance with Section 9 of these Specifications.

2.5 "BICSI" means Building Industry Consulting Service International

2.6 "RCDD" means Registered Communications Distributions Designer

2.7 Abbreviations

ADMIN	Administration
ANSI	American National Standards Institute
ASAP	As Soon As Possible
ASTM	American Society for Testing and Materials
AWG	American Wire Gauge
BICSI	Building Industry Consulting Service International
Bldg.	Building
CAD	Computer Aided Drawing
Cat	Category
D-*	District-Number
DMV	Division of Motor Vehicles
DOH	Division of Highways
DOT	Department of Transportation
ECA	Electronic Components, Assemblies, Equipment & Supplies Association
EIA	Electronic Industries Alliance
FOB	Free On Board
NEC	*National Electrical Code®*
NECA	National Electrical Contractors Association
NFPA	National Fire Protection Association
SRC	State Road Commission Building
TER	Telecommunications Equipment Room

TGB	Telecommunications Grounding Busbar
TIA	Telecommunications Industry Association
TMGB	Telecommunications Main Grounding Busbar
U/UTP	Unshielded Twisted Pair
UL	Underwriters Laboratories
ULC	Underwriters Laboratories of Canada
UPS	Uninterruptible Power Supply
VOL	Volume
WAP	Wireless Access Point
WVOT	WV Office of Technology
XHCR	Through penetration Firestop devices
XNEZ	Through Penetration Firestop Systems

3. **ORDER OF PRECEDENCE:** This General Construction Specifications document will have priority over, and supersede, anything contained in the Project Plans.

4. **QUALIFICATIONS:** Vendor, or Vendor's staff if requirements are inherently limited to individuals rather than corporate entities, shall have the following minimum qualifications:

   4.1. Experience: Vendor, or Vendor's supervisory staff assigned to this project, must have successfully completed at least eight (8) projects that involved work similar to that described in these specifications or the Project Plans. Compliance with this experience requirement will be determined prior to contract award by the State through references provided by the Vendor upon request, through knowledge or documentation of the Vendor's past projects, through confirmation of experience requirements from the architect assisting the State in this project, or some other method that the State determines to be acceptable. Vendor must provide any documentation requested by the State to assist in confirmation of compliance with this provision. References, documentation, or other information to confirm compliance with this experience requirement may be requested after bid opening and prior to contract award.

   4.2. The Vendor must have a BICSI RCDD or equal with OSP (Outside Plant) or equal designation on staff that will be ultimately responsible for this project. The RCDD or equal should have experience in the implementation and installation of structured cabling telecommunications distribution systems the size and scope as the one specified in this project. Should the RCDD assigned to this project change during the installation, the new RCDD assigned must meet all requirements of the solicitation.

   4.3. The installation work portion of the project must be performed by industry registered or certified installers and technicians. The vendor must have BICSI or equal registered

industry manufacture certification, installers, and technicians. Registration and/or certifications should be submitted with the bid and shall be provided upon request.

4.4. The vendor must have CommScope or equal manufacturer trained installers and Technicians. Registration and/or certifications should be submitted with bid and shall be provided upon request.

5. **CONTRACT AWARD:** The Contract is intended to provide Agency with a purchase price for the Construction Services. The Contract will be awarded to the lowest qualified responsible bidder meeting the required specifications. If the Pricing Pages contain alternates/add-ons, the Contract will be awarded based on the grand total of the base bid and any alternates/add-ons selected.

6. **SELECTION OF ALTERNATES:** Pursuant to W. Va. Code § 5-22-1(f), any solicitation of bids shall include no more than five alternates. Alternates, if accepted, shall be accepted in the order in which they are listed on the bid form. Any unaccepted alternate contained within a bid shall expire 90 days after the date of the opening of bids for review. Determination of the lowest qualified responsible bidder shall be based on the sum of the base bid and any alternates accepted.

7. **PERFORMANCE:** Vendor shall perform the Construction Services in accordance with this document and the Project Plans.

8. **SUBSTITUTIONS:** Any substitution requests must be submitted in accordance with the official question and answer period described in the INSTRUCTIONS TO VENDORS SUBMITTING BIDS, Paragraph 4. Vendor Question Deadline. Vendors submitting substitution requests should submit product brochures and product specifications during the official question and answer period.

9. **PROJECT PLANS:** The checked box will apply to Project Plans for this solicitation.

   X **No Additional Project Plan Documents:** There are no additional Project Plans other than those attached hereto as Exhibit B or any subsequent addenda modifying Exhibit B.

   ☐ **Additional Project Plan Documents:** There are additional Project Plan documents other than those attached as Exhibit B. Copies of the additional Project Plan documents not attached as Exhibit B can be obtained by contacting the entity identified below.

10. CONDITIONS OF THE WORK

10.1. Permits: The Vendor shall procure all necessary permits and licenses to comply with all applicable Federal, State, or Local laws, regulations and ordinances of any regulating body.

10.2. Existing Conditions: If discrepancies are discovered between the existing conditions and those noted in the specifications, Vendor must immediately notify the Agency's representative. Vendor must also immediately notify the Agency if suspected hazardous materials are encountered.

10.3. Standard Work Hours: The standard hours of work for this Contract will be 7:00AM to 5:00PM Monday through Friday excluding holidays recognized by the State of West Virginia. Any work outside of the standard hours of work must be approved in advance at the Agency's sole discretion. Authorization of work outside of the standard hours of work will not entitle Vendor to additional compensation.

10.4. Project Closeout: Project Closeout shall include the following:

10.4.1. Final Cleanup: Vendor shall perform the final cleanup activities listed below, along with any other final cleanup activities normally associated with the work performed under this Contract, prior to final inspection:

10.4.1.1. Prior to final acceptance, the contractor is to submit to the WVDOT marked up drawings (As-Built) reflecting the work as constructed. The drawings shall be digitally submitted on a CDROM in both AutoCAD and PDF format.

10.4.1.2. Vendor shall collect waste and spare materials and remove from the jobsite.

10.4.2. Final Inspection: Vendor shall participate in a final inspection with the Agency's project manager. The purpose of the final inspection will be to identify deficiencies that need to be remedied prior to Agency's final acceptance of the work. Vendor shall at all times be obligated to perform in accordance with the Contract and must take all actions necessary to ensure that work complies with requirements of Contract prior to final acceptance. Final acceptance does not waive or release Vendor from its obligation to ensure that work complies with the Contract requirements. Vendor shall submit any warranty documents to the Agency project manager at final inspection.

11. FACILITIES ACCESS: Performance of Contract Services may require access cards and/or keys to gain entrance to Agency's facilities. In the event that access cards and/or keys are required:

11.1. Vendor must identify principal service personnel which will be issued access cards and/or keys to perform service.

11.2. Vendor will be responsible for controlling cards and keys and will pay replacement fee, if the cards or keys become lost or stolen.

11.3. Vendor shall notify Agency immediately of any lost, stolen, or missing card or key.

11.4. Anyone performing under this Contract will be subject to Agency's security protocol and procedures.

11.5. Vendor shall inform all staff of Agency's security protocol and procedures.

12. MISCELLANEOUS:

12.1. Contract Manager: During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Sandra Hawkins

Telephone Number: 304-356-3395

Fax Number: 304-356-3590

Email Address: sandra.k.hawkins@verizon.com

REQUEST FOR QUOTATION
CRFQ DOT1900000034
INSTALLATION OF STRUCTURED CABLING (63190023)

EXHIBIT A – Pricing Page

Dated: December 5, 2018
(Bidder to insert date bid submitted)

SUBMITTED BY:

Verizon Select Services Inc. *(hereinafter called "Vendor")*

SUBMITTED TO:

West Virginia Department of Transportation *(hereinafter called "WV DOT")*

The Bidder, being familiar with local conditions affecting the cost of the Work and the Contract Documents, including Instructions to Bidders, Bid Form, General Conditions, Drawings, Specifications, and any Addenda or Clarifications issued, hereby propose to furnish all labor, tools, taxes, transportation and expendable equipment necessary for the satisfactory and complete construction of in every detail and ready for operation, all in full accordance with, and in conformity to, the Contract Documents, for the stipulated sums as follows:

TOTAL BID AMOUNT (Show Bid Amount in both words and numbers.)

For the sum of: $ 1,198,965.00

One million, one hundred ninety eight thousand, nine hundred sixty five and no cents **Dollars.**

(Show Bid Amount in both words and numbers.)

(In the event of a difference between the written bid amount and the number bid amount, the written bid amount shall govern.)

EXHIBIT B – PROJECT PLANS

REQUEST FOR QUOTATION
CRFQ DOT1900000034
INSTALLATION OF STRUCTURED CABLING (63190023)

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1. **General Requirements and Installation Guidelines**

1.1. Requirements and install guidelines for all specified and "or equal" submittals:

1.1.1. Vendor shall provide all labor, materials, and equipment for the complete installation of work called for in the Contract Documents.

1.1.2. This section includes the minimum requirements for Horizontal and Backbone cable terminations installed in communications equipment rooms (Telecommunications Rooms, Equipment Rooms, or "Telecommunications Closets").

1.1.3. Included in this section are the minimum composition requirements and installation methods for the termination blocks and patch panels.

1.1.4. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the WV DOT or WV DOT Representative. Equipment and materials shall be of the quality and manufacture indicated. The equipment specified is based on the acceptable manufacturers listed. Where "or equal" is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.

1.1.5. Adhere to all Electronic Industries Alliance (EIA), Telecommunications Industry Association (TIA) and Building Industry Consulting Service International (BICSI) recommended installation practices when installing communications/data cabling.

1.1.6. Material and work specified herein shall comply with the applicable requirements of the current adopted revision of the following:

1.1.6.1. ANSI/TIA – 568 Series Commercial Building Telecom Cabling Standard

1.1.6.2. TIA – 569 Commercial Building Standard for Telecom Pathways and Spaces

1.1.6.3. ANSI/TIA – 606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings

1.1.6.4. ANSI-J-STD – 607 Joint Standard for Commercial Building Grounding and Bonding Requirements for Telecommunications

1.1.6.5. NFPA 70 – National Electric Code

1.1.6.6. ISO/IEC 11801 - Generic cabling for customer premises

1.1.6.7. BICSI – Telecommunications Distribution Methods Manual

1.1.6.8. ANSI/TIA – 568 Series Commercial Building Telecommunications Cabling Standard, TIA – 569 Commercial Building Standard for Telecommunications Pathways and Spaces

1.1.6.9. ANSI/TIA – 606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings

1.1.6.10. ANSI-J-STD – 607 Joint Standard for Commercial Building Grounding and Bonding Requirements for Telecommunications

1.1.6.11. NFPA 70 – National Electric Code

1.1.6.12. ISO/IEC 11801 - Generic cabling for customer premises

1.1.6.13. BICSI – Telecommunications Distribution Methods Manual

1.1.7. Product data for all "or equal" submittals:

1.1.7.1. Vendors shall provide, for approval, manufacturers name, part number, cut sheets, and specifications, for all alternate products to be bid on this RFQ. This documentation must be submitted before or on the VENDOR QUESTION DEADLINE as specified in Section 4 of the RFQ INSTRUCTIONS TO VENDORS SUBMITTING BIDS document.

1.2. Category 6/Class E Patch Panels

1.2.1. Patch panel shall be constructed of high strength steel and designed for wall or 19-inch rack mounting

1.2.2. Panels shall be available in 24-port and 48-port configurations, with a height of 1 Rack Unit (RU) of 44.5 millimeters (1.75 inches) for each group of 24 ports.

1.2.3. Removable rear mounted cable management bar and front and rear identification labels.

1.2.4. Comply with the standards for Category 6/Class E patch panels listed in the TIA/EIA-568 Series Standards and ISO/IEC 11801.

1.2.5. All Patch Panels shall be installed in the racks installed in the telecommunications space.

1.2.6. Each patch panel shall be attached to the rack using the four (4) rack screws supplied with the panel.

1.2.7. All Patch Panels shall be installed level and plumb within the racks.

1.2.8. CommScope Uniprise Patch Panels "or Equal"

1.2.8.1. Uniprise Universal Cat6 Panel 1U 24 Port "or Equal"
760180042|UNP-U-610-1U-24 "or Equal"

1.2.8.1.1. Electrical Specifications

1.2.8.1.1.1. ANSI/TIA Category 6

1.2.8.1.1.2. Current Rating 1.5 A @ 20 °C | 1.5 A @ 68 °F

1.2.8.1.1.3. Dielectric Withstand Voltage, RMS, conductive surface 1500 Vac @ 60 Hz

1.2.8.1.1.4. Dielectric Withstand Voltage, RMS, contact-to-contact 1000 Vac @ 60 Hz

1.2.8.1.1.5. Insulation Resistance, minimum 500 MOhm

1.2.8.1.2. Environmental Specifications

1.2.8.1.2.1. Flammability Rating UL 94 V-0

1.2.8.1.2.2. Relative Humidity Up to 95%, non-condensing

1.2.8.1.3. General Specifications

1.2.8.1.3.1. Total Ports, quantity 24

1.2.8.1.3.2. Cable Type U/UTP (unshielded)

1.2.8.1.3.3. Rack Type EIA 19 in

1.2.8.1.4. Mechanical Specifications

1.2.8.1.4.1. Conductor Gauge, solid 22 AWG | 24 AWG

1.2.8.1.4.2. Conductor Gauge, stranded 22 AWG | 24 AW

1.2.8.1.4.3. Outlet/Module Contact Plating Precious metals

1.2.8.1.4.4. Plug Insertion Life, minimum 750 times

1.2.8.1.4.5. Plug Insertion Life, test plug IEC 60603-7 compliant plug

1.2.8.1.4.6. Plug Retention Force, minimum 30 lbf | 133 N

1.2.8.1.4.7. Rear Termination Contact Plating Nickel

1.2.8.1.4.8. Rear Termination Type IDC

1.2.8.1.4.9. Wiring T568A | T568B

1.2.8.2. Uniprise Universal Cat6 Panel 2U 48 Port "or Equal" 760180059|UNP-U-610-2U-48 "or Equal"

1.2.8.2.1. Electrical Specifications

1.2.8.2.1.1. ANSI/TIA Category 6

1.2.8.2.1.2. Current Rating 1.5 A @ 20 ° C | 1.5 A @ 68 °F

1.2.8.2.1.3. Dielectric Withstand Voltage, RMS, conductive surface 1500 Vac @ 60 Hz

1.2.8.2.1.4. Dielectric Withstand Voltage, RMS, contact-to-contact 1000 Vac @ 60 Hz

1.2.8.2.1.5. Insulation Resistance, minimum 500 MOhm

1.2.8.2.2. Environmental Specifications

1.2.8.2.2.1. Flammability Rating UL 94 V-0

1.2.8.2.2.2. Relative Humidity Up to 95%, non-condensing

1.2.8.2.3. General Specifications

1.2.8.2.3.1. Total Ports, quantity 24

1.2.8.2.3.2. Cable Type U/UTP (unshielded)

1.2.8.2.4. Mechanical Specifications

1.2.8.2.4.1. Conductor Gauge, solid 22 AWG | 24 AWG

1.2.8.2.4.2. Conductor Gauge, stranded 22 AWG | 24 AW

1.2.8.2.4.3. Outlet/Module Contact Plating Precious metals

1.2.8.2.4.4. Plug Insertion Life, minimum 750 times

1.2.8.2.4.5. Plug Insertion Life, test plug IEC 60603-7 compliant plug

1.2.8.2.4.6. Plug Retention Force, minimum 30 lbf | 133 N

1.2.8.2.4.7. Rear Termination Contact Plating Nickel

1.2.8.2.4.8. Rear Termination Type IDC

1.2.8.2.4.9. Wiring T568A | T568B

1.3. Copper Horizontal Cabling

1.3.1. Work Includes

1.3.1.1. Horizontal (to desktop) cable shall consist of Category 6 (CAT 6) copper cable for all Data and Voice applications.

1.3.1.2. Horizontal cabling to typical work area outlets (including offices, cubicles, and conference rooms) shall consist of two Category 6 cables serving each outlet.

1.3.1.3. Outlets for wall-mounted or other "telephone only" installations shall consist of one Category 6 cable as a minimum.

1.3.1.4. Outlets for wireless access points (APs) shall consist of one Category 6 cable at a minimum.

1.3.2. Cable Construction (by Type):

1.3.2.2. Listed CMR cable: Solid copper conductors with high-density polyolefin insulation and an overall low smoke polyvinyl chloride (PVC) jacket to achieve a riser (i.e., non-plenum) rating by applicable NEC requirements.

1.3.2.3. Listed CMP cable: Solid copper conductors with fluorinated ethylene propylene (FEP) insulation and an overall low smoke PVC jacket to achieve plenum rating by applicable NEC requirements.

1.3.2.4. OSP outdoor cable rated for wet locations: Solid copper conductors with polyethylene insulation, polyolefin fluted center member with flooding compound, and black polyethylene jacket

1.3.2.5. Comply with following general physical specifications:

1.3.2.5.1. Maximum pulling tension: 110 Newton's (25 pound-force)

1.3.2.6. Coordination

1.3.2.6.1. Coordinate layout and installation of cable tray with other trades.

1.3.3. CommScope Uniprise Data Communications Horizontal Cabling (Category 6/ClassE) "or Equal"

1.3.3.1. Media 6® 65N4+ Cat 6 U/UTP Cable, non-plenum "or Equal"

1.3.3.2. Media 6® 6504+ Cat 6 U/UTP Cable, plenum "or Equal"

1.3.3.3. Media 6® 6NF4+ Cat 6 U/UTP filled Cable, outdoor direct burial "or Equal"

1.3.3.3.1. Cable shall be listed for the environment where it will be installed (Plenum, Outdoor, or Riser).

1.3.3.3.2. Category 6 horizontal cabling shall provide the following margin to the specification when installed in a 4 connector Channel:

Electrical Parameter (1-250MHZ)	Guaranteed Margins to Category 6 Class E Channel Specifications
Insertion loss	5%
NEXT	6 dB
PSNEXT	7.5 dB
ELFEXT	6 dB

PSELFEXT	8 dB
Return Loss	4 dB

1.3.3.3.3 Category 6 horizontal cabling shall meet or exceed the performance specifications listed in the following table when installed in a 4 connector Channel.

Guaranteed Channel Performance Specifications for 4-Connection U/UTP Systems										
Freq (MHz)	Insertion Loss (dB)	NEXT (dB)	ACR (dB)	PSNEXT (dB)	PSACR (dB)	ELFEXT (dB)	PSELFEXT (dB)	Return Loss (dB)	Delay (ns)	Delay Skew (ns)
1.0	2.0	71.0	69.0	69.5	67.5	69.3	68.3	23.0	580	30
4.0	3.8	69.0	65.2	68.0	64.2	57.2	56.2	23.0	562	30
8.0	5.4	64.2	58.8	63.1	57.7	51.2	50.2	23.0	557	30
16.0	7.6	59.2	51.6	58.1	50.4	45.2	44.2	22.0	553	30
31.25	10.8	54.4	43.6	53.2	42.4	39.4	38.4	20.5	550	30
62.5	15.6	49.4	33.7	48.1	32.4	33.3	32.3	18.0	549	30
100.0	20.2	45.9	25.7	44.6	24.3	29.3	28.3	16.0	548	30
200.0	30.0	40.8	10.8	39.4	9.4	23.2	22.2	13.0	547	30
250.0	34.1	39.1	5.0	37.7	3.5	21.3	20.3	12.0	546	30

A. The table provides reference values only. All parameters comply with the governing equations over the entire frequency range.

B. All values and equations apply to worst-case channels utilizing four-pair cables with full cross-connects, consolidation points and work area outlets (4 connectors in a channel) for any channel lengths up to 100 meters

1.3.3.3.4 Category 6 horizontal cabling shall provide the following Margin to the specification when installed in a 6 connector Channel

Electrical Parameter (1-250MHZ)	Guaranteed Margins to Category 6 Class E Channel Specifications
Insertion loss	4%
NEXT	4 dB
PSNEXT	5.5 dB
ELFEXT	4 dB
PSELFEXT	6 dB

Return Loss	2 dB

1.3.3.3.5 Category 6 horizontal cabling shall provide the following Margin to the specification when installed in a 6 connector Channel.

Guaranteed Channel Performance Specifications for 6-Connection U/UTP Systems										
Freq (MHz)	Insertion Loss (dB)	NEXT (dB)	ACR (dB)	PSNEXT (dB)	PSACR (dB)	ELFEXT (dB)]	PSELFEXT (dB)	Return Loss (dB)	Delay (ns)	Delay Skew (ns)
1.0	2.1	69.0	66.9	67.5	65.4	67.3	66.3	21.0	580	30
4.0	3.9	67.0	63.2	66.0	62.1	55.2	54.2	21.0	562	30
8.0	5.4	62.2	56.7	61.1	55.7	49.2	48.2	21.0	557	30
16.0	7.7	57.2	49.5	56.1	48.4	43.2	42.2	20.0	553	30
31.25	10.9	52.4	41.5	51.2	40.3	37.4	36.4	18.5	550	30
62.5	15.8	47.4	31.6	46.1	30.3	31.3	30.3	16.0	549	30
100.0	20.4	43.9	23.5	42.6	22.1	27.3	26.3	14.0	548	30
200.0	30.3	38.8	8.5	37.4	7.1	21.2	20.2	11.0	547	30
250.0	34.5	37.1	2.6	35.7	1.2	19.3	18.3	10.0	546	30

A. The table provides reference values only. All parameters comply with the governing equations over the entire frequency range.

B. All values and equations apply to worst-case channels utilizing four-pair 71E series cables with up to 6 embedded connections in a channel for any channel lengths up to 100 meters.

1.4. Copper Jack/Information Outlets and Connectors

1.4.1. Scope of Work

1.4.1.1. This section includes the minimum requirements for jack/information outlets and connectors.

1.4.1.2. The channel performance for the installation shall meet or exceed the requirements of ANSI/TIA-568 and ISO/IEC 11801 for the specified Category.

1.4.1.3. The jack/information outlets shall match the category of the cabling

1.4.1.4. All jacks/information outlets shall meet UL 94 V-O

1.4.2. General

1.4.2.1. All products will be compliant to RoHS 2002/95/EC

1.4.2.2. All products will be designed, manufactured, and/or distributed under this quality management system: ISO 9001:2008

1.4.2.3. Telecommunications jacks shall be 8-position/8-conductor modular outlets accepting industry standard modular RJ45 type plugs and insulation displacement conductor (IDC) terminations.

1.4.2.4. The Universal design shall support T568A and T568B wiring and shall have universal wiring labels, including color-coded insert identification labels to ensure accurate identification.

1.4.2.5. Provide crosstalk cancellation with compensation and alien crosstalk mitigation using printed wiring board materials and compensation technology.

1.4.2.6. Jack shall be backward compatible with lower category cords and cables.

1.4.2.7. Installation without special faceplates at either 45- or a 90-degree angle in manufacturer's modular faceplates and frames, including those on surface-mounted boxes.

1.4.3 Uniprise UNJ600 Category 6 U/UTP Information Outlet, blue "or Equal"

1.4.3.1. Electrical Specifications

1.4.3.1.1. Contact Resistance Variation, maximum: 20 mOhm

1.4.3.1.2. Contact Resistance, maximum: 100 mOhm

1.4.3.1.3. Current Rating: 1.5 A @ 20 °C, 1.5 A @ 68 °F

1.4.3.1.4. Dielectric Withstand Voltage, RMS, conductive surface: 1500 Vac @ 60 Hz

1.4.3.1.5. Dielectric Withstand Voltage, RMS, contact-to-contact: 1000 Vac @ 60 Hz

1.4.3.1.6. Insulation Resistance, minimum: 500 MOhm

1.4.3.2. Environmental Specifications

1.4.3.2.1. Flammability Rating: UL 94 V-0

1.4.3.2.2. Relative Humidity: Up to 95%, non-condensing

1.4.3.2.3. Safety Standard: cUL, UL

1.4.3.3. Mechanical Specifications

1.4.3.3.1. Conductor Type: Solid, Stranded (7 strands)

1.4.3.3.2. Material Type: Copper alloy, High-impact, flame retardant, thermoplastic

1.4.3.3.3. Outlet/Module Contact Plating: Precious metals

1.4.3.3.4. Plug Insertion Life, minimum: 750 times

1.4.3.3.5. Plug Insertion Life, test plug: IEC 60603-7 compliant plug

1.4.3.3.6. Plug Retention Force, minimum: 30 lbf, 133 N

1.4.3.3.7. Rear Termination Contact Plating: Precious metals

1.4.3.3.8. Rear Termination Type: IDC
1.4.3.3.9. Wiring: T568A or T568B

1.5. Copper Category 6 /Class E Patch Cords

1.5.1. Work Includes

1.5.1.1. Provide all labor, materials, and equipment for the installation of all copper patch cords into the approved patch panels called for in the Bid Documents.

1.5.2. Scope of Work

1.5.2.1. This section includes the minimum requirements for copper patch cords.

1.5.2.2. All Patch/Equipment Cords shall be new.

1.5.2.3. Patch/Equipment Cords shall be made by the same manufacturer as the Horizontal Cable used in the new installation.

1.5.2.4. All Patch/Equipment Cords shall be factory manufactured and tested for compliance to the appropriate standards and performance.

1.5.2.5. Patch/Equipment Cords shall be installed using proper cable management
1.5.2.6. Minimum bend radius shall not be exceeded.

1.5.3. General

1.5.3.1. The Modular Patch Cords shall meet or exceed TIA ANSI/TIA-568-C.2 Category 6 and ISO/EIC Category 6/Class E specifications and shall be fully backward compatible with Category 5e and 5 connectors.

1.5.4. Uniprise Category 6 U/UTP Patch Cord, Non-Plenum, Blue "or Equal"

1.5.4.1. Electrical Specifications

1.5.4.1.1. ANSI/TIA Category 6

1.5.4.1.2. dc Resistance, maximum 0.30 ohm

1.5.4.1.3. Safety Voltage Rating 300 V

1.5.4.2. Environmental Specifications

1.5.4.2.1. Environmental Space Non-plenum

1.5.4.2.2. Flammability Rating UL 94 V-0

1.5.4.2.3. Safety Standard cETL | ETL

1.5.4.3. Mechanical Specifications

1.5.4.3.1. Conductor Type Stranded

1.5.4.3.2. Material Type Copper alloy | Polycarbonate

1.5.4.3.3. Outlet/Module Contact Plating Precious metals

1.5.4.3.4. Plug Insertion Life, minimum 750 times

1.5.4.3.5. Plug Retention Force, minimum 133 N | 30 lbf

1.5.4.3.6. Wiring T568B

1.5.5. Uniprise Category 6 U/UTP Patch Cord, 4-pair, Plenum, Blue "or Equal"

1.5.5.1. Electrical Specifications

1.5.5.1.1. ANSI/TIA Category 6

1.5.5.1.2. dc Resistance, maximum 0.30 ohm

1.5.5.1.3. Safety Voltage Rating 300 V

1.5.5.2. Environmental Specifications

1.5.5.2.1. Environmental Space Plenum

1.5.5.2.2. Flammability Rating UL 94 V-0

1.5.5.2.3. Safety Standard cETL | ETL

1.5.5.3. Mechanical Specifications

1.5.5.3.1. Conductor Type Solid

1.5.5.3.2. Material Type Copper alloy | Polycarbonate

1.5.5.3.3. Precious metals

1.5.5.3.4. Plug Insertion Life, minimum 750 times

1.5.5.3.5. Plug Retention Force, minimum 133 N | 30 lbf

1.5.5.3.6. Wiring T568B

1.6. Single-Mode Optical Fiber Backbone

1.6.1. Work Includes

1.6.1.1. Provide all labor, materials, and equipment for the complete installation of all Optical Fiber Backbone Cables called for in the Contract Documents.

1.6.1.2. Included in this section are the minimum composition requirements and installation methods for the following:

1.6.1.3. Intra Building Backbone (Inside buildings (ISP))

1.6.1.4. Inter Building Backbone (Between buildings (OSP))

1.6.2. General Specifications

1.6.2.1. Cables shall be designed for Point to Point applications and shall provide a high level of protection for optical fiber installed in building applications.

1.6.2.2. Higher optical fiber count cables shall utilize a sub-unitized design with color-coded subunits for easy identification.

1.6.3. Cable Performance Standards

1.6.3.1. Cables shall comply with the applicable standards per cable type:

1.6.3.2. Bellcore, fiber distributed data interface (FDDI), and EIA standards

1.6.3.3. ANSI/ICEA S-87-640, Standard for Optical Fiber Outside Plant Communications Cable

1.6.3.4. Telcordia, GR-20-CORE, Generic Requirements for Optical Fiber and Optical Fiber Cable

1.6.3.5. Telcordia, GR-409-CORE, Generic Requirements for Indoor Fiber Optic Cables

1.6.3.6. Telcordia requirements for superior armored cable

1.6.3.7. TIA/EIA-568-C .1

1.6.3.8. TIA/EIA-568-C.3

1.6.3.9. ISO/IEC 11801

1.6.3.10. CENELEC EN-50173

1.6.3.11. EN 187105

1.6.4. OS2 Single-mode 8.3 Micrometer Fiber

1.6.4.1. OS2 Single-mode Fiber SCS shall comply with the following standards

1.6.4.1.1. ISO/IEC 11801:2010

1.6.4.1.2. EN 50173-1:2011

1.6.4.1.3. EN 50173-2:2010

1.6.4.1.4. ANSI/TIA-568-C

1.6.4.1.5. IEC 60603-7-4

1.6.4.1.6. IEEE 802.3 applications as outlined in section (iii)

1.6.4.2. OS2 optical fiber glass shall be manufactured from ultra-pure synthetic silica glass. Single-mode fibers manufactured from natural quartz will not be accepted.

1.6.4.3. OS2 Single-mode fiber shall be capable of supporting, at minimum, the following IEEE Ethernet applications:

100M	100BASE-LX10
1G	1000BASE-LH
	1000BASE-BX10
	1000BASE-LX10

	1000BASE-PX10-D
	1000BASE-PX10-U
	1000BASE-PX20-D
	1000BASE-ZX
10G	10GBASE-LR
	10BASE-LX4
	10GBASE-ER
40G	40GBASE-LR4
100G	100GBASE-LR4

1.6.4.4. OS2 single-mode Fiber SCS shall be capable of supporting the following Fiber Channel Applications Standards, per Technical Committee 11 of INCITS:

1GFC
2GFC
4GFC
8GFC
10GFC
16GFC

1.6.4.5 OS2 single-mode fibers shall fully meet or exceed the specifications in:

1.6.4.5.1 EN 50173-1:2011

1.6.4.5.2 ISO/IEC 11801:2010

1.6.4.5.3 IEC/EN 60793-2-50 (b1.3 fiber)

1.6.4.5.4 ANSI/TIA-492CAAB

1.6.4.5.5 ITU-T G.652.D

1.6.4.6 OS2 single-mode fiber physical specifications:

Physical Characteristics	
Cladding Diameter	125.0 ± 0.7 µm
Core/Clad Offset	≤ 0.5 µm

Coating Diameter (Uncolored)	245.0 ± 10 µm
Coating Diameter (Colored)	254.0 ± 7 µm
Coating/Cladding Concentricity Error, Max.	12 µm
Clad Non-Circularity	≤ 1.0 %

1.6.4.7 OS2 single-mode fiber mechanical specifications:

Mechanical Characteristics	
Proof Test	100 kpsi (0.69 Gpa)
Coating Strip Force	0.3 – 2.0 lbf (1.3 – 8.9 N)
Fiber Curl	≥ 4 m
Dynamic fatigue Parameter (nd)	≥ 18
Macrobending, Max. (100 turns)	0.05 dB (1,310/1550 nm @50mm) 0.05 dB (1,625 nm @ 60 mm)
Macrobending, Max. (1 turn @32 mm mandrel)	0.05 @1,550 nm

1.6.4.8. Optical Characteristics, Wavelength specific:

Optical Characteristics, Wavelength Specific			
	1310 nm	1385 nm	1550 nm
Max Attenuation Loose-Tube Cable	0.34 dB/km	0.31 dB/km	0.22 dB/km
Max Attenuation Tight-Buffer Cable	0.50 dB/km	0.50 dB/km	0.50 dB/km
Mode Field Diameter	9.2 ± 0.3 µm	9.6 ± 0.6 µm	10.4 ± 0.5 µm
Group Refractive Index	1.467	1.468	1.468
Dispersion, Max.	3.5 ps/(nm-km) from 1,285 to 1,330 nm		18 s/(nm-km)

1.6.4.9. Optical specifications:

Optical Characteristics, General	
Points defects, Max.	0.10dB
Cut-Off Wavelength	≤ 1260

Zero Dispersion Wavelength	1,302 – 1,322 nm
Zero Dispersion Slope, max.	0.090 ps/[km-nm-nm]
Polarization Mode Dispersion Link Design Value	≤ 0.06 ps/sqrt (km)
Backscatter Coefficient	-79.6/-82.1 dB @ 1310/1550 nm
Index of Refraction	1.466/ 1.467 @ 1310/1550 nm

1.6.4.10 Environmental specifications

Environmental Characteristics	
Temperature Dependence -76°F to 185°F (-60°C to 85°C)	≤ 0.05dB
Temperature humidity Cycling 14°F to 185°F (-10°C to 85°C) up to 95% RH	≤ 0.05dB
Water Immersion, 73.4°F (23°C)	≤ 0.05dB
Heat Aging, 185°F (85°C)	≤ 0.05dB

1.6.5. Inter and Intra Building Fiber Backbone

1.6.5.1. Indoor/Outdoor, Single Jacket All-Dielectric, Plenum Rated, Gel-Free, Stranded Loose-Tube Cable

1.6.5.2. Contractor shall comply applicable codes, standards and with all local codes and requirements. It is the responsibility of the contractor to identify and adhere to any unique codes or requirements governed by the region where the work is to be performed.

1.6.5.3. Provide all necessary products for installation of Fiber Backbone cablings to include cable attachments, etc.

1.6.5.4. Backbone cable shall be installed following industry standard practices.

1.6.5.5. Contractor shall not exceed the maximum pulling tension or the minimum bending radius for fiber cables per manufacturer's specifications.

1.6.5.6. All installations shall comply with:

1.6.5.6.1. ANSI/TIA/EIA – 568 Series Commercial Building Telecommunications Cabling Standard,

1.6.5.6.2. TIA – 569 Commercial Building Standard for Telecommunications Pathways and Spaces,

1.6.5.6.3. ANSI/TIA/EIA – 606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings

1.6.5.6.4. ANSI-J-STD – 607 Joint Standard for Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications

1.6.5.6.5. NFPA 70 – National Electric Code

1.6.5.6.6. BICSI – Telecommunications Distribution Methods Manual

1.6.6. Backbone Cable Testing

1.6.6.1. Complete end-to-end test results for all Fiber Optic cables installed are required.

1.6.6.2. All fiber optic cable must be visually inspected and optically tested on the reel upon delivery to the installation site. Using an Optical Time Domain Reflectometer (OTDR), an access jumper with like fiber, a pigtail, and a mechanical splice, all fibers shall be tested for continuity and attenuation.

1.6.6.3. Testing for continuity and attenuation on the reel must confirm factory specifications to ensure that the fiber optic cable was not damaged during shipment. The test results must match the results of the factory-attached tag on the reel, or the fiber shall not be used. Reel data sheet must be provided showing test results.

1.6.6.4. End to end (bi-directional) test measurements shall be provided for single-mode fibers (2 wavelengths per test are required).

1.6.6.5. Testing shall be performed on 100% of the fibers in the completed end-to-end system. ANSI/TIA-568-A, Annex H, provides the technical criteria and formulae to be used in fiber optic testing. Additionally, all fiber optic cable links must pass all installation and performance tests mandated by the cable manufacturer.

1.6.6.6. The WV DOT or WV DOT Representative is to be notified at least 24 hours prior to testing to allow observation at the WV DOT or WV DOT Representative's discretion. If the WV DOT or WV DOT Representative confirms his intention to observe, a reasonable starting time shall be agreed upon. Should the WV DOT or WV DOT Representative not be present at the scheduled commencement time, the Contractor may begin testing as scheduled.

1.6.6.7. Testing Format: Test Results must be submitted in two (2) formats. First, must be original file(s) down loaded from tester. Second, the file must be cohesively placed in Excel format.

1.6.6.8. All test results are to be recorded and submitted to the WV DOT or WV DOT Representative.

1.6.7. 360G2 Cartridge 12 LC TeraSPEED® Blue with Pigtails "or Equal"

1.6.7.1. Construction Materials

1.6.7.1.1. Fiber Type TeraSPEED®, zero water peak singlemode fiber (G.652.D, G.657.A1 or G.652.D,

1.6.7.1.2. G.657.A1 | OS2)

1.6.7.1.3. Total Fibers, quantity 12

1.6.7.2. Dimensions

1.6.7.2.1. Depth 119.38 mm | 4.70 in

1.6.7.2.2. Height 30.48 mm | 1.20 in

1.6.7.2.3. Pigtail Length 1.5 m | 4.9 ft

1.6.7.2.4. Width 91.44 mm | 3.60 in

1.6.7.3. General Specifications

1.6.7.3.1. Product Type Cartridge

1.6.7.3.2. Interface, front LC

1.6.7.3.3. Adapter Color Blue

1.6.7.3.4. Intelligence Type iPatch® ready

1.6.7.3.5. Interface Feature, front Standard

1.6.7.3.6. Package Quantity 1

1.6.7.3.7. Total Ports, quantity, front 12

1.6.7.4. Optical Performance

1.6.7.4.1. Insertion Loss Change, mating 0.30 dB

1.6.7.4.2. Insertion Loss Change, temperature 0.30 dB

1.6.7.4.3. Insertion Loss, typical 0.30 dB

1.6.7.4.4. Return Loss, minimum 55.0 dB

1.6.7.5. Regulatory Compliance/Certifications

1.6.7.5.1. Agency Classification

1.6.7.5.2. RoHS 2011/65/EU Compliant

1.6.7.5.3. ISO 9001:2008 Designed, manufactured and/or distributed under this quality management system

1.6.8. RoloSplice Kit with 2 fusion splice trays "or Equal"

1.6.8.1. Fusion splice kit Application for G2 1U shelves and surface mount enclosures Splice Trays Included Splice Trays, quantity 2 Splices, quantity 32

1.6.9. SYSTIMAX 360G2 1U Sliding Modular Cassette Shelf "or Equal"

1.6.9.1. Dimensions

1.6.9.2. Depth 457.20 mm | 18.00 in

1.6.9.3. Height 44.45 mm | 1.75 in

1.6.9.4. Width 482.60 mm | 19.00 in

1.6.9.5. Accepts four G2 modular cassettes

1.6.9.6. Accepts two RoloSplices with three trays each

1.6.10. TeraSPEED® LC to LC, Fiber Patch Cord, 1.6 mm Duplex "or Equal"

1.6.10.1. Cord Length, maximum 999 ft | 999 m

1.6.10.2. Cord Length, minimum 2 ft | 1 m

1.6.10.3. Diameter Over Jacket 1.60 mm | 0.06 in

1.6.10.4. General Specifications

1.6.10.4.1. Color, connector A Blue

1.6.10.4.2. Color, connector B Blue

1.6.10.4.3. Construction Type Duplex patch cord

1.6.10.4.4. Interface, connector A LC

1.6.10.4.5. Interface, connector B LC

1.6.10.4.6. Interface Feature, connector A Standard

1.6.10.4.7. Interface Feature, connector B Standard

1.7. Chatsworth CUBE-iT PLUS® Cabinet System "or Equal"

1.7.1. Height 36" (910 mm) 18U

1.7.2. Width 24" (610 mm)

1.7.3. Depth 30" (760 mm)

1.7.4. Door Style: Plexiglass Door

1.7.5. Equipment Load Rating: Up to 200 lb (90.7 kg)

1.7.6. Quantity: EA

1.7.7. Material: Steel

1.7.8. UL: UL

1.7.9. RoHS: Y

1.8. Chatsworth CUBE-iT PLUS® Fan Kits "or Equal"

1.8.1. Attaches over the vents in the side of the Cube-iT Plus Cabinet

1.8.2. Draws air into the cabinet, pressurizing the cabinet and forcing warm air out of the side vents

1.8.3. 115 VAC, 50/60 Hz, 37 dB Fan with 6'L (1.8 m) attached power cord and NEMA 5-15P plug

1.8.4. 230 VAC, 50/60 Hz, 37dB Fan with 6'L (1.8 m) attached power cord and NEMA 6-15P plug

1.9. Chatsworth Velocity Standard Pack "or Equal"

1.9.1. Velocity® Standard Pack includes a 45U x 19" EIA Standard Rack, a double-sided Velocity vertical cable manager and concrete floor installation hardware.

1.9.2. Numbered rack-mount spaces on Standard Rack are printed on the equipment mounting channels, providing the installer a way of positioning equipment in planned spaces.

1.9.3. Includes bonded assembly and a built-in attachment point for a ground (earthing) connection on Standard Rack for attachment to the Telecommunications Ground.

1.10. TrippLite -SU1000RTXL2UA SmartOnline 120V 1kVA 800W Double-Conversion UPS, 2U "or Equal"

1.10.1. 1000VA / 1kVA / 800 watt on-line double-conversion 2U rack/tower UPS

1.10.2. 100/110/120V +/-2% output at 50/60Hz, high efficiency

1.10.3. Economy Mode Option

1.10.4. Expandable runtime, Hot-swap batteries;

1.10.5. 13.5 in / 34.3cm installed depth

1.10.6. USB, RS232 & EPO ports; slot for Network Management Card options

1.10.7. Front panel status LEDs with detailed load and battery metering

1.10.8. 2 independently switchable output load banks

1.10.9. NEMA 5-15P input; 5-15R outlets

1.11. TrippLite -SNMPWEBCARD "or Equal"

1.11.1. Enables remote UPS management via SNMP, Web, SSH or telnet

1.11.2. Ability to send user-configurable alerts via SNMP, SMS or email

1.11.3. Ability to reboot unresponsive equipment without requiring a site visit

1.11.4. Ability to provide mass configuration and updating of multiple units

1.11.5. Store logs of power events, alerts and electrical data

1.12. TrippLite BP24V15RT2U External 24V 2U Rack/Tower Battery Pack "or Equal"

1.12.1. Extends the runtime of expandable 24V DC Tripp Lite UPS Systems

1.12.2. Includes mounting accessories for 2U rackmount installation in 2 or 4 post racks

1.12.3. Includes tower support brackets

1.13. TrippLite EnviroSense Rack Environment Sensor, Temperature, Humidity "or Equal"

1.13.1. Ability to provide remote temperature/humidity monitoring in network environments

1.14. TrippLite 2-9USTAND "or Equal"

1.14.1. 2U to 9U Tower Stand Kit for select Rack-Mount UPS Systems

1.15. Geist RCURN082-101D15ST5-OD "or Equal"

1.15.1. Switched, Outlet Level Monitoring, + Environmental Monitoring – 15A, 120V

1.15.2. Horizontal, (8) NEMA 5-15R, 10 ft power cord with 5-15P, Input, per Circuit/Breaker

1.15.3. Outlet power monitoring with Outlet switching.

1.15.4. Environmental monitoring via optional remote sensors.
1.15.5. Ethernet connectivity.

1.15.6. Local LCD display.

1.16. Geist RTAFHD3-12 "or Equal"

1.16.1. Remote Temperature, Airflow, Humidity, Dew Point) all-in-one sensor

1.16.1.1. Specifications

1.16.1.1.1. Normal operating range: 5 to 60 °C (41 to 140 °F), 20-80% RH

1.16.1.1.2. Maximum Operating Range: -40 to 85 °C (-40 to 185 °F), 0-100% RH

1.16.1.1.3. Accuracy: +/-0.5 °C (0.9 °F), +/-2% RH (over normal operating range)

1.16.1.1.4. +/-1 °C (1.8 °F) and +/-5% RH (outside of normal operating range)

1.16.1.1.5. Humidity: Normal operating range: 20% to 80% RH

1.16.1.1.6. Accuracy (normal range): +/- 2% RH at 25°C

1.16.1.1.7. Extended range: 0% to 100% RH

1.16.1.1.8. Dew Point: -40 to 185 °F (-40 to 85 °C)

1.16.1.1.9. Air Flow: 0 to 100 (relative value)

1.17. HARGER GBI14420TMGBKT 1/4" X 4" X 20" TMGB KIT "or Equal"

1.17.1. 1/4"x 4" x 20" ground bar kit

1.17.2. Kit Includes:

1.17.3. Insulators & shelter brackets.

1.17.4. BICSI pattern. 24 pair 5/16" & 6 pair 3/16" holes.

1.17.5. Includes antioxidant tube.

1.18. HARGER RGBHKIT14119.25 1/4" X 1" X 19" RACK MOUNT KIT "or Equal"

1.18.1. 1/4" x 1" x 19-1/4" horizontal equipment rack ground bar.

1.18.2. Kit Includes:

1.18.2.1. (1) 1/4" electrolytic tough pitch copper alloy 110 ground bar,

1.18.2.2. (1) 3" bar splice plate with 2 slotted holes

1.18.2.3. (2) 11/16WINS: white delrin insulator

1.18.2.4. (2) SMS0126SHWZ

1.18.2.5. 12-24 x 5/8" hex washer head screw

1.18.2.6. (2) #12-24 x 3/4" copper flashed brass screw

1.18.2.7. (2) #12 copper flat washer

1.18.2.8. (8) #6-32 x 1/4" copper flashed brass screw

1.18.2.9. (8) #6 ring terminal

2. Structured Cabling Construction Scope of Work

2.1. Inter-Building Campus Area Network (CAN) Single-Mode Optical Fiber Backbone

2.1.1. The vendor is responsible for all materials, measurements, and equipment for the complete installation of the Optical Fiber Backbone. Vendor must notify the WV DOT or WV DOT Representative if discrepancies are discovered between the existing conditions and those noted in the specifications,

2.1.2. This Optical Fiber Backbone install requires but will not be limited to the following:

2.1.2.1. Internal pathways

2.1.2.2. Aerial span sections

2.1.2.3. Underground sections in conduit

2.1.2.4. External attachments and penetrations include, but will not be limited to the following:

2.1.2.4.1. Aerial and Underground to building attachments

2.1.2.4.1.1. Wooden attachments

2.1.2.4.1.2. Steel attachments

2.1.2.4.1.3. Masonry attachments

2.1.2.4.1.4. Utility pole

2.1.2.4.2. Aerial and Underground to building entrance penetrations

2.1.2.4.2.1. Wooden penetrations

2.1.2.4.2.2. Steel penetrations

2.1.2.4.2.3. Masonry penetrations

2.1.2.4.2.4. Utility pole

2.2. Installation Techniques and Material Usage - Common to All Locations

2.2.1. Copper Patch cables

2.2.1.1. Blue 5' cables are for use in the equipment rooms for racks.

2.2.1.2. Blue 10' and 14' are for work area end connections.

2.2.2. Fiber Jumper Cables

2.2.2.1. Jumpers used for connecting switches and patch panels or connecting patch panel to patch panel should be the shortest "appropriate" length that neither causes the jumper to have sharp corners or have excessive fiber coiled and hanging on or around the rack.

2.2.3. Abandoned Cable Requirement

2.2.3.1. National Electric Code (NEC) requires that all abandoned copper and fiber cable be removed. Abandoned cable is identified as a cable that is not terminated at equipment and not identified for future use with a tag [725.2, 760.2, 770.2, 800.2, and 820.2] and the NEC does require the accessible portion of abandoned to be removed [725.3(B), 760.3(B), 770.3(A), 800.52(B), and 820.3(A)]

2.3. District Headquarters: All buildings

2.3.1. Installation of the designated number of Cat-6 Jacks as required at each HQ building.

2.3.2. Installation of a WAP location dual Cat-6 cable drop and an outlet located on an exterior wall location of the building per DOT direction. Generally, this location is in the building nearest the truck entrance to the salt pile. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

2.3.3. Install Patch Panel(s) and Wire Manager(s) on the equipment rack. Vertical cable management shall at a minimum be on one side of all mounting racks. One 2u horizontal cable manager shall be placed above and below each 2u 48 port patch panel and each network switch.

2.3.4. Install a wall mounted shelf on the equipment rack for future equipment.

2.3.5. Install UPS, with installed SNMP Card, in the closet/space near the panel for others to install with future equipment.

2.3.6. Use PVC Wiremold as necessary.

2.3.7. Create a basic floor plan with jack locations and labels to serve as an As-built. Use fire escape route if available.

2.3.8. Label all cables, outlets, and panels.

2.3.9. Vertical cable management shall at a minimum be on one side of all mounting racks. One 2u horizontal cable manager shall be placed above and below each 2u 48 port patch panel and each network switch.

2.3.10. Install TGB {HAGER - 1/4" X 2" X 12" TGB KIT}

2.4. County Headquarters: All buildings

2.4.1. Installation of the designated number of Cat-6 Jacks as required at each County Office.

2.4.2. Installation of a WAP location dual Cat-6 cable drop and an outlet located on an exterior wall location of the building per DOT direction. Generally, this location is in the building nearest the truck entrance to the salt pile. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

2.4.3. Install Patch Panel(s) and Wire Manager(s) on the wall with a wall mount swing bracket / cabinet. Vertical cable management shall at a minimum be on one side of all mounting racks. One 2u horizontal cable manager shall be placed above and below each 2u 48 port patch panel and each network switch. If a rack is present or required, use the equipment rack instead.

2.4.4. Install a wall mounted shelf under the patch panel for future equipment.

2.4.5. Install UPS, with installed SNMP Card, in the closet/space near the panel for others to install with future equipment.

2.4.6. Use PVC Wiremold as necessary.

2.4.7. Create a basic floor plan with jack locations and labels to serve as an As-built. Use fire escape route if available.

2.4.8. Label all cables, outlets, and panels.

2.4.9. Vertical cable management shall at a minimum be on one side of all mounting racks. One 2u horizontal cable manager shall be placed above and below each 2u 48 port patch panel and each network switch.

2.4.10. Install TGB {HAGER - 1/4" X 2" X 12" TGB KIT}

2.5 Sub-Stations: All buildings

2.5.1. Installation of the designated number of Cat-6 Jacks as required at each Sub- Station.

2.5.2. Installation of a WAP location dual Cat-6 cable drop and an outlet located on an exterior wall location of the building per DOT direction. Generally, this location is in the building nearest the truck entrance to the salt pile. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

2.5.3. Install Patch Panel and Wire Manager on the wall with a wall mount swing bracket.

2.5.4. Install a wall mounted shelf under the patch panel for future equipment.

2.5.5. Install UPS, with installed SNMP Card, in the closet/space near the panel for others to install with future equipment.

2.5.6. Use PVC Wiremold as necessary.

2.5.7. Create a basic floor plan with jack locations and labels to serve as an As-built. Use fire escape route if available.

2.5.8. Label all cables, outlets, and panels.

2.5.9. Vertical cable management shall at a minimum be on one side of all mounting racks. One 2u horizontal cable manager shall be placed above and below each 2u 48 port patch panel and each network switch.

2.5.10. Install TGB {HAGER - 1/4" X 2" X 12" TGB KIT}

2.6. Drawings, Sketches, Fire Escape Plans

2.6.1. Drawings for the new District 7 HQ buildings.

2.6.1.1.1. The Equipment Shop is currently under construction and will be ready to cable immediately.

2.6.1.1.2. The Administration Building design is the same as Districts 6 and 10 and are provided for reference.

2.6.1.1.3. The Multi-Purpose Building design is the same as Districts 6 and 10 and are provided for reference.

2.6.1.1.4. The Lab Building design is the same as Districts 6 and 10 and are provided for reference.

Department of Transportation Division of Highways Work Locations	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outside Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
DMV HQ MAIN OFFICE	2	5	12	24		1	8400	12	18	21								
DMV REGIONAL OFFICE																		
Charleston	1	1	48	96	2		33600	48	72	84								
Hurricane	1	1	48	96	2		33600	48	72	84								
Point Pleasant	1	1	48	96	2		33600	48	72	84								
DOH DISTRICT 1 HEADQUARTERS																		
Headquarters Building	1	3	15	30			10500	15	23	26								
State Road Commission Building	1	3	15	30			10500	15	23	26								
Engineering Building	1	2	152								100	304	1	2	53200	152	228	266
Equipment Shop	1	1	15								100	30	1		5250	15	23	26
Buildings and Grounds Office	1	1	6								100	12		1	2100	6	9	11
Materials Testing Lab	1	1	15								100	30	1		5250	15	23	26
Sign Shop	1	1	7								100	14		1	2450	7	11	12
DOH COUNTY HQ OFFICES and SUBSTATIONS																		
Boone	1	1	20								500	40	1		7000	20	30	35
Clay	1	1	20								500	40	1		7000	20	30	35
Kanawha- St Albans	1	1	10								250	20		1	3500	10	15	18
Kanawha- North Charleston	1	1	20								250	40		1	7000	20	30	35
Kanawha-Elkview Area Headquarters	1	1	20								250	40		1	7000	20	30	35
Corridor G, Section 3 Headquarters	1	1	20								250	40		1	7000	20	30	35
I-77 Sissonville Headquarters	1	1	20								250	40		1	7000	20	30	35
I-79 Amma Headquarters	1	1	20								250	40		1	7000	20	30	35
Kanawha – Cheyan Headquarters	1	1	20								250	40		1	7000	20	30	35
Mason	1	1	20								500	40	1		7000	20	30	35
Putnam	1	1	20								500	40	1		7000	20	30	35
Putnam County Sub-Headquarters	1	1	16								250	32	1		5600	16	24	28
I-64, Maintenance, Section 2 -Scary	1	1	12								250	24		1	4200	12	18	21
Seth Substation	1	1	8								250	16		1	2800	8	12	14
Totals	26	34	677	372	6	1	130700	136	279	326	5000	882	8	13	154350	441	662	772
			WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outside Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'

Outside Cable
Yes = 250'
Yes = 500'
Yes = 750'
Yes = 1000'
None

Department of Transportation Division of Highways Work Locations	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outside Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
DMV REGIONAL OFFICE																		
Huntington	1	1	48	96	2		33600	48	72	84								
Logan	1	1	48	96	2		33600	48	72	84								
Williamson	1	1	48	96	2		33600	48	72	84								
DOH DISTRICT 2 HEADQUARTERS																		
Headquarters Building	7	10	332	664	10	5	232400	332	498	581	100							
Jackson Ave. Equipment Shop	1	1	15	30	1		10500	15	23	26	100							
Quonset Hut	1	1	7	4		1	1400	7	11	12	100							
DOH COUNTY HQ OFFICES and SUBSTATIONS																		
Cabell	1	1	20								500	40	1		7000	20	30	35
I-64, Sec. 1 (Huntington) Substation	1	1	10								500	20		1	3500	10	15	18
Lincoln	1	1	20								250	40	1		7000	20	30	35
Yawkey Substation	1	1	10								250	20		1	3500	10	15	18
Logan	1	1	20								250	40	1		7000	20	30	35
Corridor G, Section 2	1	1	10								250	20		1	3500	10	15	18
Mingo	1	1	20								250	40	1		7000	20	30	35
Gilbert Substation	1	1	10								250	20		1	3500	10	15	18
Wayne	1	1	20								250	40	1		7000	20	30	35
Totals	**21**	**24**	**630**	**986**	**17**	**6**	**345200**	**498**	**747**	**872**	**3000**	**290**	**3**	**4**	**45000**	**140**	**210**	**245**

	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outside Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'

Outside Cable
Yes = 250'
Yes = 500'
Yes = 750'
Yes = 1000'
None

Department of Transportation Division of Highways Work Locations	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outside Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
DMV REGIONAL OFFICE																		
Beckley	1	1	48	96	2		33600	48	72	84								
Princeton	1	1	48	96	2		33600	48	72	84								
Welch	1	1	48	96	2		33600	48	72	84								
DOH DISTRICT 10 HEADQUARTERS																		
Headquarters Building	1	2	115	230	5		80500	115	173	201								
Equipment Shop	1	1	16	32	1		11200	16	24	28	100							
Buildings and Grounds Maintenance	1	1	4	8		1	2800	4	6	7	100							
Bridge and Sign Shop	1	1	39	78	2		27300	39	59	68	100							
DOH COUNTY HQ OFFICES and SUBSTATIONS																		
Mercer	1	1	20								500	40	1		7000	20	30	35
McDowell	1	1	20								500	40	1		7000	20	30	35
Johnny Cake Substation	1	1	10								250	20		1	3500	10	15	18
Yukon Substation	1	1	10								250	20		1	3500	10	15	18
Raleigh	1	1	20								250	40	1		7000	20	30	35
Bolt Substation,	1	1	10								250	20		1	3500	10	15	18
I-64 Sec. 7 (Shady Spring) Substation	1	1	10								250	20		1	3500	10	15	18
Wyoming	1	1	20								250	40	1		7000	20	30	35
Hanover Substation	1	1	10								250	20		1	3500	10	15	18
Still Run Substation	1	1	10								500	20		1	3500	10	15	18
Totals	**17**	**18**	**458**	**656**	**14**	**1**	**222600**	**316**	**477**	**557**	**3550**	**280**	**4**	**6**	**49000**	**140**	**210**	**245**
			WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outside Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
	Outside Cable																	
	Yes = 250'																	
	Yes = 500'																	
	Yes = 750'																	
	Yes = 1000'																	
	None																	

	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outlet Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
D-1 Totals	26	34	527	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outlet Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
D-2 Totals	21	24	698	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outlet Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
D-10 Totals	17	18	450	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Telecom Equip Room	Rack	WAO Dual Drops	Cat 6A Outlets	Cat 6A 48 Port Ptch Pnl	Cat 6A 24 Port Ptch Pnl	Cat 6A Cable	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	Cat 6 Outlet Cable	Cat 6 Outlets	Cat 6 48 Port Ptch Pnl	Cat 6 24 Port Ptch Pnl	Cat 6 Cable	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'

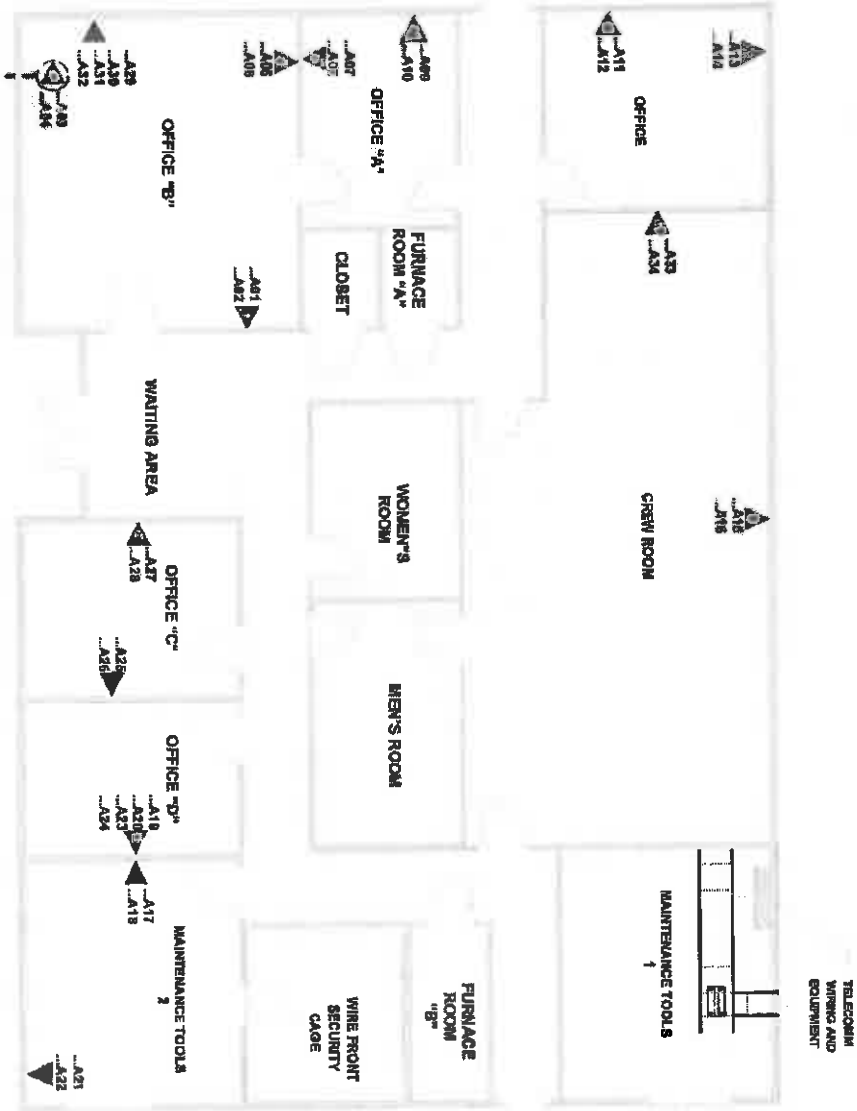
		Cat 6A Outlets	2U	1U	6A	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	6 Outlets	Cat 6 Outlets	2U	1U	6	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
D-1 Totals		[illegible]	7	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14	134.25	[illegible]	[illegible]	[illegible]
		Cat 6A Outlets	2U	1U	6A	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	6 Outlets	Cat 6 Outlets	2U	1U	6	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10'	Cat 6 Patch Cable 5'
D-2 Totals		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Cat 6A Outlets	2U	1U	6A	Cat 6A Patch Cable 14'	Cat 6A Patch Cable 10'	Cat 6A Patch Cable 5'	6 Outlets	Cat 6 Outlets	2U	1U	6	Cat 6 Patch Cable 14'	Cat 6 Patch Cable 10	Cat 6 Patch Cable 5'
D-10 Totals		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	49	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20	25	252.35	[illegible]	[illegible]	[illegible]

	Boxes	Faceplates
[illegible]	950	350
Outlets		
[illegible]	950	350
Outlets		
[illegible]	700	200
[illegible]		

2U	1U
35	16
2U	1U
[illegible]	17
2U	1U
[illegible]	[illegible]
[illegible]	[illegible]

1	[illegible]	2	[illegible]	3	[illegible]	4	[illegible]	5	[illegible]	6	[illegible]	7	[illegible]	8	[illegible]	9	[illegible]	10	
10	[illegible]	11	[illegible]	12	[illegible]	13	[illegible]	14	[illegible]	15	[illegible]	16	[illegible]	17	[illegible]	18	[illegible]	19	

Example Test Results



LABELING NOTE:
DOT_D4_T_TEL_DC_A01
DOT_D4_T_TEL_DC_A02

INFORMATION OUTLET LOCATION
WIRELESS ACCESS POINT

verizon
827 FAIRMONT ROAD SUITE 204
MORGANTOWN, WV 26505
PHONE 304-284-0504

WEST VIRGINIA DOT
DISTRICT 4

TAYLOR COUNTY HQ

ADMINISTRATION BLDG

CAD OPERATOR: M. DRAGO	PROJECT RCDD: L. HOST, RCDD/OSP	PROJECT MANAGER: L. HOST, RCDD/OSP	
DATE 08/17/14	DATE 08/17/14	PROJECT COMPLETION DATE	
SCALE NTS	AUTO-CAD VERSION 2006 LT	JOB #	AS BUILT
DRAWING # WV DOT D_4 DOH COHQ TAYLOR COUNTY ADMINISTRATION BLDG.dwg			

BICSI
Lawrence Host
Reg. No. 161357R
Expires 12/31/15
RCDD

verizon

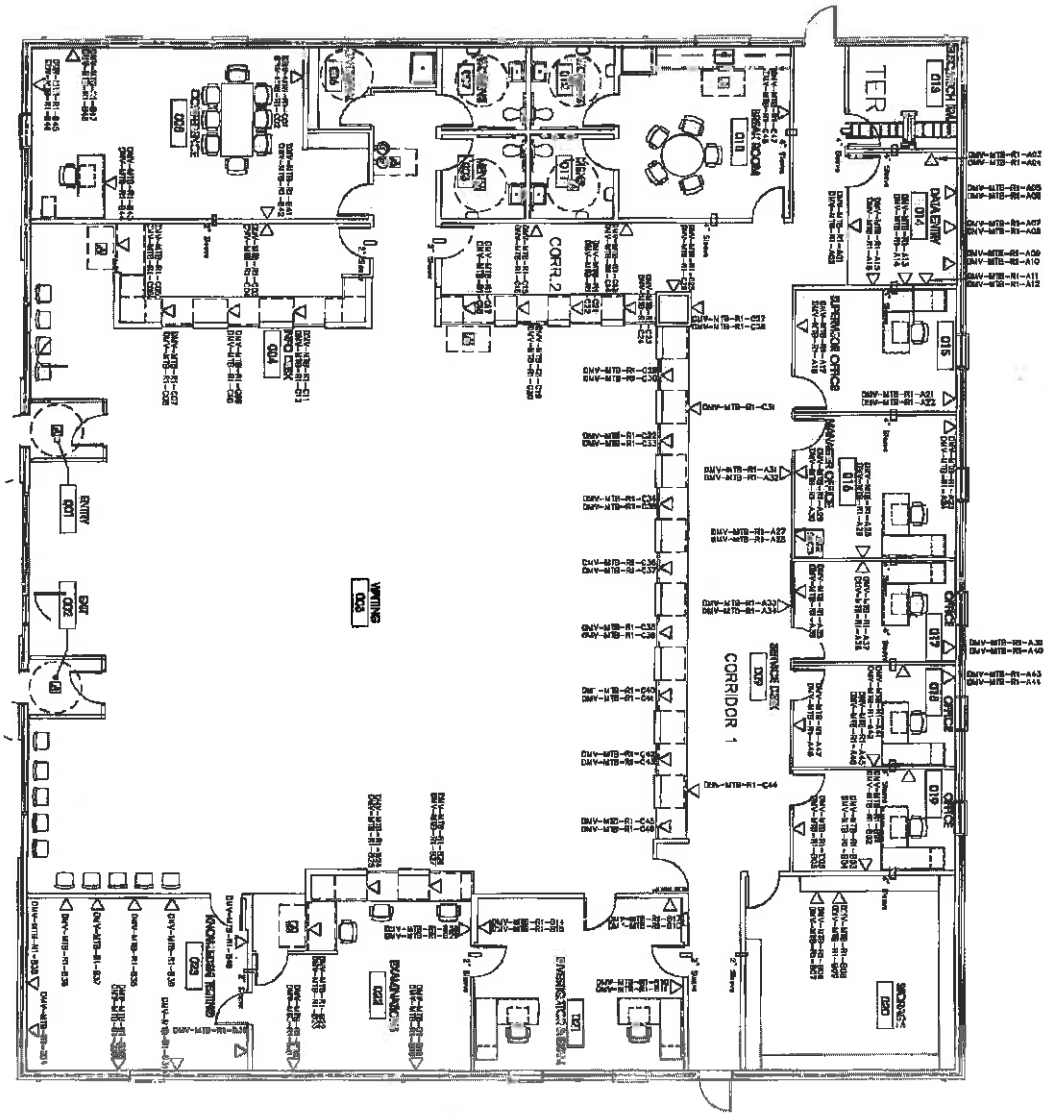
WEST VIRGINIA DOT
DISTRICT 4

TAYLOR COUNTY HQ

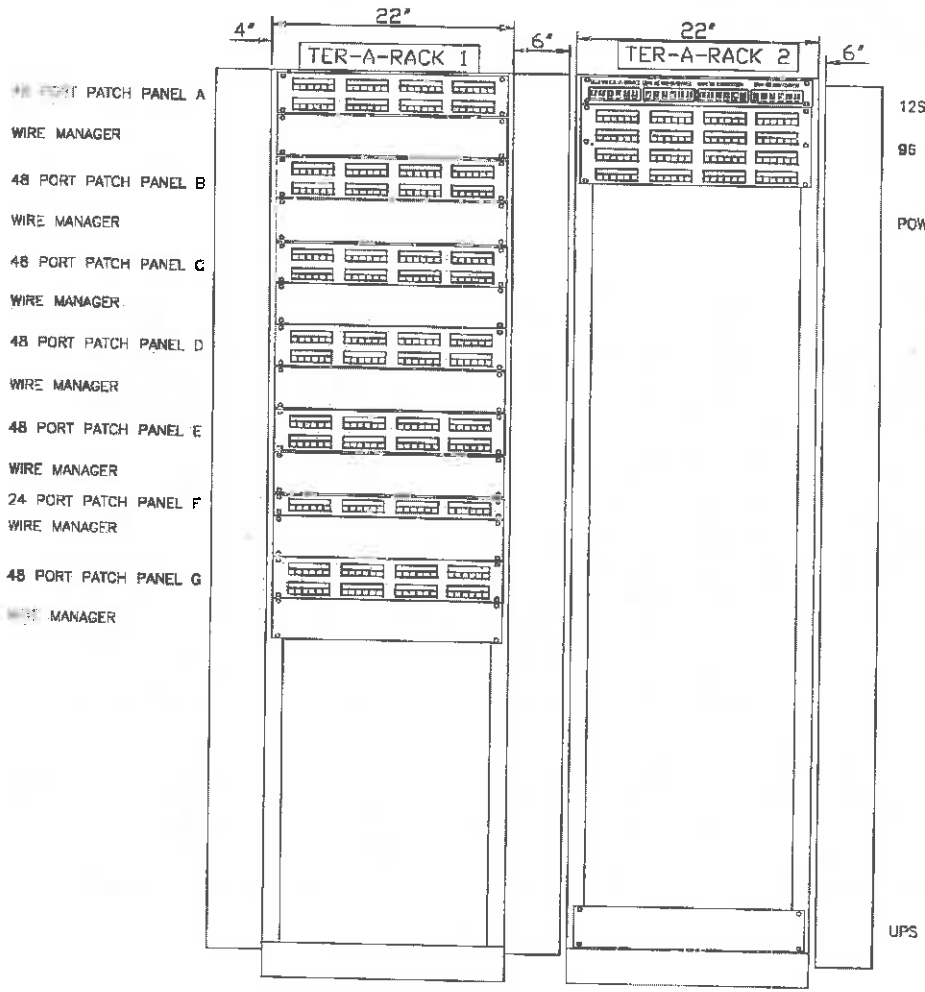
MAINTENANCE SHOP

CAD OPERATOR: M. BRAGG	PROJECT RCDD: L. HOST, RCDD/OSP	PROJECT MANAGER: L. HOST, RCDD/OSP
DATE: 09/17/14	DATE: 09/17/14	PROJECT COMPLETION DATE
SCALE: NTS	AUTO-CAD VERSION: 2005 LT	JOB #:
		AS BUILT
DRAWING #: WV DOT D_4 DOH TAYLOR COUNTY HQ MAINTENANCE SHOP.dwg		

BCSI
Lawrence Host
Reg. No. 1013576
Expires 12/31/15
RCDD



verizonbusiness 527 FAIRMONT ROAD SUITE 204 MORGANTOWN, WV 26501 PHONE 304-284-0504	WEST VIRGINIA DOT DEPARTMENT OF MOTOR VEHICLES MARTINSBURG FIRST FLOOR	CAD OPERATOR: B REYNOLDS	PROJECT RCDD: L. HOST, RCDD/OSP	APPROVED BY: PROJECT MANAGER
		DATE 8/15/12	DATE 8/15/12	PROJECT COMPLETION DATE
		SCALE NTS	AUTO-CAD VERSION 2006 LT	JOB #
		DRAWING # WV DMV MARTINSBURG 1ST FLOOR.dwg		
				bicsi RCDD DMP SPECIALIST EXPIRES 12/31/13 SIGNATURE



CAD OPERATOR: B REYNOLDS
DATE 06/18/13
SCALE NTS

PROJECT RCDD: L HOST, RCDD/OSP
DATE 06/18/13
AUTO-CAD VERSION 2006 LT

PROJECT MANAGER: L HOST, RCDD/OSP
PROJECT COMPLETION DATE
JOB #

DRAWING # WV DOT DG-HQ ADMINISTRATION BUILDING 1ST FLOOR RACK DETAIL.dwg

RCDD CAD SPECIALIST EXPIRES 12/31/13
SIGNATURE

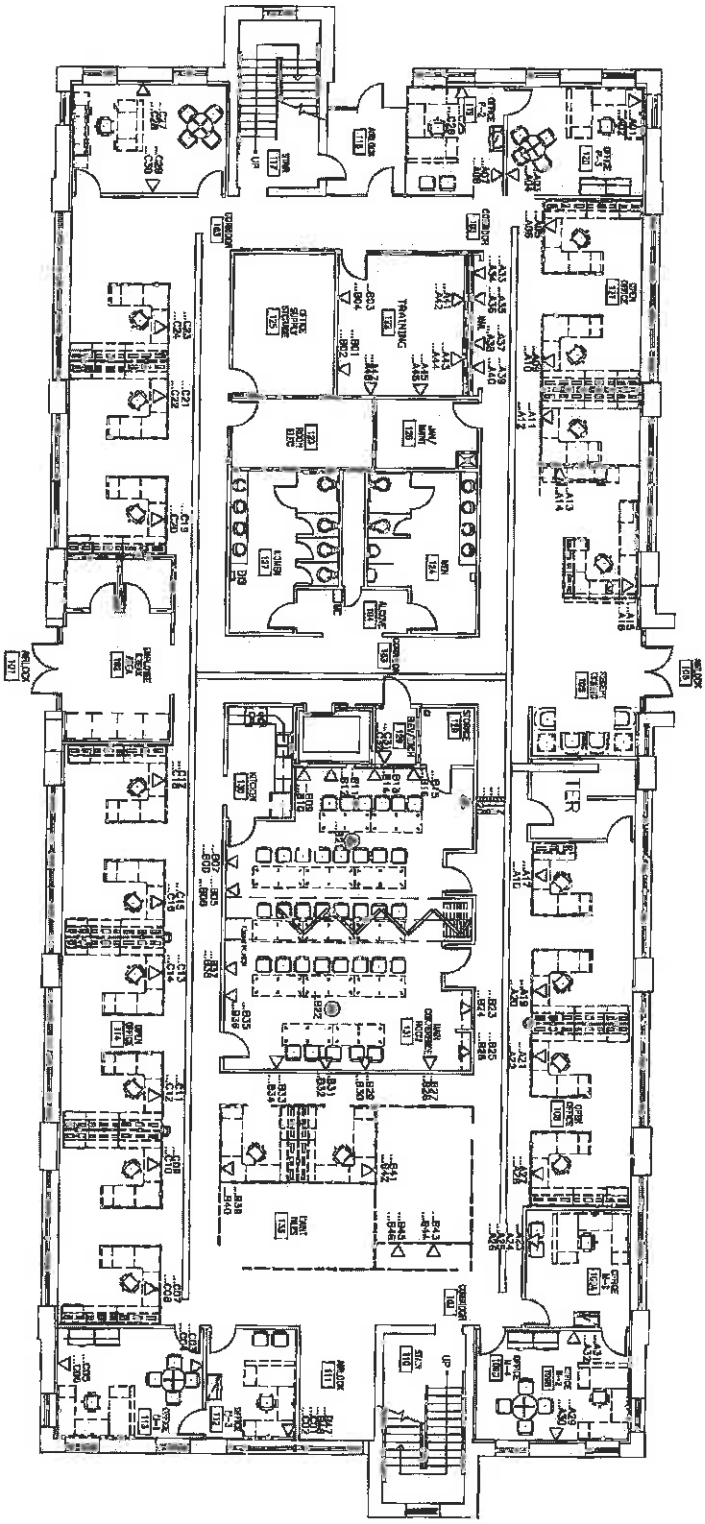
WEST VIRGINIA DOT
DISTRICT 6
ADMINISTRATION BUILDING
1 DOT DRIVE
MOUNDSVILLE, WV
FIRST FLOOR RACK DETAIL

verizon

807 FAIRMONT ROAD SUITE 204
MORGANTOWN, WV 26505
PHONE: 304-291-0804

1ST FLOOR PLAN

DRAWING NOT TO SCALE
FIXTURES SHOWN ARE ESTIMATED



LABEL NOTE THIS PRINT:
FULL LABEL=DOT-D6HQ-ADM-ER1-A01
ABBREVIATED LABEL=...A01

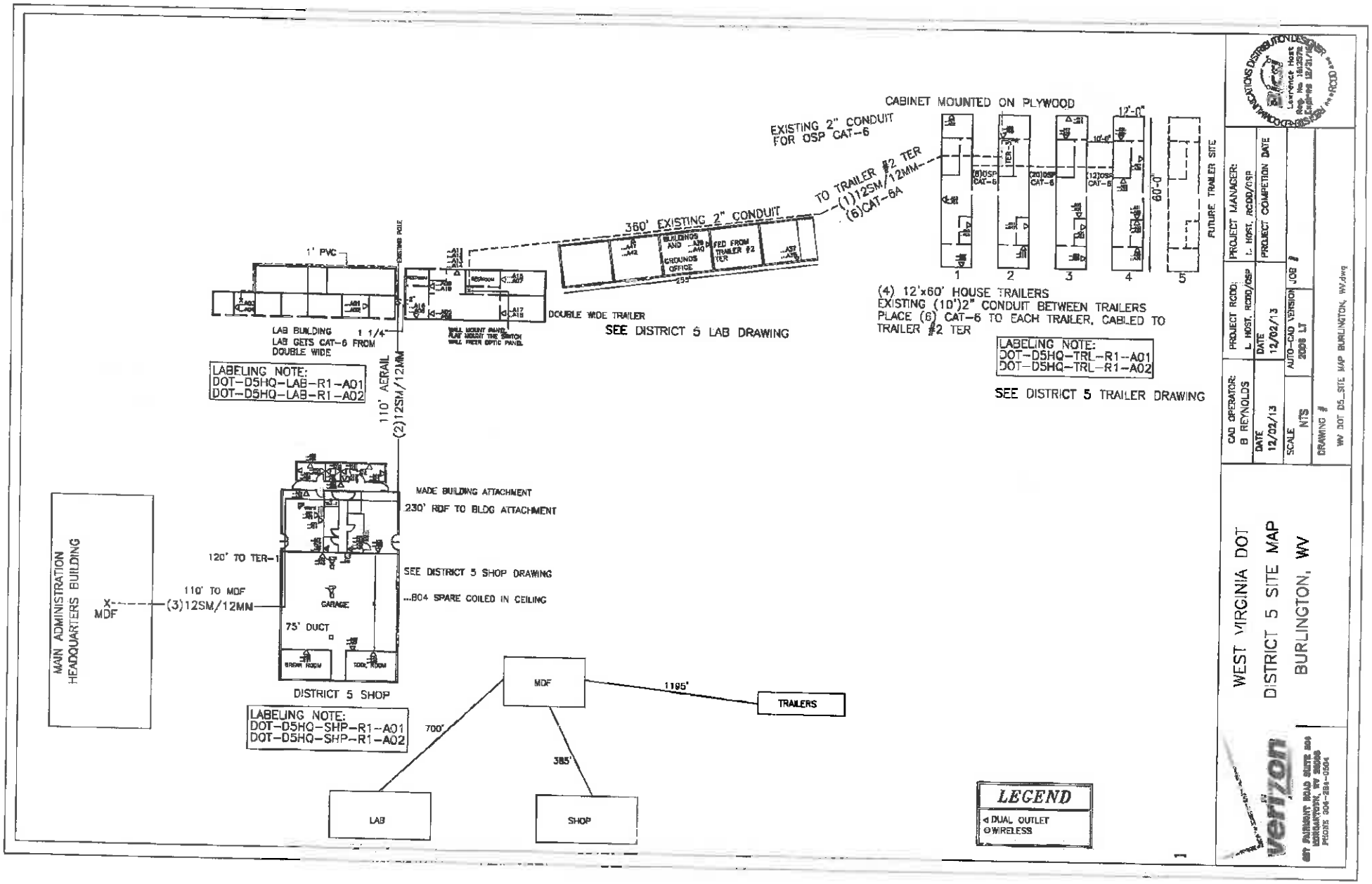
LEGEND
(2) CAT-6
(4) CAT-6
WIRELESS ACCESS POINT

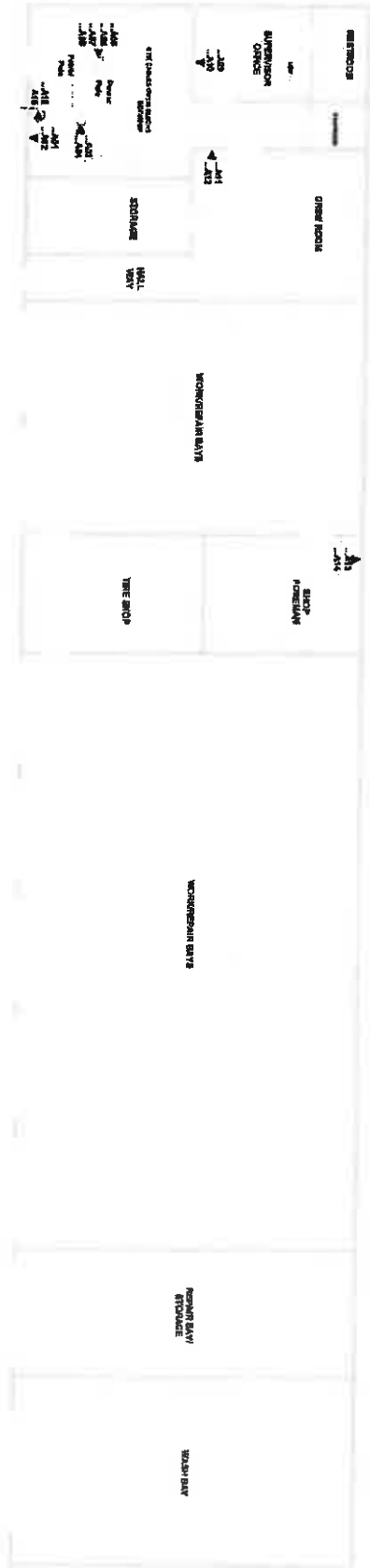
verizon
527 FAIRMONT ROAD SUITE 204
MORGANTOWN, WV 26505
PHONE 304-284-0504

WEST VIRGINIA DOT
DISTRICT 6
ADMINISTRATION BUILDING
1 DOT DRIVE
MOUNDSVILLE, WV
FIRST FLOOR

CAD OPERATOR: B REYNOLDS	PROJECT RCDD: L. HOST, RCDD/OSP	PROJECT MANAGER: L. HOST, RCDD/OSP	
DATE 06/18/13	DATE 06/18/13	PROJECT COMPLETION DATE	
SCALE NTS	AUTO-CAD VERSION -2006 LT	JOB #	
DRAWING # WV DOT D6_HQ ADMINISTRATION BUILDING 1ST FLOOR.dwg			

RCDD
OSP SPECIALIST
EXPIRES 12/31/13
SIGNATURE


CABINET MOUNTED ON PLYWOOD
EXISTING 2" CONDUIT FOR OSP CAT-6
TO TRAILER #2 TER
(1)12SM/12MM
(6)CAT-6A
360' EXISTING 2" CONDUIT
BUILDINGS AND GROUNDS OFFICE
FED FROM TRAILER #2 TER
255'
DOUBLE WIDE TRAILER
SEE DISTRICT 5 LAB DRAWING
1' PVC
EXISTING POLE
LAB BUILDING
LAB GETS CAT-6 FROM DOUBLE WIDE
1 1/4"
LABELING NOTE:
DOT-D5HQ-LAB-R1-A01
DOT-D5HQ-LAB-R1-A02
110' AERIAL
(2)12SM/12MM
(4) 12'x60' HOUSE TRAILERS
EXISTING (10')2" CONDUIT BETWEEN TRAILERS
PLACE (6) CAT-6 TO EACH TRAILER, CABLED TO TRAILER #2 TER
LABELING NOTE:
DOT-D5HQ-TRL-R1-A01
DOT-D5HQ-TRL-R1-A02
SEE DISTRICT 5 TRAILER DRAWING
12'-0"
60'-0"
10'-0"
(8)OSP CAT-6
(20)OSP CAT-6
(12)OSP CAT-6
TER
1
2
3
4
5
FUTURE TRAILER SITE
MAIN ADMINISTRATION HEADQUARTERS BUILDING
X-MDF
(3)12SM/12MM
110' TO MDF
120' TO TER-1
MADE BUILDING ATTACHMENT
230' RDF TO BLDG ATTACHMENT
SEE DISTRICT 5 SHOP DRAWING
...804 SPARE COILED IN CEILING
GARAGE
75' DUCT
BREAK ROOM
TOOL ROOM
DISTRICT 5 SHOP
LABELING NOTE:
DOT-D5HQ-SHP-R1-A01
DOT-D5HQ-SHP-R1-A02
MDF
1195'
TRAILERS
700'
385'
LAB
SHOP
LEGEND
DUAL OUTLET
WIRELESS
CAD OPERATOR: B REYNOLDS
DATE 12/02/13
SCALE NTS
PROJECT RCDD: L. HOST, RCDD/OSP
DATE 12/02/13
AUTO-CAD VERSION 2008 LT
JOB #
PROJECT MANAGER: L. HOST, RCDD/OSP
PROJECT COMPETION DATE
DRAWING # WV DOT D5_SITE MAP BURLINGTON, WV.dwg
WEST VIRGINIA DOT
DISTRICT 5 SITE MAP
BURLINGTON, WV
verizon
1



LAYERING NOTE
DOT-D4-SUB-TH-J001
DOT-D4-SUB-TH-J002

verizon 847 FAIRMONT ROAD SUITE 204 MORGANTOWN, WV 26505 PHONE 304-984-0504	WEST VIRGINIA DOT DISTRICT 4 TUNNEL HILL SUBSTATION OFFICE AND SHOP	CAD OPERATOR: M. DRAGO	PROJECT RCDD: L. HOST, RCDD/OSP	PROJECT MANAGER: L. HOST, RCDD/OSP
		DATE 11/18/14	DATE 11/18/14	PROJECT COMPLETION DATE
		SCALE NTS	AUTO-CAD VERSION 2006 LT	JOB #
		DRAWING # WV DOT D_4 DOH TUNNEL HILL SUBSTATION.dwg		AS BUILT

BICSI Lawrence Host Reg. No. 181357R, Expires 12/31/16 RCDD

Examples as Built

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-01
Date / Time: 07/03/2012 04:57:55 PM
Headroom: 6.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

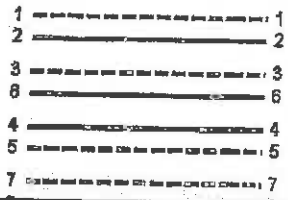
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
N/P: 69.0%

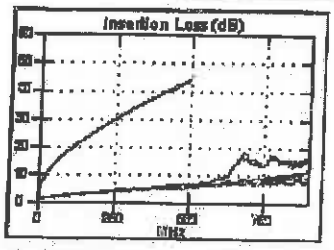
Test Summary: PASS
Model: DTX-1800
Main S/N: 9469889
Remote S/N: 9469918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	38
Prop. Delay (ns), Limit 498	[Pair 36]	59
Delay Skew (ns), Limit 44	[Pair 36]	3
Resistance (ohms)	[Pair 12]	1.7
Insertion Loss Margin (dB)	[Pair 36]	36.7
Frequency (MHz)	[Pair 36]	488.0
Limit (dB)	[Pair 36]	43.1

38 ft

Wire Map (T568B)
PASS



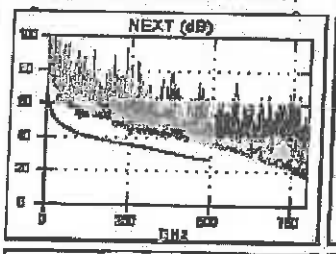


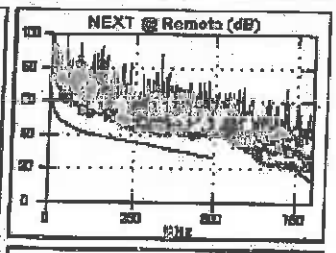
PASS	Worst Case Margin MAIN	Worst Case Margin SR	Worst Case Value MAIN	Worst Case Value SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	7.2	6.1	8.9	10.2
Freq. (MHz)	258.0	258.0	484.0	487.0
Limit (dB)	35.1	35.1	27.1	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	7.4	7.0	9.4	10.6
Freq. (MHz)	283.0	258.0	493.0	486.0
Limit (dB)	31.8	32.5	24.0	24.2

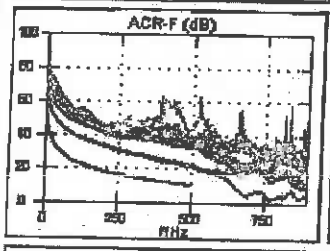
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	10.6	11.0	10.7	11.1
Freq. (MHz)	484.0	491.0	493.0	500.0
Limit (dB)	10.5	10.4	10.3	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	13.2	13.5	13.2	13.6
Freq. (MHz)	485.0	484.0	485.0	493.0
Limit (dB)	7.5	7.5	7.5	7.3

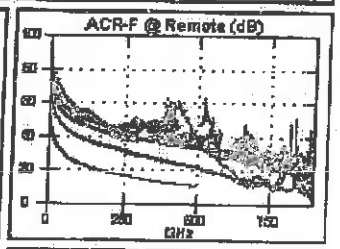
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	19.0	19.7	45.5	47.5
Freq. (MHz)	33.0	33.0	484.0	486.0
Limit (dB)	39.5	39.5	-15.8	-16.0
Worst Pair	78	36	36	36
PS ACR-N (dB)	20.5	20.9	46.5	47.2
Freq. (MHz)	7.8	33.8	493.0	486.0
Limit (dB)	52.4	36.8	-19.4	-18.8

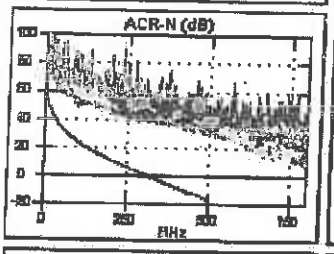
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	78
RL (dB)	3.9	2.6	3.9	2.6
Freq. (MHz)	484.0	484.0	484.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

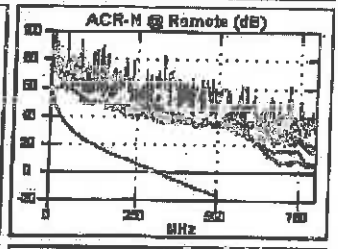


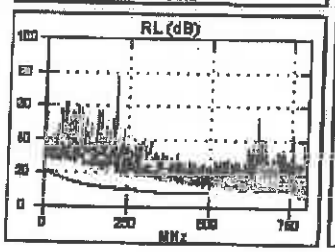


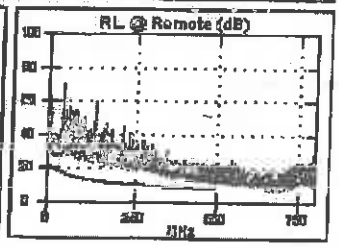












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-02

Date / Time: 07/03/2012 04:59:16 PM
Headroom: 5.9 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

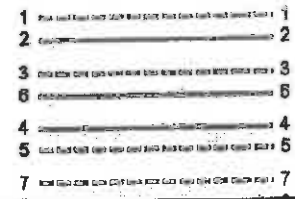
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

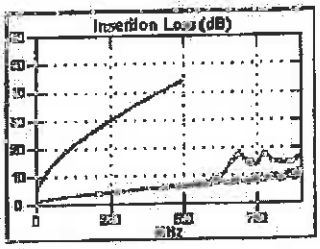
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

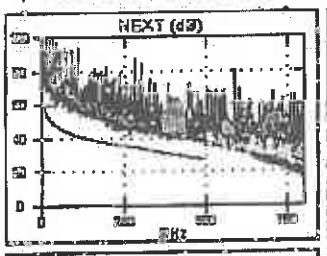
Length (ft), Limit 295	[Pair 12]	38
Prop. Delay (ns), Limit 498	[Pair 36]	59
Delay Skew (ns), Limit 44	[Pair 36]	3
Resistance (ohms)	[Pair 36]	1.7
Insertion Loss Margin (dB)	[Pair 36]	37.3
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

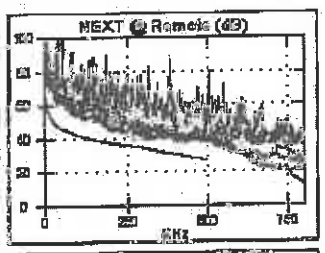
Wire Map (T568B)
PASS

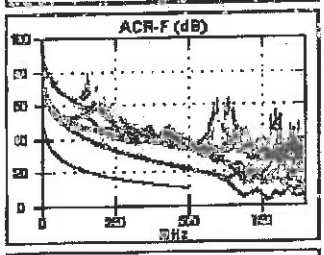


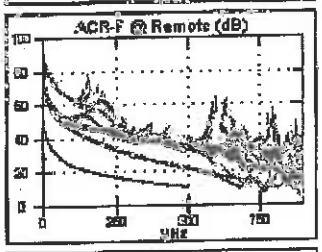


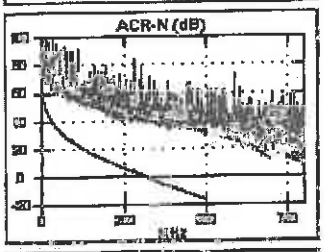
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-45
NEXT (dB)	7.7	5.9	8.3	8.6
Freq. (MHz)	273.0	322.0	498.0	440.0
Limit (dB)	34.7	33.0	26.7	28.5
Worst Pair	36	36	36	36
PS NEXT (dB)	7.9	7.3	8.6	11.0
Freq. (MHz)	272.0	238.0	498.0	500.0
Limit (dB)	32.1	33.1	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	10.9	10.9	10.9	11.0
Freq. (MHz)	497.0	489.0	498.0	498.0
Limit (dB)	10.3	10.4	10.2	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	13.5	13.7	13.5	13.7
Freq. (MHz)	497.0	497.0	499.0	498.0
Limit (dB)	7.3	7.3	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.6	17.3	45.5	43.7
Freq. (MHz)	7.9	7.8	498.0	440.0
Limit (dB)	54.6	54.7	-16.9	-12.1
Worst Pair	78	78	36	36
PS ACR-N (dB)	19.1	18.6	45.8	48.5
Freq. (MHz)	8.4	7.1	498.0	500.0
Limit (dB)	51.7	53.2	-19.8	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	78
RL (dB)	4.9	3.8	4.9	3.8
Freq. (MHz)	480.0	480.0	480.0	480.0
Limit (dB)	8.0	8.0	8.0	8.0

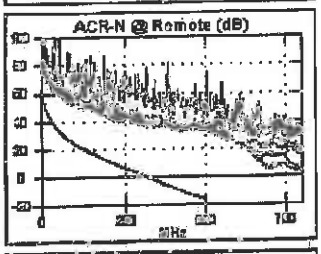


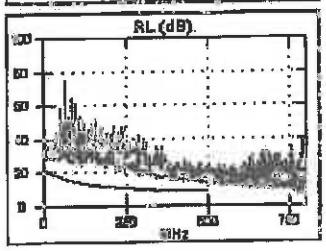


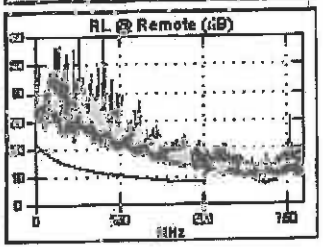












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-03

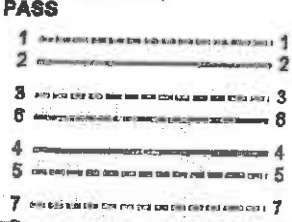
Date / Time: 07/03/2012 05:05:42 PM
Headroom 6.8 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

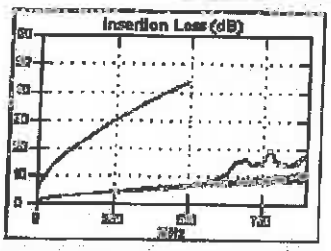
Operator: TYLER
Software Version: 2.3200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9460009
Remote S/N: 9460018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

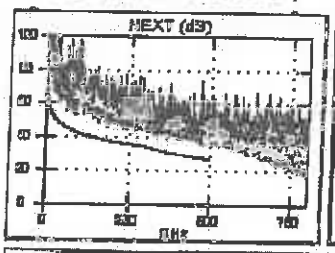
Length (ft), Limit 295	[Pair 12]	40
Prop. Delay (ns), Limit 498	[Pair 36]	62
Delay Skew (ns), Limit 44	[Pair 36]	3
Resistance (ohms)	[Pair 36]	1.7
Insertion Loss Margin (dB)	[Pair 36]	37.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

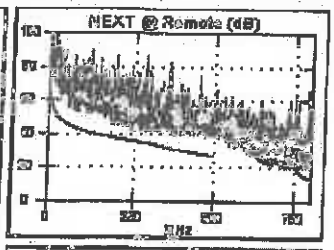
Wire Map (T568B)
PASS

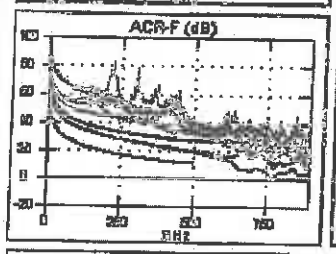


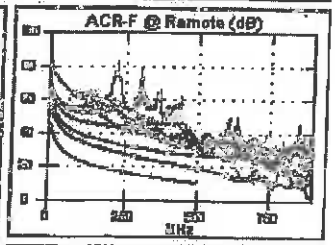


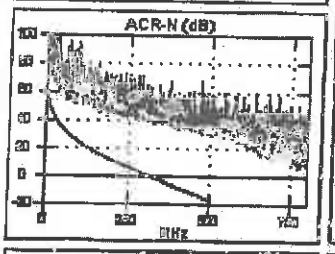
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-78
NEXT (dB)	7.9	6.8	8.4	10.3
Freq. (MHz)	186.5	292.0	485.0	472.0
Limit (dB)	37.4	34.2	27.1	27.5
Worst Pair	36	36	36	45
PS NEXT (dB)	8.2	8.1	8.2	12.7
Freq. (MHz)	476.0	228.5	476.0	484.0
Limit (dB)	24.5	33.4	24.5	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	8.6	8.1	8.6	8.1
Freq. (MHz)	499.0	491.0	499.0	500.0
Limit (dB)	10.2	10.4	10.2	10.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	11.4	11.4	11.4	11.4
Freq. (MHz)	499.0	493.0	499.0	499.0
Limit (dB)	7.2	7.3	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-78	12-36	36-78
ACR-N (dB)	22.2	21.7	44.9	46.8
Freq. (MHz)	3.6	6.8	485.0	472.0
Limit (dB)	61.4	56.0	-15.9	-14.8
Worst Pair	45	78	36	36
PS ACR-N (dB)	22.5	22.9	44.3	50.3
Freq. (MHz)	4.6	7.1	476.0	499.0
Limit (dB)	57.0	53.2	-18.0	-19.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	4.1	3.0	4.1	3.0
Freq. (MHz)	498.0	500.0	498.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

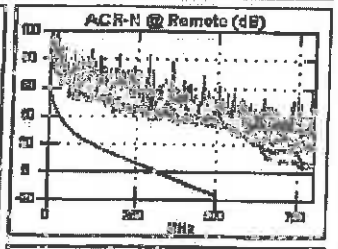


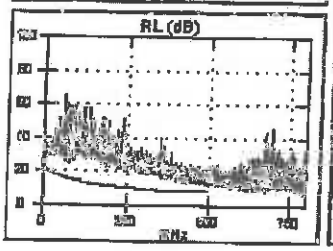


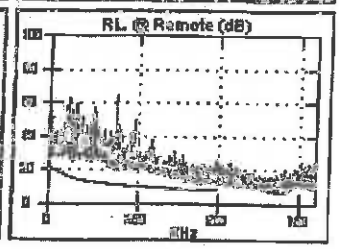












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-04

Date / Time 07/03/2012 05:08:02 PM
Headroom 6.5 dB (NEXT 36-78)
Test Limit: TIA Cat 5A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator: TYLER
Software Version 2.6200
Limits Version 1.7000
NVP 69.9%

Test Summary: PASS

Model: DTX-1800
Main S/N: 0469009
Remote S/N: 0469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	40
Prop. Delay (ns), Limit 498	[Pair 45]	62
Delay Skew (ns), Limit 44	[Pair 45]	3
Resistance (ohms)	[Pair 36]	1.7
Insertion Loss Margin (dB)	[Pair 36]	37.1
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

40 ft

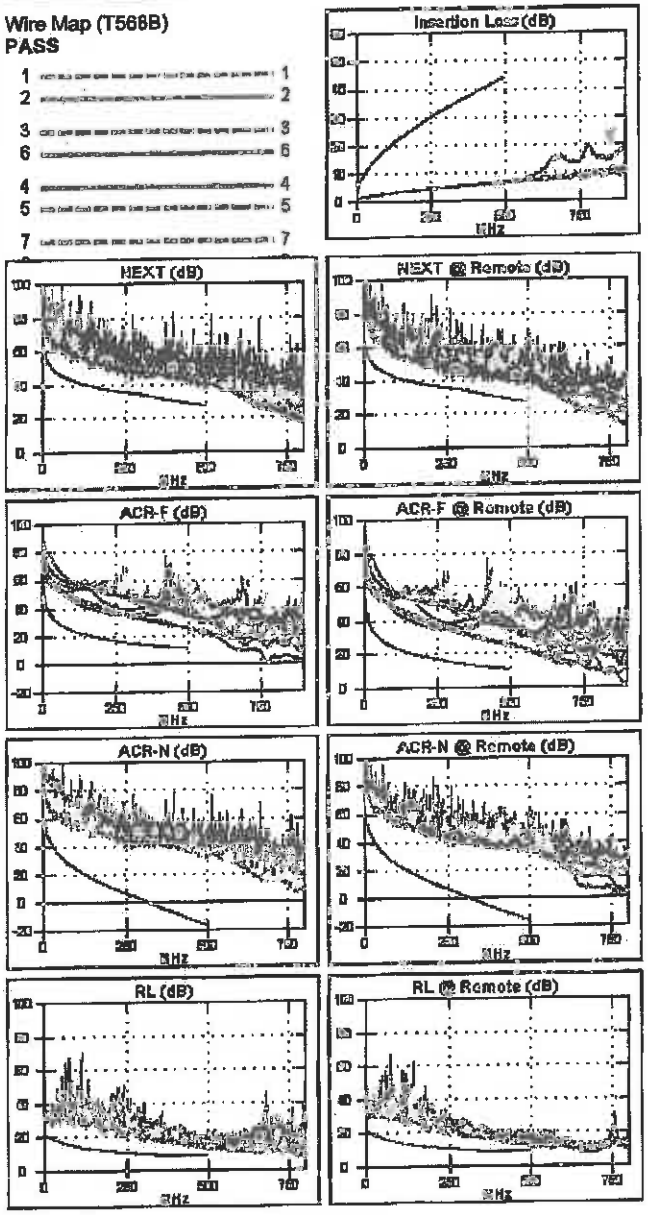
Wire Map (T568B)
PASS

1 2 3 6 4 5 7

	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	7.3	6.5	11.1	9.7
Freq. (MHz)	271.0	272.0	498.0	468.0
Limit (dB)	34.8	34.7	26.7	27.6
Worst Pair	36	36	36	36
PS NEXT (dB)	8.4	7.8	11.3	11.4
Freq. (MHz)	271.0	294.0	479.0	494.0
Limit (dB)	32.1	31.5	24.4	23.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	14.1	13.5	14.1	13.5
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	10.3	10.3	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	16.5	16.8	16.5	16.8
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	7.3	7.3	7.3	7.3
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	19.2	20.2	48.1	46.2
Freq. (MHz)	3.5	5.8	498.0	468.0
Limit (dB)	61.7	57.4	-16.9	-14.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	20.1	20.9	49.0	48.3
Freq. (MHz)	7.0	5.8	497.0	494.0
Limit (dB)	53.3	55.1	-19.7	-19.5
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.1	3.1	4.1	3.1
Freq. (MHz)	494.0	494.0	494.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive



LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-17
Date/ Time: 07/03/2012 12:32:20 AM
Headroom 7.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

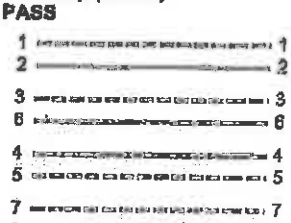
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.9%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

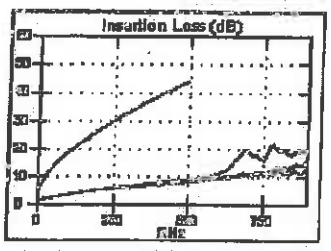
Length (ft), Limit 295	[Pair 12]	56
Prop. Delay (ns), Limit 498	[Pair 36]	86
Delay Skew (ns), Limit 44	[Pair 36]	4
Resistance (ohms)		N/A
Insertion Loss Margin (dB)	[Pair 36]	35.1
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

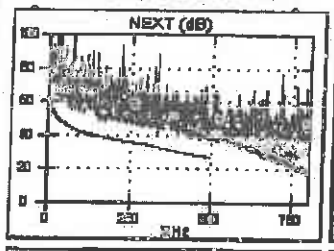
56 ft

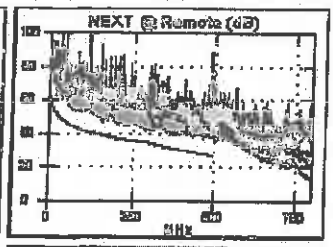
Wire Map (T568B)
PASS

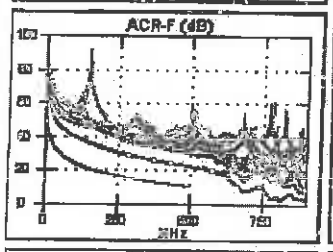


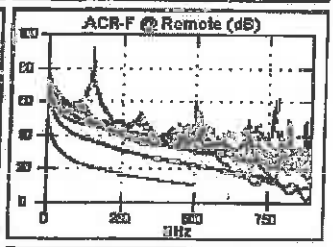
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	36-78	36-78
NEXT (dB)	9.2	7.2	10.5	9.3
Freq. (MHz)	159.5	293.0	497.0	467.0
Limit (dB)	38.5	34.2	26.7	27.6
Worst Pair	36	36	36	36
PS NEXT (dB)	10.2	8.3	10.4	10.6
Freq. (MHz)	159.5	159.0	496.0	467.0
Limit (dB)	36.0	36.0	23.9	24.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	11.6	11.5	11.6	11.5
Freq. (MHz)	496.0	495.0	496.0	495.0
Limit (dB)	10.3	10.3	10.3	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	14.3	14.5	14.4	14.5
Freq. (MHz)	486.0	483.0	495.0	495.0
Limit (dB)	7.5	7.5	7.3	7.3
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	18.2	15.6	46.0	43.7
Freq. (MHz)	22.8	3.8	495.0	467.0
Limit (dB)	43.8	61.1	-16.7	-14.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.4	16.6	45.5	45.7
Freq. (MHz)	11.1	3.9	496.0	486.0
Limit (dB)	48.9	58.5	-19.7	-18.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.7	4.9	4.7	4.9
Freq. (MHz)	484.0	496.0	484.0	496.0
Limit (dB)	8.0	8.0	8.0	8.0

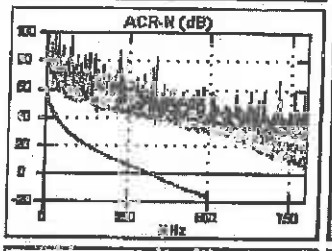


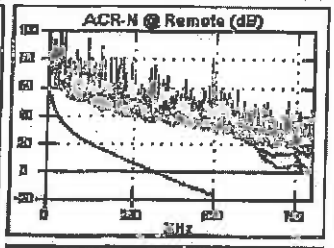


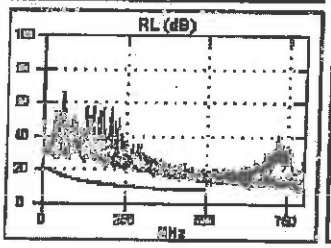


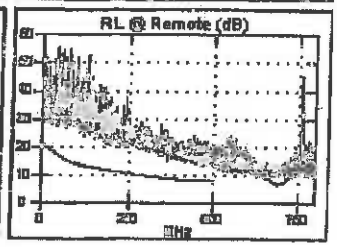












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-18

Date / Time: 07/03/2012 12:40:49 AM
Headroom: 7.8 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

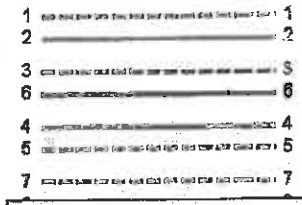
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

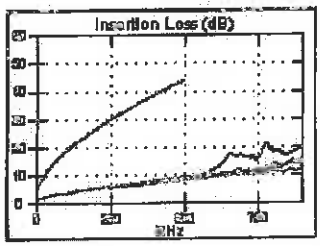
Length (ft), Limit 295	[Pair 12]	56
Prop. Delay (ns), Limit 498	[Pair 36]	86
Delay Skew (ns), Limit 44	[Pair 36]	4
Resistance (ohms)		N/A
Insertion Loss Margin (dB)	[Pair 36]	35.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

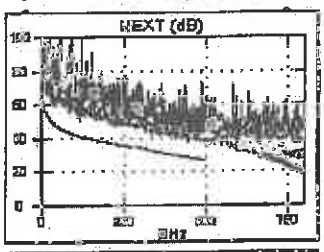
56 ft

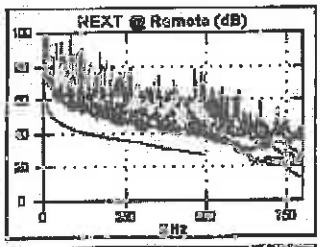
Wire Map (T568B)
PASS

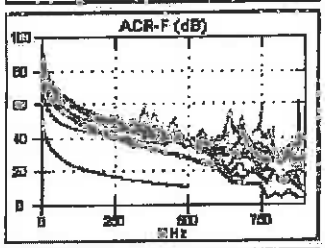


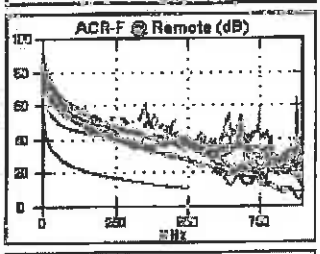
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	36-78	36-45
NEXT (dB)	9.0	7.8	9.3	10.1
Freq. (MHz)	337.0	304.0	448.0	480.0
Limit (dB)	32.3	33.8	28.2	27.2
Worst Pair	36	36	36	36
PS NEXT (dB)	9.2	8.4	11.1	11.9
Freq. (MHz)	337.0	316.0	494.0	489.0
Limit (dB)	29.7	30.6	23.9	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	16.6	16.7	16.6	16.7
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	19.2	19.0	19.2	19.0
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	7.2	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.6	15.9	45.9	46.1
Freq. (MHz)	11.3	3.6	493.0	498.0
Limit (dB)	51.2	61.4	-16.5	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.1	16.5	45.9	46.5
Freq. (MHz)	4.0	3.9	494.0	489.0
Limit (dB)	58.3	58.5	-19.5	-19.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	4.4	4.4	4.4	4.4
Freq. (MHz)	488.0	494.0	488.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

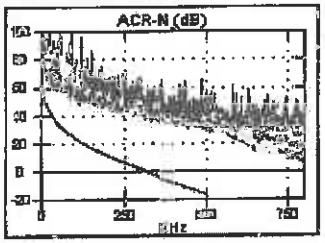


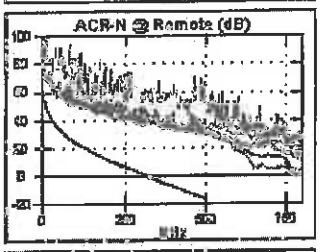


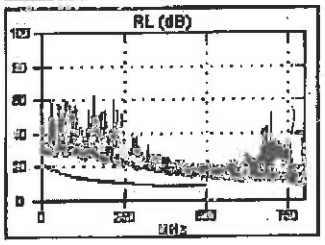


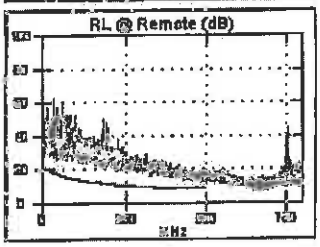












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

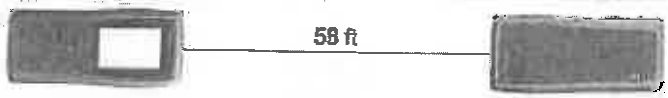
LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-19
Date / Time: 07/03/2012 11:59:54 AM
Headroom: 7.0 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

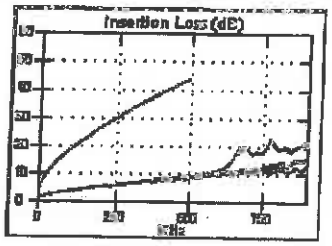
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7900
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469008
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

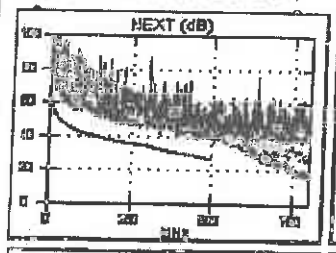
Length (ft), Limit 295	[Pair 12]	58
Prop. Delay (ns), Limit 498	[Pair 45]	90
Delay Skew (ns), Limit 44	[Pair 45]	5
Resistance (ohms)	[Pair 36]	2.5
Insertion Loss Margin (dB)	[Pair 36]	34.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

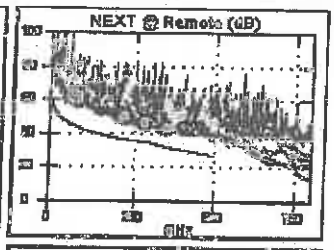


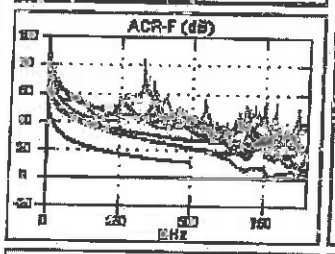
Wire Map (T568B)
PASS

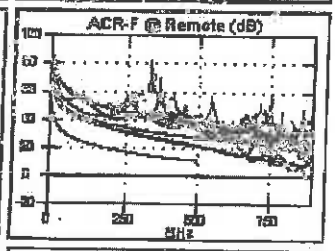


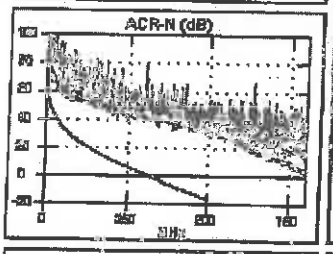
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	6.4	7.0	10.1	9.6
Freq. (MHz)	344.0	353.0	459.0	486.0
Limit (dB)	32.0	31.7	27.9	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	9.9	8.7	11.9	10.5
Freq. (MHz)	344.0	346.0	492.0	491.0
Limit (dB)	29.4	29.3	24.0	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	10.3	9.8	10.3	9.8
Freq. (MHz)	498.0	492.0	498.0	498.0
Limit (dB)	10.2	10.4	10.2	10.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	13.2	13.1	13.2	13.1
Freq. (MHz)	498.0	498.0	498.0	498.0
Limit (dB)	7.2	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.3	18.7	46.4	44.3
Freq. (MHz)	16.6	16.3	491.0	486.0
Limit (dB)	47.2	47.5	-16.4	-16.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.3	19.2	46.2	44.9
Freq. (MHz)	16.4	3.9	492.0	491.0
Limit (dB)	45.0	58.5	-19.3	-19.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.1	4.7	5.1	4.7
Freq. (MHz)	486.0	492.0	486.0	492.0
Limit (dB)	8.0	8.0	8.0	8.0

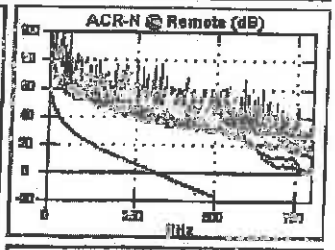


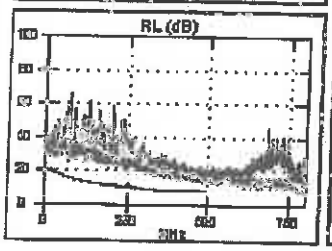


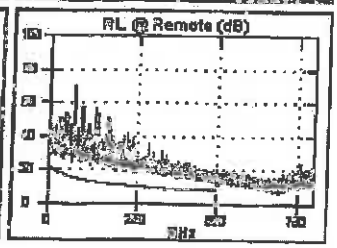












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-20

Date / Time 07/03/2012 12:01:40 PM
Headroom 6.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

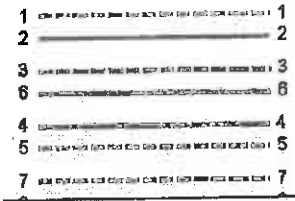
Test Summary: PASS

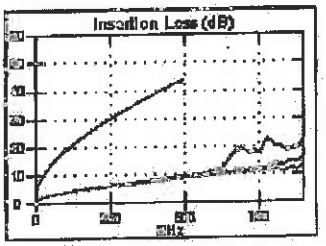
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	58
Prop. Delay (ns), Limit 498	[Pair 36]	90
Delay Skew (ns), Limit 44	[Pair 36]	4
Resistance (ohms)	[Pair 36]	2.5
Insertion Loss Margin (dB)	[Pair 36]	34.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

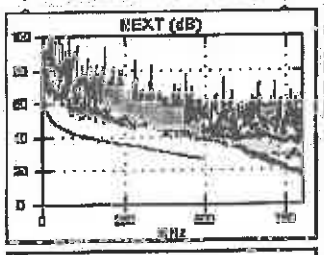
58 ft

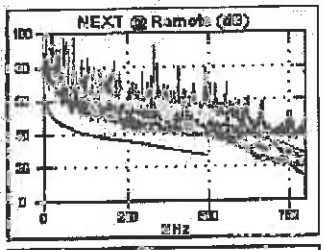
Wire Map (T568B)
PASS

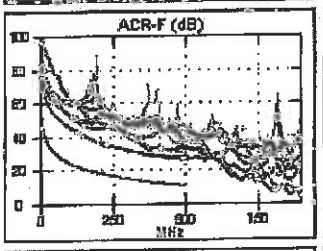


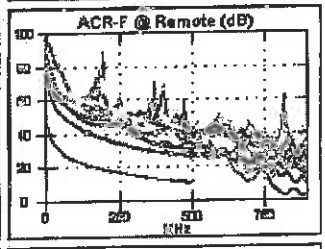


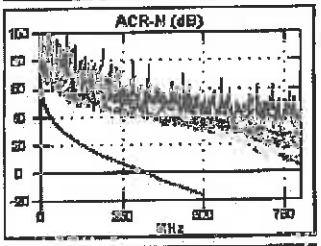
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	9.3	6.7	10.3	10.8
Freq. (MHz)	113.0	284.0	496.0	498.0
Limit (dB)	41.0	34.4	26.8	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.6	7.8	11.5	10.0
Freq. (MHz)	379.0	284.0	489.0	424.0
Limit (dB)	27.9	31.8	24.1	26.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.5	14.9	15.5	14.9
Freq. (MHz)	486.0	492.0	498.0	498.0
Limit (dB)	10.5	10.4	10.2	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	17.0	17.1	17.9	17.3
Freq. (MHz)	377.0	486.0	498.0	498.0
Limit (dB)	9.7	7.5	7.2	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	15.8	17.3	45.1	46.1
Freq. (MHz)	6.4	5.5	496.0	498.0
Limit (dB)	56.5	57.8	-16.8	-16.9
Worst Pair	78	36	36	36
PS ACR-N (dB)	17.3	18.6	45.9	47.1
Freq. (MHz)	6.6	5.1	489.0	498.0
Limit (dB)	53.8	56.1	-19.1	-19.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	5.5	5.4	5.5	5.4
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	8.0	8.0	8.0	8.0

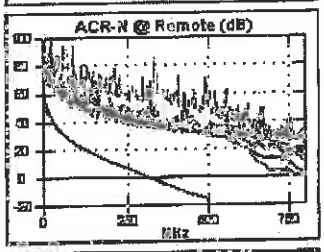


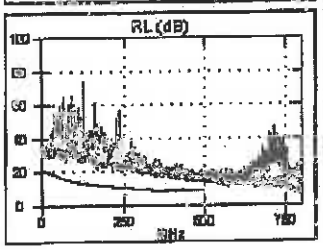


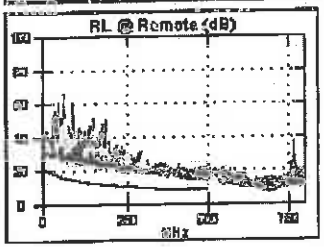












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-21

Date / Time: 07/09/2012 12:02:34 PM
Headroom 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/10/2007

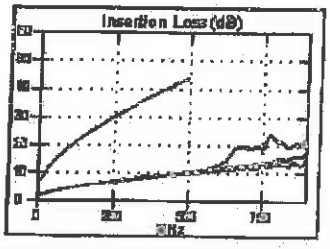
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	67
Prop. Delay (ns), Limit 498	[Pair 45]	104
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	2.9
Insertion Loss Margin (dB)	[Pair 36]	33.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

Wire Map (T568B)
PASS

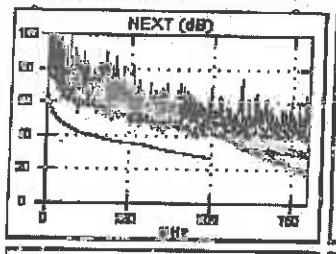


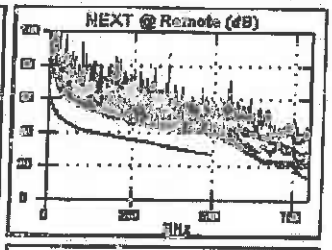
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.9	8.2	10.2	10.8
Freq. (MHz)	357.0	316.0	456.0	491.0
Limit (dB)	31.5	33.3	28.0	26.9
Worst Pair	36	36	36	45
PS NEXT (dB)	11.1	8.9	11.6	11.9
Freq. (MHz)	283.0	275.0	457.0	486.0
Limit (dB)	31.8	32.0	25.1	24.2

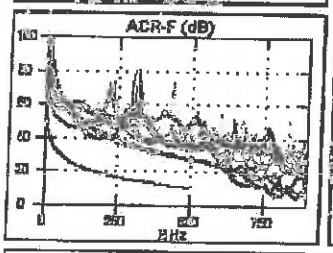
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.0	15.7	16.0	15.7
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	10.3	10.3	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	17.9	18.2	17.9	18.2
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	7.3	7.3	7.3	7.3

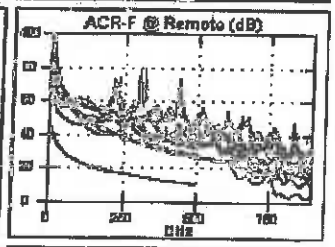
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	19.6	18.7	42.9	44.6
Freq. (MHz)	9.9	3.6	456.0	491.0
Limit (dB)	52.4	61.4	-13.5	-16.4
Worst Pair	36	36	36	45
PS ACR-N (dB)	18.6	17.6	46.2	45.5
Freq. (MHz)	4.1	3.9	493.0	486.0
Limit (dB)	58.0	58.5	-19.4	-18.8

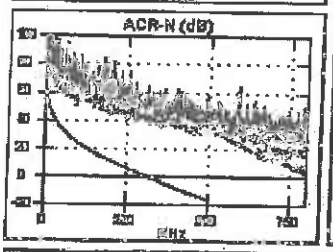
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	5.3	4.4	5.3	4.4
Freq. (MHz)	500.0	493.0	500.0	493.0
Limit (dB)	8.0	8.0	8.0	8.0

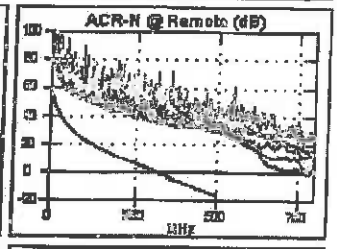


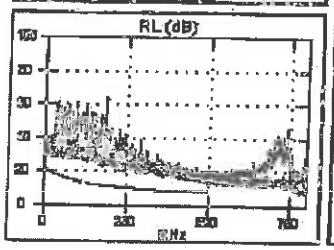


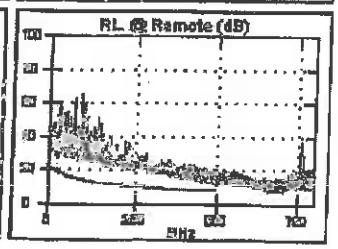












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-22

Date / Time 07/03/2012 12:03:59 PM
Headroom 7.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

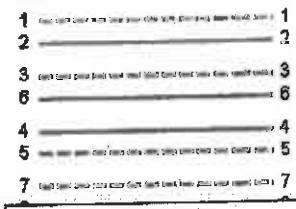
Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

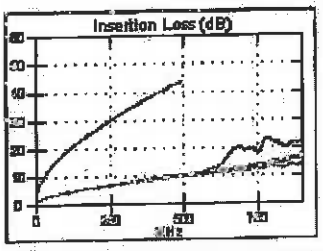
Length (ft), Limit 295	[Pair 12]	67
Prop. Delay (ns), Limit 498	[Pair 45]	104
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	2.9
Insertion Loss Margin (dB)	[Pair 36]	33.6
Frequency (MHz)	[Pair 36]	497.0
Limit (dB)	[Pair 36]	43.6

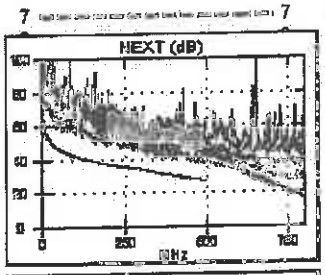
67 ft

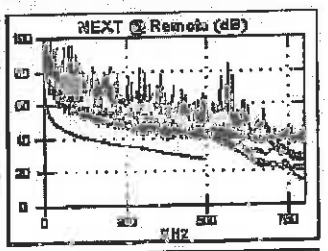
Wire Map (T568B)
PASS

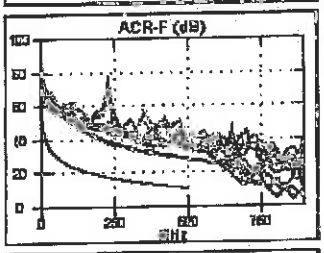


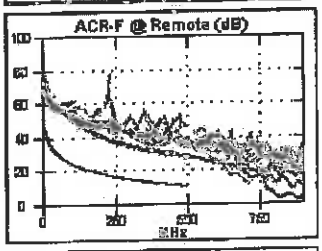
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	9.2	7.5	9.8	11.5
Freq. (MHz)	346.0	305.0	491.0	485.0
Limit (dB)	31.9	33.8	26.9	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	10.0	8.8	10.9	12.7
Freq. (MHz)	322.0	274.0	492.0	493.0
Limit (dB)	30.3	32.0	24.0	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	17.1	16.8	17.1	16.8
Freq. (MHz)	490.0	490.0	495.0	495.0
Limit (dB)	10.4	10.4	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	18.8	19.3	18.8	19.7
Freq. (MHz)	495.0	433.0	495.0	500.0
Limit (dB)	7.3	8.5	7.3	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
ACR-N (dB)	18.5	18.9	43.6	45.0
Freq. (MHz)	3.3	16.5	497.0	485.0
Limit (dB)	61.8	47.3	-16.9	-15.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.7	19.2	44.3	46.2
Freq. (MHz)	3.9	3.9	492.0	493.0
Limit (dB)	58.5	58.5	-19.3	-19.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.0	4.5	5.0	4.5
Freq. (MHz)	494.0	494.0	494.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

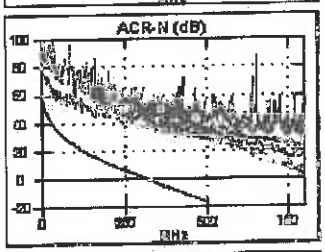


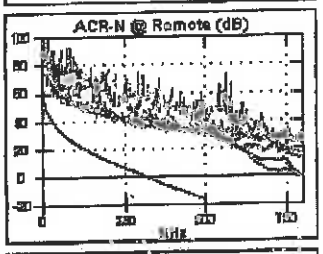


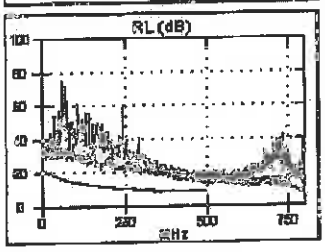


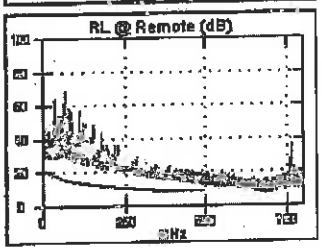












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-23

Date / Time: 07/03/2012 12:06:01 PM
Headroom: 7.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	114
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	33.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

73 ft

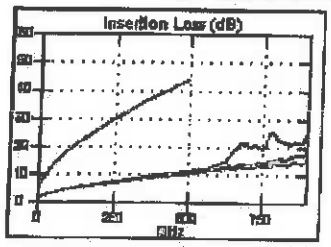
Wire Map (T568B)
PASS

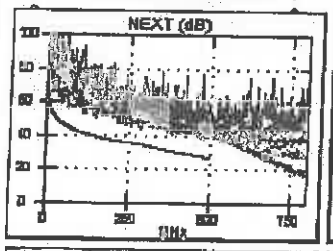
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.1	7.9	11.0	11.8
Freq. (MHz)	292.0	292.0	472.0	489.0
Limit (dB)	34.2	34.2	27.5	27.0
Worst Pair	36	36	36	45
PS NEXT (dB)	10.2	8.3	11.1	13.1
Freq. (MHz)	385.0	292.0	472.0	489.0
Limit (dB)	27.7	31.6	24.6	24.1

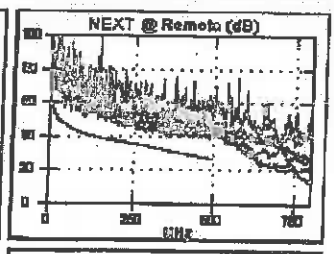
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.0	14.6	15.0	14.6
Freq. (MHz)	474.0	484.0	484.0	484.0
Limit (dB)	10.7	10.5	10.5	10.5
Worst Pair	36	36	36	36
PS ACR-F (dB)	17.0	16.7	17.1	16.7
Freq. (MHz)	480.0	484.0	496.0	484.0
Limit (dB)	7.6	7.5	7.3	7.5

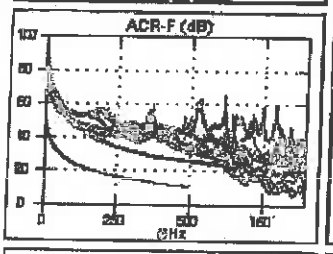
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.6	19.3	42.6	44.7
Freq. (MHz)	17.9	17.4	461.0	489.0
Limit (dB)	46.5	46.8	-13.9	-16.2
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.3	19.3	43.0	45.9
Freq. (MHz)	17.9	17.4	472.0	488.0
Limit (dB)	44.1	44.4	-17.7	-19.0

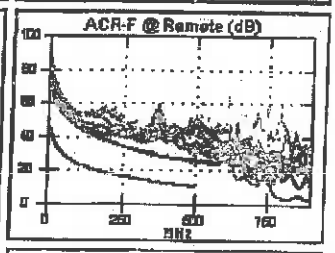
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.8	4.3	4.8	4.3
Freq. (MHz)	487.0	500.0	487.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

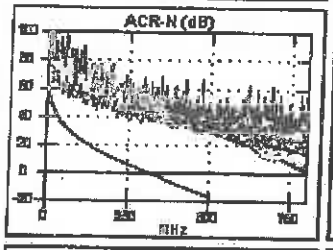


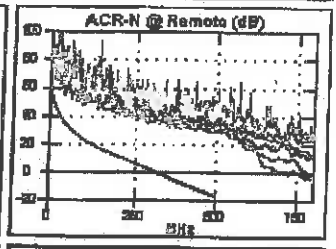


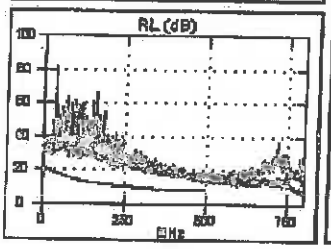


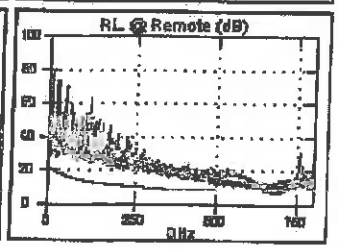












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-HTB-R1-A-24

Test Summary: PASS

Date / Time 07/03/2012 12:05:52 PM
Headroom 8.8 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

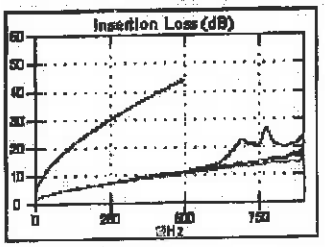
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

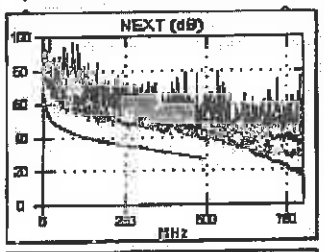
Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	115
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	33.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

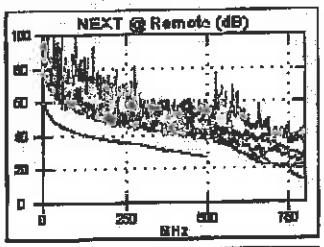
73 ft

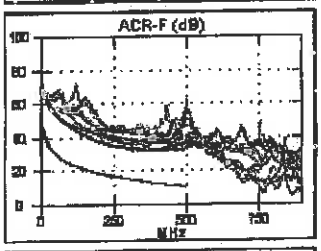
Wire Map (T568B)
PASS

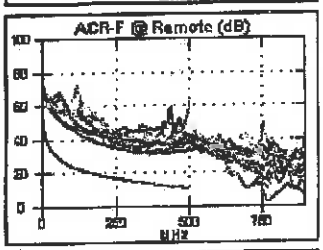
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-45
NEXT (dB)	10.3	8.8	10.7	10.2
Freq. (MHz)	170.0	279.0	496.0	498.0
Limit (dB)	38.1	34.6	26.8	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	10.3	9.1	12.3	10.0
Freq. (MHz)	265.0	216.0	496.0	483.0
Limit (dB)	32.3	33.8	23.9	24.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	17.8	17.7	18.3	18.1
Freq. (MHz)	307.0	307.0	369.0	369.0
Limit (dB)	14.4	14.4	12.8	12.8
Worst Pair	36	36	45	36
PS ACR-F (dB)	19.2	18.9	20.9	19.8
Freq. (MHz)	299.0	293.0	431.0	364.0
Limit (dB)	11.7	11.9	8.5	10.0
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.0	17.0	43.5	43.4
Freq. (MHz)	4.6	3.8	496.0	498.0
Limit (dB)	59.3	61.1	-16.8	-16.9
Worst Pair	45	36	36	36
PS ACR-N (dB)	18.4	17.5	45.1	42.3
Freq. (MHz)	3.8	3.8	496.0	483.0
Limit (dB)	58.6	58.6	-19.7	-18.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.4	4.2	5.4	4.2
Freq. (MHz)	500.0	489.0	500.0	489.0
Limit (dB)	8.0	8.0	8.0	8.0

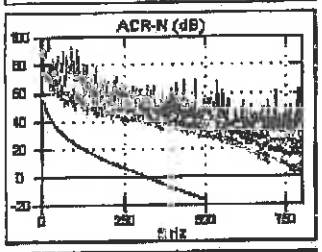


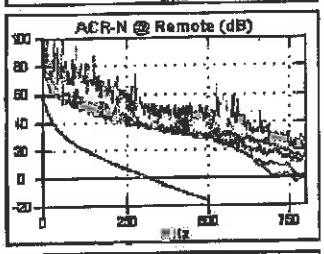


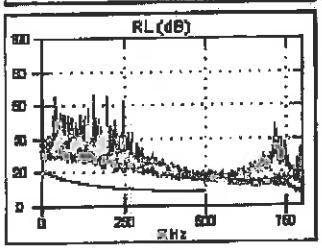


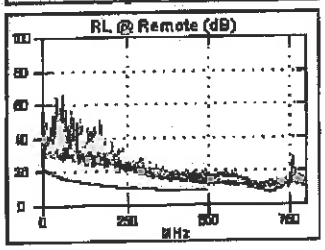












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-25

Date / Time: 07/02/2012 12:37:06 PM
Headroom 8.9 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7900
NVP: 69.0%

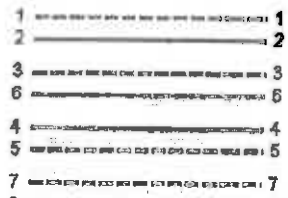
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

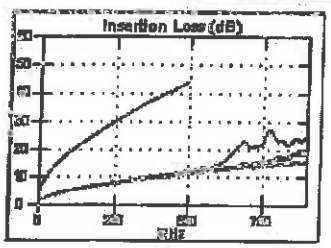
Length (ft), Limit 295	[Pair 12]	80
Prop. Delay (ns), Limit 498	[Pair 45]	125
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 12]	3.5
Insertion Loss Margin (dB)	[Pair 36]	32.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

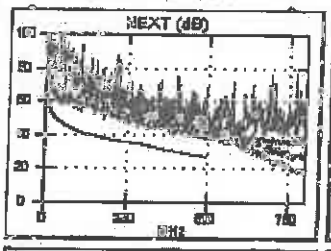
80 ft

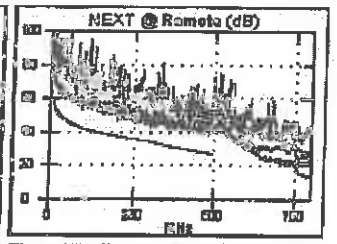
Wire Map (T568B)
PASS

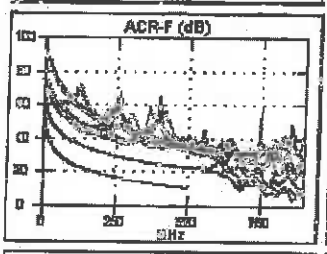


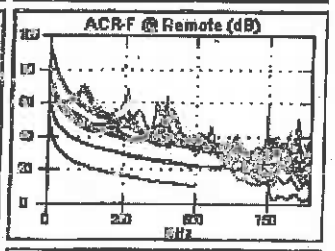
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-78
NEXT (dB)	9.6	8.9	10.9	10.3
Freq. (MHz)	286.0	307.0	495.0	483.0
Limit (dB)	34.4	33.7	26.8	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	9.9	8.9	11.6	10.8
Freq. (MHz)	286.0	315.0	498.0	483.0
Limit (dB)	31.7	30.7	23.8	24.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	11.7	11.4	11.8	11.4
Freq. (MHz)	484.0	484.0	498.0	484.0
Limit (dB)	10.5	10.5	10.2	10.5
Worst Pair	36	36	36	45
PS ACR-F (dB)	14.3	14.3	14.3	14.4
Freq. (MHz)	484.0	484.0	500.0	498.0
Limit (dB)	7.5	7.5	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	14.5	15.1	42.7	42.2
Freq. (MHz)	4.1	3.8	496.0	483.0
Limit (dB)	60.3	61.1	-16.7	-15.7
Worst Pair	36	78	36	36
PS ACR-N (dB)	16.2	16.5	43.5	42.2
Freq. (MHz)	3.9	3.8	498.0	483.0
Limit (dB)	58.5	58.6	-19.8	-18.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	78
RL (dB)	5.6	4.1	5.6	4.1
Freq. (MHz)	498.0	498.0	498.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

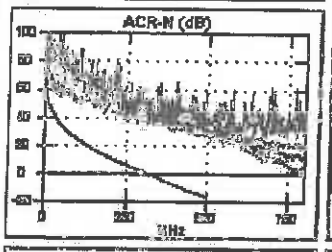


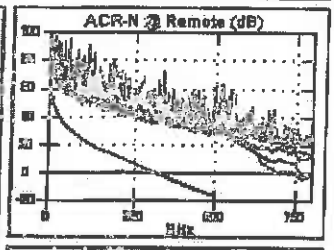


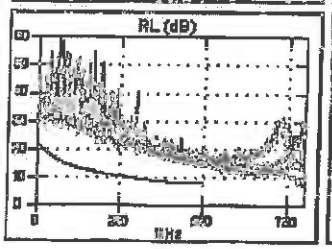


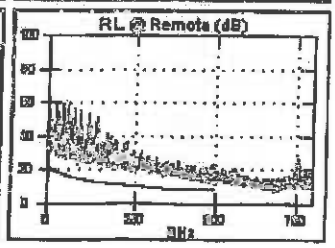












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-26

Date / Time 07/03/2012 12:37 54 PM
Headroom 7.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2 5200
Limits Version: 1 7000
NVP 69 0%

Test Summary: PASS

Model DTX-1800
Main S/N. 9469009
Remote S/N. 9469018
Main Adapter DTX-PLA002
Remote Adapter. DTX-PLA002

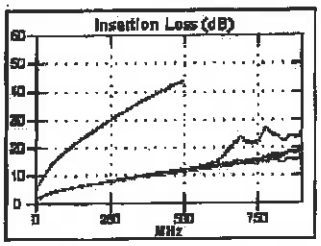
Length (ft), Limit 295	[Pair 12]	81
Prop. Delay (ns), Limit 498	[Pair 45]	125
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.5
Insertion Loss Margin (dB)	[Pair 36]	32.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

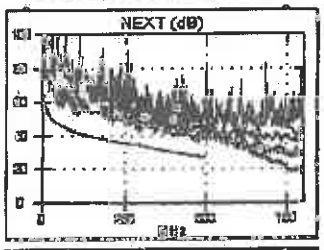
81 ft

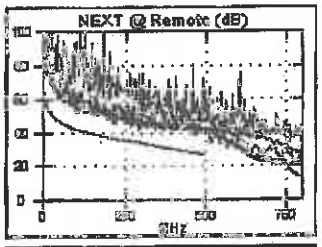
Wire Map (T568B)
PASS

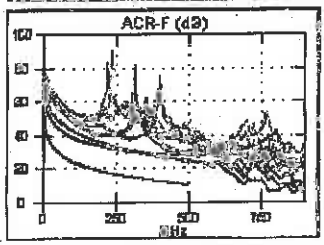
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

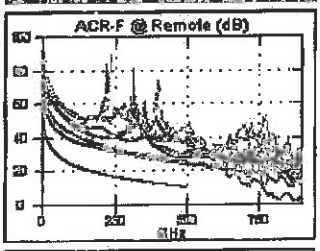
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.0	7.6	8.5	10.6
Freq. (MHz)	298.0	297.0	480.0	473.0
Limit (dB)	34.1	34.1	27.2	27.4
Worst Pair	36	36	36	36
PS NEXT (dB)	8.9	8.2	9.1	11.7
Freq. (MHz)	299.0	298.0	469.0	470.0
Limit (dB)	31.4	31.4	24.7	24.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	13.5	13.2	13.5	13.2
Freq. (MHz)	484.0	484.0	484.0	484.0
Limit (dB)	10.5	10.5	10.5	10.5
Worst Pair	36	36	36	36
PS ACR-F (dB)	15.6	15.2	15.6	15.2
Freq. (MHz)	475.0	483.0	477.0	483.0
Limit (dB)	7.7	7.5	7.6	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-78	36-78	36-78
ACR-N (dB)	20.6	21.3	40.4	42.2
Freq. (MHz)	47.5	3.6	480.0	473.0
Limit (dB)	34.9	61.4	-15.5	-14.9
Worst Pair	78	45	36	36
PS ACR-N (dB)	22.3	21.6	39.9	42.6
Freq. (MHz)	24.0	3.9	469.0	470.0
Limit (dB)	40.8	58.5	-17.4	-17.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	3.7	4.3	3.7	4.3
Freq. (MHz)	494.0	488.0	494.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

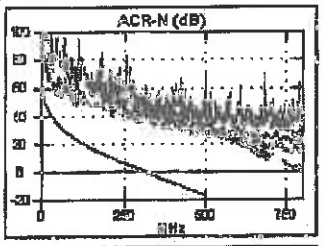


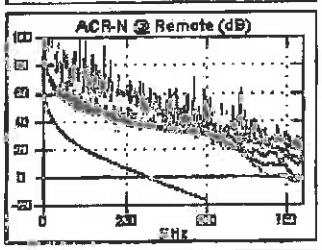


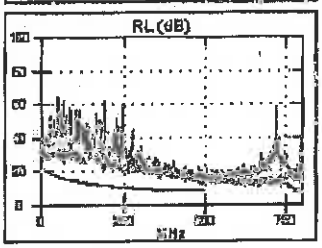


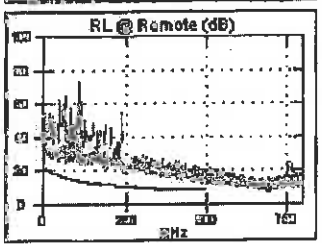












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-27
Date / Time: 07/09/2012 12:39:02 PM
Headroom 7.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

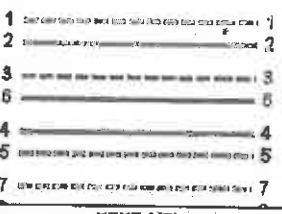
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

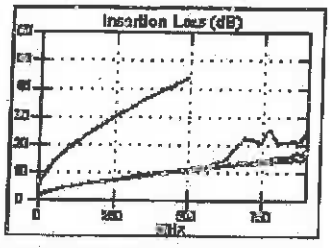
Test Summary: PASS
Model: DTX-1800
Main S/N: 0489609
Remote S/N: 9489918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	115
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 78]	3.3
Insertion Loss Margin (dB)	[Pair 36]	33.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

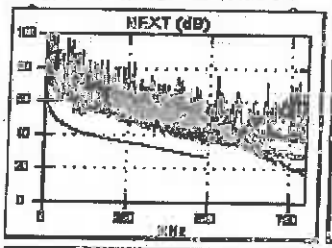
73 ft

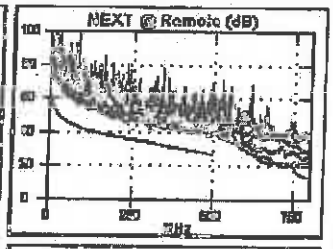
Wire Map (T568B)
PASS

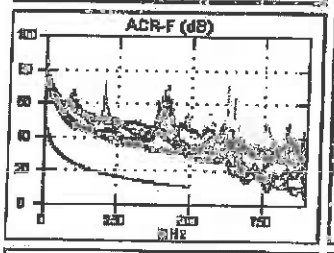


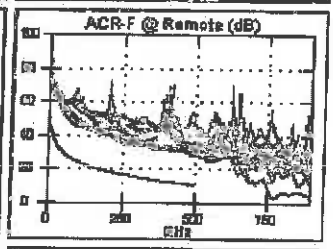


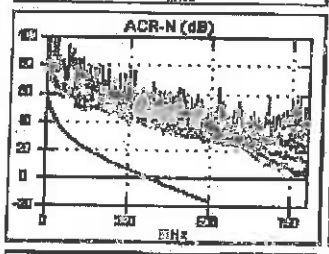
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	8.3	7.3	8.3	10.4
Freq. (MHz)	486.0	309.0	486.0	491.0
Limit (dB)	27.1	33.6	27.1	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	10.1	7.9	10.2	9.5
Freq. (MHz)	309.0	309.0	485.0	485.0
Limit (dB)	31.0	31.0	24.2	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	78-36	36-78	78-36
ACR-F (dB)	17.7	17.2	17.7	17.2
Freq. (MHz)	498.0	498.0	498.0	498.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	19.3	18.3	19.3	18.3
Freq. (MHz)	482.0	497.0	496.0	498.0
Limit (dB)	7.5	7.3	7.3	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.5	19.1	40.7	43.4
Freq. (MHz)	11.9	11.9	486.0	491.0
Limit (dB)	50.6	50.6	-16.0	-16.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.6	20.2	42.5	41.8
Freq. (MHz)	11.9	11.3	485.0	485.0
Limit (dB)	48.3	48.8	-18.8	-18.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.3	3.3	5.3	3.3
Freq. (MHz)	490.0	494.0	490.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

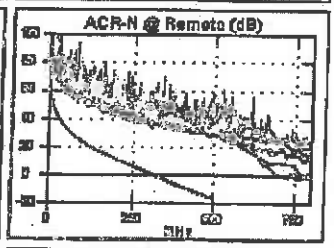


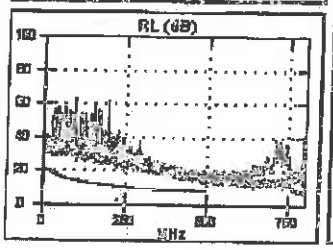


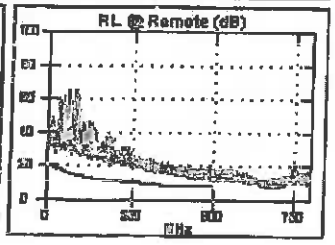












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-28

Date / Time: 07/03/2012 12:39:50 PM
Headroom 8.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

Operator: TYLER
Software Version: 2.6200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

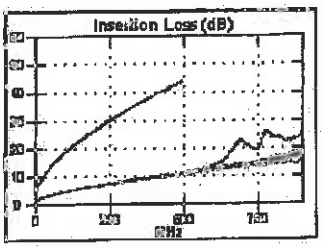
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

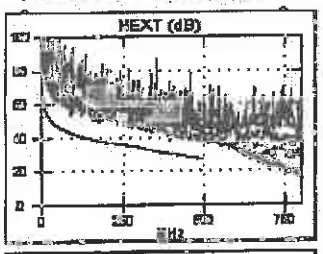
Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	114
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	32.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

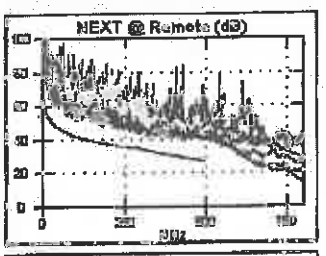
73 ft

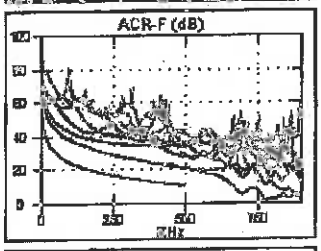
Wire Map (T568B)
PASS

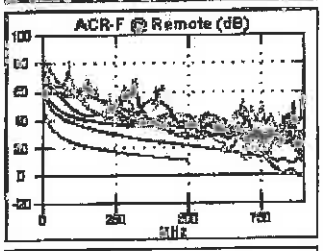
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	8.0	8.4	9.9	10.1
Freq. (MHz)	399.0	325.0	482.0	439.0
Limit (dB)	29.9	32.8	27.2	28.5
Worst Pair	36	36	36	36
PS NEXT (dB)	9.5	8.7	10.3	11.7
Freq. (MHz)	400.0	327.0	497.0	492.0
Limit (dB)	27.1	30.1	23.8	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	9.8	10.0	9.8	10.0
Freq. (MHz)	499.0	492.0	499.0	492.0
Limit (dB)	10.2	10.4	10.2	10.4
Worst Pair	36	36	36	36
PS ACR-F (dB)	12.2	12.5	12.2	12.6
Freq. (MHz)	499.0	483.0	499.0	498.0
Limit (dB)	7.2	7.5	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.9	18.8	42.1	45.1
Freq. (MHz)	5.0	4.3	482.0	492.0
Limit (dB)	58.6	60.0	-15.6	-16.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.5	19.5	43.0	44.1
Freq. (MHz)	4.9	4.0	497.0	492.0
Limit (dB)	56.6	58.3	-19.7	-19.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	4.0	3.6	4.0	3.6
Freq. (MHz)	486.0	486.0	486.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

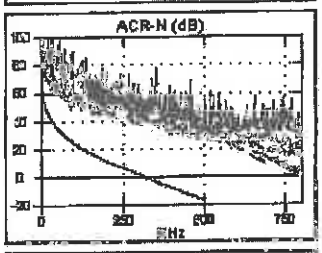


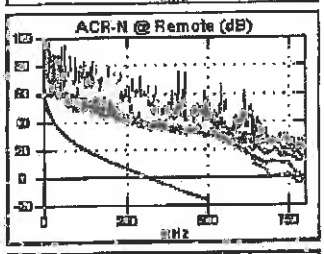


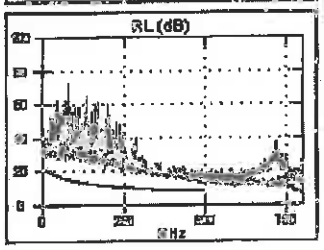


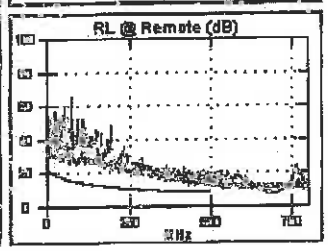












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-29

Date / Time: 07/03/2012 12:40:25 PM
Headroom 7.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

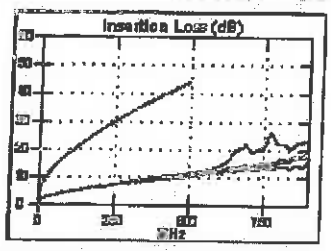
Length (ft), Limit 295	[Pair 12]	75
Prop. Delay (ns), Limit 498	[Pair 45]	116
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	32.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

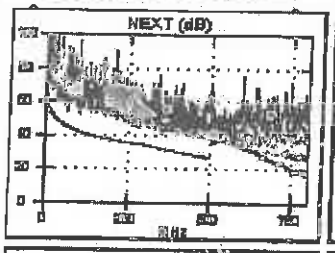
75 ft

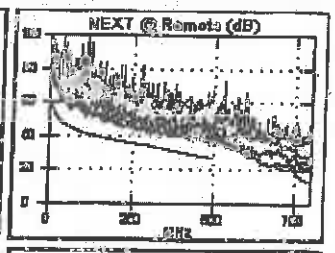
Wire Map (T568B)
PASS

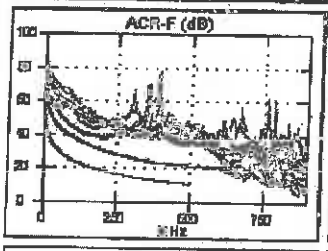
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

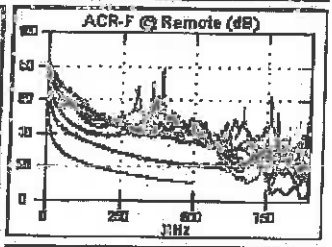
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	9.0	7.6	10.2	7.8
Freq. (MHz)	354.0	363.0	494.0	486.0
Limit (dB)	31.6	31.3	26.8	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	10.1	8.5	11.0	10.0
Freq. (MHz)	353.0	297.0	494.0	485.0
Limit (dB)	29.0	31.5	23.9	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	10.3	10.1	10.5	10.2
Freq. (MHz)	377.0	486.0	500.0	500.0
Limit (dB)	12.7	10.5	10.2	10.2
Worst Pair	36	45	45	36
PS ACR-F (dB)	13.2	13.2	13.3	13.4
Freq. (MHz)	377.0	363.0	500.0	500.0
Limit (dB)	9.7	10.0	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.0	14.5	42.6	40.4
Freq. (MHz)	3.9	3.5	494.0	486.0
Limit (dB)	60.8	61.7	-16.6	-16.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.8	15.3	43.4	42.1
Freq. (MHz)	3.9	3.6	494.0	485.0
Limit (dB)	58.5	58.6	-19.5	-18.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	5.5	5.4	5.5	5.4
Freq. (MHz)	480.0	460.0	480.0	460.0
Limit (dB)	8.0	8.0	8.0	8.0

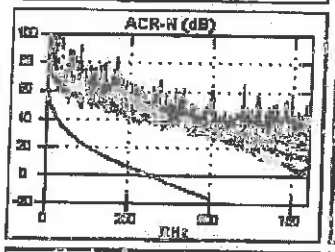


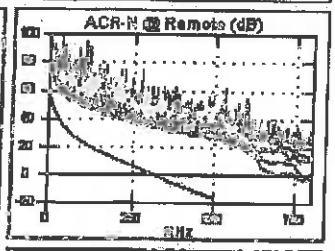


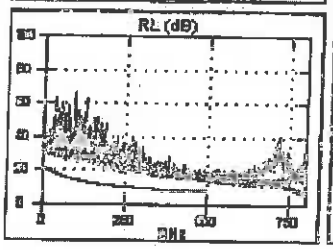


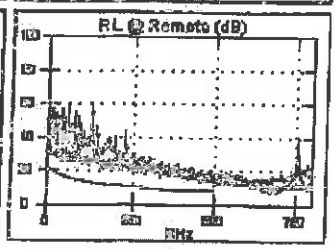












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-30
Date / Time 07/03/2012 12:41:24 PM
Headroom 9.2 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS
Model DTX-1600
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

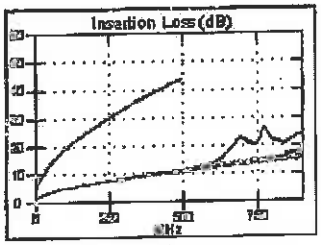
Length (ft), Limit 295	[Pair 12]	75
Prop. Delay (ns), Limit 498	[Pair 45]	116
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.3
Insertion Loss Margin (dB)	[Pair 36]	32.8
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

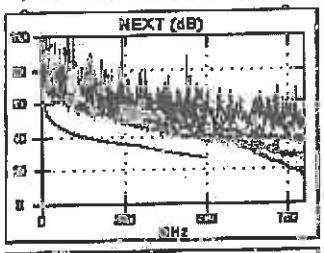
75 ft

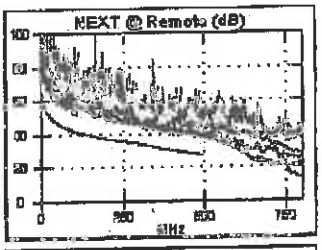
Wire Map (T568B)
PASS

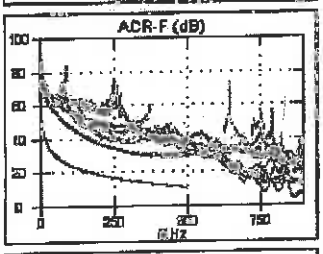
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

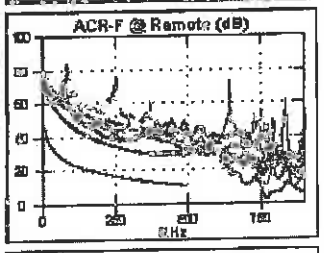
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	9.2	9.4	9.3	10.3
Freq. (MHz)	363.0	405.0	498.0	494.0
Limit (dB)	31.3	29.7	26.7	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	10.2	10.8	10.2
Freq. (MHz)	296.0	326.0	498.0	494.0
Limit (dB)	31.5	30.2	23.8	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.4	16.2	17.9	17.6
Freq. (MHz)	373.0	373.0	490.0	490.0
Limit (dB)	12.8	12.8	10.4	10.4
Worst Pair	45	36	45	36
PS ACR-F (dB)	18.6	18.9	18.9	19.3
Freq. (MHz)	317.0	289.0	490.0	490.0
Limit (dB)	11.2	12.0	7.4	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	14.5	14.9	42.0	43.5
Freq. (MHz)	4.8	4.1	498.0	494.0
Limit (dB)	59.1	60.3	-16.9	-16.6
Worst Pair	78	36	36	36
PS ACR-N (dB)	16.4	16.7	43.5	42.7
Freq. (MHz)	4.8	4.4	498.0	494.0
Limit (dB)	56.8	57.5	-19.8	-19.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.0	4.0	6.0	4.0
Freq. (MHz)	493.0	491.0	493.0	491.0
Limit (dB)	8.0	8.0	8.0	8.0

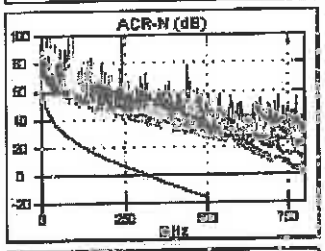


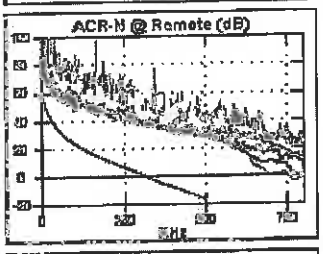


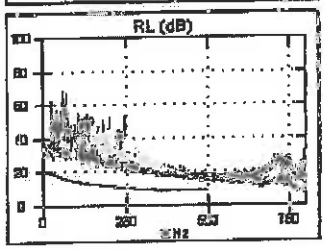


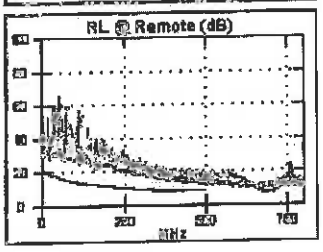












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-31

Date / Time: 07/03/2012 12:42:16 PM
Headroom: 7.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

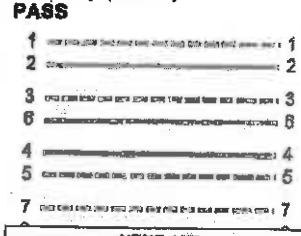
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

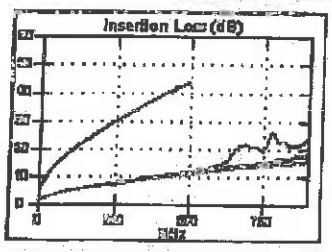
Test Summary: PASS

Model: DTX-1800
Main S/N: 9499009
Remote S/N: 9499018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

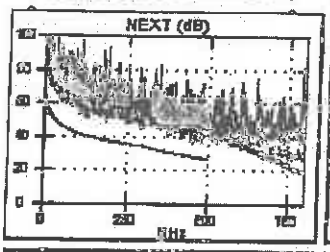
Length (ft), Limit 295	[Pair 12]	78
Prop. Delay (ns), Limit 498	[Pair 45]	122
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.4
Insertion Loss Margin (dB)	[Pair 36]	32.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

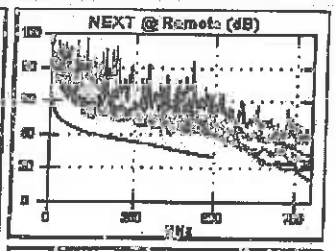
Wire Map (T568B)
PASS

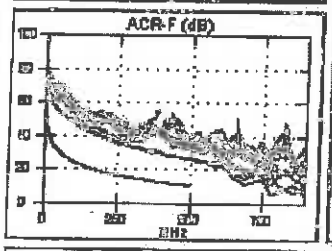


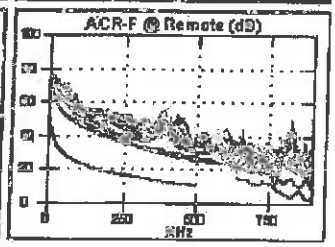


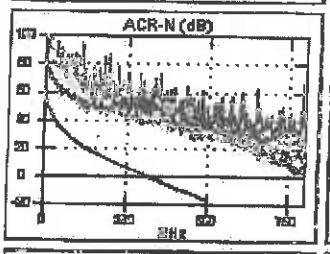
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	7.9	8.7	7.9	11.1
Freq. (MHz)	455.0	359.0	455.0	493.0
Limit (dB)	28.0	31.4	28.0	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	9.5	9.8	10.9
Freq. (MHz)	455.0	378.0	455.0	493.0
Limit (dB)	25.2	27.9	25.2	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.1	14.5	15.1	14.5
Freq. (MHz)	490.0	490.0	490.0	490.0
Limit (dB)	10.4	10.4	10.4	10.4
Worst Pair	45	36	45	36
PS ACR-F (dB)	17.3	17.0	17.3	17.0
Freq. (MHz)	486.0	499.0	490.0	499.0
Limit (dB)	7.5	7.2	7.4	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-78	36-45
ACR-N (dB)	18.3	18.3	39.1	43.8
Freq. (MHz)	3.8	3.5	455.0	494.0
Limit (dB)	61.1	61.7	-13.4	-16.6
Worst Pair	12	36	36	36
PS ACR-N (dB)	18.9	19.6	42.5	42.8
Freq. (MHz)	3.9	3.8	483.0	493.0
Limit (dB)	58.5	58.6	-18.6	-19.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.1	4.0	5.1	4.0
Freq. (MHz)	496.0	487.0	496.0	487.0
Limit (dB)	8.0	8.0	8.0	8.0

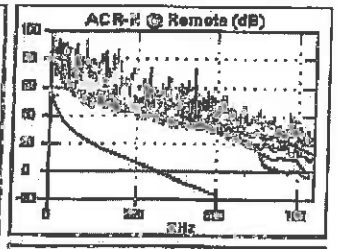


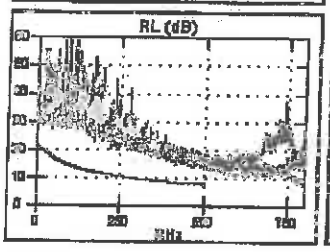


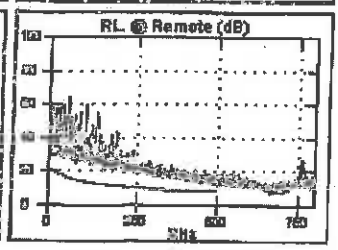












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-32

Test Summary: PASS

Date / Time 07/09/2012 12:42:53 PM
Headroom 8.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

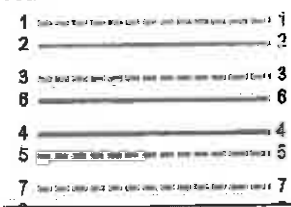
Length (ft), Limit 295	[Pair 12]	78
Prop. Delay (ns), Limit 498	[Pair 45]	121
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 78]	3.4
Insertion Loss Margin (dB)	[Pair 36]	32.3
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

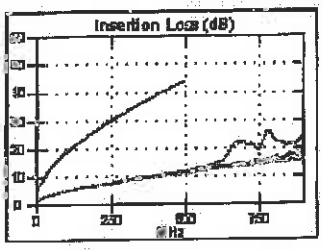
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	8.3	8.8	10.1	9.3
Freq. (MHz)	283.0	270.0	491.0	432.0
Limit (dB)	34.4	34.8	26.9	28.8
Worst Pair	36	36	36	36
PS NEXT (dB)	9.6	9.2	10.2	12.0
Freq. (MHz)	284.0	253.0	491.0	495.0
Limit (dB)	31.8	32.6	24.0	23.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	36-45	45-36	45-36
ACR-F (dB)	11.1	11.1	13.6	13.5
Freq. (MHz)	4.1	8.3	486.0	494.0
Limit (dB)	51.9	45.9	10.5	10.3
Worst Pair	45	45	45	45
PS ACR-F (dB)	13.6	13.7	16.0	16.3
Freq. (MHz)	4.1	3.3	480.0	491.0
Limit (dB)	48.9	51.0	7.6	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	14.4	14.7	42.1	44.4
Freq. (MHz)	4.1	3.8	491.0	500.0
Limit (dB)	60.3	61.1	-16.4	-17.1
Worst Pair	78	36	36	36
PS ACR-N (dB)	15.4	15.8	42.2	44.1
Freq. (MHz)	4.1	4.0	491.0	495.0
Limit (dB)	58.0	58.3	-19.3	-19.6
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.7	3.3	4.7	3.3
Freq. (MHz)	494.0	494.0	494.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

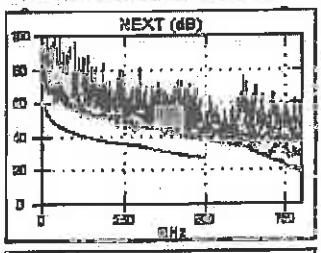
Compliant Network Standards:

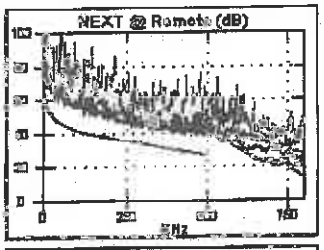
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

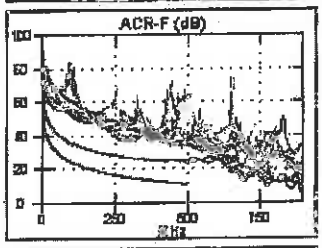
Wire Map (T568B)
PASS

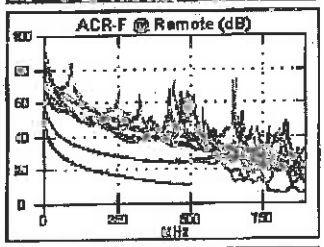


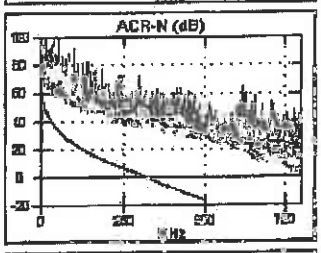


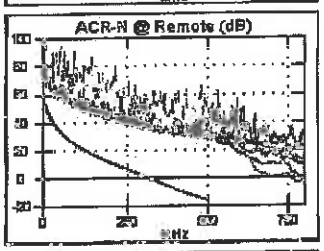


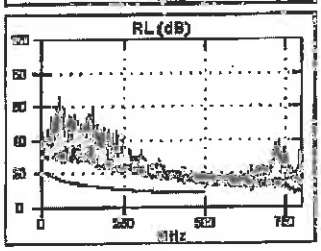


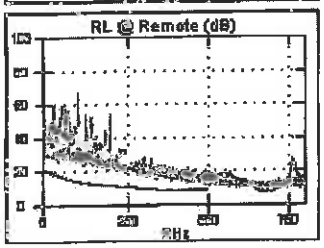












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-33
Date / Time: 07/09/2012 12:43:48 PM
Headroom: 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

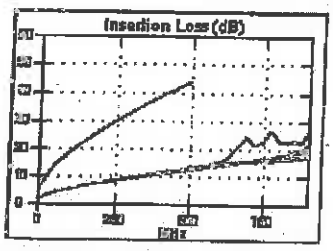
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9489909
Remote S/N: 9489918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	88
Prop. Delay (ns), Limit 498	[Pair 45]	137
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.8
Insertion Loss Margin (dB)	[Pair 36]	30.8
Frequency (MHz)	[Pair 36]	498.0
Limit (dB)	[Pair 36]	43.6

88 ft

Wire Map (T568B)
PASS

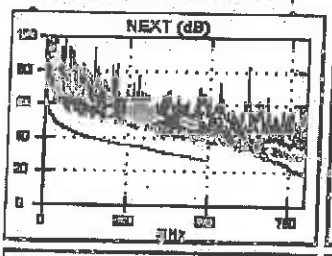


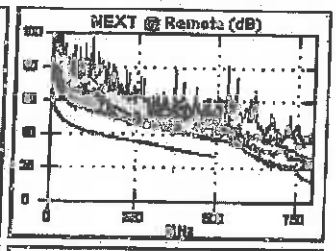
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	36-78	36-45
NEXT (dB)	9.2	8.2	9.9	9.2
Freq. (MHz)	363.0	275.0	459.0	493.0
Limit (dB)	31.3	34.7	27.9	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	7.8	9.6	10.8
Freq. (MHz)	458.0	275.0	458.0	496.0
Limit (dB)	25.1	32.0	25.1	23.9

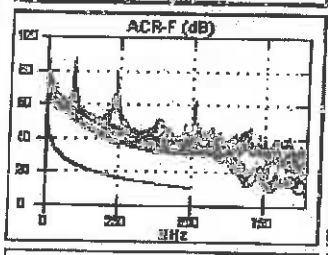
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	18.8	18.6	19.5	19.1
Freq. (MHz)	433.0	433.0	485.0	485.0
Limit (dB)	11.5	11.5	10.5	10.5
Worst Pair	45	45	45	36
PS ACR-F (dB)	19.4	19.8	19.7	20.6
Freq. (MHz)	362.0	367.0	421.0	485.0
Limit (dB)	10.0	9.9	8.7	7.5

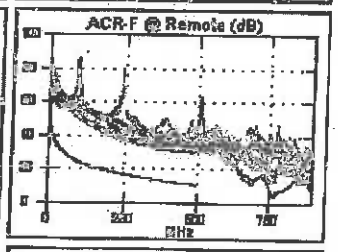
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	12.3	12.1	42.0	40.4
Freq. (MHz)	3.8	3.5	496.0	493.0
Limit (dB)	61.1	61.7	-16.6	-16.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.0	13.9	39.4	41.7
Freq. (MHz)	3.9	4.0	458.0	496.0
Limit (dB)	58.5	58.3	-16.5	-19.7

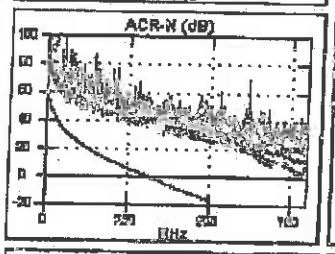
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.4	4.0	5.4	4.0
Freq. (MHz)	493.0	485.0	493.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

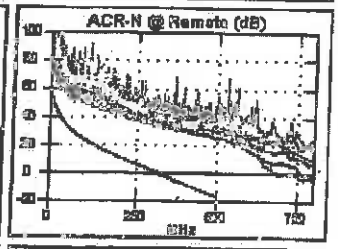


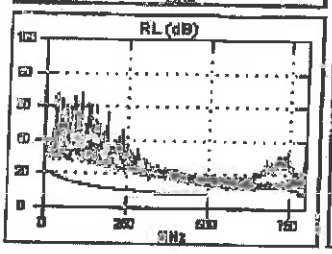


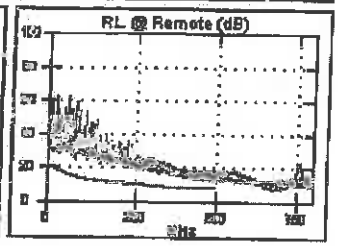












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-34

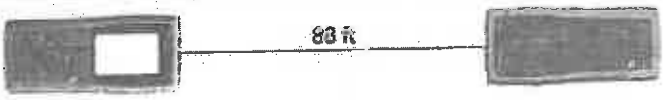
Date / Time 07/03/2012 12 44 21 PM
Headroom 7.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version: 2 5200
Limits Version. 1 7000
NVP 69 0%

Test Summary: PASS

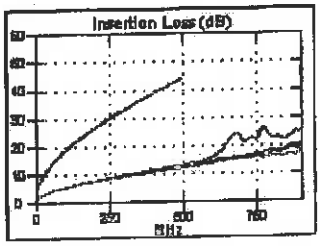
Model DTX-1800
Main S/N 9469009
Remote S/N 9468018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

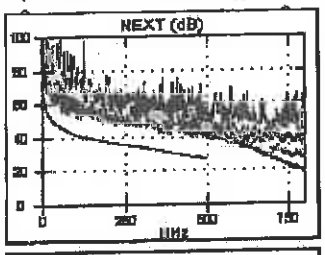
Length (ft), Limit 295	[Pair 12]	88
Prop. Delay (ns), Limit 498	[Pair 45]	138
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 78]	3.8
Insertion Loss Margin (dB)	[Pair 36]	31.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

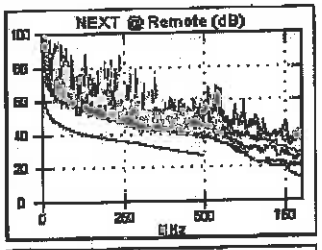


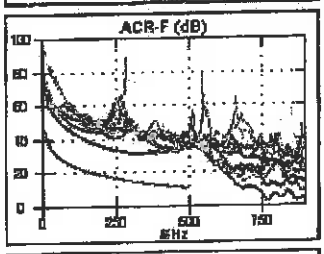
Wire Map (T568B)
PASS

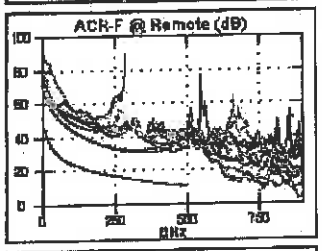
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	10.2	7.8	11.8	10.2
Freq. (MHz)	63.0	302.0	474.0	498.0
Limit (dB)	45.1	33.9	27.4	26.7
Worst Pair	36	36	36	45
PS NEXT (dB)	11.3	8.3	12.9	11.8
Freq. (MHz)	287.0	303.0	467.0	494.0
Limit (dB)	31.7	31.3	24.8	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.3	16.2	17.4	17.2
Freq. (MHz)	239.5	291.0	363.0	363.0
Limit (dB)	16.6	14.9	13.0	13.0
Worst Pair	45	45	45	36
PS ACR-F (dB)	18.3	18.8	19.6	20.3
Freq. (MHz)	239.5	251.0	363.0	438.0
Limit (dB)	13.6	13.2	10.0	8.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.6	17.6	42.0	41.6
Freq. (MHz)	11.0	6.8	474.0	498.0
Limit (dB)	51.4	56.0	-15.0	-16.9
Worst Pair	36	36	36	45
PS ACR-N (dB)	18.8	19.2	44.8	43.3
Freq. (MHz)	15.4	6.4	493.0	498.0
Limit (dB)	45.7	54.2	-19.4	-19.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.5	5.0	6.5	5.0
Freq. (MHz)	447.0	491.0	447.0	491.0
Limit (dB)	8.0	8.0	8.0	8.0

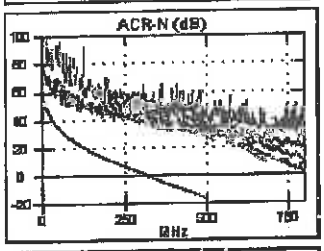


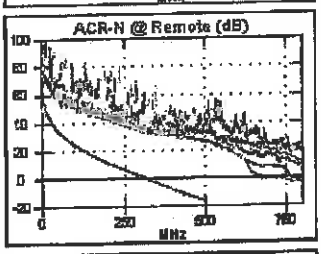


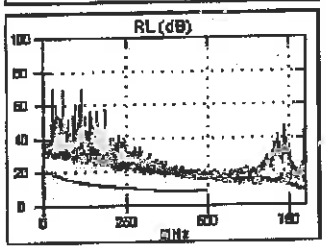


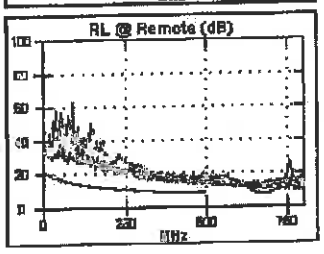












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-35
Date / Time: 07/03/2012 12:45:21 PM
Headroom: 7.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.9%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	85
Prop. Delay (ns), Limit 498	[Pair 45]	131
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.7
Insertion Loss Margin (dB)	[Pair 36]	31.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

85 ft

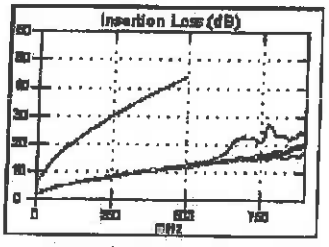
Wire Map (T568B)
PASS

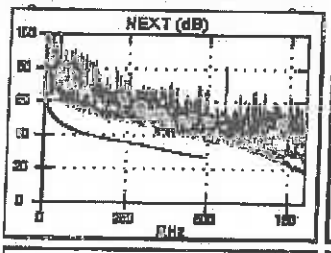
PASS	MAIN	SR	MAIN	SR
	Worst Case Margin		Worst Case Value	
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	9.0	7.8	9.3	11.1
Freq. (MHz)	343.0	287.0	498.0	480.0
Limit (dB)	32.1	34.3	26.7	27.2
Worst Pair	36	36	36	36
PS NEXT (dB)	9.7	8.8	9.7	11.4
Freq. (MHz)	498.0	288.0	498.0	480.0
Limit (dB)	23.8	31.7	23.8	24.4

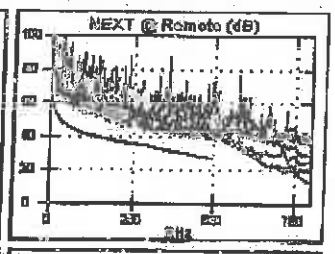
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-78	12-78	78-12	12-78
ACR-F (dB)	15.0	15.0	16.7	16.6
Freq. (MHz)	11.1	4.8	455.0	455.0
Limit (dB)	43.3	50.7	11.0	11.0
Worst Pair	12	12	78	12
PS ACR-F (dB)	16.8	16.9	17.2	17.7
Freq. (MHz)	4.8	4.0	438.0	438.0
Limit (dB)	47.7	49.1	8.4	8.4

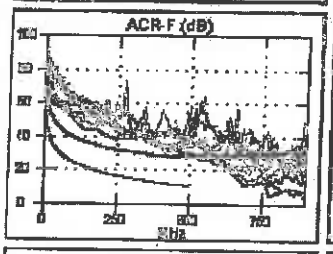
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	16.3	16.2	41.3	43.8
Freq. (MHz)	19.4	19.3	498.0	499.0
Limit (dB)	45.6	45.7	-16.9	-17.0
Worst Pair	36	78	36	36
PS ACR-N (dB)	17.8	17.4	41.2	43.8
Freq. (MHz)	19.4	19.3	498.0	499.0
Limit (dB)	43.2	43.3	-19.8	-19.9

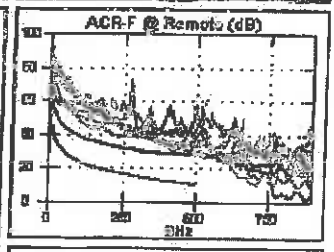
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	5.4	5.2	5.4	5.2
Freq. (MHz)	485.0	499.0	485.0	499.0
Limit (dB)	8.0	8.0	8.0	8.0

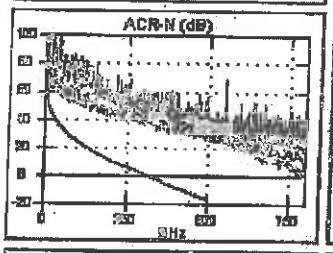


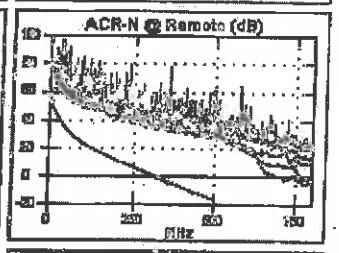


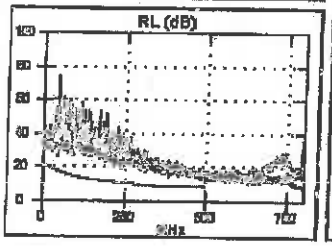


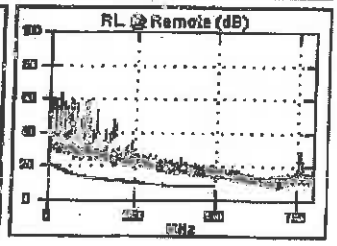












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Test Summary: PASS

Cable ID: DMV-MTB-R1-A-36
Date / Time 07/03/2012 12:46:02 PM
Headroom 10.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

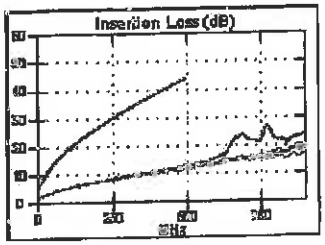
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

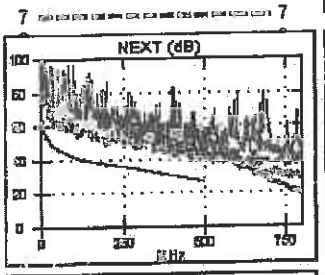
Length (ft), Limit 295	[Pair 12]	85
Prop. Delay (ns), Limit 498	[Pair 45]	132
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 12]	3.5
Insertion Loss Margin (dB)	[Pair 36]	31.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

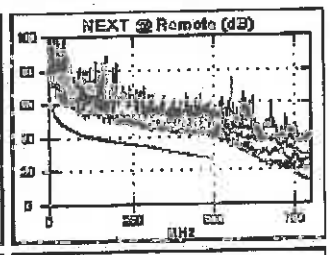
85 ft

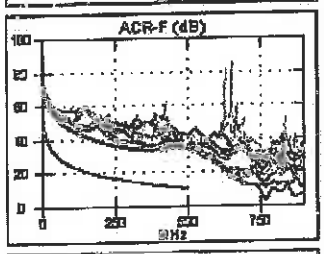
Wire Map (T568B)
PASS

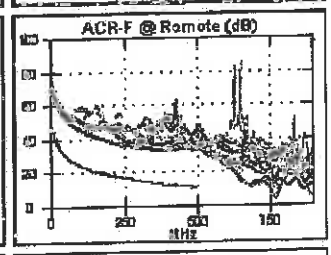
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	10.9	10.3	11.2	12.8
Freq. (MHz)	464.0	312.0	478.0	499.0
Limit (dB)	27.7	33.4	27.3	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	11.0	10.0	11.6	12.1
Freq. (MHz)	288.0	308.0	463.0	490.0
Limit (dB)	31.7	31.0	24.9	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	19.2	19.0	19.7	19.5
Freq. (MHz)	245.5	308.0	370.0	370.0
Limit (dB)	16.4	14.4	12.8	12.8
Worst Pair	45	36	45	36
PS ACR-F (dB)	20.5	20.3	22.0	22.5
Freq. (MHz)	361.0	299.0	498.0	497.0
Limit (dB)	10.0	11.7	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.5	18.4	42.0	44.8
Freq. (MHz)	8.1	7.4	478.0	499.0
Limit (dB)	54.3	55.2	-15.3	-17.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.5	18.9	42.4	43.3
Freq. (MHz)	7.8	7.1	471.0	490.0
Limit (dB)	52.4	53.2	-17.6	-19.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.9	4.5	5.9	4.5
Freq. (MHz)	499.0	498.0	499.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

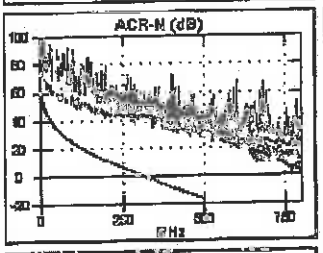


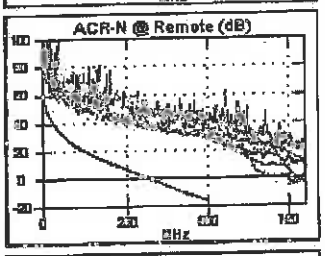


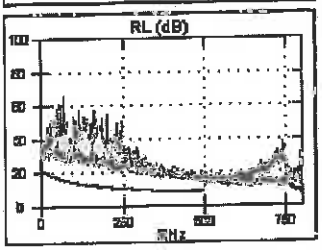


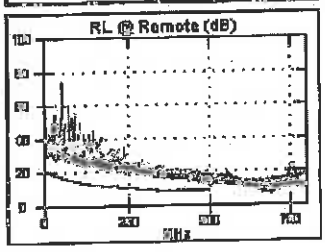












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-37

Date / Time: 07/09/2012 12:47:18 PM
Headroom: 6.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9460009
Remote S/N: 9460018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

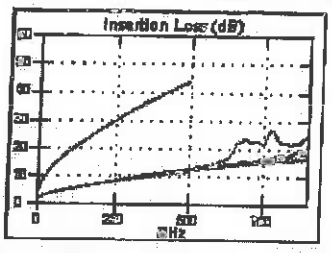
Length (ft), Limit 295	[Pair 12]	86
Prop. Delay (ns), Limit 498	[Pair 45]	133
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 12]	3.7
Insertion Loss Margin (dB)	[Pair 36]	31.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

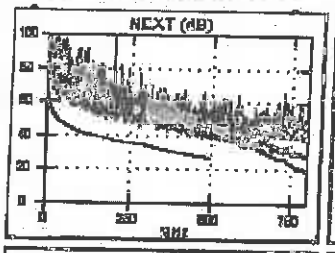
86 ft

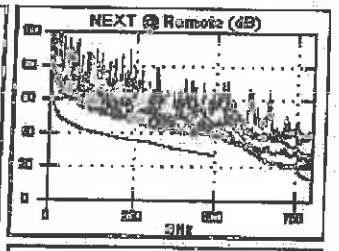
Wire Map (T568B)
PASS

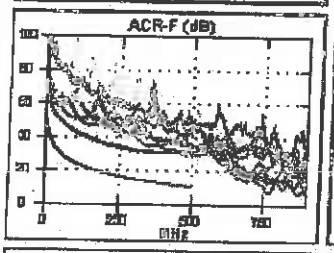
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

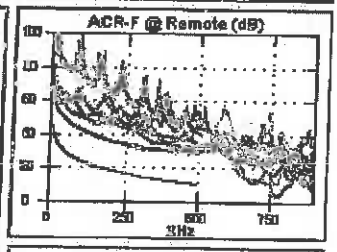
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	10.7	8.7	11.6	10.3
Freq. (MHz)	334.0	297.0	491.0	490.0
Limit (dB)	32.5	34.1	26.9	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	11.3	8.5	13.2	10.9
Freq. (MHz)	437.0	297.0	500.0	497.0
Limit (dB)	25.8	31.5	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-78	78-36
ACR-F (dB)	16.7	16.6	18.4	17.8
Freq. (MHz)	309.0	309.0	485.0	485.0
Limit (dB)	14.4	14.4	10.5	10.5
Worst Pair	45	45	45	36
PS ACR-F (dB)	18.4	18.9	20.6	19.2
Freq. (MHz)	346.0	325.0	497.0	489.0
Limit (dB)	10.4	11.0	7.3	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.4	19.1	42.8	41.7
Freq. (MHz)	11.0	10.9	491.0	490.0
Limit (dB)	51.4	51.5	-16.4	-16.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	20.1	20.3	44.7	42.1
Freq. (MHz)	10.8	10.6	500.0	497.0
Limit (dB)	49.3	49.4	-20.0	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.9	5.5	5.9	5.5
Freq. (MHz)	495.0	494.0	495.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

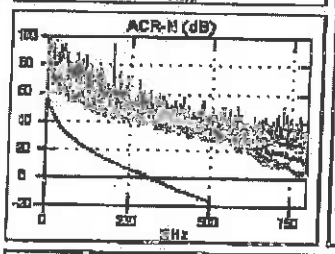


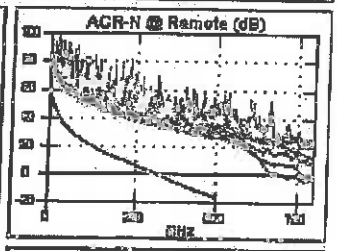


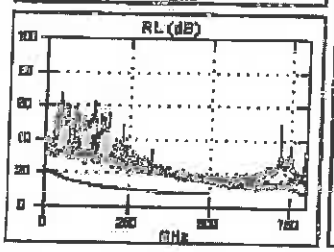


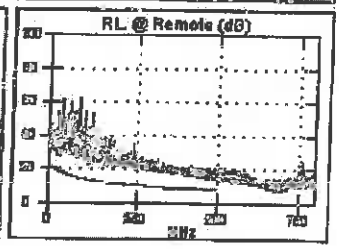












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-38
Date / Time 07/03/2012 12:48:18 PM
Headroom 4.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

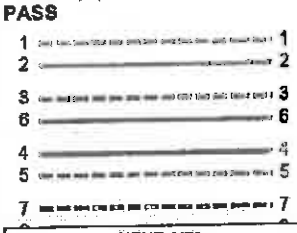
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS
Model DTX-1800
Main S/N 9469609
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

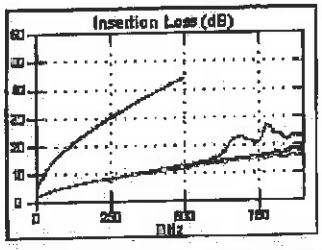
Length (ft), Limit 295	[Pair 12]	86
Prop. Delay (ns), Limit 498	[Pair 45]	133
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.7
Insertion Loss Margin (dB)	[Pair 36]	31.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

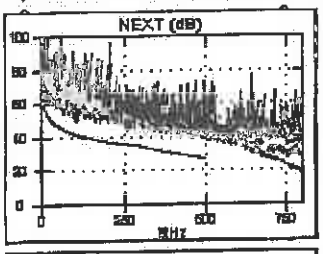
86 ft

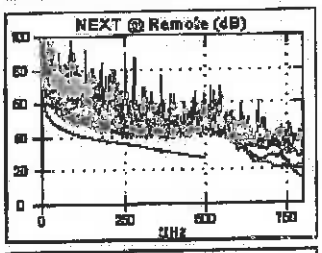
Wire Map (T568B)
PASS

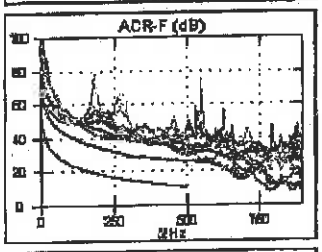


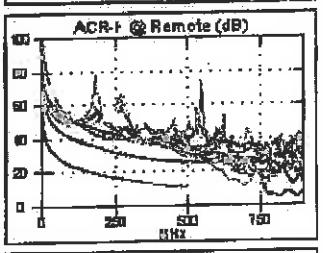
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.3	4.1	10.7	6.8
Freq. (MHz)	108.5	260.0	462.0	384.0
Limit (dB)	41.3	35.1	27.8	30.4
Worst Pair	36	36	36	36
PS NEXT (dB)	9.5	5.8	12.3	8.1
Freq. (MHz)	11.8	260.0	495.0	384.0
Limit (dB)	54.4	32.4	23.9	27.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	36-45	45-36
ACR-F (dB)	14.1	14.3	14.8	14.5
Freq. (MHz)	390.0	389.0	490.0	494.0
Limit (dB)	12.4	12.4	10.4	10.3
Worst Pair	36	45	36	36
PS ACR-F (dB)	16.5	16.5	16.8	16.6
Freq. (MHz)	352.0	390.0	494.0	495.0
Limit (dB)	10.3	9.4	7.3	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	13.2	12.2	43.1	34.3
Freq. (MHz)	11.8	11.4	495.0	384.0
Limit (dB)	50.7	51.1	-16.7	-7.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	13.9	12.8	43.6	35.3
Freq. (MHz)	11.6	11.4	495.0	384.0
Limit (dB)	48.5	48.7	-19.6	-9.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	78
RL (dB)	5.7	3.7	5.7	3.7
Freq. (MHz)	483.0	483.0	483.0	483.0
Limit (dB)	8.0	8.0	8.0	8.0

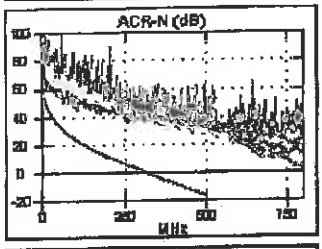


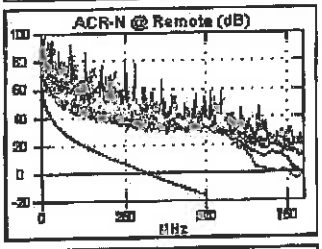


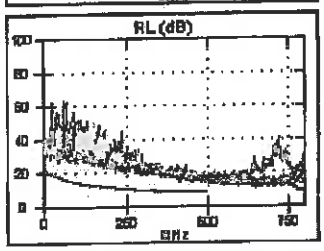


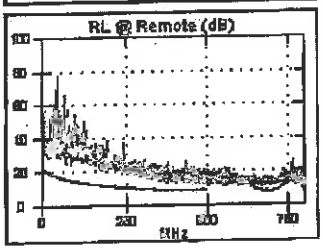












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-39
Date / Time 07/05/2012 12:46:52 PM
Headroom 8.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

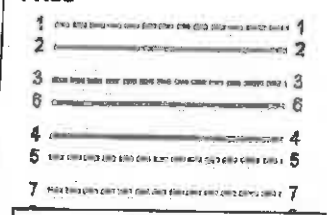
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469909
Remote S/N: 9469916
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	93
Prop. Delay (ns), Limit 498	[Pair 45]	144
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	4.0
Insertion Loss Margin (dB)	[Pair 36]	30.5
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

93 ft

Wire Map (T568B)
PASS

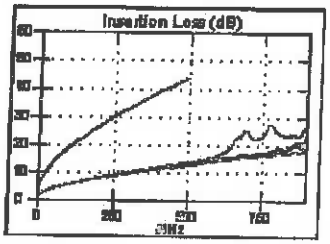


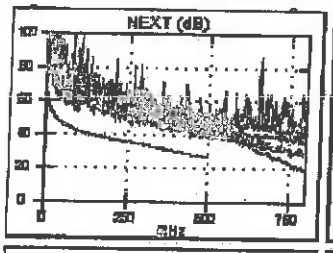
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	12-36	36-45
NEXT (dB)	10.0	8.6	10.7	11.1
Freq. (MHz)	449.0	270.0	498.0	492.0
Limit (dB)	28.2	34.8	26.7	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	10.9	8.9	11.6	12.6
Freq. (MHz)	450.0	284.0	497.0	493.0
Limit (dB)	25.3	31.8	23.8	24.0

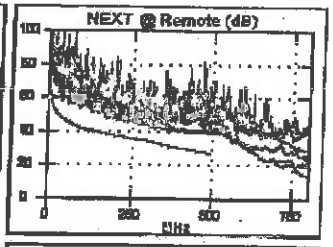
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	78-36	36-78	78-36
ACR-F (dB)	19.7	19.3	19.7	19.3
Freq. (MHz)	438.0	438.0	438.0	438.0
Limit (dB)	11.4	11.4	11.4	11.4
Worst Pair	45	36	45	45
PS ACR-F (dB)	20.6	20.4	20.6	21.2
Freq. (MHz)	492.0	423.0	495.0	499.0
Limit (dB)	7.4	8.7	7.3	7.2

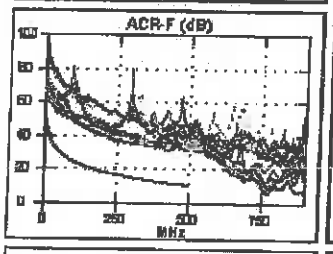
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	19.7	17.8	41.1	41.7
Freq. (MHz)	41.8	41.8	498.0	492.0
Limit (dB)	36.6	36.6	-16.9	-16.5
Worst Pair	45	36	36	36
PS ACR-N (dB)	20.6	19.4	42.0	42.9
Freq. (MHz)	19.5	41.8	498.0	493.0
Limit (dB)	43.1	34.1	-19.8	-19.4

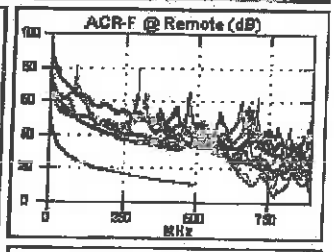
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	5.8	5.3	5.8	5.3
Freq. (MHz)	484.0	493.0	484.0	493.0
Limit (dB)	8.0	8.0	8.0	8.0

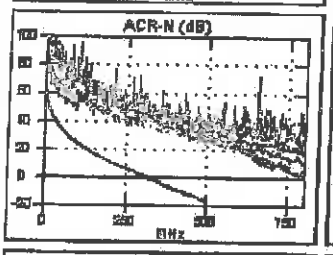


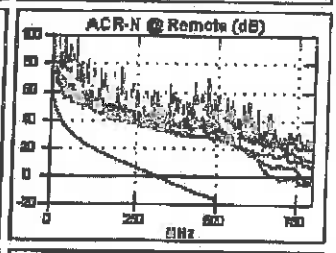


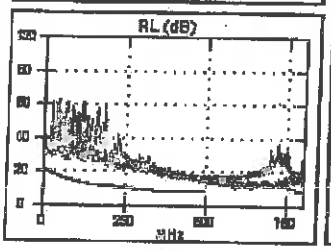


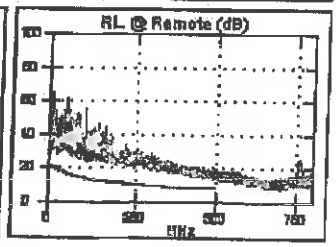












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Test Summary: PASS

Cable ID: DMV-MTB-R1-A-40
Date / Time 07/03/2012 12:49.31 PM
Headroom 7.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type. Cat 6 UTP
Calibration Date 07/19/2007

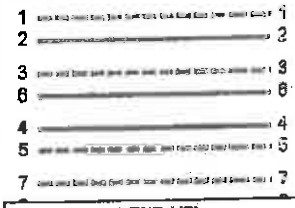
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N: 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	93
Prop. Delay (ns), Limit 498	[Pair 45]	145
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.1
Insertion Loss Margin (dB)	[Pair 36]	30.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

93 ft

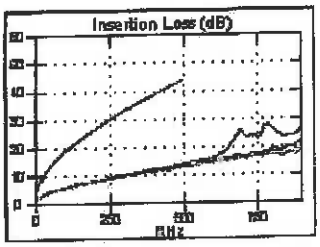
Wire Map (T568B)
PASS

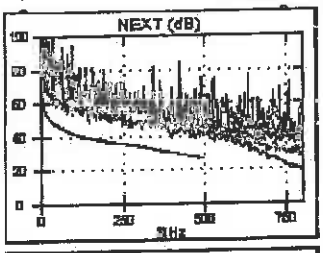


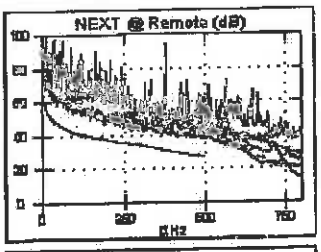
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	8.4	7.9	10.6	10.2
Freq. (MHz)	400.0	276.0	476.0	490.0
Limit (dB)	29.9	34.6	27.4	26.9
Worst Pair	78	36	36	36
PS NEXT (dB)	10.6	8.5	12.5	11.1
Freq. (MHz)	400.0	276.0	488.0	497.0
Limit (dB)	27.1	32.0	24.1	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	12-36	36-12	12-36
ACR-F (dB)	20.0	18.9	20.1	18.9
Freq. (MHz)	6.6	491.0	491.0	491.0
Limit (dB)	47.8	10.4	10.4	10.4
Worst Pair	45	45	12	36
PS ACR-F (dB)	19.7	19.6	21.2	20.9
Freq. (MHz)	5.8	5.8	495.0	489.0
Limit (dB)	46.0	46.0	7.3	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	36-78	36-45
ACR-N (dB)	16.7	16.8	40.9	40.7
Freq. (MHz)	3.5	13.6	476.0	490.0
Limit (dB)	61.7	49.3	-15.2	-16.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.5	16.6	42.5	41.3
Freq. (MHz)	14.0	14.0	488.0	497.0
Limit (dB)	46.6	46.6	-19.0	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.5	4.4	5.5	4.4
Freq. (MHz)	497.0	484.0	497.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

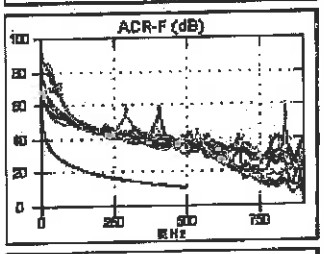
Compliant Network Standards:

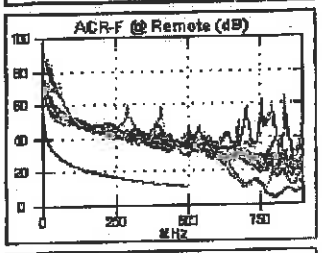
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

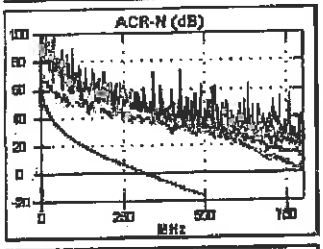


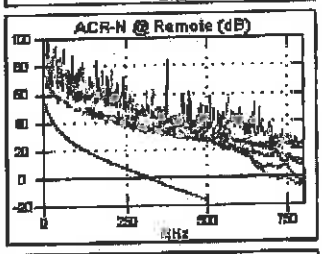


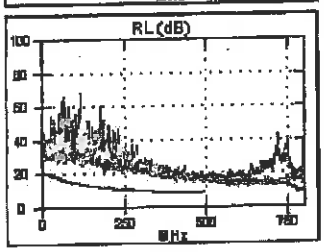


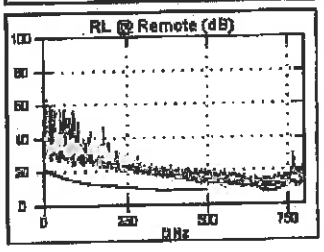












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-41

Date / Time: 07/03/2012 12:50:10 PM
Headroom: 7.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

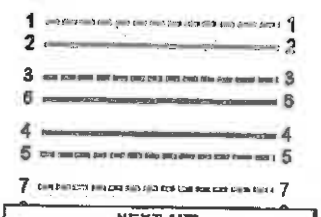
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7900
NVP: 69.0%

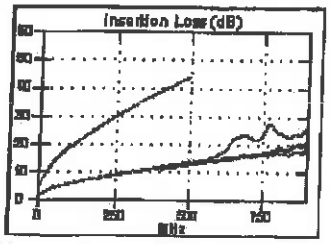
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

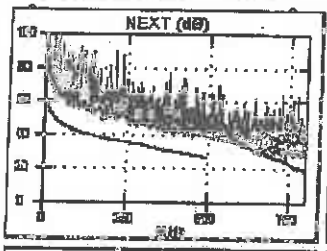
Length (ft), Limit 295	[Pair 12]	93
Prop. Delay (ns), Limit 498	[Pair 45]	145
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 12]	4.0
Insertion Loss Margin (dB)	[Pair 36]	30.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

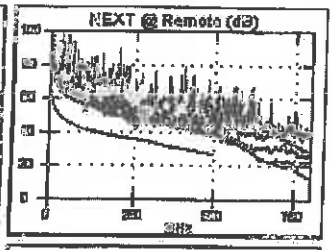
Wire Map (T568B)
PASS

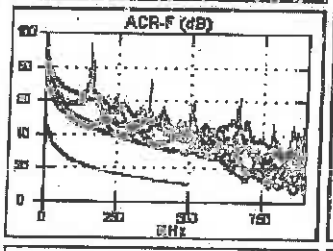


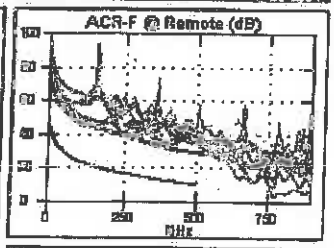


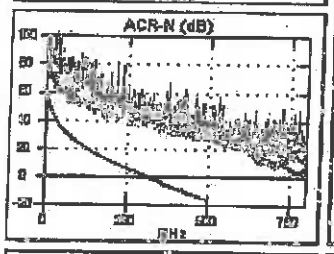
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	9.7	7.5	10.2	9.6
Freq. (MHz)	392.0	262.0	455.0	489.0
Limit (dB)	30.2	35.0	28.0	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	10.3	8.3	11.5	10.2
Freq. (MHz)	284.0	262.0	491.0	489.0
Limit (dB)	31.8	32.4	24.0	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	17.4	17.9	17.4	17.9
Freq. (MHz)	491.0	486.0	491.0	491.0
Limit (dB)	10.4	10.5	10.4	10.4
Worst Pair	36	45	36	45
PS ACR-F (dB)	19.9	19.4	19.9	19.4
Freq. (MHz)	491.0	491.0	493.0	491.0
Limit (dB)	7.4	7.4	7.3	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	18.4	18.8	42.3	40.4
Freq. (MHz)	3.9	3.5	496.0	489.0
Limit (dB)	60.6	61.7	-16.6	-16.2
Worst Pair	78	36	36	36
PS ACR-N (dB)	19.3	20.2	41.7	40.4
Freq. (MHz)	4.1	3.5	491.0	489.0
Limit (dB)	58.0	58.7	-19.3	-19.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36	78	36	78
RL (dB)	5.6	3.0	5.6	3.0
Freq. (MHz)	490.0	482.0	490.0	482.0
Limit (dB)	8.0	8.0	8.0	8.0

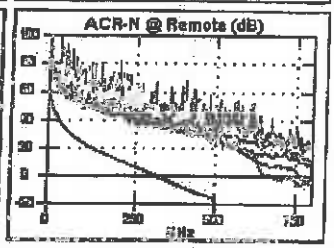


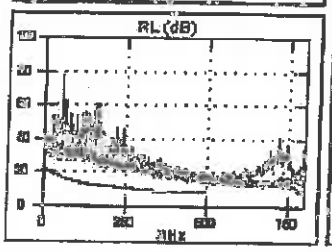


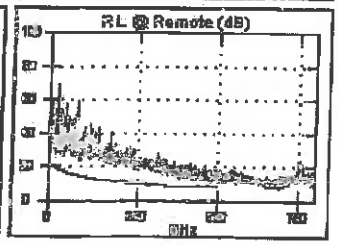












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-42

Date / Time 07/03/2012 12 50 47 PM
Headroom 7.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69 0%

Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

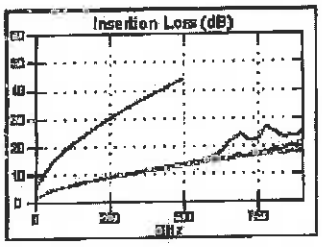
Length (ft), Limit 295	[Pair 12]	93
Prop. Delay (ns), Limit 498	[Pair 45]	145
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.1
Insertion Loss Margin (dB)	[Pair 36]	30.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

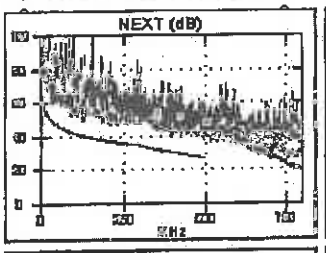
93 ft

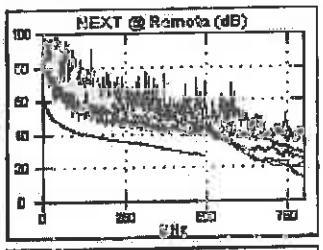
Wire Map (T568B)
PASS

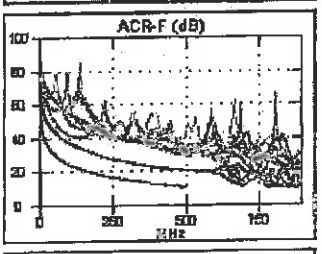
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

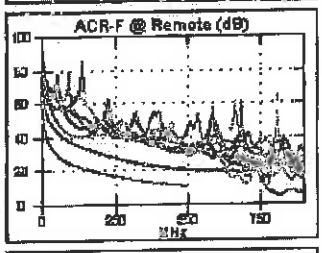
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	9.0	7.6	10.5	11.1
Freq. (MHz)	131.0	191.0	496.0	487.0
Limit (dB)	39.9	37.3	26.8	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	10.7	9.1	12.1	12.2
Freq. (MHz)	398.0	238.0	500.0	500.0
Limit (dB)	27.2	33.1	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	9.5	9.2	9.5	9.2
Freq. (MHz)	438.0	486.0	498.0	498.0
Limit (dB)	11.4	10.5	10.2	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	12.1	12.0	12.1	12.0
Freq. (MHz)	459.0	486.0	498.0	494.0
Limit (dB)	8.0	7.5	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.2	19.0	41.0	41.5
Freq. (MHz)	3.9	3.0	496.0	487.0
Limit (dB)	60.8	61.9	-16.8	-16.1
Worst Pair	36	78	36	36
PS ACR-N (dB)	19.5	20.3	42.7	42.8
Freq. (MHz)	3.9	2.9	500.0	500.0
Limit (dB)	58.5	59.0	-20.0	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	4.6	4.6	4.6	4.6
Freq. (MHz)	486.0	485.0	486.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

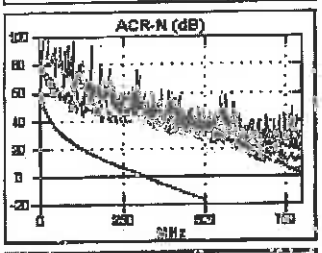


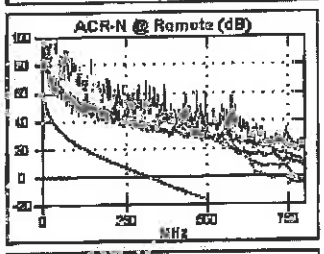


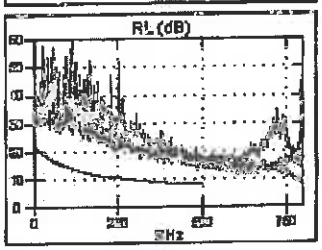


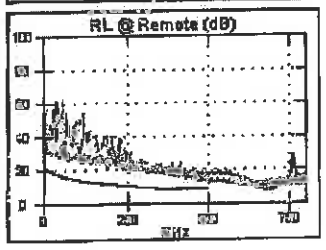












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-43

Test Summary: PASS

Date / Time: 07/03/2012 12:51:22 PM
Headroom: 8.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/18/2007

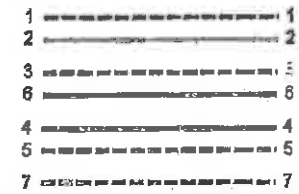
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

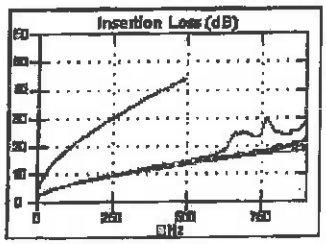
Length (ft), Limit 295	[Pair 12]	97
Prop. Delay (ns), Limit 498	[Pair 45]	151
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.3
Insertion Loss Margin (dB)	[Pair 36]	29.1
Frequency (MHz)	[Pair 36]	490.0
Limit (dB)	[Pair 36]	43.2

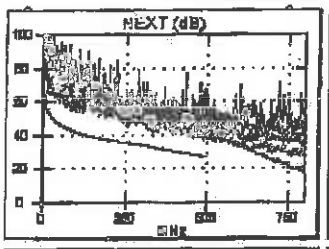
97 ft

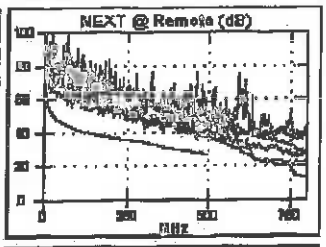
Wire Map (T568B)
PASS

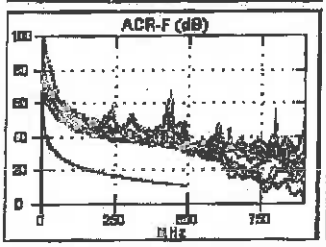


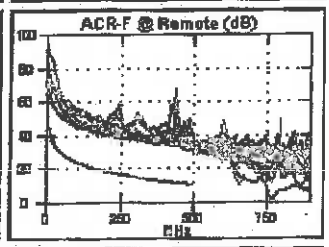
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	9.0	8.0	9.8	8.0
Freq. (MHz)	334.0	466.0	492.0	466.0
Limit (dB)	32.5	27.7	26.9	27.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.6	8.9	9.6	8.9
Freq. (MHz)	492.0	466.0	492.0	466.0
Limit (dB)	24.0	24.8	24.0	24.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	12-36	12-36	12-36
ACR-F (dB)	19.9	19.8	19.9	19.8
Freq. (MHz)	492.0	488.0	492.0	488.0
Limit (dB)	10.4	10.4	10.4	10.4
Worst Pair	78	12	45	12
PS ACR-F (dB)	20.4	20.3	20.8	20.3
Freq. (MHz)	195.0	492.0	498.0	492.0
Limit (dB)	15.4	7.4	7.2	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	16.1	16.8	39.2	37.5
Freq. (MHz)	16.3	16.3	492.0	466.0
Limit (dB)	47.5	47.5	-16.5	-14.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.9	18.2	38.9	37.5
Freq. (MHz)	16.1	16.3	492.0	466.0
Limit (dB)	45.2	45.1	-19.3	-17.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	4.9	3.6	4.9	3.6
Freq. (MHz)	486.0	475.0	486.0	475.0
Limit (dB)	8.0	8.0	8.0	8.0

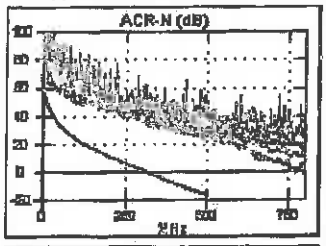


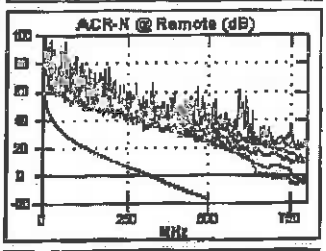


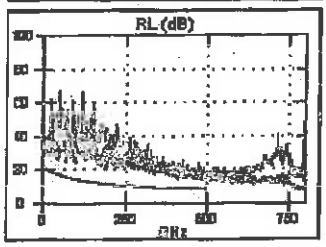


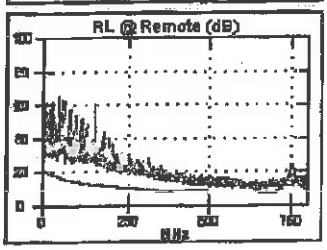












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-44

Test Summary: PASS

Date / Time 07/09/2012 12:51:57 PM
Headroom 7.7 dB (NEXT 30-79)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/16/2007

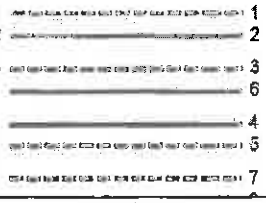
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

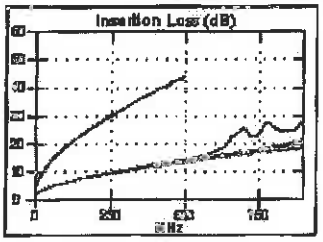
Model DTX-1800
Main S/N 9469009
Remote S/N 9439018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	97
Prop. Delay (ns), Limit 498	[Pair 45]	151
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.2
Insertion Loss Margin (dB)	[Pair 36]	29.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

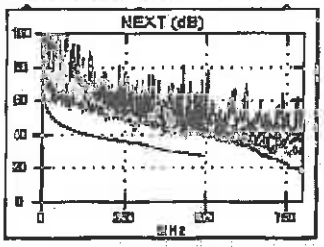
97 ft

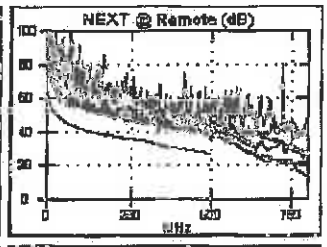
Wire Map (T568B)
PASS

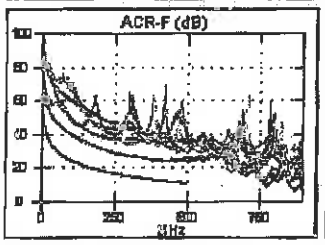


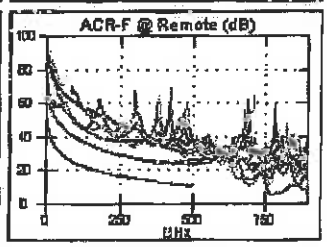


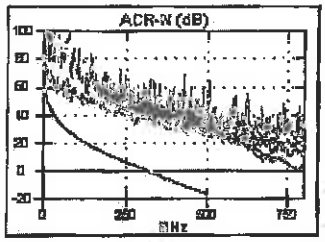
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	7.7	8.3	8.9	8.8
Freq. (MHz)	283.0	238.5	441.0	498.0
Limit (dB)	34.4	35.7	28.5	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.2	9.3	10.6	9.4
Freq. (MHz)	440.0	343.0	493.0	498.0
Limit (dB)	25.7	29.4	24.0	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	11.4	11.4	12.0	11.7
Freq. (MHz)	326.0	326.0	434.0	438.0
Limit (dB)	13.9	13.9	11.4	11.4
Worst Pair	45	45	45	45
PS ACR-F (dB)	13.8	14.0	14.4	14.6
Freq. (MHz)	326.0	289.0	485.0	477.0
Limit (dB)	10.9	12.0	7.5	7.6
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	16.0	14.5	40.8	39.3
Freq. (MHz)	6.1	5.9	492.0	498.0
Limit (dB)	56.8	57.2	-16.5	-16.9
Worst Pair	78	78	36	36
PS ACR-N (dB)	17.2	15.8	40.1	39.1
Freq. (MHz)	5.9	5.8	493.0	498.0
Limit (dB)	54.9	55.1	-19.4	-19.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	6.1	2.6	6.1	2.6
Freq. (MHz)	440.0	481.0	440.0	481.0
Limit (dB)	8.0	8.0	8.0	8.0

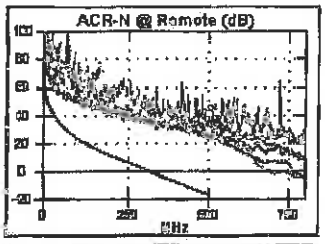


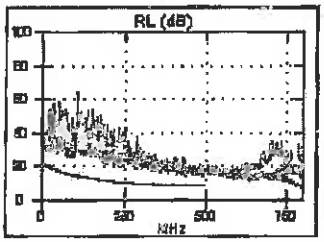


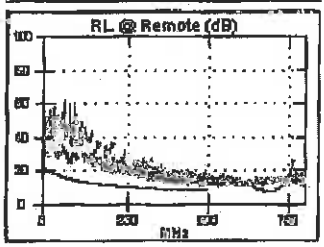












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-45

Date / Time: 07/03/2012 12:52:32 PM
Headroom 8.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/18/2007

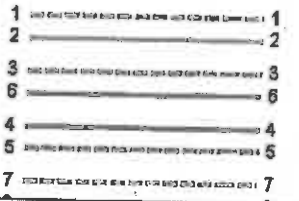
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

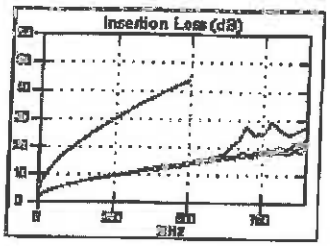
Test Summary: PASS
Model: DTX-1800
Main S/N: 8469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	100
Prop. Delay (ns), Limit 498	[Pair 45]	155
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.3
Insertion Loss Margin (dB)	[Pair 36]	29.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

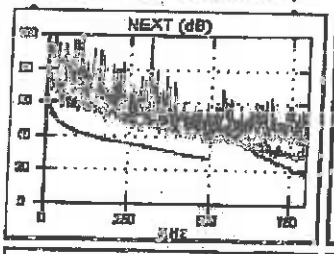
100 ft

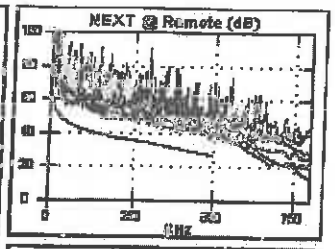
Wire Map (T568B)
PASS



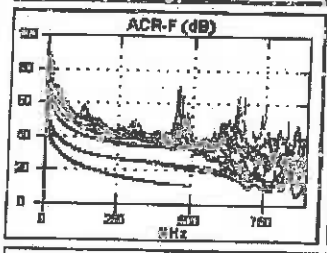


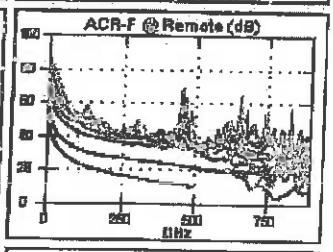
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	8.8	9.5	10.5	9.8
Freq. (MHz)	295.0	49.8	494.0	488.0
Limit (dB)	34.2	46.7	26.8	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	10.0	10.2	10.0	10.9
Freq. (MHz)	490.0	362.0	490.0	495.0
Limit (dB)	24.1	28.6	24.1	23.9



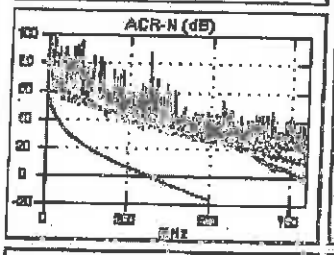


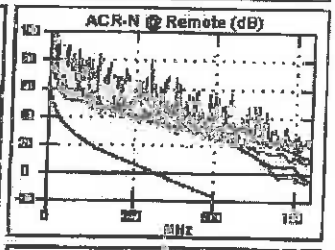
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	45-36	36-45
ACR-F (dB)	7.6	7.6	9.9	10.4
Freq. (MHz)	1.4	1.4	500.0	500.0
Limit (dB)	61.4	61.4	10.2	10.2
Worst Pair	45	45	36	45
PS ACR-F (dB)	10.5	10.4	12.6	12.6
Freq. (MHz)	2.0	1.9	500.0	500.0
Limit (dB)	55.2	55.7	7.2	7.2



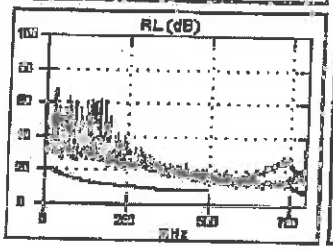


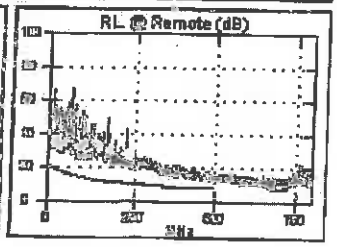
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.1	17.2	40.0	39.3
Freq. (MHz)	16.3	6.0	490.0	488.0
Limit (dB)	47.5	57.0	-16.3	-16.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.6	18.0	39.1	40.2
Freq. (MHz)	6.4	6.3	490.0	495.0
Limit (dB)	54.2	54.3	-19.2	-19.6





PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	36	45
RL (dB)	5.1	4.5	5.1	4.5
Freq. (MHz)	490.0	482.0	490.0	482.0
Limit (dB)	8.0	8.0	8.0	8.0





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-46

Test Summary: PASS

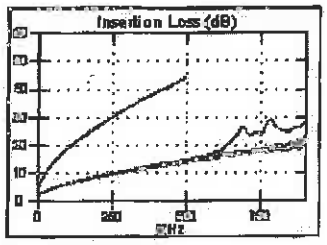
Date / Time 07/09/2012 12:59:09 PM
Headroom 5.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator: TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

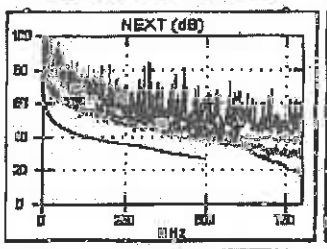
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

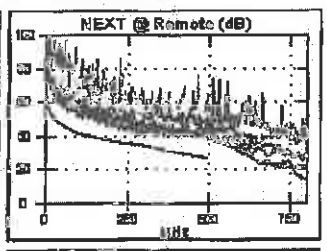
Length (ft), Limit 295	[Pair 12]	100
Prop. Delay (ns), Limit 498	[Pair 45]	155
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.3
Insertion Loss Margin (dB)	[Pair 36]	29.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

Wire Map (T568B)
PASS

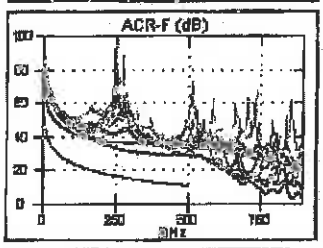


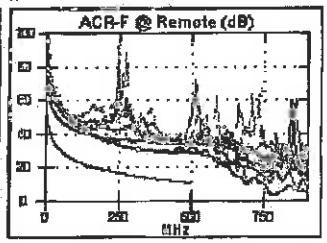
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	8.5	5.9	9.9	11.1
Freq. (MHz)	422.0	306.0	494.0	500.0
Limit (dB)	29.1	33.7	26.8	26.7
Worst Pair	36	78	36	45
PS NEXT (dB)	9.0	7.0	10.4	11.5
Freq. (MHz)	422.0	289.0	495.0	500.0
Limit (dB)	26.3	31.7	23.9	23.8



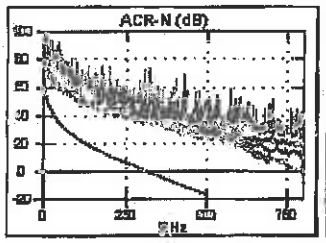


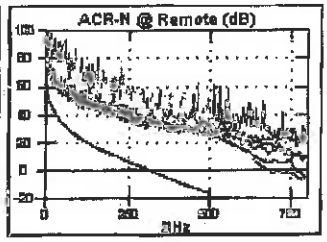
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.9	15.8	16.8	16.5
Freq. (MHz)	325.0	325.0	431.0	438.0
Limit (dB)	14.0	14.0	11.5	11.4
Worst Pair	36	36	36	36
PS ACR-F (dB)	17.6	17.7	17.6	18.1
Freq. (MHz)	438.0	381.0	441.0	423.0
Limit (dB)	8.4	9.6	8.3	8.7



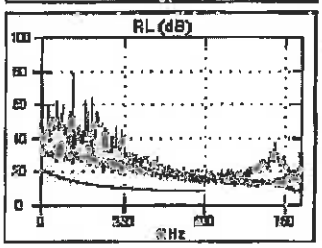


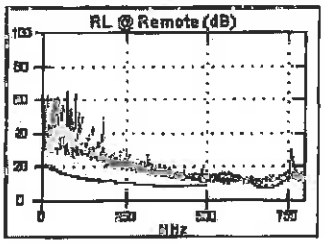
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	12-36	36-45
ACR-N (dB)	17.5	16.5	39.1	41.2
Freq. (MHz)	7.9	8.1	494.0	500.0
Limit (dB)	54.6	54.3	-16.6	-17.1
Worst Pair	78	78	36	45
PS ACR-N (dB)	18.7	17.5	39.7	41.6
Freq. (MHz)	8.0	8.3	495.0	500.0
Limit (dB)	52.1	51.8	-19.6	-20.0





PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	5.0	3.1	5.0	3.1
Freq. (MHz)	488.0	491.0	488.0	491.0
Limit (dB)	8.0	8.0	8.0	8.0





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

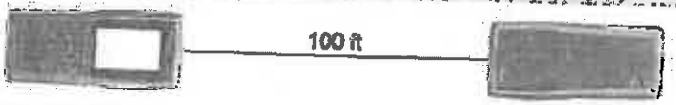
LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-47
Date / Time 07/03/2012 12:54:11 PM
Headroom 9.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/18/2007

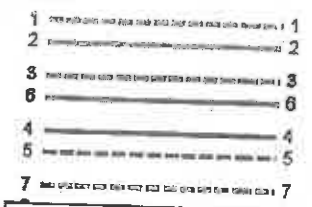
Operator: TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

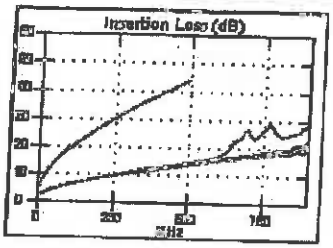
Test Summary: PASS
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	100
Prop. Delay (ns), Limit 498	[Pair 45]	156
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.4
Insertion Loss Margin (dB)	[Pair 36]	29.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

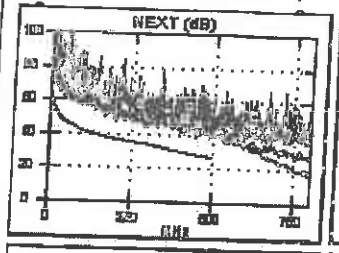


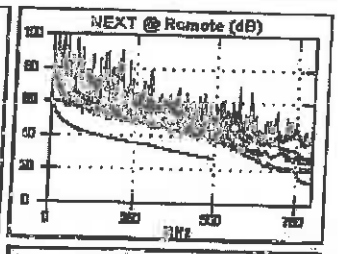
Wire Map (T568B)
PASS



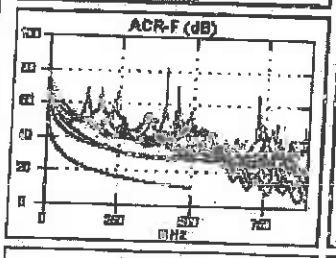


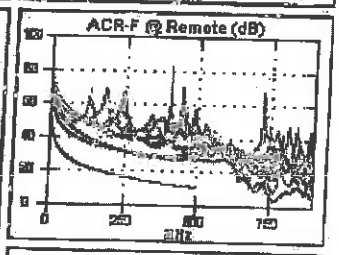
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.8	9.1	10.6	9.8
Freq. (MHz)	448.0	447.0	488.0	487.0
Limit (dB)	28.2	28.3	27.0	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	10.2	10.1	10.8	10.4
Freq. (MHz)	302.0	446.0	497.0	500.0
Limit (dB)	31.3	25.5	23.8	23.8



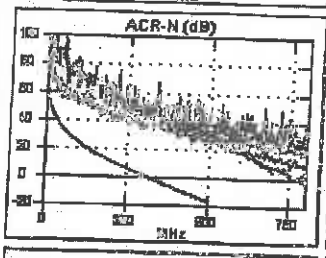


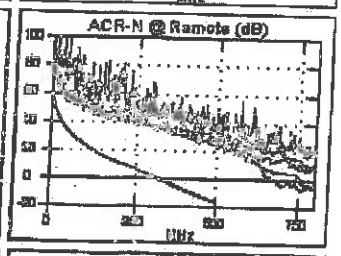
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	12-78	45-36
ACR-F (dB)	14.4	14.4	16.0	15.1
Freq. (MHz)	316.0	316.0	491.0	424.0
Limit (dB)	14.2	14.2	10.4	11.6
Worst Pair	45	36	78	78
PS ACR-F (dB)	16.5	16.7	17.4	17.9
Freq. (MHz)	316.0	364.0	495.0	500.0
Limit (dB)	11.2	10.0	7.3	7.2



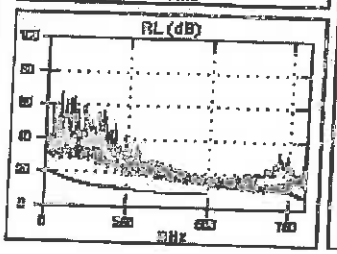


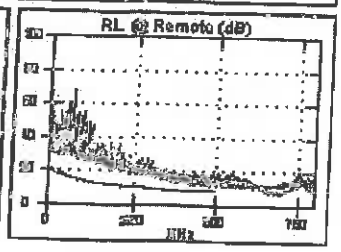
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	19.4	17.7	40.4	39.3
Freq. (MHz)	9.6	46.5	488.0	487.0
Limit (dB)	52.7	35.2	-16.1	-16.1
Worst Pair	78	78	36	36
PS ACR-N (dB)	19.2	18.6	40.3	40.2
Freq. (MHz)	9.9	9.3	497.0	500.0
Limit (dB)	50.1	50.7	-19.7	-20.0





PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	5.6	3.2	5.6	3.2
Freq. (MHz)	438.0	481.0	438.0	481.0
Limit (dB)	8.0	8.0	8.0	8.0





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-A-48

Test Summary: PASS

Date / Time 07/03/2012 12:54:43 PM
Headroom 8.7 dB (NEXT 12-36)
Test Limit: TIA Cat 5A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

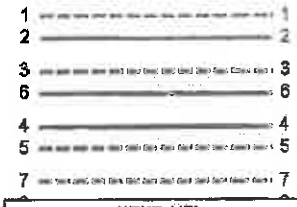
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP 69.0%

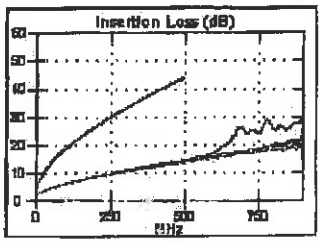
Model DTX-1600
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	100
Prop. Delay (ns), Limit 498	[Pair 45]	156
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.3
Insertion Loss Margin (dB)	[Pair 36]	29.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

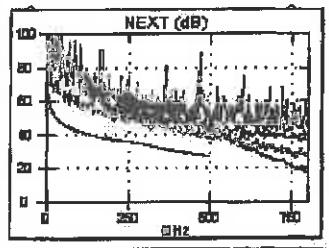
100 ft

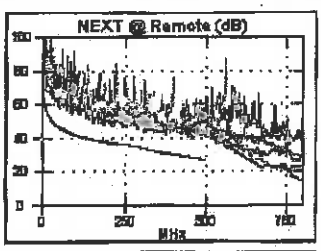
Wire Map (T568B)
PASS

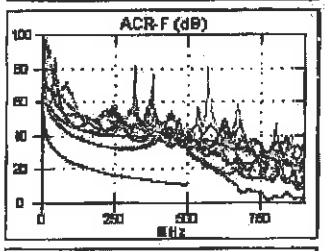


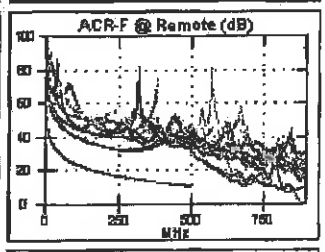


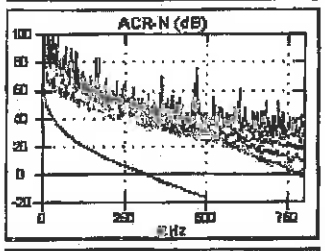
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	8.7	9.7	10.7	11.1
Freq. (MHz)	331.0	316.0	495.0	463.0
Limit (dB)	32.6	33.3	26.8	27.8
Worst Pair	36	78	36	36
PS NEXT (dB)	9.9	10.4	11.0	13.0
Freq. (MHz)	331.0	293.0	495.0	496.0
Limit (dB)	29.9	31.6	23.9	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.5	15.5	16.8	16.5
Freq. (MHz)	176.5	176.5	299.0	292.0
Limit (dB)	19.3	19.3	14.7	14.9
Worst Pair	36	36	36	36
PS ACR-F (dB)	18.0	18.0	22.5	22.9
Freq. (MHz)	184.5	176.5	500.0	497.0
Limit (dB)	15.9	16.3	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	17.5	17.0	40.1	40.3
Freq. (MHz)	12.9	12.6	495.0	463.0
Limit (dB)	49.8	50.0	-16.7	-14.1
Worst Pair	78	36	36	36
PS ACR-N (dB)	19.4	18.9	40.4	42.6
Freq. (MHz)	13.0	12.8	495.0	496.0
Limit (dB)	47.4	47.6	-19.6	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.8	3.8	5.8	3.8
Freq. (MHz)	487.0	476.0	487.0	476.0
Limit (dB)	8.0	8.0	8.0	8.0

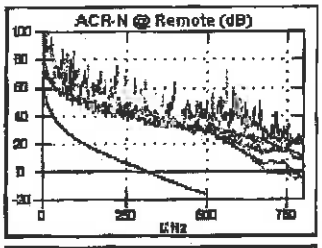


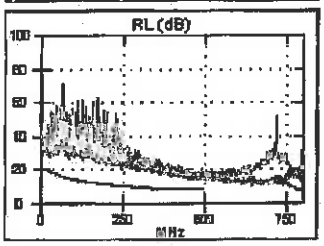


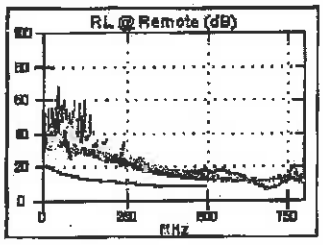












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-01

Date / Time 07/09/2012 12:55:26 PM
Headroom 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

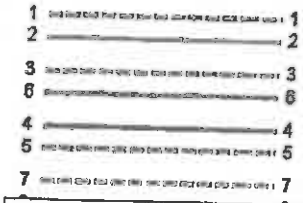
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS
Model DTX-1800
Main S/N 9469009
Remote S/N 9469019
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	108
Prop. Delay (ns), Limit 498	[Pair 45]	168
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.6
Insertion Loss Margin (dB)	[Pair 36]	28.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

108 ft

Wire Map (T568B)
PASS

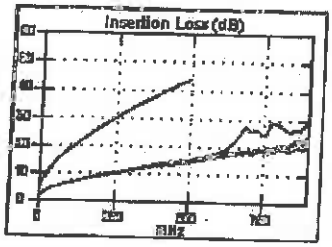


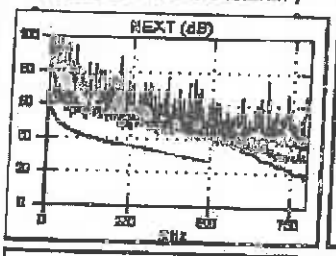
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	8.2	8.7	11.3	11.5
Freq. (MHz)	73.0	238.0	464.0	484.0
Limit (dB)	44.1	35.7	27.7	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	10.3	12.4	11.7
Freq. (MHz)	337.0	238.0	480.0	500.0
Limit (dB)	29.7	33.1	24.4	23.8

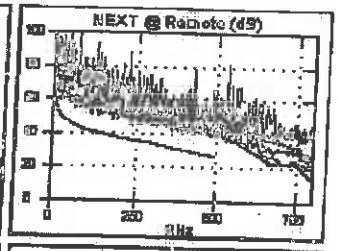
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	10.1	10.2	17.8	18.1
Freq. (MHz)	2.8	2.4	494.0	495.0
Limit (dB)	55.4	56.7	10.3	10.3
Worst Pair	36	45	36	36
PS ACR-F (dB)	13.0	12.9	18.5	19.4
Freq. (MHz)	2.8	2.8	488.0	496.0
Limit (dB)	52.4	52.4	7.4	7.3

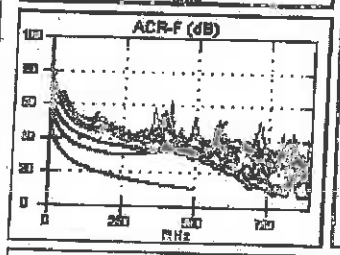
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	15.6	16.2	39.9	39.8
Freq. (MHz)	20.9	17.8	483.0	484.0
Limit (dB)	44.8	46.5	-15.7	-15.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.4	17.9	40.5	40.5
Freq. (MHz)	20.9	17.6	480.0	500.0
Limit (dB)	42.4	44.2	-18.4	-20.0

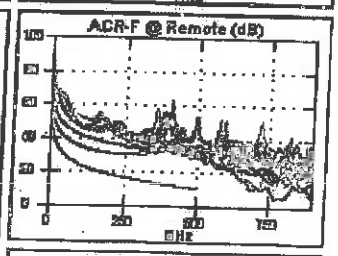
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.9	3.5	5.9	3.5
Freq. (MHz)	491.0	484.0	491.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

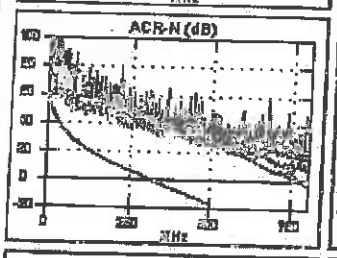


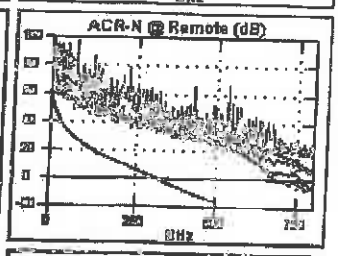


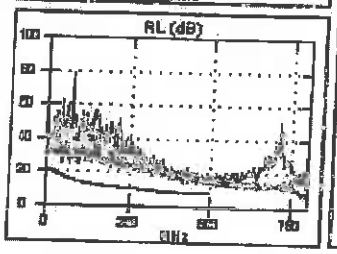


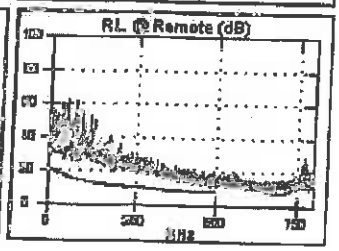












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-02

Test Summary: PASS

Date / Time: 07/03/2012 12:57:02 PM
Headroom 8.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

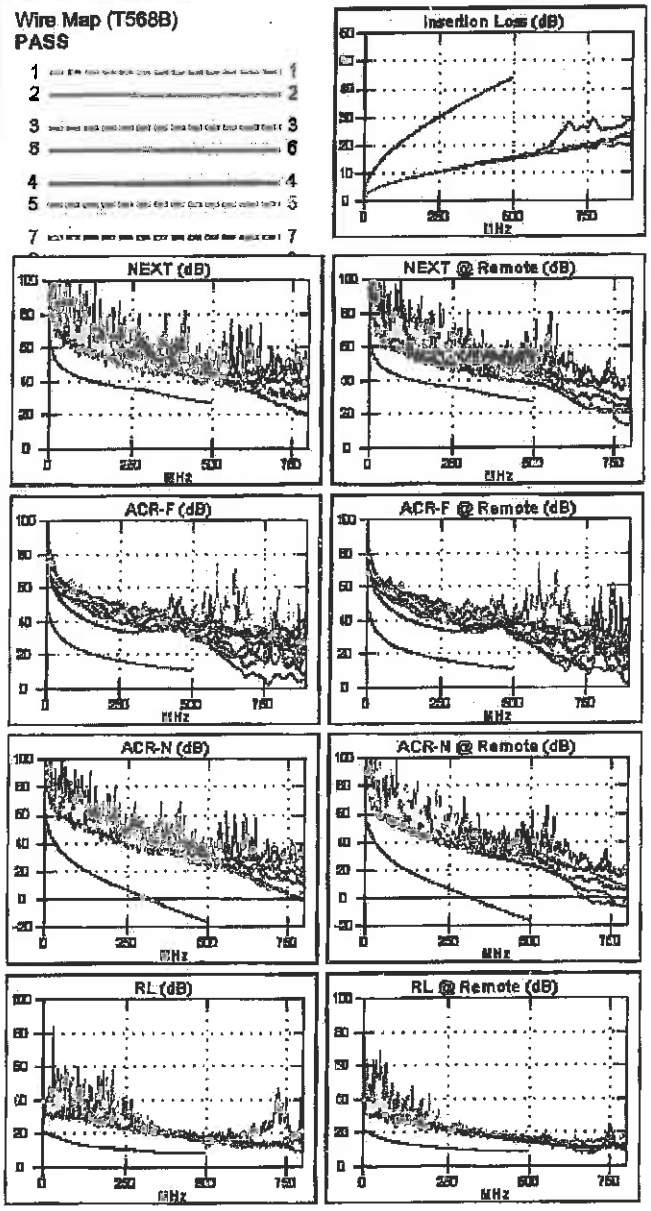
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	108
Prop. Delay (ns), Limit 498	[Pair 45]	168
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 78]	4.7
Insertion Loss Margin (dB)	[Pair 36]	28.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

108 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.1	8.9	10.1	10.4
Freq. (MHz)	287.0	314.0	467.0	500.0
Limit (dB)	34.3	33.3	27.6	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	10.5	9.3	11.1	11.3
Freq. (MHz)	294.0	314.0	471.0	492.0
Limit (dB)	31.5	30.7	24.7	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	78-36	78-36
ACR-F (dB)	17.3	17.3	20.0	20.1
Freq. (MHz)	247.0	247.0	488.0	498.0
Limit (dB)	16.3	16.3	10.4	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	19.3	19.1	20.2	21.1
Freq. (MHz)	260.0	238.0	491.0	498.0
Limit (dB)	12.9	13.7	7.4	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	19.7	19.6	38.2	39.5
Freq. (MHz)	20.5	21.5	467.0	500.0
Limit (dB)	45.0	44.5	-14.4	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	21.0	20.2	39.9	39.5
Freq. (MHz)	20.5	6.1	489.0	492.0
Limit (dB)	42.6	54.5	-19.1	-19.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.5	5.4	5.5	5.4
Freq. (MHz)	498.0	498.0	498.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0



Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(ded)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-03

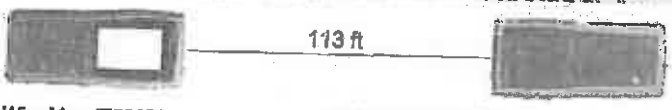
Date / Time: 07/03/2012 12:58:09 PM
Headroom: 6.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7900
NVP: 69.0%

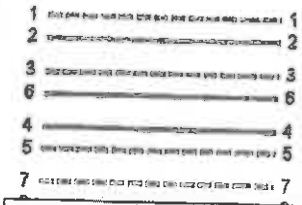
Test Summary: PASS

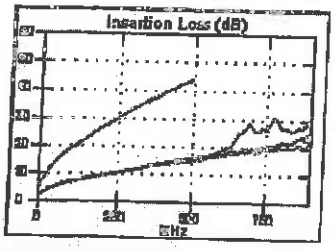
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	113
Prop. Delay (ns), Limit 498	[Pair 45]	175
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.8
Insertion Loss Margin (dB)	[Pair 36]	28.3
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

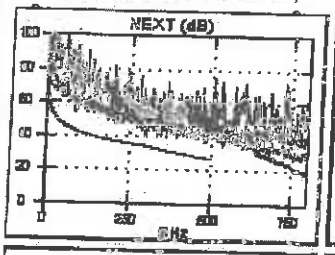


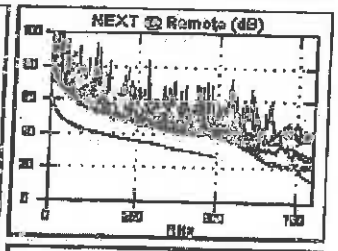
Wire Map (T568B)
PASS

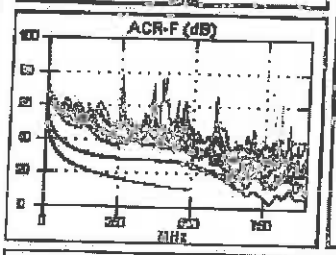


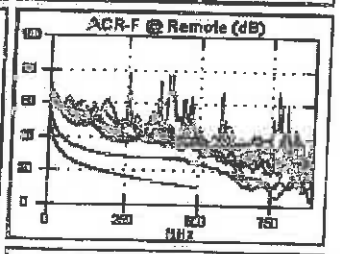


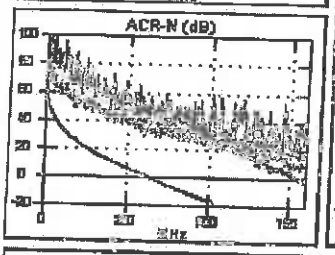
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	6.1	8.5	9.8	10.5
Freq. (MHz)	303.0	303.0	483.0	488.0
Limit (dB)	33.9	33.9	27.1	27.0
Worst Pair	36	36	36	45
PS NEXT (dB)	7.6	8.1	10.3	10.8
Freq. (MHz)	303.0	303.0	483.0	489.0
Limit (dB)	31.3	31.3	24.3	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	8.5	8.5	13.5	13.8
Freq. (MHz)	1.6	1.6	500.0	500.0
Limit (dB)	60.0	60.0	10.2	10.2
Worst Pair	45	45	36	45
PS ACR-F (dB)	11.0	11.1	16.2	15.9
Freq. (MHz)	2.1	2.3	500.0	500.0
Limit (dB)	54.6	54.1	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	16.7	17.4	38.0	38.6
Freq. (MHz)	3.5	3.3	483.0	488.0
Limit (dB)	61.7	61.8	-15.7	-16.1
Worst Pair	78	36	36	36
PS ACR-N (dB)	18.3	17.9	38.0	39.3
Freq. (MHz)	3.9	3.5	483.0	497.0
Limit (dB)	58.5	58.7	-18.6	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.0	4.8	6.0	4.8
Freq. (MHz)	487.0	484.0	487.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

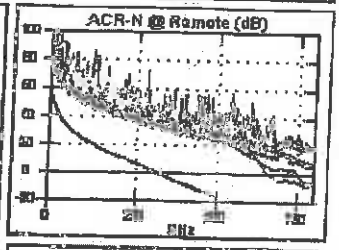


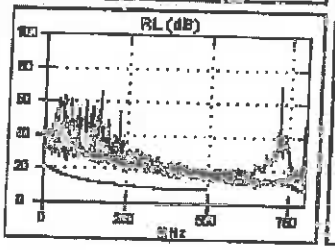


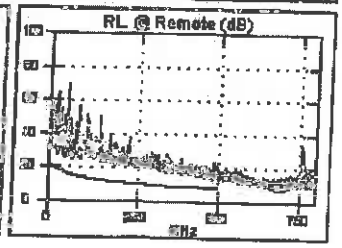












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-94

Date / Time 07/03/2012 12:58:54 PM
Headroom 0.1 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

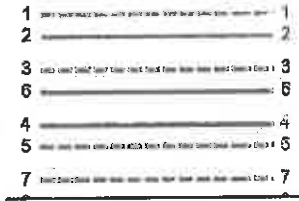
Operator: TYLER
Software Version 2.5200
Limits Version 1.7000
NVP: 69.0%

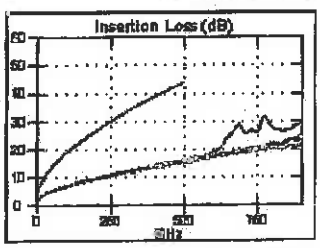
Test Summary: PASS

Model: DTX-1800
Main S/N: 6439009
Remote S/N: 9469918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

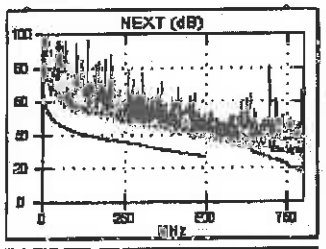
Length (ft), Limit 295	[Pair 12]	112
Prop. Delay (ns), Limit 498	[Pair 45]	174
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.8
Insertion Loss Margin (dB)	[Pair 36]	28.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

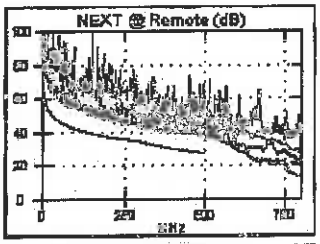
Wire Map (T568B)
PASS

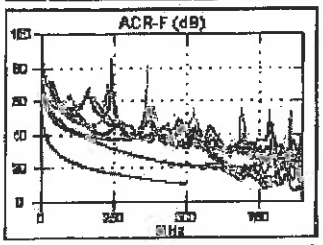


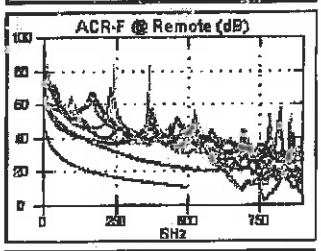


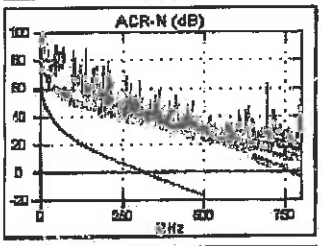
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-45	36-78	36-45
NEXT (dB)	9.1	8.1	9.6	10.7
Freq. (MHz)	402.0	307.0	469.0	491.0
Limit (dB)	29.8	33.7	27.6	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	8.5	10.4	10.6
Freq. (MHz)	469.0	298.0	469.0	473.0
Limit (dB)	24.7	31.4	24.7	24.6
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	10.6	10.3	10.7	10.3
Freq. (MHz)	486.0	491.0	500.0	500.0
Limit (dB)	10.5	10.4	10.2	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	13.3	13.2	13.3	13.2
Freq. (MHz)	486.0	497.0	486.0	500.0
Limit (dB)	7.5	7.3	7.5	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.5	18.6	38.0	38.8
Freq. (MHz)	6.3	6.0	489.0	491.0
Limit (dB)	56.7	57.0	-16.2	-16.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.9	18.0	37.4	37.8
Freq. (MHz)	6.1	9.3	469.0	473.0
Limit (dB)	54.5	50.7	-17.4	-17.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	5.7	4.6	5.7	4.6
Freq. (MHz)	464.0	486.0	464.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

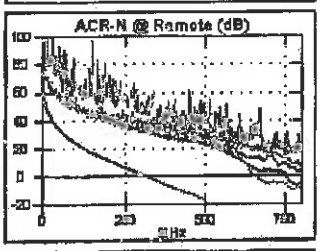


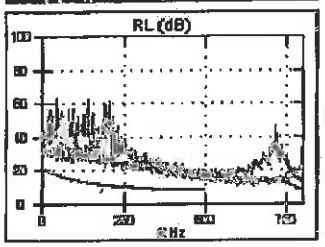


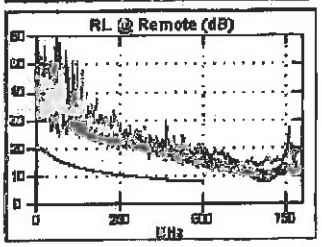












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

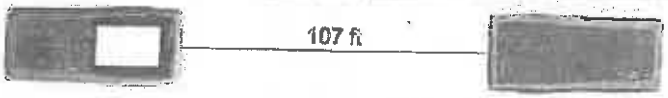
LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-05
Date / Time: 07/03/2012 12:59:35 PM
Headroom: 8.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

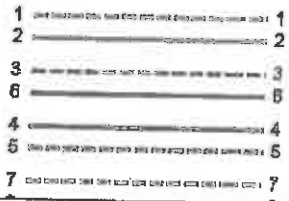
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

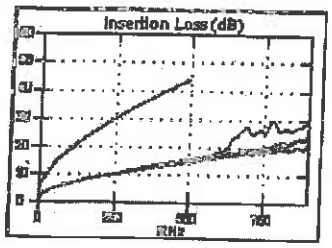
Length (ft), Limit 295	[Pair 12]	107
Prop. Delay (ns), Limit 498	[Pair 45]	167
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.6
Insertion Loss Margin (dB)	[Pair 36]	28.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

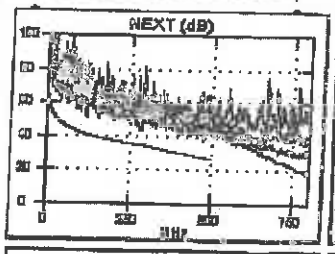


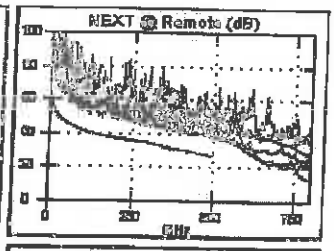
Wire Map (T568B)
PASS

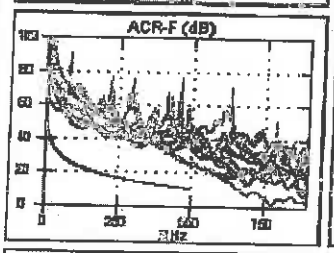


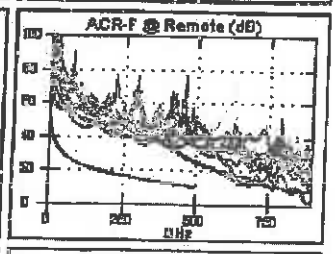
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	8.9	9.6	10.7	10.9
Freq. (MHz)	289.0	308.0	480.0	490.0
Limit (dB)	34.3	33.6	27.2	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	10.1	11.2	11.1
Freq. (MHz)	289.0	289.0	480.0	489.0
Limit (dB)	31.7	31.7	24.4	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	14.1	14.4	14.1	14.4
Freq. (MHz)	499.0	499.0	499.0	499.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	16.9	16.9	16.9	16.9
Freq. (MHz)	499.0	499.0	499.0	499.0
Limit (dB)	7.2	7.2	7.2	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	12-36	36-78	36-45
ACR-N (dB)	18.2	19.9	39.3	39.6
Freq. (MHz)	3.5	2.4	480.0	490.0
Limit (dB)	61.7	62.0	-15.5	-16.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.5	20.5	39.3	39.4
Freq. (MHz)	3.5	21.3	480.0	489.0
Limit (dB)	58.7	42.2	-18.4	-19.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	6.4	6.3	6.4	6.3
Freq. (MHz)	479.0	486.0	479.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

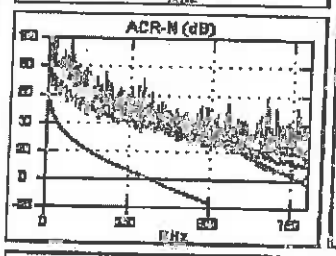


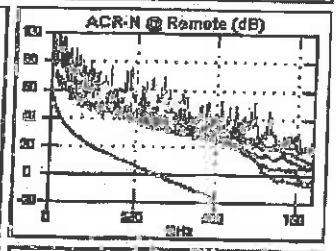


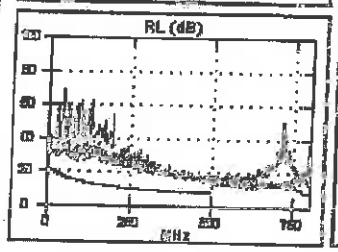


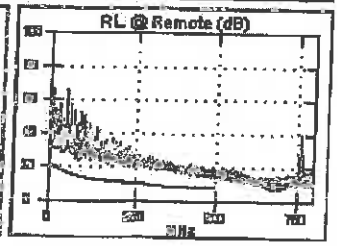












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version: 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-06
Date / Time: 07/03/2012 01:00:07 PM
Headroom: 7.6 dB (NEXT 33-73)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

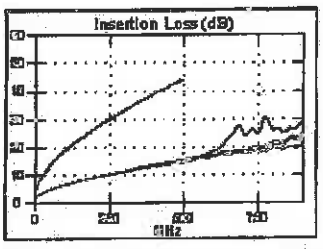
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

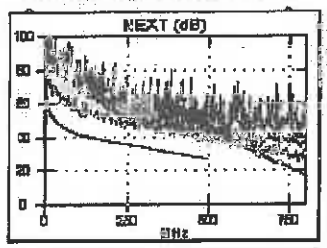
Length (ft), Limit 295	[Pair 12]	108
Prop. Delay (ns), Limit 498	[Pair 45]	167
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 12]	4.5
Insertion Loss Margin (dB)	[Pair 36]	28.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

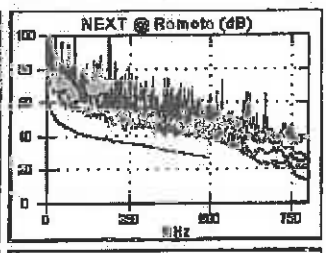
108 ft

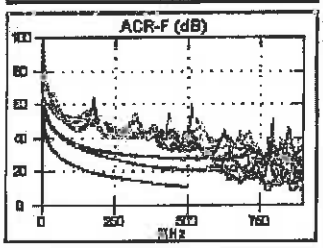
Wire Map (T568B)
PASS

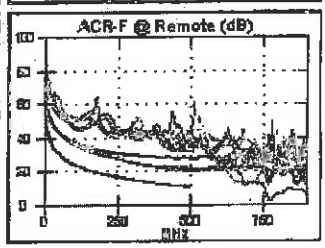


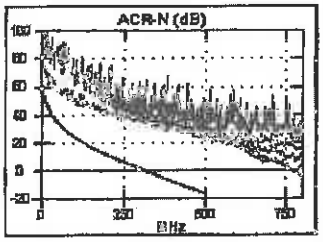
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	36-78	36-45
NEXT (dB)	9.7	7.6	10.3	10.2
Freq. (MHz)	385.0	239.0	498.0	500.0
Limit (dB)	30.4	35.7	26.7	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.9	8.7	9.9	10.6
Freq. (MHz)	499.0	239.0	499.0	479.0
Limit (dB)	23.8	33.0	23.8	24.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	9.6	9.5	9.8	9.5
Freq. (MHz)	386.0	421.0	480.0	480.0
Limit (dB)	12.5	11.7	10.6	10.6
Worst Pair	45	36	45	36
PS ACR-F (dB)	12.2	12.4	12.5	12.4
Freq. (MHz)	428.0	473.0	480.0	480.0
Limit (dB)	8.6	7.7	7.6	7.6
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
ACR-N (dB)	16.5	17.2	38.8	39.4
Freq. (MHz)	4.8	4.3	493.0	500.0
Limit (dB)	59.1	60.0	-16.5	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.4	17.9	38.7	39.2
Freq. (MHz)	4.3	4.0	499.0	488.0
Limit (dB)	57.7	58.3	-19.9	-19.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.8	5.4	5.8	5.4
Freq. (MHz)	484.0	484.0	484.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

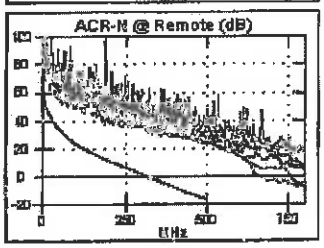


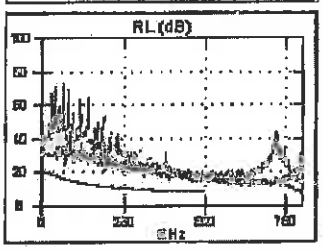


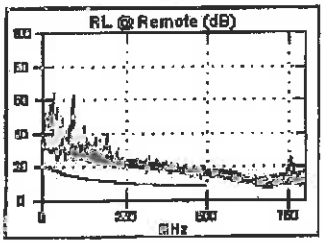












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-07
Date / Time: 07/08/2013 01:09:49 PM
Headroom: 7.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9480009
Remote S/N: 9480016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

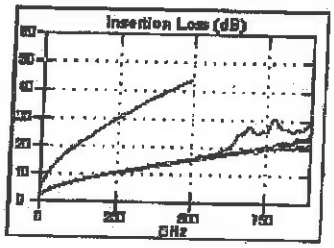
Length (ft), Limit 295	[Pair 12]	112
Prop. Delay (ns), Limit 498	[Pair 45]	174
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.8
Insertion Loss Margin (dB)	[Pair 36]	28.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

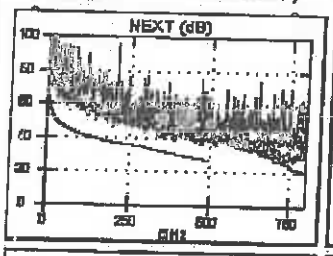
Wire Map (T568B)
PASS

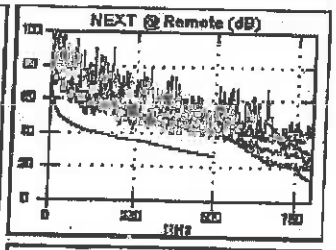
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.0	7.2	9.0	10.1
Freq. (MHz)	359.0	244.5	475.0	485.0
Limit (dB)	31.4	35.5	27.4	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	9.0	9.3	10.7	10.9
Freq. (MHz)	348.0	244.5	475.0	485.0
Limit (dB)	29.2	32.9	24.5	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-78	12-78
ACR-F (dB)	10.9	10.9	13.2	13.2
Freq. (MHz)	2.1	2.8	490.0	497.0
Limit (dB)	57.6	55.4	10.4	10.3
Worst Pair	36	45	78	78
PS ACR-F (dB)	13.7	13.6	15.6	15.8
Freq. (MHz)	3.3	3.3	487.0	497.0
Limit (dB)	51.0	51.0	7.4	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	16.2	16.2	37.1	38.5
Freq. (MHz)	11.9	11.5	475.0	485.0
Limit (dB)	50.6	50.9	-15.1	-15.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.7	17.6	40.1	38.8
Freq. (MHz)	11.9	11.5	500.0	485.0
Limit (dB)	48.3	48.6	-20.0	-18.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	6.1	5.5	6.1	5.5
Freq. (MHz)	496.0	486.0	496.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

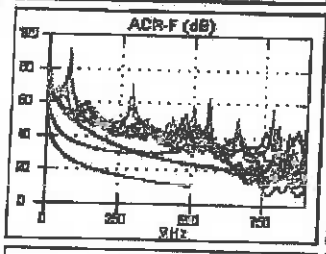
Compliant Network Standards:

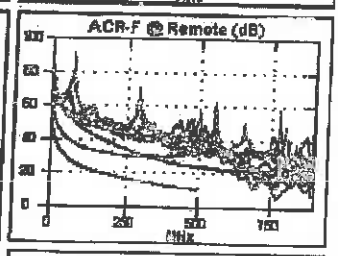
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

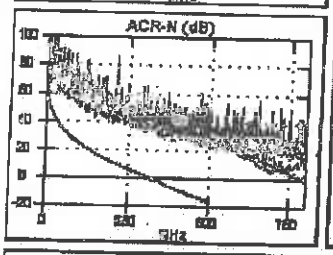


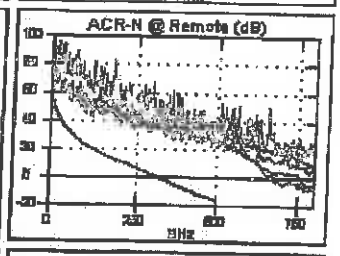


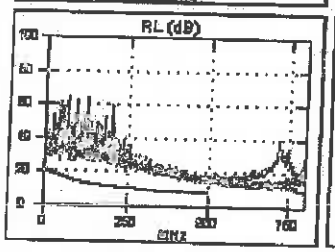


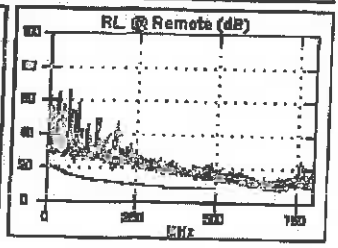












LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Test Summary: PASS

Cable ID: DMV-MTB-R1-B-08
Date / Time 07/03/2012 01 01 28 PM
Headroom 8.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date. 07/19/2007

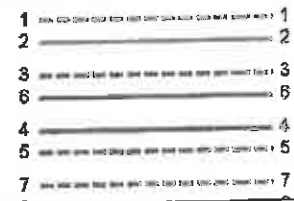
Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69.0%

Model DTX-1800
Main S/N. 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	174
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	4.8
Insertion Loss Margin (dB)	[Pair 36]	28.3
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

111 ft

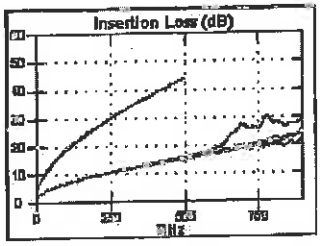
Wire Map (T568B)
PASS

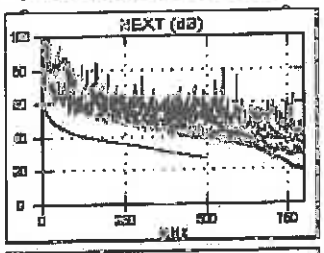


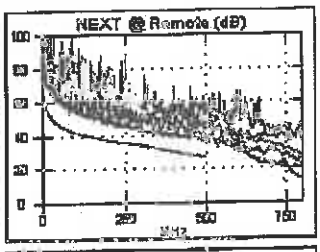
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	10.2	8.2	10.5	9.8
Freq. (MHz)	319.0	302.0	498.0	488.0
Limit (dB)	33.1	33.9	26.7	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	10.5	8.9	11.3	11.2
Freq. (MHz)	458.0	302.0	497.0	500.0
Limit (dB)	25.1	31.3	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	11.9	12.3	11.9	12.3
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	14.3	14.6	14.3	14.6
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	7.2	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	15.4	15.8	38.6	38.2
Freq. (MHz)	9.1	8.8	498.0	491.0
Limit (dB)	53.2	53.6	-16.9	-16.4
Worst Pair	78	78	36	36
PS ACR-N (dB)	16.6	16.7	39.4	39.5
Freq. (MHz)	8.9	8.8	498.0	500.0
Limit (dB)	51.1	51.2	-19.8	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	7.1	5.0	7.1	5.0
Freq. (MHz)	498.0	498.0	498.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

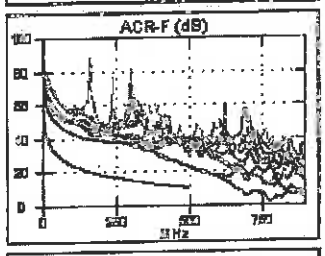
Compliant Network Standards:

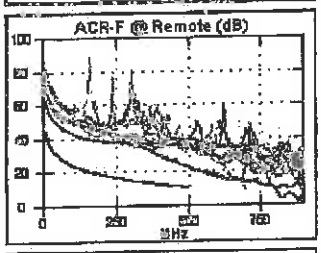
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

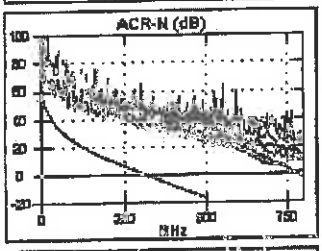


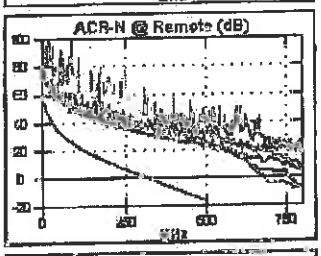


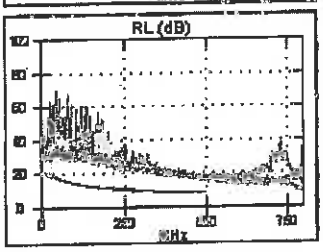


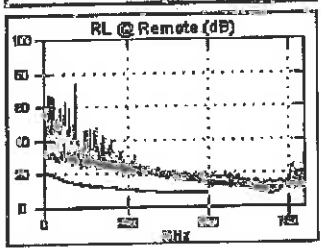












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-08

Date / Time: 07/09/2012 01:02:09 PM
Headroom: 6.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

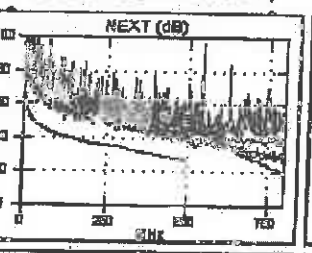
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9460009
Remote S/N: 9460918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	112
Prop. Delay (ns), Limit 498	[Pair 45]	174
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.8
Insertion Loss Margin (dB)	[Pair 36]	28.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

112 ft

Wire Map (T568B)
PASS

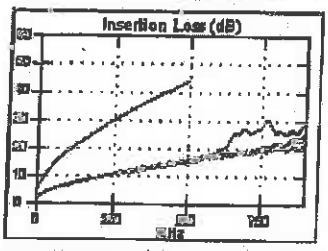


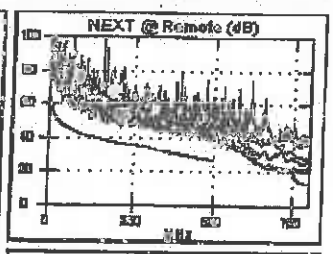
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	9.7	8.3	10.9	11.6
Freq. (MHz)	285.0	213.5	500.0	498.0
Limit (dB)	34.4	36.5	26.7	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	10.1	10.0	10.1	11.8
Freq. (MHz)	455.0	213.5	455.0	499.0
Limit (dB)	25.2	33.8	25.2	23.8

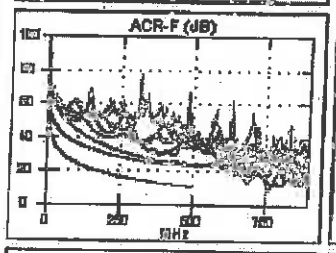
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-78	12-78	45-36	45-36
ACR-F (dB)	11.3	11.3	12.3	12.6
Freq. (MHz)	303.0	218.0	496.0	489.0
Limit (dB)	14.6	17.4	10.3	10.4
Worst Pair	78	78	36	45
PS ACR-F (dB)	13.5	13.7	15.2	15.0
Freq. (MHz)	344.0	340.0	496.0	496.0
Limit (dB)	10.5	10.6	7.3	7.3

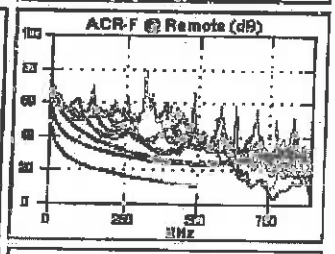
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	16.4	17.6	39.0	40.3
Freq. (MHz)	7.5	7.6	500.0	498.0
Limit (dB)	55.0	54.9	-17.1	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.4	19.5	39.7	39.8
Freq. (MHz)	7.5	7.8	500.0	499.0
Limit (dB)	52.7	52.4	-20.0	-19.9

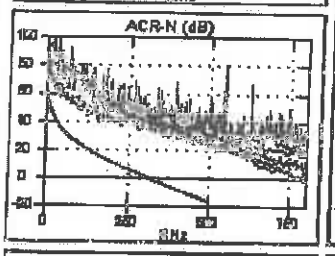
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36	78	36	78
RL (dB)	5.9	5.2	5.9	5.2
Freq. (MHz)	489.0	489.0	489.0	489.0
Limit (dB)	8.0	8.0	8.0	8.0

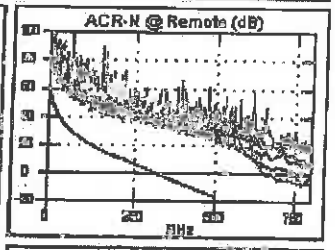


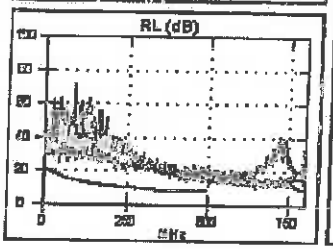


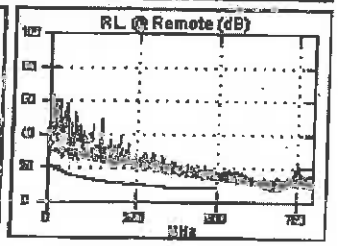












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-19

Test Summary: PASS

Date / Time 07/03/2012 01:02:52 PM
Headroom 7.2 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

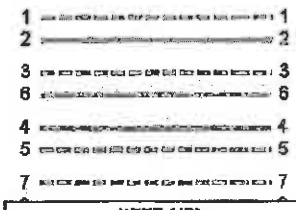
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

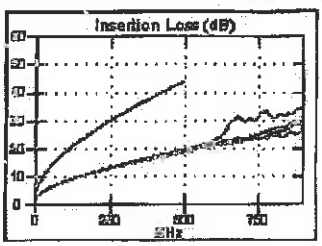
Length (ft), Limit 295	[Pair 12]	139
Prop. Delay (ns), Limit 498	[Pair 45]	216
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	6.0
Insertion Loss Margin (dB)	[Pair 36]	24.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

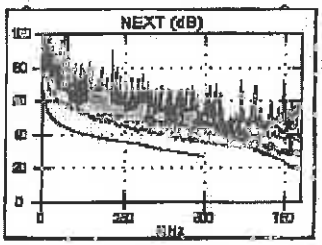
139 ft

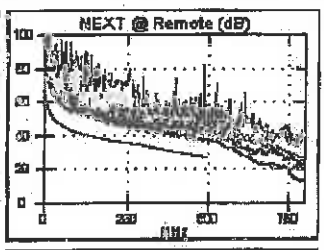
Wire Map (T568B)
PASS

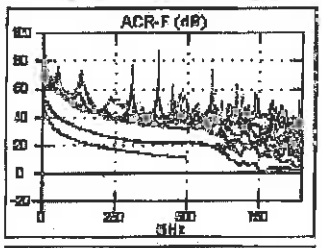


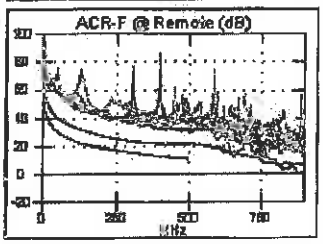
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	7.2	7.8	8.5	8.9
Freq. (MHz)	305.0	316.0	492.0	485.0
Limit (dB)	33.8	33.3	26.9	27.1
Worst Pair	36	36	36	45
PS NEXT (dB)	8.3	7.4	8.5	10.3
Freq. (MHz)	337.0	288.0	457.0	485.0
Limit (dB)	29.7	31.7	25.1	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	45-36
ACR-F (dB)	7.7	7.8	9.5	9.9
Freq. (MHz)	325.0	325.0	487.0	491.0
Limit (dB)	14.0	14.0	10.4	10.4
Worst Pair	36	45	36	45
PS ACR-F (dB)	10.5	10.7	12.3	12.4
Freq. (MHz)	328.0	325.0	487.0	489.0
Limit (dB)	10.9	11.0	7.4	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	36-45
ACR-N (dB)	15.3	16.9	32.8	33.4
Freq. (MHz)	3.8	8.4	492.0	485.0
Limit (dB)	61.1	54.0	-16.5	-15.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.2	17.8	31.9	34.6
Freq. (MHz)	3.9	9.9	457.0	485.0
Limit (dB)	58.5	50.1	-16.4	-18.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.3	4.1	5.3	4.1
Freq. (MHz)	486.0	500.0	486.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

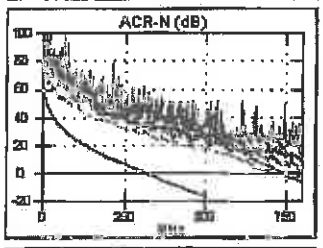


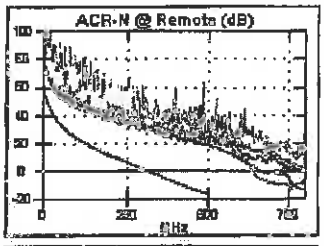


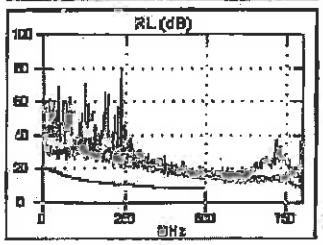


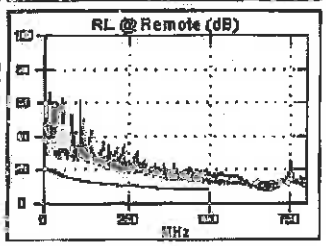












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-11
Date / Time: 07/09/2012 01:09:48 PM
Headroom: 8.2 dB (NEXT 36-45)
Test Limits: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/16/2007

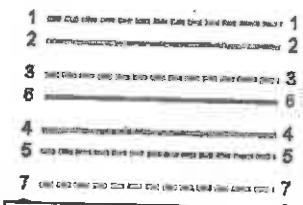
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.9%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

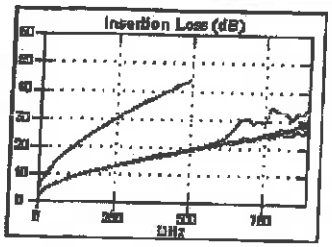
Length (ft), Limit 295	[Pair 12]	139
Prop. Delay (ns), Limit 498	[Pair 45]	216
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	6.0
Insertion Loss Margin (dB)	[Pair 36]	24.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

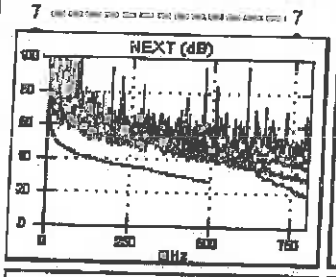
139 ft

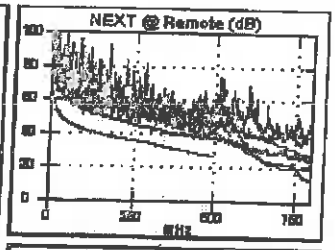
Wire Map (T568B)
PASS

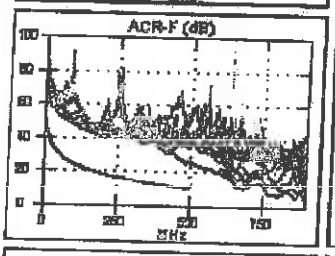


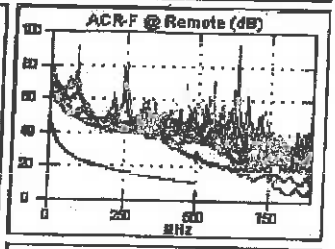
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	12-36	36-45
NEXT (dB)	10.2	8.2	11.9	10.3
Freq. (MHz)	284.0	308.0	493.0	495.0
Limit (dB)	34.4	33.6	26.9	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	10.2	9.3	12.6	10.8
Freq. (MHz)	284.0	270.0	500.0	481.0
Limit (dB)	31.8	32.1	23.8	24.3
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	14.7	14.5	14.9	14.5
Freq. (MHz)	486.0	500.0	500.0	500.0
Limit (dB)	10.5	10.2	10.2	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	17.0	17.6	17.0	17.6
Freq. (MHz)	486.0	500.0	486.0	500.0
Limit (dB)	7.5	7.2	7.5	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	15.7	15.0	36.3	35.3
Freq. (MHz)	18.9	11.5	493.0	497.0
Limit (dB)	45.9	50.9	-16.5	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.8	15.7	37.2	35.9
Freq. (MHz)	18.9	18.5	500.0	494.0
Limit (dB)	43.5	43.7	-20.0	-19.5
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	5.4	4.0	5.4	4.0
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

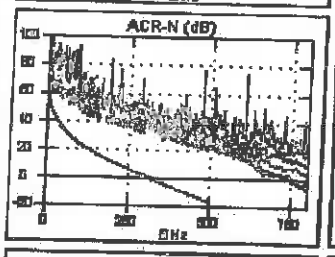


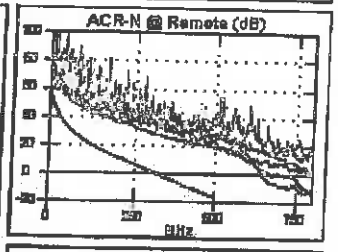


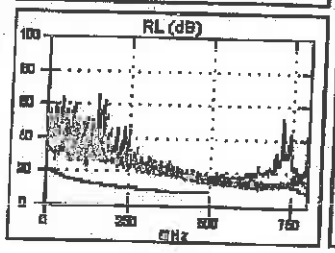


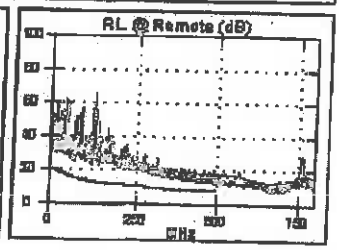












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-12
Date / Time 07/03/2012 01 05 27 PM
Headroom 8.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

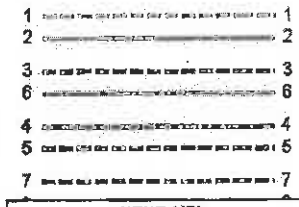
Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69 0%

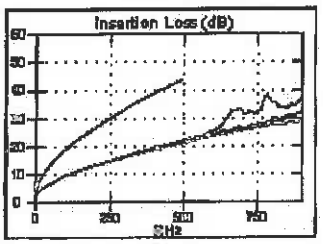
Test Summary: PASS
Model DTX-1800
Main S/N 9469009
Remote S/N 9469013
Main Adapter DTX-PLA002
Remote Adaptar DTX-PLA002

Length (ft), Limit 295	[Pair 12]	158
Prop. Delay (ns), Limit 498	[Pair 45]	246
Delay Skew (ns), Limit 44	[Pair 45]	13
Resistance (ohms)	[Pair 78]	6.8
Insertion Loss Margin (dB)	[Pair 36]	22.3
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

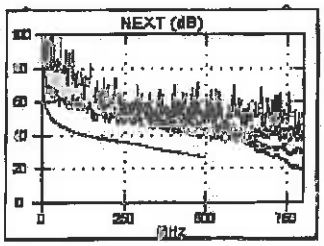
158 ft

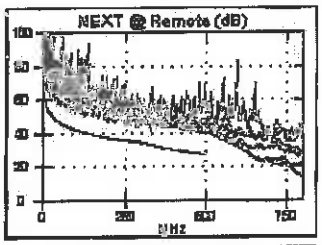
Wire Map (T568B)
PASS

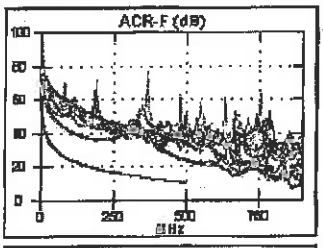


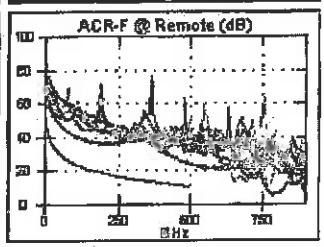


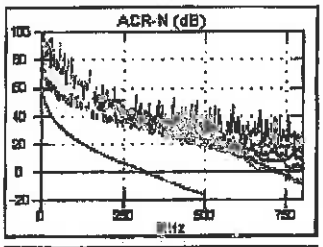
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	10.4	8.9	10.8	12.4
Freq. (MHz)	156.5	286.0	488.0	485.0
Limit (dB)	38.7	34.4	27.0	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	11.2	9.2	11.5	11.9
Freq. (MHz)	277.0	254.0	456.0	495.0
Limit (dB)	32.0	32.6	25.1	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	13.4	13.2	13.6	13.2
Freq. (MHz)	475.0	496.0	497.0	496.0
Limit (dB)	10.7	10.3	10.3	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	15.5	16.1	15.5	16.1
Freq. (MHz)	480.0	497.0	480.0	500.0
Limit (dB)	7.6	7.3	7.6	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	36-45
ACR-N (dB)	14.4	14.1	32.6	34.7
Freq. (MHz)	10.4	22.9	488.0	486.0
Limit (dB)	52.0	43.8	-16.1	-16.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.2	14.3	34.3	33.9
Freq. (MHz)	10.1	16.8	488.0	495.0
Limit (dB)	49.8	44.8	-19.0	-19.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	6.7	4.1	6.7	4.1
Freq. (MHz)	492.0	487.0	492.0	487.0
Limit (dB)	8.0	8.0	8.0	8.0

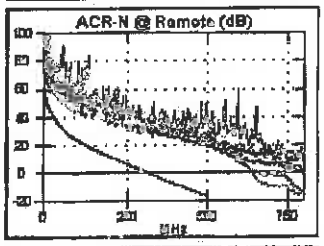


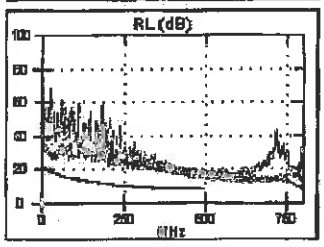


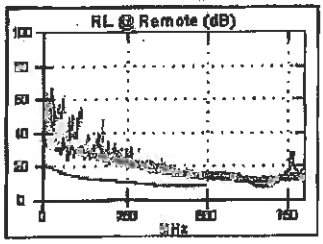












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-13

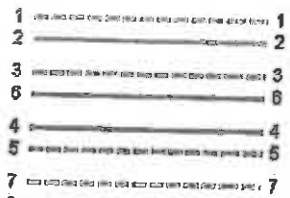
Date / Time: 07/03/2012, 01:05:59 PM
Headroom: 7.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

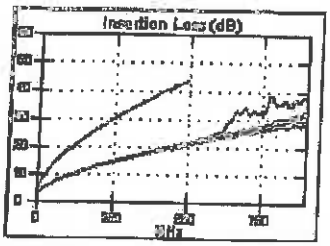
Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

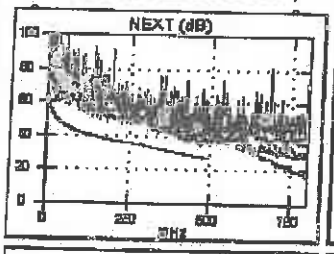
Length (ft), Limit 295	[Pair 12]	158
Prop. Delay (ns), Limit 498	[Pair 45]	245
Delay Skew (ns), Limit 44	[Pair 45]	12
Resistance (ohms)	[Pair 36]	6.8
Insertion Loss Margin (dB)	[Pair 36]	22.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

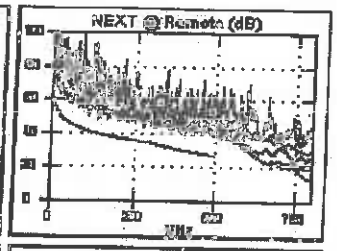
Wire Map (T568B)
PASS

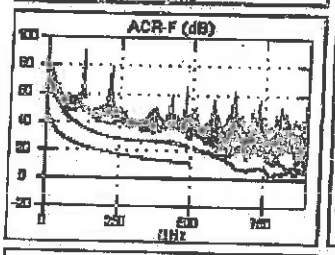


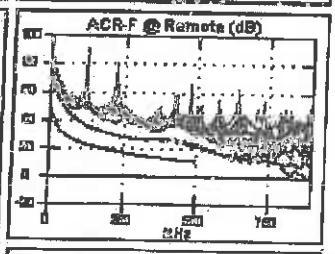
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	7.4	8.3	7.4	11.5
Freq. (MHz)	471.0	277.0	471.0	496.0
Limit (dB)	27.5	34.6	27.5	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	8.8	9.2	8.8	11.3
Freq. (MHz)	471.0	277.0	471.0	493.0
Limit (dB)	24.7	32.0	24.7	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	10.5	10.7	10.5	10.7
Freq. (MHz)	496.0	497.0	496.0	497.0
Limit (dB)	10.3	10.3	10.3	10.3
Worst Pair	36	45	36	45
PS ACR-F (dB)	12.8	13.4	12.8	13.4
Freq. (MHz)	492.0	492.0	494.0	492.0
Limit (dB)	7.4	7.4	7.3	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	15.5	16.4	29.7	34.2
Freq. (MHz)	27.4	27.3	471.0	496.0
Limit (dB)	41.7	41.8	-14.7	-16.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.9	16.3	30.6	33.5
Freq. (MHz)	16.4	16.1	471.0	493.0
Limit (dB)	45.0	45.2	-17.6	-19.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	12	12	12
RL (dB)	5.5	5.5	5.7	5.5
Freq. (MHz)	20.1	485.0	494.0	485.0
Limit (dB)	19.5	8.0	8.0	8.0

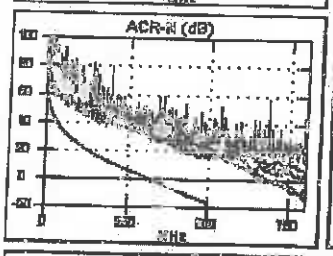


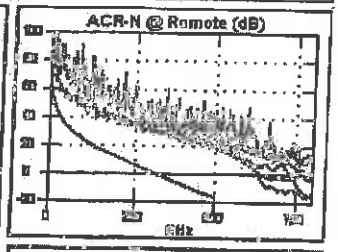


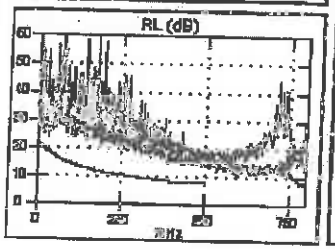


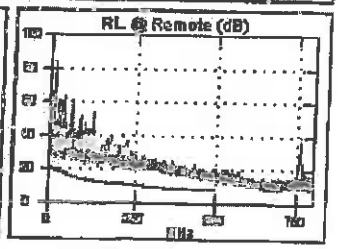












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version: 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-14

Test Summary: PASS

Date / Time 07/03/2012 01:06:35 PM
Headroom: 6.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

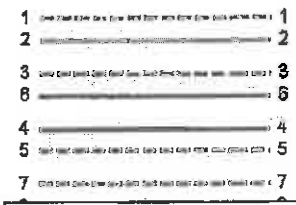
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

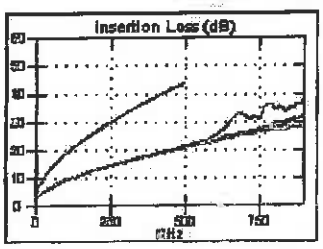
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9468018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	156
Prop. Delay (ns), Limit 498	[Pair 45]	241
Delay Skew (ns), Limit 44	[Pair 45]	12
Resistance (ohms)	[Pair 12]	6.6
Insertion Loss Margin (dB)	[Pair 36]	22.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

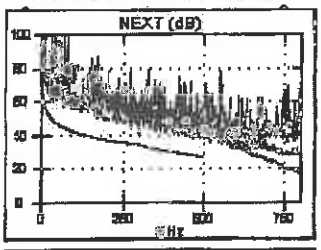
156 ft

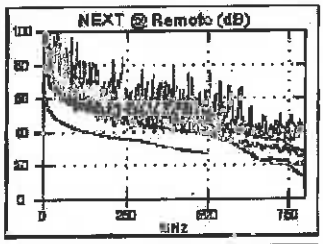
Wire Map (T568B)
PASS

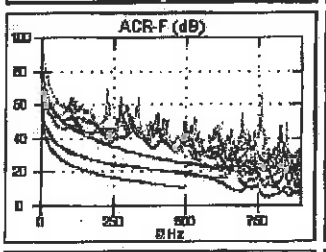


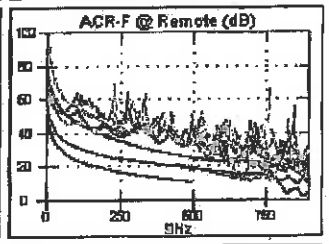


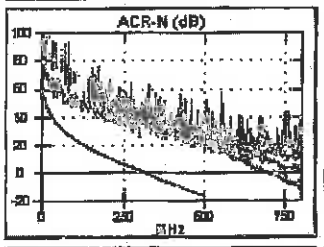
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	6.6	6.8	10.2	10.6
Freq. (MHz)	304.0	217.5	470.0	500.0
Limit (dB)	33.8	36.3	27.5	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.1	8.0	10.1	10.8
Freq. (MHz)	304.0	218.0	494.0	481.0
Limit (dB)	31.2	33.7	23.9	24.3
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	7.2	7.2	8.2	7.8
Freq. (MHz)	16.6	1.5	499.0	498.0
Limit (dB)	39.8	60.7	10.2	10.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	9.8	9.9	10.9	11.1
Freq. (MHz)	38.8	1.9	499.0	499.0
Limit (dB)	29.4	55.7	7.2	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	12-36	36-45
ACR-N (dB)	16.3	18.0	33.6	33.7
Freq. (MHz)	36.0	5.6	489.0	500.0
Limit (dB)	38.4	57.6	-16.2	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.6	17.9	32.6	34.3
Freq. (MHz)	12.1	23.3	494.0	500.0
Limit (dB)	48.1	41.2	-19.5	-20.0
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	5.3	4.3	5.3	4.3
Freq. (MHz)	484.0	459.0	484.0	459.0
Limit (dB)	8.0	8.0	8.0	8.0

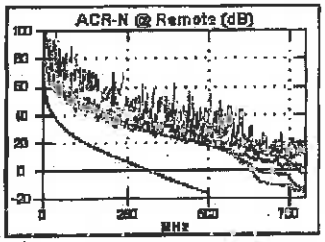


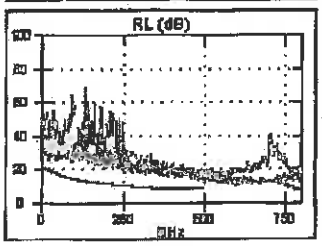


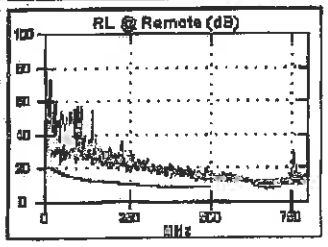












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTD-R1-B-15
Date / Time: 07/03/2012 01:07:28 PM
Headroom: 8.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

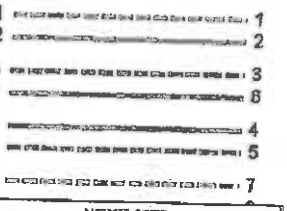
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

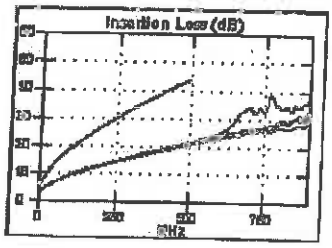
Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	156
Prop. Delay (ns), Limit 498	[Pair 45]	242
Delay Skew (ns), Limit 44	[Pair 45]	13
Resistance (ohms)	[Pair 36]	6.7
Insertion Loss Margin (dB)	[Pair 36]	22.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

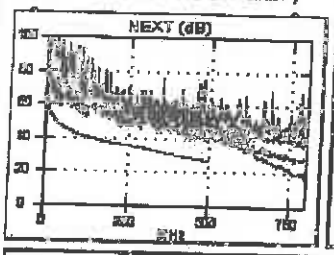
156 ft

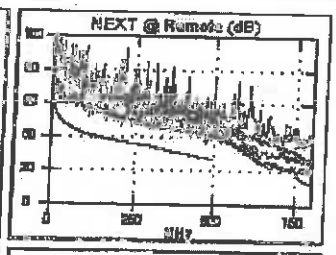
Wire Map (T568B)
PASS

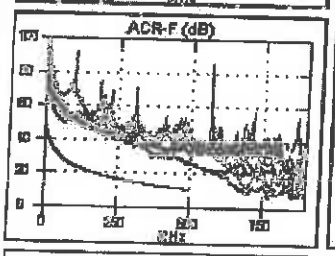


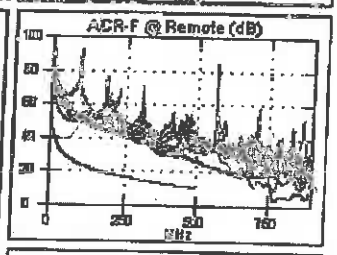


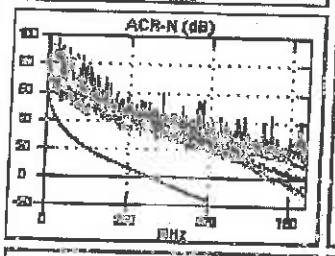
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	9.9	8.7	12.1	8.7
Freq. (MHz)	228.0	477.0	500.0	477.0
Limit (dB)	36.0	27.3	26.7	27.3
Worst Pair	36	36	36	36
PS NEXT (dB)	11.1	9.7	11.5	9.7
Freq. (MHz)	340.0	477.0	500.0	477.0
Limit (dB)	29.5	24.5	23.8	24.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	15.4	15.7	15.4	15.7
Freq. (MHz)	491.0	491.0	494.0	493.0
Limit (dB)	10.4	10.4	10.3	10.3
Worst Pair	78	78	45	45
PS ACR-F (dB)	17.1	16.9	17.8	17.4
Freq. (MHz)	388.0	398.0	500.0	495.0
Limit (dB)	9.4	9.2	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	15.7	15.7	34.8	31.4
Freq. (MHz)	27.5	27.3	500.0	477.0
Limit (dB)	41.7	41.8	-17.1	-15.2
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.3	17.1	34.2	31.8
Freq. (MHz)	4.5	27.3	500.0	477.0
Limit (dB)	57.2	39.4	-20.0	-18.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.5	5.3	6.5	5.3
Freq. (MHz)	473.0	500.0	473.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

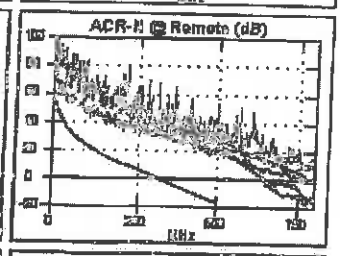


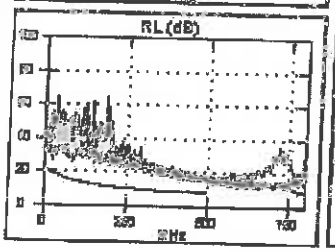


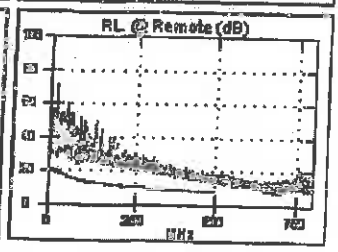












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-16

Test Summary: PASS

Date / Time: 07/03/2012 01:09:01 PM
Headroom: 0.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

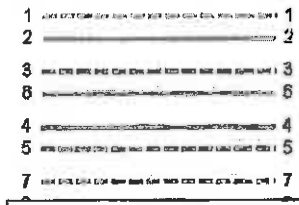
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

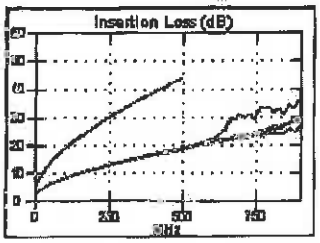
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	138
Prop. Delay (ns), Limit 498	[Pair 45]	215
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	6.0
Insertion Loss Margin (dB)	[Pair 36]	25.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

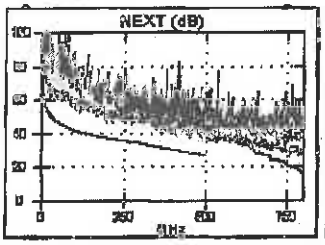
138 ft

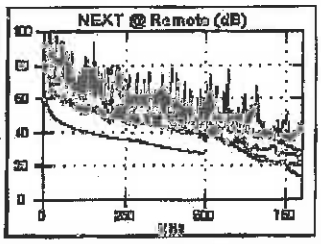
Wire Map (T568B)
PASS

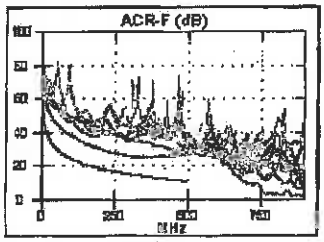


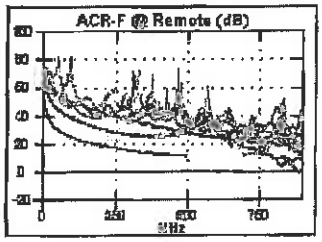


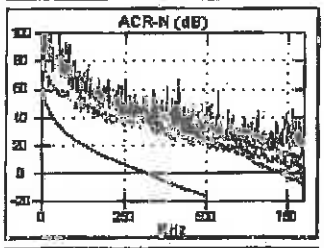
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.8	8.5	9.0	9.1
Freq. (MHz)	198.5	285.0	452.0	500.0
Limit (dB)	37.0	34.4	28.1	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	8.3	10.8	9.3
Freq. (MHz)	413.0	285.0	483.0	484.0
Limit (dB)	26.6	31.8	24.3	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	10.8	10.8	11.4	11.9
Freq. (MHz)	252.0	299.0	365.0	398.0
Limit (dB)	16.2	14.7	12.9	12.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	13.4	13.3	15.3	14.4
Freq. (MHz)	252.0	292.0	428.0	374.0
Limit (dB)	13.2	11.9	8.6	9.7
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	16.4	15.8	33.1	34.7
Freq. (MHz)	21.3	28.0	452.0	500.0
Limit (dB)	44.6	41.5	-13.2	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.6	16.9	35.5	34.8
Freq. (MHz)	21.3	21.3	486.0	500.0
Limit (dB)	42.2	42.2	-18.8	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	36	45
RL (dB)	4.9	4.9	4.9	4.9
Freq. (MHz)	464.0	476.0	464.0	476.0
Limit (dB)	8.0	8.0	8.0	8.0

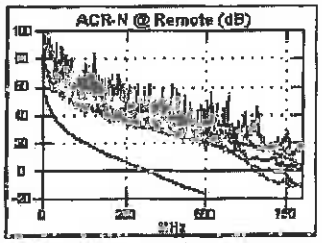


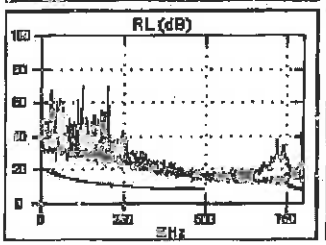


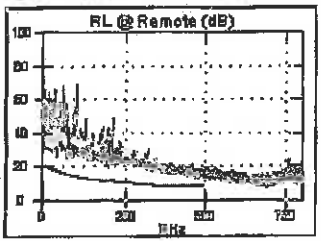












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-17

Date / Time 07/03/2012 01:09:32 PM
Headroom 8.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version 2.6200
Limits Version 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9460009
Remote S/N: 9460018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	138
Prop. Delay (ns), Limit 498	[Pair 45]	215
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	6.0
Insertion Loss Margin (dB)	[Pair 36]	24.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

138 ft

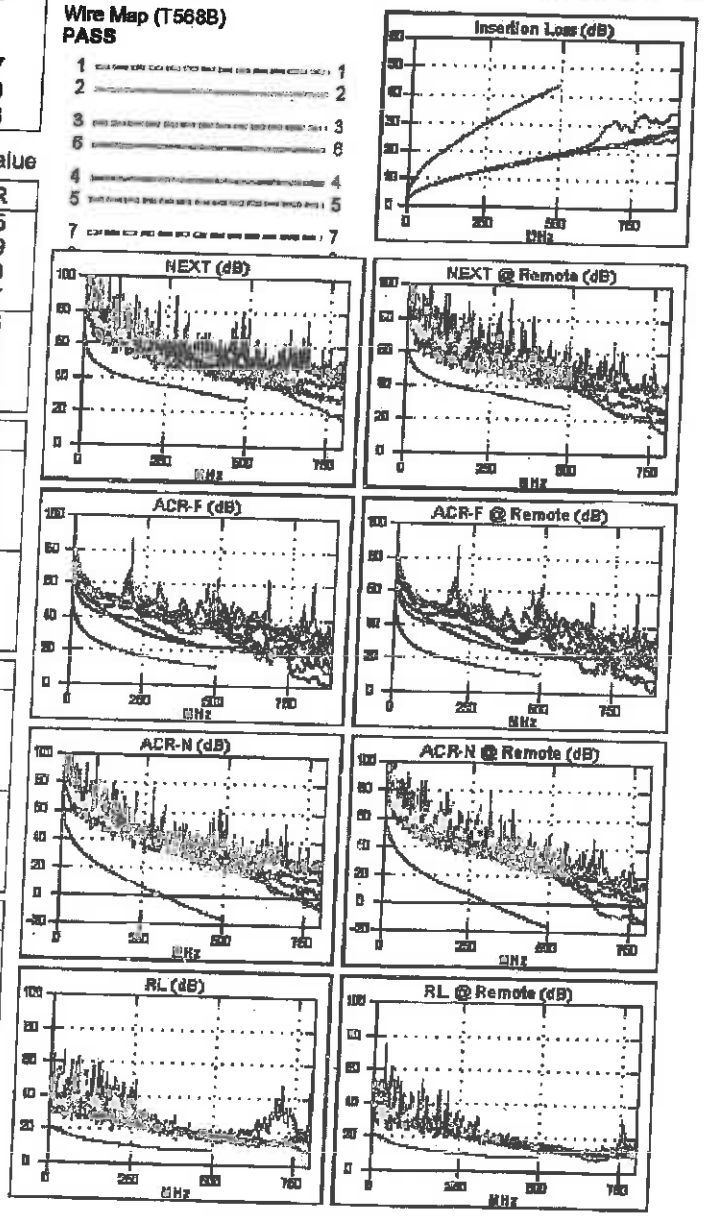
Wire Map (T568B)
PASS

1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	8.4	8.4	9.3	10.9
Freq. (MHz)	222.5	210.5	477.0	498.0
Limit (dB)	36.2	36.6	27.3	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	10.0	9.8	11.2
Freq. (MHz)	222.5	210.5	477.0	496.0
Limit (dB)	33.5	34.0	24.5	23.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-78	45-36	45-36	45-36
ACR-F (dB)	11.5	11.2	11.5	11.2
Freq. (MHz)	453.0	492.0	497.0	494.0
Limit (dB)	11.1	10.4	10.3	10.3
Worst Pair	78	12	12	45
PS ACR-F (dB)	13.7	13.8	14.4	14.3
Freq. (MHz)	412.0	440.0	499.0	497.0
Limit (dB)	8.9	8.3	7.2	7.3
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.3	18.6	35.9	35.9
Freq. (MHz)	4.8	27.8	500.0	498.0
Limit (dB)	59.1	41.6	-17.1	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.0	18.8	33.8	35.7
Freq. (MHz)	5.0	4.9	477.0	496.0
Limit (dB)	56.3	56.6	-18.1	-19.7
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	5.9	4.6	5.9	4.6
Freq. (MHz)	496.0	484.0	496.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive



LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

DOT1900000034

PART 2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-18

Test Summary: PASS

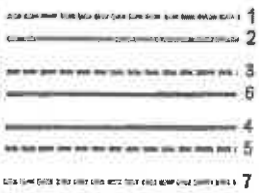
Date / Time: 07/03/2012 01:13:28 PM
Headroom 7.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

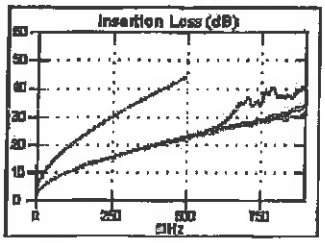
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	167
Prop. Delay (ns), Limit 498	[Pair 45]	260
Delay Skew (ns), Limit 44	[Pair 45]	14
Resistance (ohms)	[Pair 36]	7.3
Insertion Loss Margin (dB)	[Pair 36]	21.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

Wire Map (T568B)
PASS



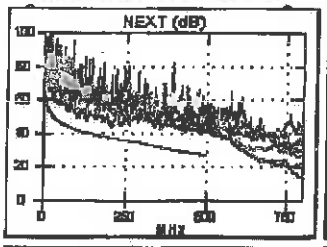


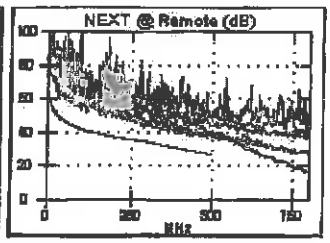
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	12-36
NEXT (dB)	7.0	7.9	12.5	9.5
Freq. (MHz)	102.5	294.0	489.0	493.0
Limit (dB)	41.7	34.2	27.0	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	8.2	8.4	13.2	9.2
Freq. (MHz)	211.0	296.0	499.0	489.0
Limit (dB)	33.9	31.5	23.8	24.1

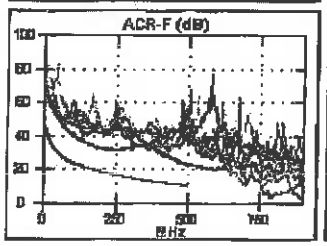
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	12.6	12.4	12.6	12.4
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	15.5	15.6	15.5	15.6
Freq. (MHz)	491.0	474.0	500.0	500.0
Limit (dB)	7.4	7.7	7.2	7.2

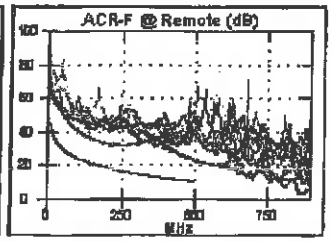
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	14.9	15.4	33.7	30.4
Freq. (MHz)	31.0	31.1	489.0	493.0
Limit (dB)	40.3	40.2	-16.2	-16.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.2	16.6	34.3	30.7
Freq. (MHz)	6.9	4.5	499.0	500.0
Limit (dB)	53.5	57.2	-19.9	-20.0

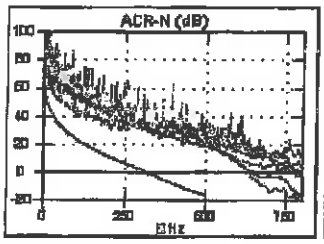
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	3.8	6.8	3.8	6.8
Freq. (MHz)	498.0	489.0	498.0	489.0
Limit (dB)	8.0	8.0	8.0	8.0

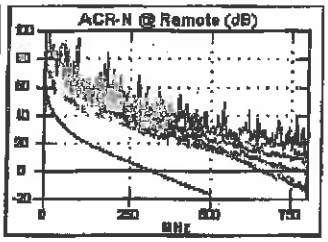


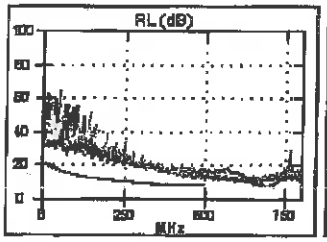


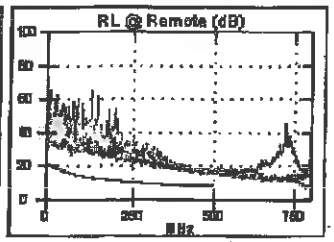












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTE-R1-3-19

Test Summary: PASS

Date / Time: 07/03/2012 01:14:06 PM
Headroom: 6.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

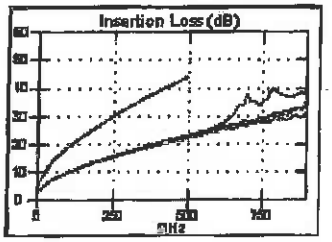
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

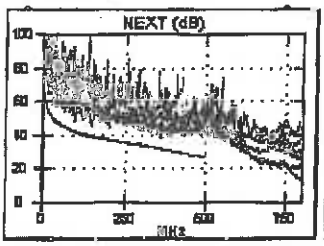
Length (ft), Limit 295	[Pair 12]	166
Prop. Delay (ns), Limit 498	[Pair 45]	258
Delay Skew (ns), Limit 44	[Pair 45]	13
Resistance (ohms)	[Pair 36]	7.2
Insertion Loss Margin (dB)	[Pair 36]	21.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

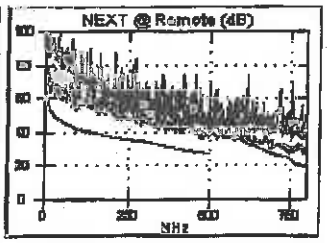
166 ft

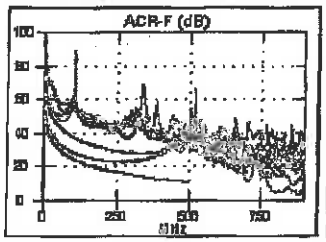
Wire Map (T568B)
PASS

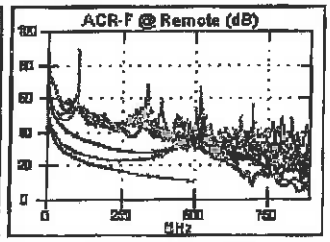


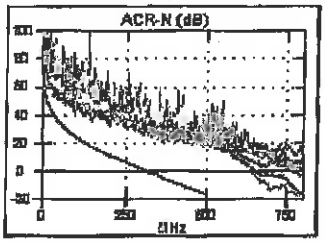
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	6.5	8.5	7.0	8.5
Freq. (MHz)	97.8	480.0	363.0	480.0
Limit (dB)	42.0	27.2	31.3	27.2
Worst Pair	36	36	36	36
PS NEXT (dB)	8.6	9.6	11.8	9.6
Freq. (MHz)	148.0	484.0	493.0	484.0
Limit (dB)	36.5	24.2	24.0	24.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	36-45	45-36	36-45
ACR-F (dB)	3.6	3.6	5.7	5.7
Freq. (MHz)	2.0	3.3	243.0	243.0
Limit (dB)	58.2	54.0	16.5	16.5
Worst Pair	36	36	45	45
PS ACR-F (dB)	6.3	6.3	9.0	8.6
Freq. (MHz)	1.3	2.0	253.0	243.0
Limit (dB)	59.3	55.2	13.1	13.5
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	13.4	12.4	33.1	31.0
Freq. (MHz)	15.8	15.6	493.0	499.0
Limit (dB)	47.8	47.9	-16.5	-17.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.9	14.6	32.6	30.7
Freq. (MHz)	17.9	15.6	493.0	493.0
Limit (dB)	44.1	45.5	-19.4	-19.4
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	78	12	78	12
RL (dB)	5.1	4.6	5.1	4.6
Freq. (MHz)	500.0	498.0	500.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

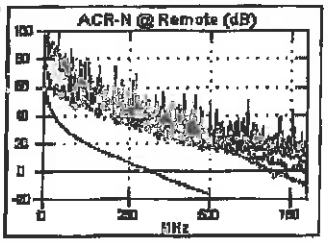


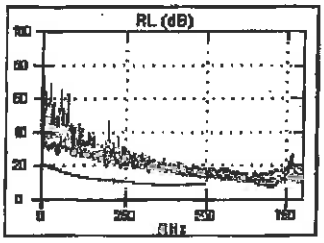


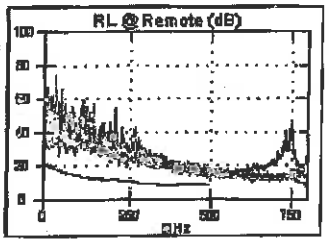












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-20

Test Summary: PASS

Date / Time 07/03/2012 01 14 37 PM
Headroom 7.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

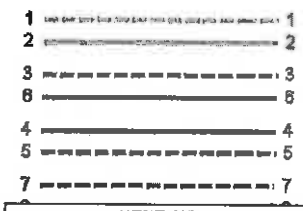
Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	175
Prop. Delay (ns), Limit 498	[Pair 45]	272
Delay Skew (ns), Limit 44	[Pair 45]	14
Resistance (ohms)	[Pair 36]	7.6
Insertion Loss Margin (dB)	[Pair 36]	20.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

175 ft

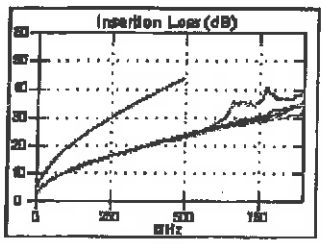
Wire Map (T568B)
PASS

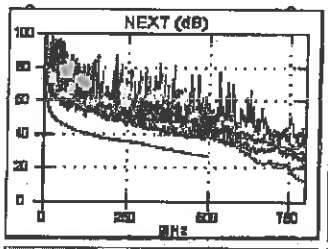


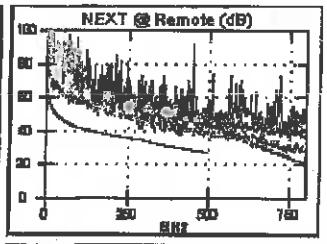
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-45	36-78
NEXT (dB)	7.4	7.1	9.4	9.5
Freq. (MHz)	353.0	293.0	484.0	489.0
Limit (dB)	31.7	34.2	27.1	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	8.3	8.4	10.0	9.8
Freq. (MHz)	353.0	289.0	482.0	490.0
Limit (dB)	29.0	31.7	24.3	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	8.5	8.8	8.5	8.8
Freq. (MHz)	492.0	494.0	494.0	494.0
Limit (dB)	10.4	10.3	10.3	10.3
Worst Pair	36	45	36	45
PS ACR-F (dB)	11.1	11.1	11.1	11.1
Freq. (MHz)	492.0	492.0	492.0	494.0
Limit (dB)	7.4	7.4	7.4	7.3
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	13.0	15.6	29.5	30.4
Freq. (MHz)	9.1	16.9	484.0	495.0
Limit (dB)	53.2	47.1	-15.8	-16.7
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.6	16.9	30.0	29.8
Freq. (MHz)	9.4	5.1	484.0	490.0
Limit (dB)	50.6	56.1	-18.7	-19.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	36	12	36
RL (dB)	4.6	6.5	4.6	6.5
Freq. (MHz)	499.0	415.0	499.0	415.0
Limit (dB)	8.0	8.0	8.0	8.0

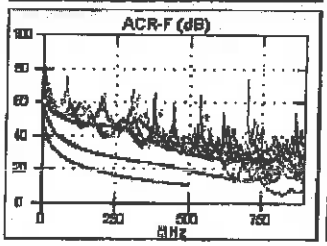
Compliant Network Standards:

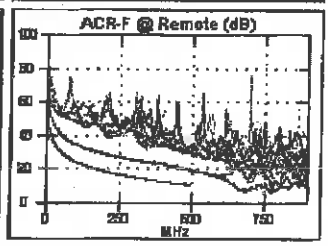
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

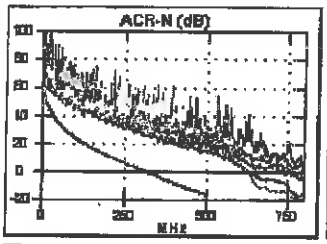


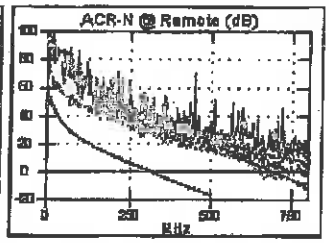


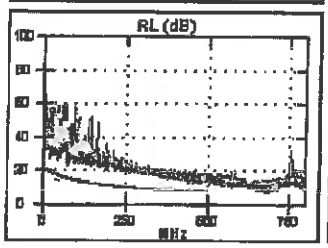


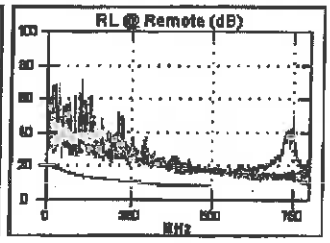












LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-WTB-R1-B-21

Test Summary: PASS

Date / Time 07/03/2012 01:15:09 PM
Headroom 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/10/2007

Operator TYLER
Software Version 2.5200
Limits Version: 1.7000
NVP 69.0%

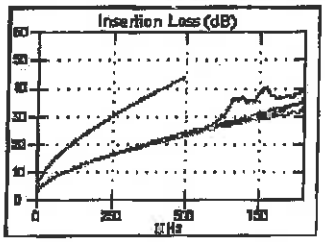
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter: DTX-PLA002
Remote Adapter DTX-PLA002

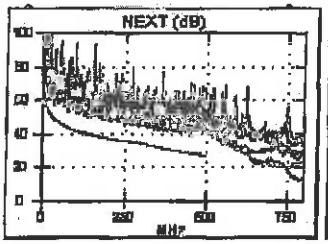
Length (ft), Limit 295	[Pair 12]	176
Prop. Delay (ns), Limit 498	[Pair 45]	273
Delay Skew (ns), Limit 44	[Pair 45]	14
Resistance (ohms)	[Pair 36]	7.6
Insertion Loss Margin (dB)	[Pair 36]	20.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

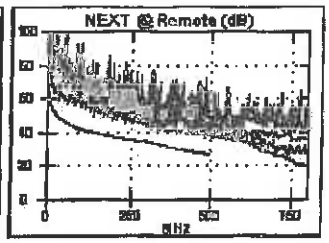
176 ft

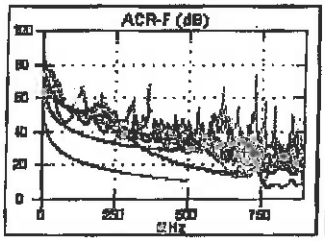
Wire Map (T568B)
PASS

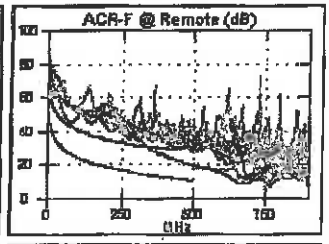
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	8.3	8.2	10.4	9.6
Freq. (MHz)	35.5	315.0	456.0	464.0
Limit (dB)	49.1	33.3	28.0	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	9.4	8.6	11.2	9.1
Freq. (MHz)	250.0	315.0	456.0	488.0
Limit (dB)	32.7	30.7	25.1	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	9.0	9.1	9.0	9.1
Freq. (MHz)	489.0	496.0	494.0	496.0
Limit (dB)	10.4	10.3	10.3	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	11.4	11.7	11.4	11.7
Freq. (MHz)	494.0	496.0	498.0	496.0
Limit (dB)	7.3	7.3	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	13.1	15.2	30.2	29.6
Freq. (MHz)	35.5	5.5	456.0	487.0
Limit (dB)	38.6	57.8	-13.5	-16.1
Worst Pair	36	78	36	36
PS ACR-N (dB)	14.5	16.0	30.4	28.8
Freq. (MHz)	26.1	5.5	456.0	488.0
Limit (dB)	39.8	55.5	-16.3	-19.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	36	12	36
RL (dB)	3.8	5.7	3.8	5.7
Freq. (MHz)	485.0	488.0	485.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

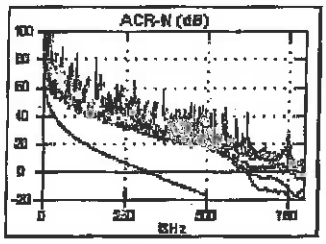


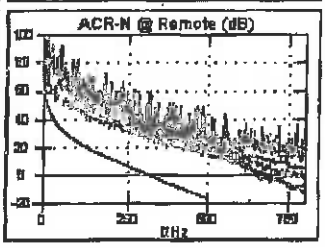


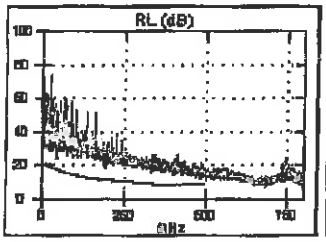


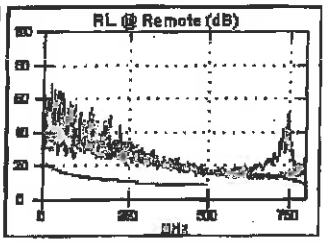












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-22

Test Summary: PASS

Date / Time 07/03/2012 01:15:45 PM
Headroom 8.3 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

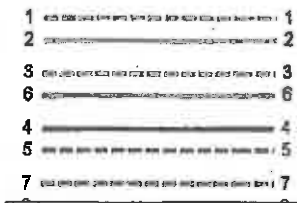
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

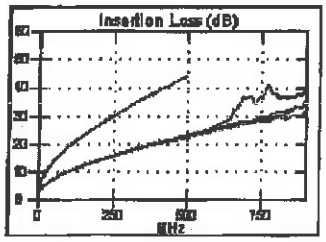
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	170
Prop. Delay (ns), Limit 498	[Pair 45]	265
Delay Skew (ns), Limit 44	[Pair 45]	14
Resistance (ohms)	[Pair 78]	7.3
Insertion Loss Margin (dB)	[Pair 36]	21.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

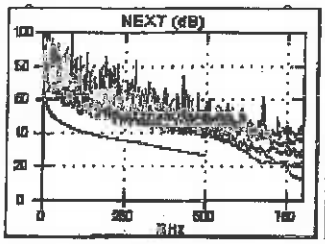
170 ft

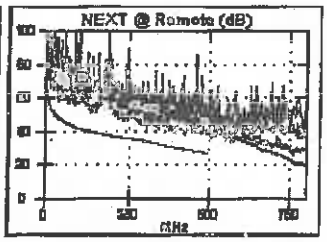
Wire Map (T568B)
PASS

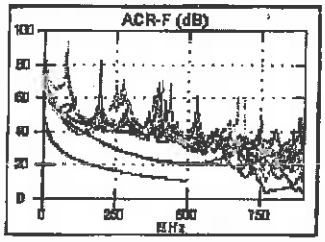


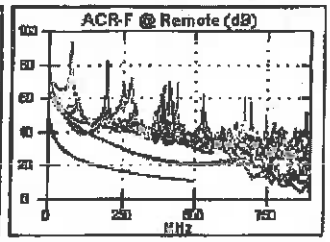


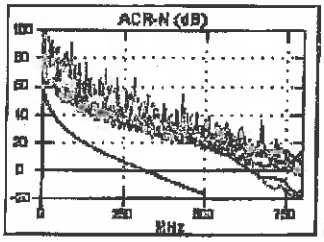
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	36-78
NEXT (dB)	8.6	8.3	11.0	10.4
Freq. (MHz)	340.0	310.0	494.0	498.0
Limit (dB)	32.2	33.5	26.8	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.9	9.7	11.0	10.3
Freq. (MHz)	341.0	311.0	494.0	498.0
Limit (dB)	29.5	30.9	23.9	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	9.5	9.5	9.6	9.9
Freq. (MHz)	412.0	412.0	479.0	492.0
Limit (dB)	11.9	11.9	10.6	10.4
Worst Pair	45	45	36	45
PS ACR-F (dB)	12.2	12.3	12.6	12.3
Freq. (MHz)	412.0	479.0	499.0	479.0
Limit (dB)	8.9	7.6	7.2	7.6
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
ACR-N (dB)	13.6	14.8	32.0	31.8
Freq. (MHz)	9.3	9.4	494.0	498.0
Limit (dB)	53.0	52.9	-16.6	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.7	16.2	31.8	31.3
Freq. (MHz)	9.3	15.1	494.0	498.0
Limit (dB)	50.7	45.8	-19.5	-19.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	2.8	6.8	2.8	6.8
Freq. (MHz)	482.0	500.0	482.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

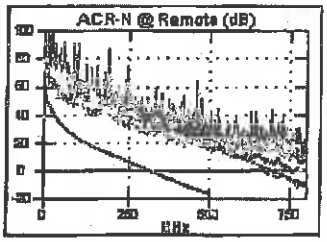


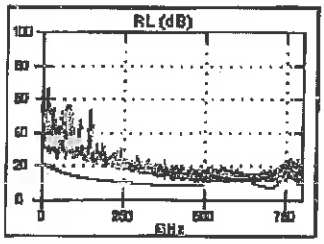


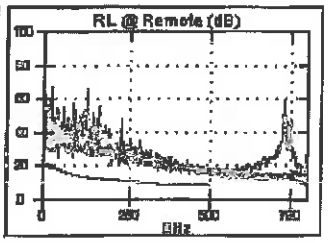












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-23

Date / Time: 07/03/2012 01:18:23 PM
Headroom: 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

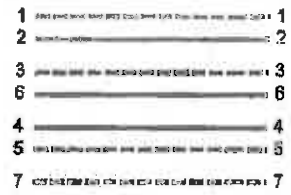
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7600
NVP: 69.0%

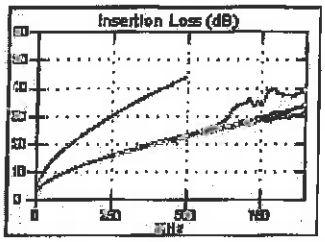
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

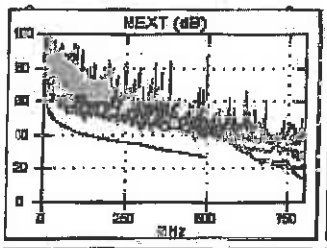
Length (ft), Limit 295	[Pair 12]	170
Prop. Delay (ns), Limit 498	[Pair 45]	265
Delay Skew (ns), Limit 44	[Pair 45]	14
Resistance (ohms)	[Pair 36]	7.4
Insertion Loss Margin (dB)	[Pair 36]	21.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

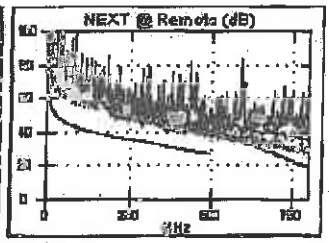
Wire Map (T568B)
PASS

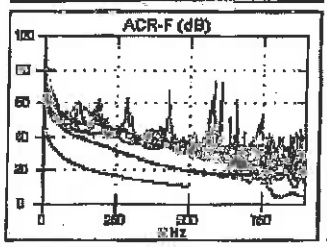


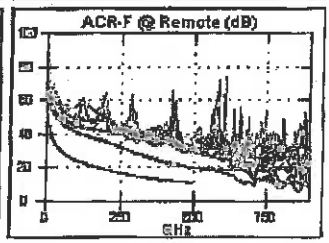


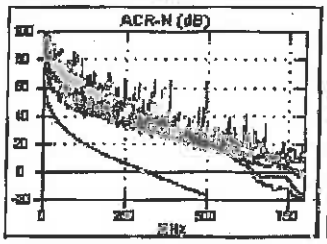
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	8.2	8.5	8.7	10.1
Freq. (MHz)	127.5	291.0	466.0	490.0
Limit (dB)	40.1	34.2	27.7	26.9
Worst Pair	36	36	78	36
PS NEXT (dB)	9.5	9.2	10.7	9.4
Freq. (MHz)	303.0	291.0	466.0	484.0
Limit (dB)	31.3	31.6	24.8	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	9.0	8.7	9.1	8.7
Freq. (MHz)	485.0	486.0	500.0	489.0
Limit (dB)	10.5	10.5	10.2	10.4
Worst Pair	45	36	36	45
PS ACR-F (dB)	11.5	11.7	11.6	11.7
Freq. (MHz)	485.0	484.0	499.0	500.0
Limit (dB)	7.5	7.5	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	14.1	15.4	31.8	30.9
Freq. (MHz)	15.1	15.1	498.0	494.0
Limit (dB)	48.2	48.2	-16.9	-16.6
Worst Pair	36	78	36	36
PS ACR-N (dB)	14.6	16.2	32.6	30.1
Freq. (MHz)	20.9	15.1	497.0	489.0
Limit (dB)	42.4	45.8	-19.7	-19.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	3.4	5.3	3.4	5.3
Freq. (MHz)	434.0	488.0	434.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

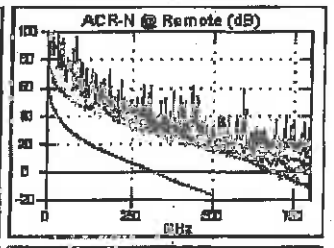


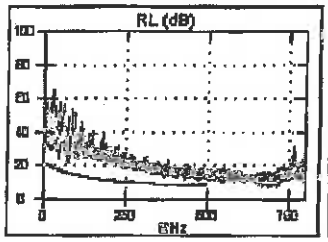


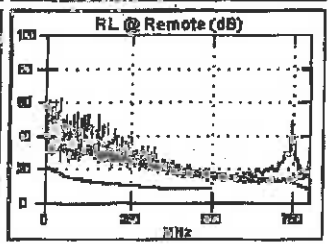












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-24

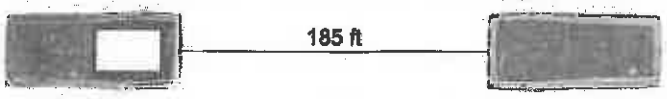
Test Summary: PASS

Date / Time 07/03/2012 01:17:04 PM
Headroom 7.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

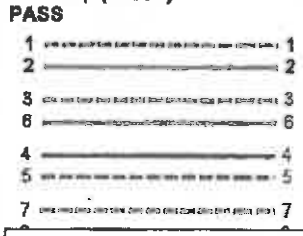
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

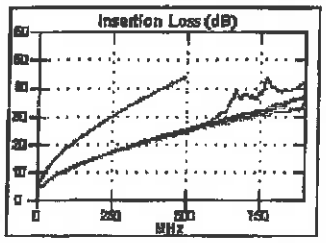
Model DTX-1800
Main S/N: 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	185
Prop. Delay (ns), Limit 498	[Pair 45]	288
Delay Skew (ns), Limit 44	[Pair 45]	15
Resistance (ohms)	[Pair 12]	7.9
Insertion Loss Margin (dB)	[Pair 36]	18.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

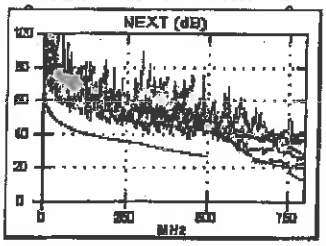


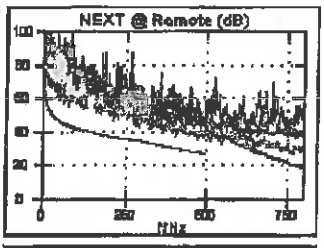
Wire Map (T568B)
PASS

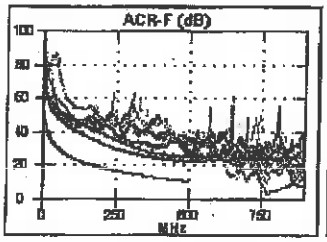


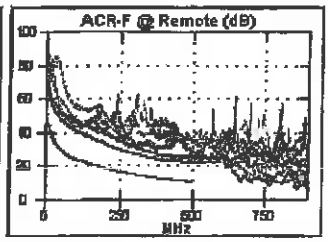


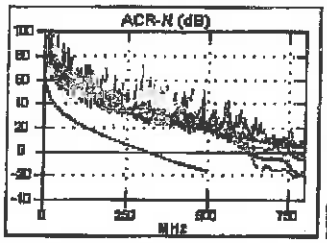
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	7.3	8.1	9.5	8.3
Freq. (MHz)	322.0	409.0	445.0	473.0
Limit (dB)	33.0	29.5	28.3	27.4
Worst Pair	36	36	36	36
PS NEXT (dB)	8.9	9.0	11.3	9.1
Freq. (MHz)	320.0	409.0	445.0	473.0
Limit (dB)	30.4	26.8	25.5	24.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-78	12-78	12-78	12-78
ACR-F (dB)	11.0	10.9	11.1	11.2
Freq. (MHz)	453.0	398.0	494.0	471.0
Limit (dB)	11.1	12.2	10.3	10.7
Worst Pair	78	78	78	78
PS ACR-F (dB)	13.1	13.3	13.1	13.7
Freq. (MHz)	494.0	393.0	498.0	497.0
Limit (dB)	7.3	9.3	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	36-78	36-78
ACR-N (dB)	17.0	17.4	27.7	27.3
Freq. (MHz)	82.0	4.3	445.0	473.0
Limit (dB)	27.1	60.0	-12.6	-14.9
Worst Pair	78	78	36	36
PS ACR-N (dB)	17.1	18.7	31.9	28.8
Freq. (MHz)	8.4	4.5	493.0	494.0
Limit (dB)	51.7	57.2	-19.4	-19.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	36	45	36
RL (dB)	4.7	5.5	4.7	5.5
Freq. (MHz)	484.0	488.0	484.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

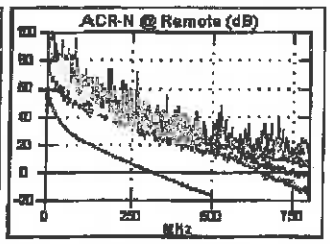


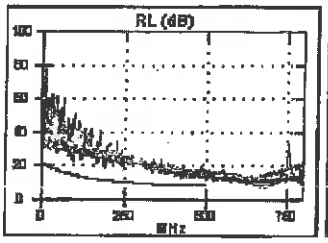


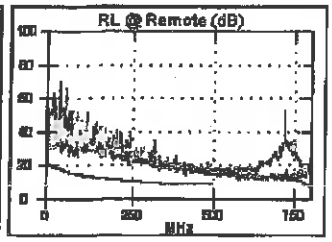












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-25

Test Summary: PASS

Date / Time 07/03/2012 01:17:37 PM
Headroom 6.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

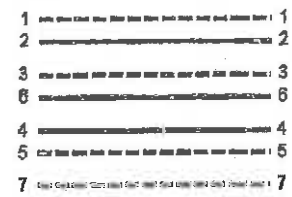
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.9%

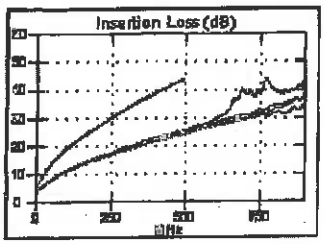
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	187
Prop. Delay (ns), Limit 498	[Pair 45]	290
Delay Skew (ns), Limit 44	[Pair 45]	15
Resistance (ohms)	[Pair 36]	8.1
Insertion Loss Margin (dB)	[Pair 36]	18.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

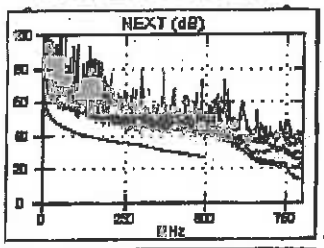
187 ft

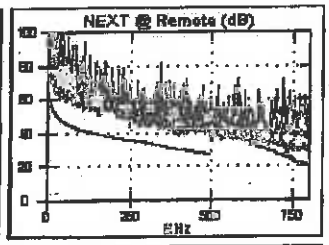
Wire Map (T568B)
PASS

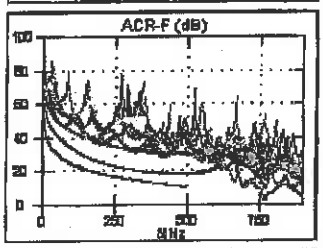


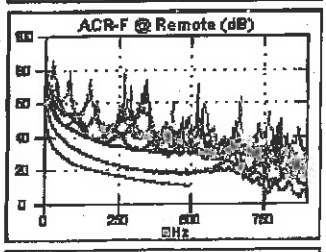


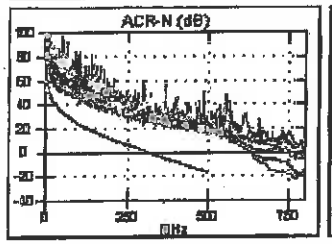
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	6.6	7.7	11.2	11.1
Freq. (MHz)	255.0	251.0	499.0	500.0
Limit (dB)	35.2	35.3	26.7	26.7
Worst Pair	36	36	78	36
PS NEXT (dB)	8.3	8.9	12.4	11.4
Freq. (MHz)	255.0	251.0	499.0	500.0
Limit (dB)	32.6	32.7	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	5.6	5.5	7.1	6.8
Freq. (MHz)	328.0	328.0	496.0	488.0
Limit (dB)	13.9	13.9	10.3	10.4
Worst Pair	36	36	45	36
PS ACR-F (dB)	8.6	8.4	10.0	9.6
Freq. (MHz)	335.0	328.0	496.0	466.0
Limit (dB)	10.7	10.9	7.3	7.8
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-78	36-78
ACR-N (dB)	13.9	15.7	30.6	30.6
Freq. (MHz)	3.5	3.3	499.0	500.0
Limit (dB)	61.7	61.8	-17.0	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	13.9	15.2	31.0	30.0
Freq. (MHz)	3.5	3.3	499.0	500.0
Limit (dB)	58.7	58.8	-19.9	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	4.5	5.5	4.5	5.5
Freq. (MHz)	492.0	485.0	492.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

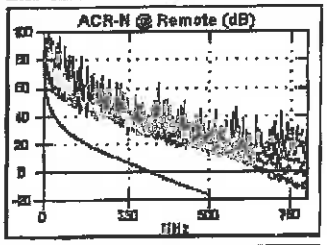


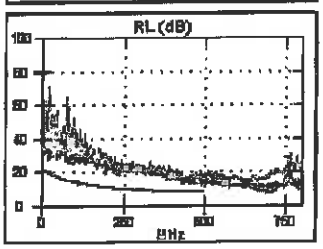


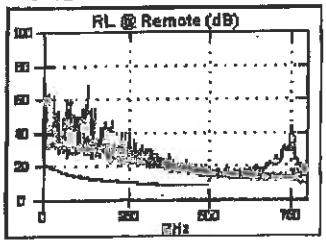












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-26

Test Summary: PASS

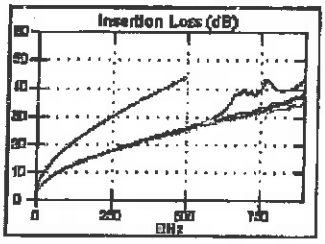
Date / Time: 07/03/2012 01:18:12 PM
Headroom: 6.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/10/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	193
Prop. Delay (ns), Limit 498	[Pair 45]	301
Delay Skew (ns), Limit 44	[Pair 45]	17
Resistance (ohms)	[Pair 36]	8.3
Insertion Loss Margin (dB)	[Pair 36]	18.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

Wire Map (T568B)
PASS

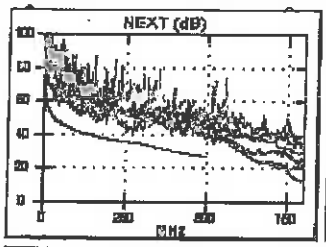


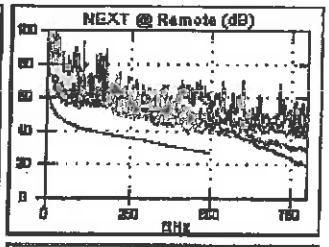
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	6.9	9.5	10.3	10.7
Freq. (MHz)	277.0	61.5	499.0	473.0
Limit (dB)	34.6	45.3	26.7	27.4
Worst Pair	36	36	36	36
PS NEXT (dB)	8.9	11.3	11.9	12.0
Freq. (MHz)	277.0	325.0	499.0	499.0
Limit (dB)	32.0	30.2	23.8	23.8

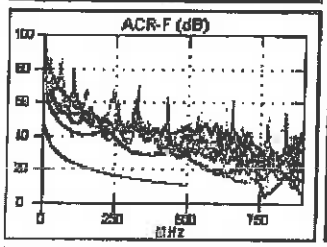
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	78-36	78-36
ACR-F (dB)	14.9	14.7	16.1	16.4
Freq. (MHz)	380.0	380.0	472.0	473.0
Limit (dB)	12.6	12.6	10.7	10.7
Worst Pair	36	36	36	36
PS ACR-F (dB)	16.1	16.9	16.1	16.9
Freq. (MHz)	489.0	489.0	489.0	489.0
Limit (dB)	7.4	7.4	7.4	7.4

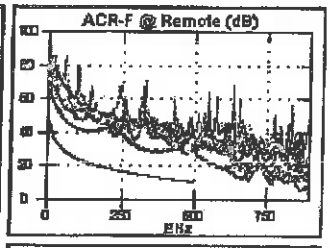
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	13.1	14.4	29.0	30.1
Freq. (MHz)	6.9	6.8	499.0	499.0
Limit (dB)	55.8	56.0	-17.0	-17.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.3	15.8	30.0	30.1
Freq. (MHz)	6.9	6.8	499.0	499.0
Limit (dB)	53.5	53.6	-19.9	-19.9

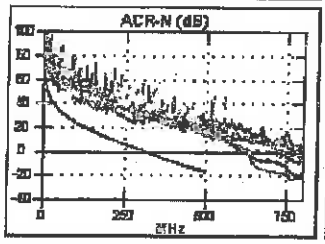
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	78	12	78	12
RL (dB)	4.4	6.9	4.4	6.9
Freq. (MHz)	481.0	482.0	481.0	482.0
Limit (dB)	8.0	8.0	8.0	8.0

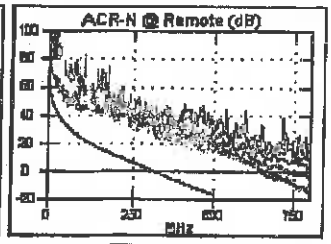


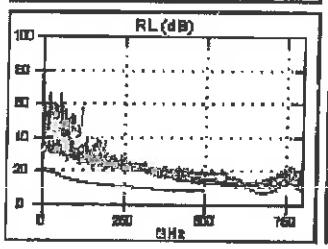


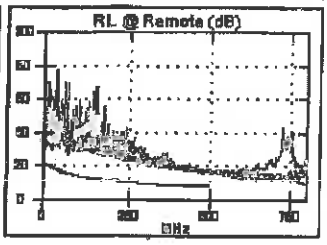












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-27

Test Summary: PASS

Date / Time 07/03/2012 01 18 45 PM
Headroom 8.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

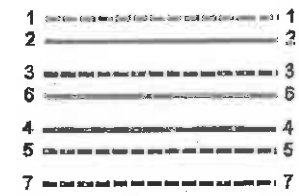
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

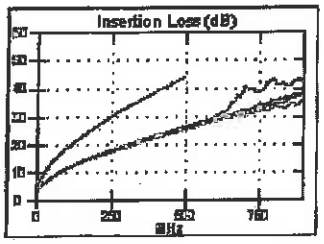
Model DTX-1800
Main S/N 9469089
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	194
Prop. Delay (ns), Limit 498	[Pair 45]	301
Delay Skew (ns), Limit 44	[Pair 45]	15
Resistance (ohms)	[Pair 12]	8.3
Insertion Loss Margin (dB)	[Pair 36]	17.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

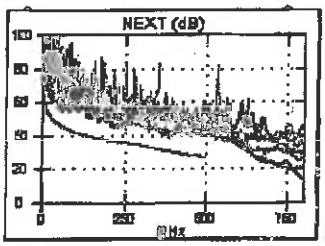
194 ft

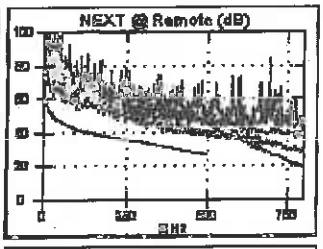
Wire Map (T568B)
PASS

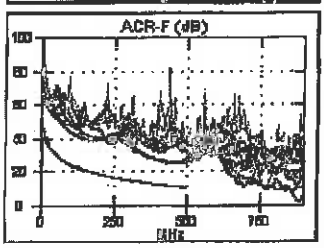


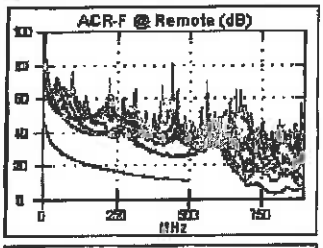


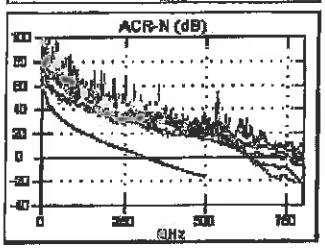
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.0	9.2	8.2	10.4
Freq. (MHz)	255.0	318.0	387.0	500.0
Limit (dB)	35.2	33.2	30.3	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.2	10.1	9.2	10.6
Freq. (MHz)	387.0	314.0	387.0	500.0
Limit (dB)	27.6	30.7	27.6	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	13.2	13.0	14.0	13.0
Freq. (MHz)	436.0	438.0	491.0	439.0
Limit (dB)	11.4	11.4	10.4	11.3
Worst Pair	45	36	36	45
PS ACR-F (dB)	15.7	15.8	16.2	16.4
Freq. (MHz)	438.0	411.0	493.0	491.0
Limit (dB)	8.4	8.9	7.3	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
ACR-N (dB)	12.1	14.1	30.4	29.0
Freq. (MHz)	3.6	6.6	495.0	500.0
Limit (dB)	61.4	56.1	-16.7	-17.1
Worst Pair	78	78	36	36
PS ACR-N (dB)	14.1	15.9	30.6	28.5
Freq. (MHz)	22.6	12.0	495.0	500.0
Limit (dB)	41.5	48.2	-19.6	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	4.6	7.6	4.6	7.6
Freq. (MHz)	494.0	498.0	494.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

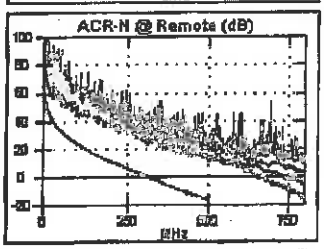


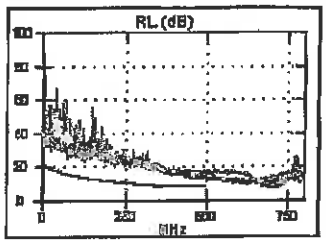


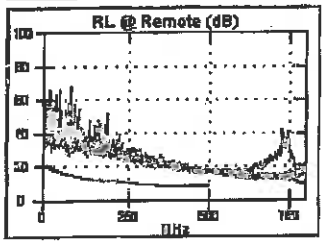












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-28

Date / Time 07/03/2012 01:19:30 PM
Headroom 7.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

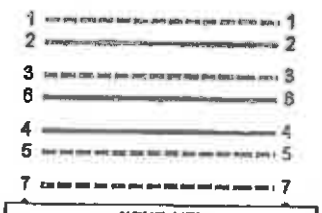
Test Summary: PASS

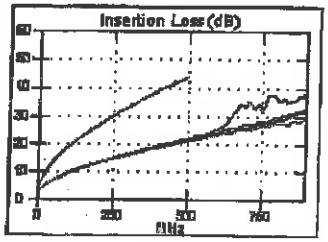
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	158
Prop. Delay (ns), Limit 498	[Pair 45]	246
Delay Skew (ns), Limit 44	[Pair 45]	13
Resistance (ohms)	[Pair 36]	6.8
Insertion Loss Margin (dB)	[Pair 36]	22.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

158 ft

Wire Map (T568B)
PASS



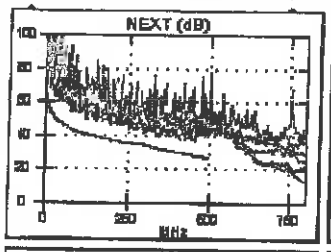


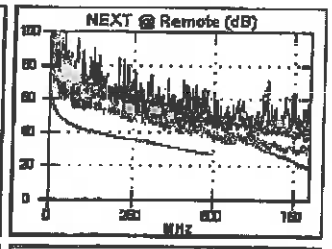
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	7.3	9.6	8.9	10.1
Freq. (MHz)	337.0	405.0	458.0	500.0
Limit (dB)	32.3	29.7	27.9	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.0	9.9	8.7	10.1
Freq. (MHz)	337.0	402.0	411.0	499.0
Limit (dB)	29.7	27.0	26.7	23.8

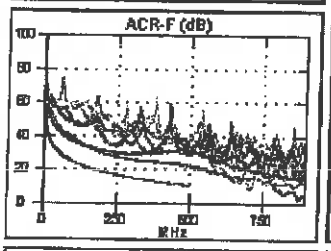
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	36-45	45-36
ACR-F (dB)	10.7	10.8	11.1	10.9
Freq. (MHz)	254.0	249.0	500.0	500.0
Limit (dB)	16.1	16.3	10.2	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	12.9	12.9	13.6	13.4
Freq. (MHz)	248.0	239.5	500.0	500.0
Limit (dB)	13.3	13.6	7.2	7.2

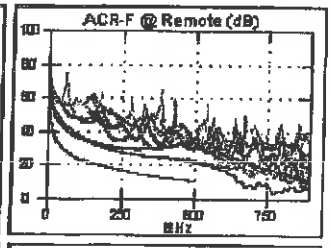
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	36-78	36-78
ACR-N (dB)	16.3	16.1	30.8	33.2
Freq. (MHz)	13.4	33.3	458.0	500.0
Limit (dB)	49.4	39.4	-13.7	-17.1
Worst Pair	36	78	36	36
PS ACR-N (dB)	17.8	17.0	31.7	32.4
Freq. (MHz)	12.8	13.1	458.0	499.0
Limit (dB)	47.6	47.3	-16.5	-19.9

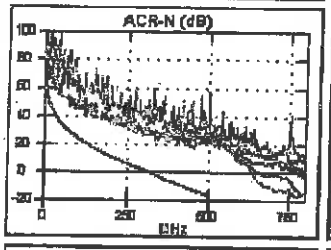
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	78
RL (dB)	5.2	5.5	5.2	5.5
Freq. (MHz)	481.0	481.0	481.0	481.0
Limit (dB)	8.0	8.0	8.0	8.0

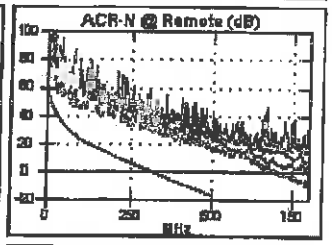


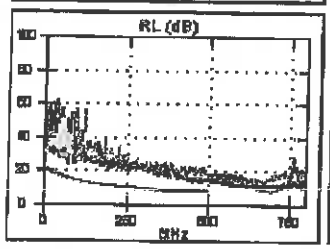


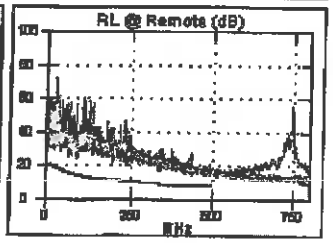












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-29

Test Summary: PASS

Date / Time: 07/08/2012 01:20:01 PM
Headroom: 7.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

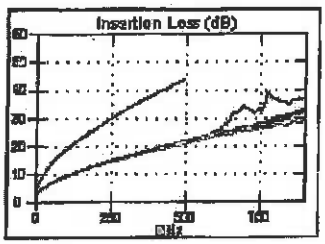
Length (ft), Limit 295	[Pair 12]	158
Prop. Delay (ns), Limit 498	[Pair 45]	246
Delay Skew (ns), Limit 44	[Pair 45]	13
Resistance (ohms)	[Pair 36]	6.8
Insertion Loss Margin (dB)	[Pair 36]	22.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

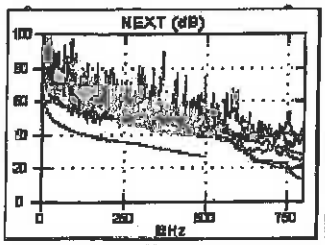
158 ft

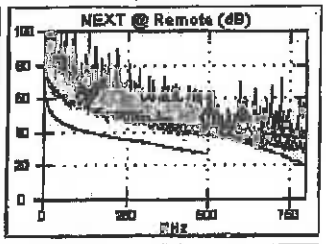
Wire Map (T568B)
PASS

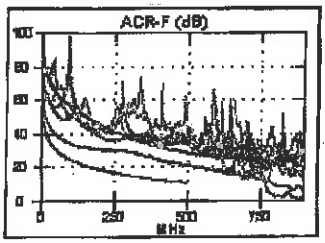
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

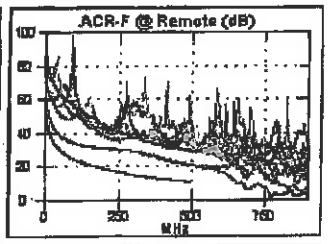
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	12-36
NEXT (dB)	7.3	8.7	11.4	9.6
Freq. (MHz)	138.0	408.0	493.0	492.0
Limit (dB)	39.6	29.6	26.9	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	9.1	9.5	11.7	9.9
Freq. (MHz)	138.0	193.5	493.0	499.0
Limit (dB)	37.0	34.6	24.0	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	45-36
ACR-F (dB)	8.6	8.6	9.7	9.5
Freq. (MHz)	3.3	2.4	496.0	499.0
Limit (dB)	54.0	56.7	10.3	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	11.2	11.2	12.6	12.4
Freq. (MHz)	2.3	3.3	496.0	493.0
Limit (dB)	54.1	51.0	7.3	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	12.8	15.1	34.3	31.9
Freq. (MHz)	8.1	8.1	497.0	492.0
Limit (dB)	54.3	54.3	-16.9	-16.5
Worst Pair	78	78	36	36
PS ACR-N (dB)	14.5	16.5	34.0	32.4
Freq. (MHz)	8.3	8.3	493.0	499.0
Limit (dB)	51.8	51.8	-19.4	-19.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	4.1	6.8	4.1	8.8
Freq. (MHz)	483.0	415.0	483.0	415.0
Limit (dB)	8.0	8.0	8.0	8.0

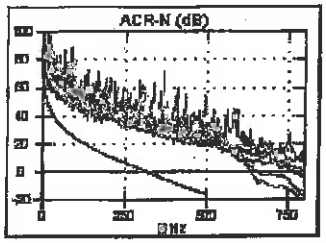


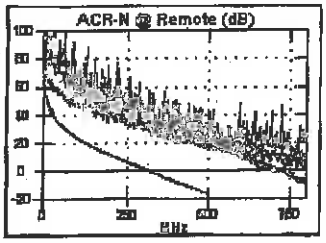


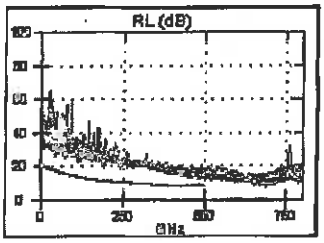


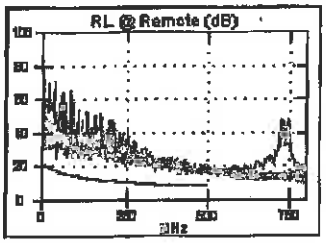












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-30

Date / Time: 07/03/2012 01:20:38 PM
Headroom 7.4 dB (NEXT 36-76)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/10/2007

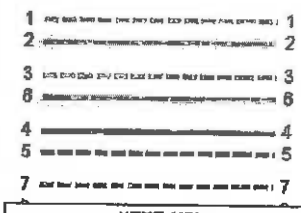
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

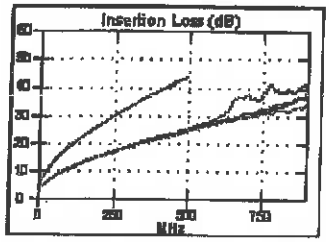
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

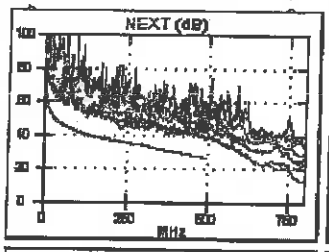
Length (ft), Limit 295	[Pair 12]	187
Prop. Delay (ns), Limit 498	[Pair 45]	291
Delay Skew (ns), Limit 44	[Pair 45]	16
Resistance (ohms)	[Pair 12]	8.0
Insertion Loss Margin (dB)	[Pair 36]	18.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

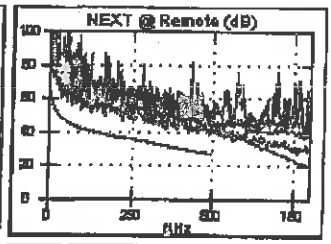
Wire Map (T568B)
PASS

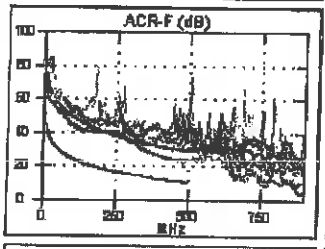


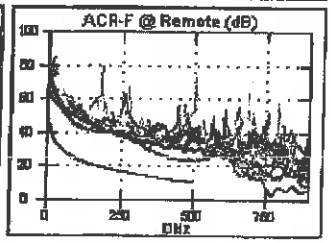
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
NEXT (dB)	7.4	9.9	10.7	11.7
Freq. (MHz)	237.0	255.0	496.0	494.0
Limit (dB)	35.7	35.2	26.8	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	9.3	10.7	12.2	11.6
Freq. (MHz)	237.0	255.0	496.0	500.0
Limit (dB)	33.1	32.6	23.9	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	36-45
ACR-F (dB)	11.7	12.1	11.7	12.2
Freq. (MHz)	484.0	452.0	484.0	484.0
Limit (dB)	10.5	11.1	10.5	10.5
Worst Pair	36	45	36	45
PS ACR-F (dB)	14.2	14.5	14.2	14.5
Freq. (MHz)	479.0	484.0	484.0	484.0
Limit (dB)	7.6	7.5	7.5	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	16.6	16.4	29.7	30.2
Freq. (MHz)	7.1	36.8	496.0	494.0
Limit (dB)	55.5	38.2	-16.8	-16.6
Worst Pair	36	78	36	36
PS ACR-N (dB)	17.8	18.2	30.9	30.4
Freq. (MHz)	7.0	36.8	496.0	500.0
Limit (dB)	53.3	35.7	-19.7	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	5.4	6.7	5.4	6.7
Freq. (MHz)	478.0	498.0	478.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

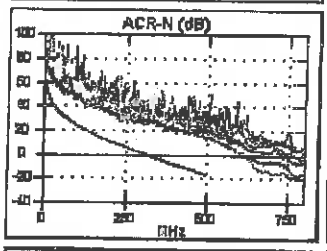


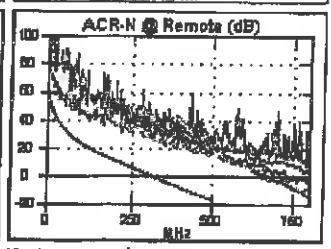


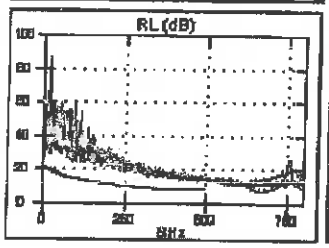


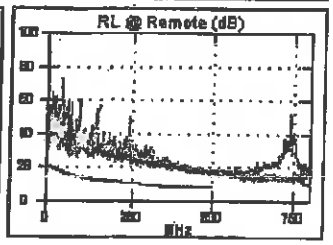












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE NETWORKS

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-31

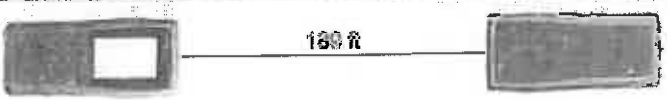
Date / Time: 07/03/2012 01:22:09 PM
Headroom 7.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9489018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	189
Prop. Delay (ns), Limit 498	[Pair 45]	294
Delay Skew (ns), Limit 44	[Pair 45]	16
Resistance (ohms)	[Pair 36]	8.2
Insertion Loss Margin (dB)	[Pair 36]	18.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

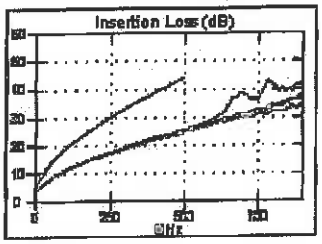


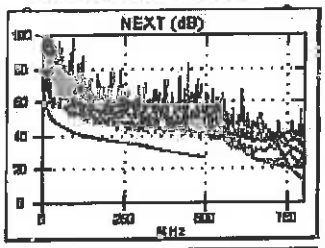
Wire Map (T568B)
PASS

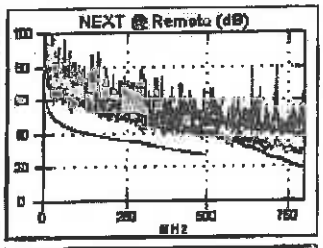
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	7.5	7.5	10.0	9.8
Freq. (MHz)	33.0	301.0	487.0	489.0
Limit (dB)	49.6	34.0	27.0	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	8.2	7.9	11.3	9.6
Freq. (MHz)	231.5	301.0	487.0	487.0
Limit (dB)	33.3	31.4	24.2	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
ACR-F (dB)	9.6	9.5	10.7	10.8
Freq. (MHz)	246.5	227.0	315.0	318.0
Limit (dB)	16.4	17.1	14.2	14.1
Worst Pair	45	36	45	36
PS ACR-F (dB)	12.1	12.1	13.3	17.1
Freq. (MHz)	246.5	246.5	315.0	484.0
Limit (dB)	13.4	13.4	11.2	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	11.7	12.5	28.9	28.3
Freq. (MHz)	33.0	33.0	487.0	487.0
Limit (dB)	39.5	39.5	-16.1	-16.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	13.4	14.5	29.6	28.0
Freq. (MHz)	33.0	33.0	487.0	489.0
Limit (dB)	37.1	37.1	-18.9	-19.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	5.7	5.9	5.7	5.9
Freq. (MHz)	485.0	488.0	485.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

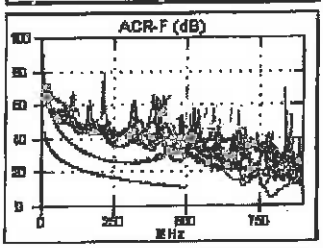
Compliant Network Standards:

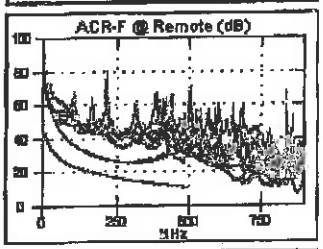
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

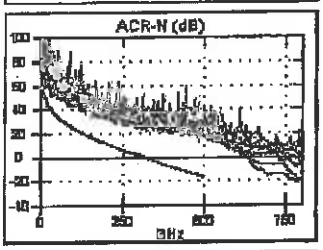


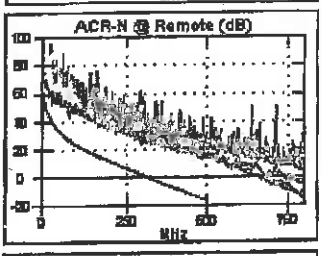


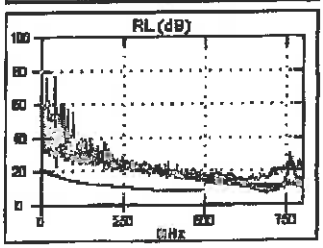


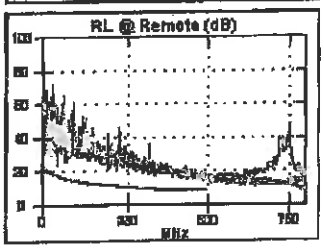












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MT3-R1-B-32

Date / Time 07/03/2012 01:29:21 PM
Headroom 8.3 dB (NEXT 36-78)
Test Limit: TIA Cat 5A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

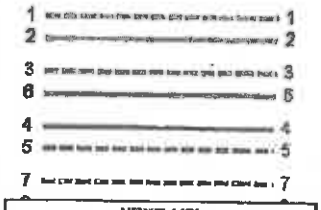
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

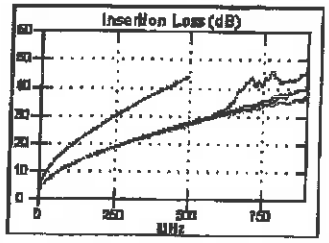
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

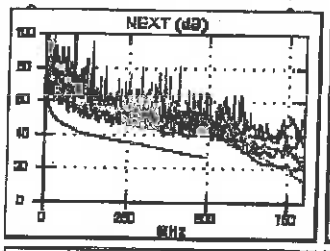
Length (ft), Limit 295	[Pair 12]	206
Prop. Delay (ns), Limit 498	[Pair 45]	321
Delay Skew (ns), Limit 44	[Pair 45]	17
Resistance (ohms)	[Pair 36]	8.9
Insertion Loss Margin (dB)	[Pair 36]	16.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

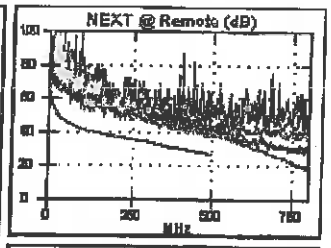
Wire Map (T568B)
PASS

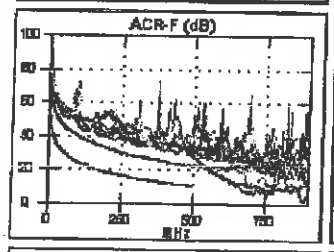


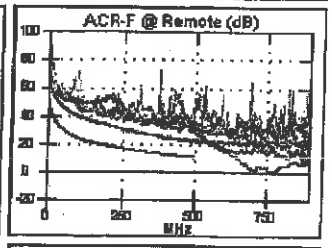
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	36-78
NEXT (dB)	8.3	10.0	10.3	10.2
Freq. (MHz)	204.5	428.0	441.0	488.0
Limit (dB)	36.8	28.9	28.5	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	9.0	9.9	12.1	9.9
Freq. (MHz)	251.0	489.0	484.0	489.0
Limit (dB)	32.7	24.1	24.2	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-78	12-78	12-78	12-78
ACR-F (dB)	11.8	11.2	11.9	11.2
Freq. (MHz)	446.0	485.0	498.0	485.0
Limit (dB)	11.2	10.5	10.2	10.5
Worst Pair	78	12	12	12
PS ACR-F (dB)	13.6	13.8	14.3	13.8
Freq. (MHz)	448.0	496.0	496.0	498.0
Limit (dB)	8.2	7.3	7.3	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
ACR-N (dB)	11.3	13.8	28.5	26.9
Freq. (MHz)	11.0	10.9	485.0	488.0
Limit (dB)	51.4	51.5	-15.9	-16.1
Worst Pair	36	36	45	36
PS ACR-N (dB)	12.4	14.7	29.2	26.1
Freq. (MHz)	11.0	10.9	497.0	489.0
Limit (dB)	49.0	49.1	-19.7	-19.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	4.7	6.3	4.7	6.3
Freq. (MHz)	484.0	489.0	484.0	489.0
Limit (dB)	8.0	8.0	8.0	8.0

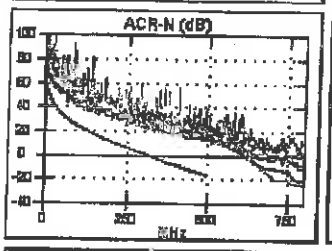


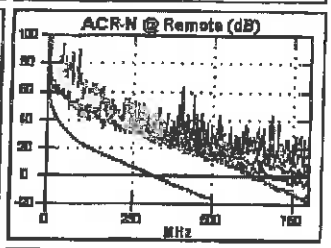


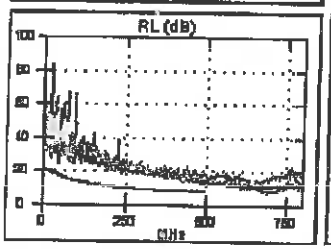


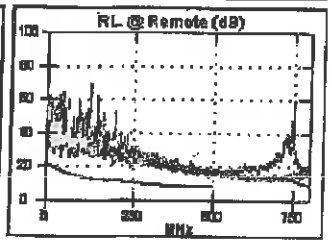












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-33

Test Summary: PASS

Date / Time: 07/03/2012 01:29:58 PM
Headroom 8.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/18/2007

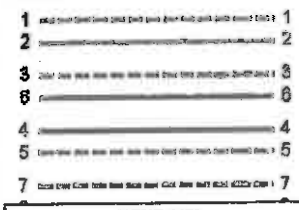
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
N/V P: 69.0%

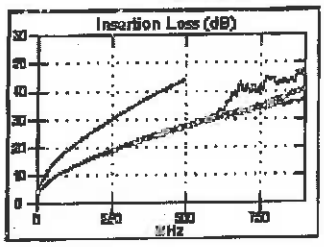
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	204
Prop. Delay (ns), Limit 498	[Pair 45]	317
Delay Skew (ns), Limit 44	[Pair 45]	17
Resistance (ohms)	[Pair 36]	8.9
Insertion Loss Margin (dB)	[Pair 36]	16.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

204 ft

Wire Map (T568B)
PASS



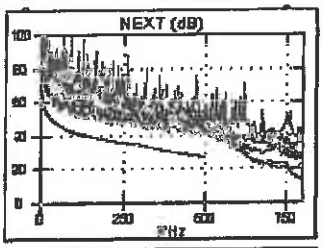


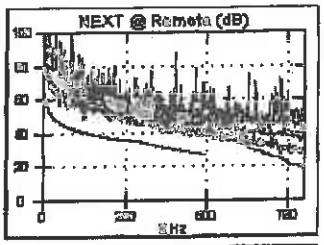
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	9.0	8.3	12.5	10.1
Freq. (MHz)	38.8	125.0	462.0	475.0
Limit (dB)	48.5	40.3	27.8	27.4
Worst Pair	36	36	45	36
PS NEXT (dB)	10.8	9.5	13.7	9.7
Freq. (MHz)	55.0	390.0	500.0	453.0
Limit (dB)	43.6	27.5	23.8	25.2

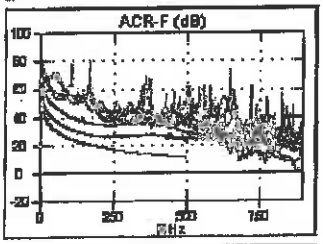
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	36-45	36-45	45-36
ACR-F (dB)	6.7	6.7	12.2	12.0
Freq. (MHz)	1.5	1.5	500.0	498.0
Limit (dB)	60.7	60.7	10.2	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	9.8	9.8	15.0	15.0
Freq. (MHz)	2.0	2.0	500.0	498.0
Limit (dB)	55.2	55.2	7.2	7.2

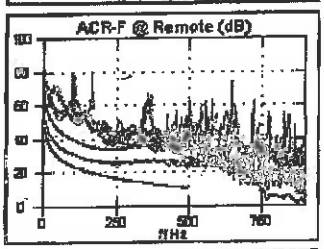
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	13.1	14.2	30.6	27.4
Freq. (MHz)	38.8	4.8	500.0	500.0
Limit (dB)	37.5	59.1	-17.1	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.8	14.7	30.4	27.7
Freq. (MHz)	38.5	4.8	500.0	496.0
Limit (dB)	35.2	56.8	-20.0	-19.7

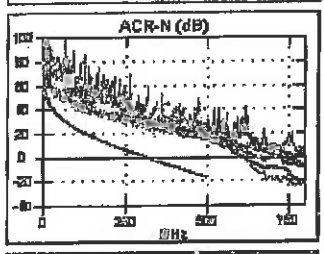
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	36	12	36
RL (dB)	3.8	6.7	3.8	6.7
Freq. (MHz)	500.0	463.0	500.0	463.0
Limit (dB)	8.0	8.0	8.0	8.0

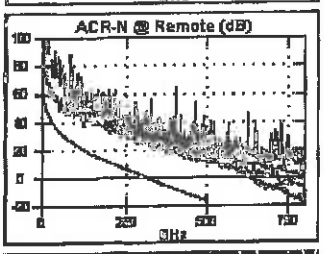


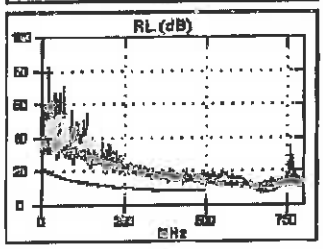


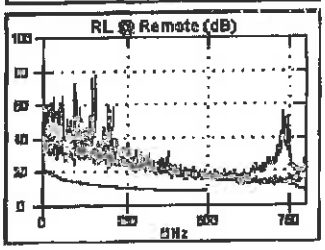












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-34

Test Summary: PASS

Date / Time 07/03/2012 01:40:32 PM
Headroom 5.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

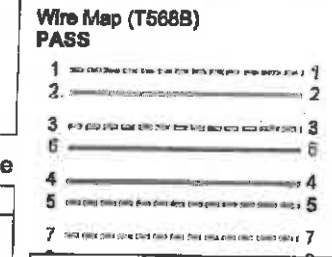
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

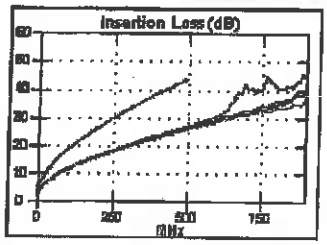
Length (ft), Limit 295	[Pair 12]	198
Prop. Delay (ns), Limit 498	[Pair 45]	307
Delay Skew (ns), Limit 44	[Pair 45]	16
Resistance (ohms)	[Pair 36]	8.6
Insertion Loss Margin (dB)	[Pair 36]	17.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

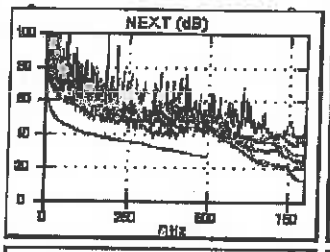
198 ft

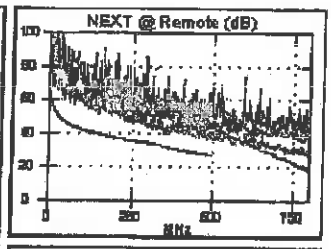
Wire Map (T568B)
PASS

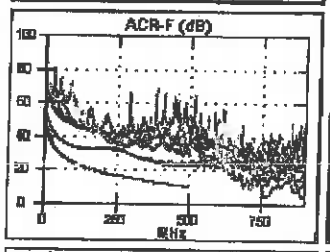
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	5.0	7.8	6.9	9.1
Freq. (MHz)	332.0	353.0	383.0	491.0
Limit (dB)	32.5	31.7	30.5	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	6.9	8.5	9.0	9.5
Freq. (MHz)	332.0	351.0	383.0	484.0
Limit (dB)	29.9	29.1	27.7	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	7.6	7.6	12.0	12.4
Freq. (MHz)	1.6	1.5	486.0	496.0
Limit (dB)	60.0	60.7	10.5	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	10.2	10.3	14.1	14.5
Freq. (MHz)	3.3	2.1	480.0	496.0
Limit (dB)	51.0	54.6	7.6	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	36-45	12-36
ACR-N (dB)	16.5	14.9	31.1	26.0
Freq. (MHz)	6.0	13.9	491.0	491.0
Limit (dB)	57.0	49.1	-16.4	-16.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.3	16.4	31.0	26.8
Freq. (MHz)	14.1	14.1	487.0	495.0
Limit (dB)	46.5	46.5	-18.9	-19.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	45	78	45
RL (dB)	5.1	6.9	5.1	6.9
Freq. (MHz)	456.0	436.0	456.0	436.0
Limit (dB)	8.0	8.0	8.0	8.0

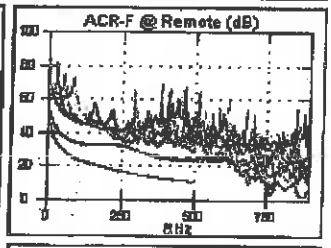


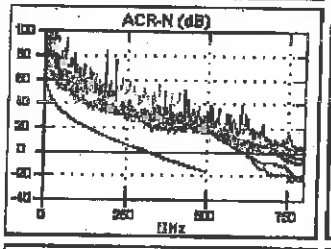


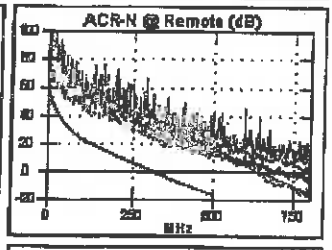


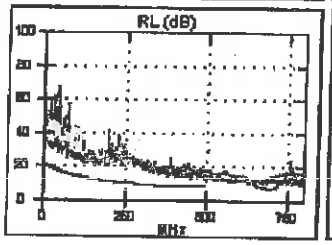


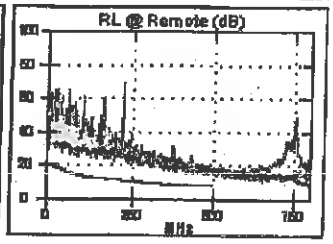












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-36

Date / Time: 07/03/2012 01:41:01 PM
Headroom: 8.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

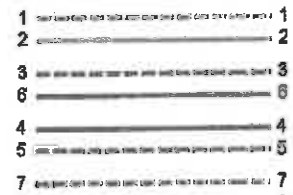
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

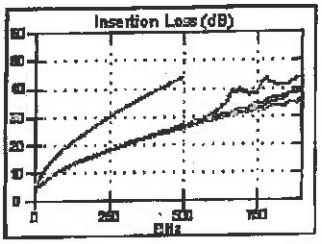
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

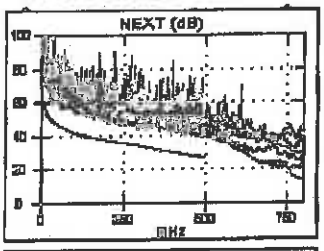
Length (ft), Limit 295	[Pair 12]	197
Prop. Delay (ns), Limit 498	[Pair 45]	307
Delay Skew (ns), Limit 44	[Pair 45]	17
Resistance (ohms)	[Pair 78]	8.6
Insertion Loss Margin (dB)	[Pair 36]	17.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

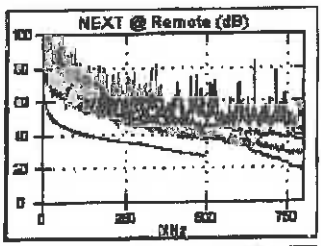
Wire Map (T568B)
PASS

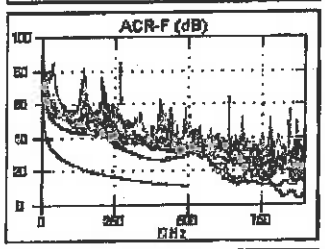


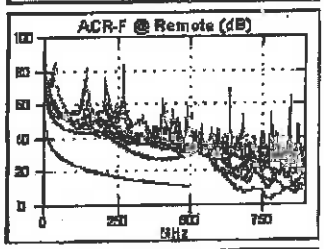
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
NEXT (dB)	9.0	8.4	11.4	8.4
Freq. (MHz)	299.0	458.0	487.0	458.0
Limit (dB)	34.1	27.9	27.0	27.9
Worst Pair	36	36	36	36
PS NEXT (dB)	10.1	8.7	11.4	9.2
Freq. (MHz)	299.0	231.0	491.0	498.0
Limit (dB)	31.4	33.3	24.0	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	13.7	13.6	14.4	14.0
Freq. (MHz)	380.0	381.0	434.0	420.0
Limit (dB)	12.6	12.6	11.4	11.7
Worst Pair	45	36	36	45
PS ACR-F (dB)	16.3	16.0	17.4	16.6
Freq. (MHz)	351.0	379.0	472.0	433.0
Limit (dB)	10.3	9.6	7.7	8.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	12-36
ACR-N (dB)	15.6	18.0	29.0	26.4
Freq. (MHz)	7.3	10.8	491.0	489.0
Limit (dB)	55.3	51.6	-16.4	-16.2
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.2	18.1	28.5	26.5
Freq. (MHz)	31.1	14.4	491.0	499.0
Limit (dB)	37.8	46.3	-19.3	-19.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	12	36	12
RL (dB)	6.1	6.7	6.1	6.7
Freq. (MHz)	458.0	490.0	458.0	490.0
Limit (dB)	8.0	8.0	8.0	8.0

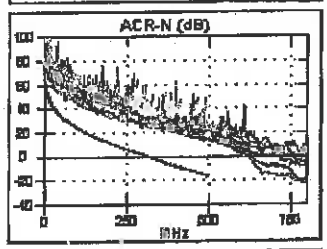


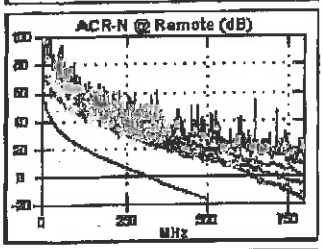


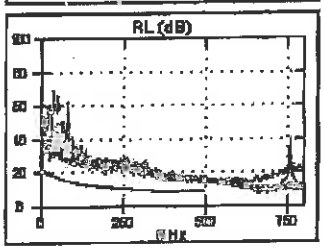


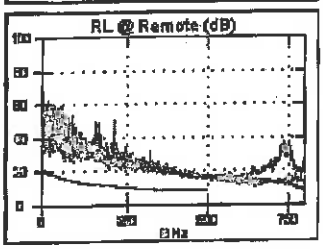












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-36

Date / Time 07/03/2012 01:41:37 PM
Headroom 5.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

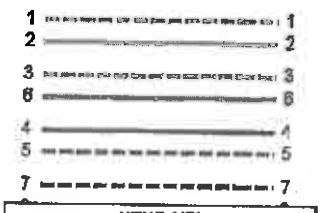
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	202
Prop. Delay (ns), Limit 498	[Pair 45]	314
Delay Skew (ns), Limit 44	[Pair 45]	16
Resistance (ohms)	[Pair 36]	8.7
Insertion Loss Margin (dB)	[Pair 36]	17.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

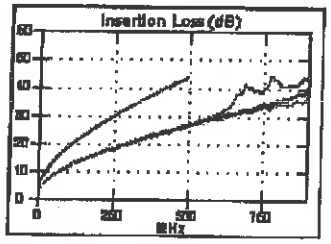
Wire Map (T568B)
PASS

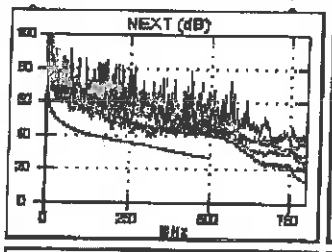


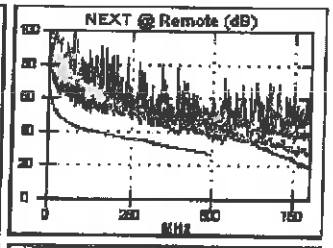
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	5.3	8.8	5.3	9.5
Freq. (MHz)	319.0	395.0	319.0	495.0
Limit (dB)	33.1	30.0	33.1	26.8
Worst Pair	36	36	45	36
PS NEXT (dB)	6.6	9.5	12.5	9.7
Freq. (MHz)	319.0	387.0	497.0	495.0
Limit (dB)	30.5	27.6	23.8	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	6.1	6.1	6.6	6.5
Freq. (MHz)	418.0	418.0	484.0	466.0
Limit (dB)	11.8	11.8	10.5	10.8
Worst Pair	36	45	36	45
PS ACR-F (dB)	8.9	8.9	9.2	9.5
Freq. (MHz)	416.0	418.0	477.0	484.0
Limit (dB)	8.8	8.8	7.6	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
ACR-N (dB)	15.3	15.0	30.2	27.0
Freq. (MHz)	32.5	6.3	497.0	495.0
Limit (dB)	39.7	56.7	-16.9	-16.7
Worst Pair	36	36	45	36
PS ACR-N (dB)	14.6	15.9	29.5	26.6
Freq. (MHz)	19.4	6.1	497.0	495.0
Limit (dB)	43.2	54.5	-19.7	-19.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	4.3	5.6	4.3	5.6
Freq. (MHz)	498.0	485.0	498.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

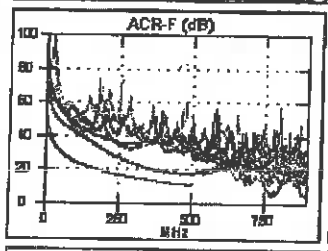
Compliant Network Standards:

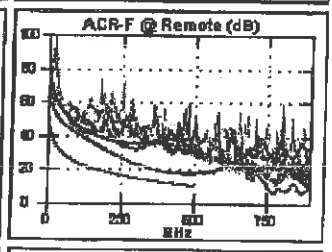
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-18 Active	TR-16 Passive

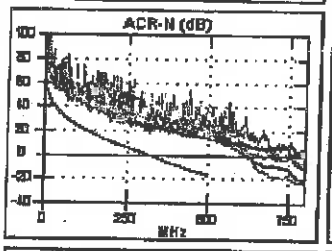


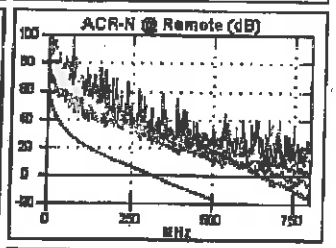


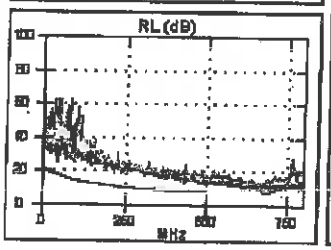


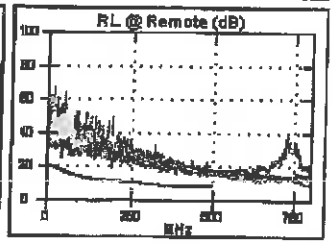












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-37

Test Summary: PASS

Date / Time: 07/03/2012 01:42:18 PM
Headroom: 6.6 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

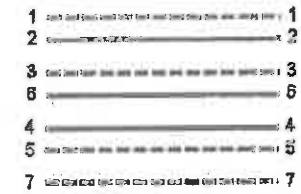
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

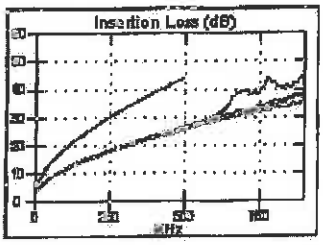
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	197
Prop. Delay (ns), Limit 498	[Pair 45]	305
Delay Skew (ns), Limit 44	[Pair 45]	15
Resistance (ohms)	[Pair 36]	8.5
Insertion Loss Margin (dB)	[Pair 36]	17.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

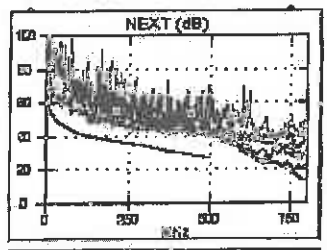
197 ft

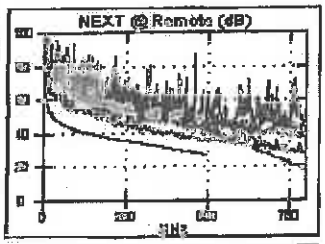
Wire Map (T568B)
PASS

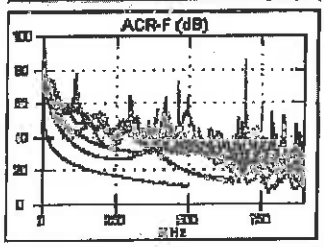


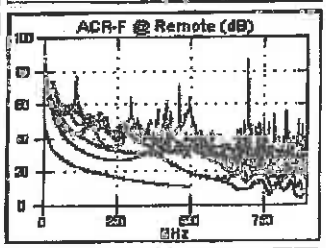


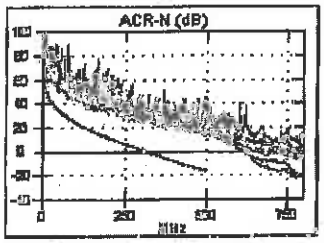
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	12-36
NEXT (dB)	7.9	6.6	12.3	7.5
Freq. (MHz)	16.4	296.0	500.0	485.0
Limit (dB)	54.4	34.1	26.7	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	8.2	7.8	12.4	9.0
Freq. (MHz)	250.0	296.0	494.0	485.0
Limit (dB)	32.7	31.5	23.9	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	8.2	8.3	8.2	8.3
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	10.8	11.1	10.8	11.1
Freq. (MHz)	500.0	497.0	500.0	500.0
Limit (dB)	7.2	7.3	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	10.6	12.6	30.1	24.9
Freq. (MHz)	16.4	16.4	500.0	486.0
Limit (dB)	47.4	47.4	-17.1	-16.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	12.8	14.7	30.0	26.4
Freq. (MHz)	16.4	16.3	494.0	485.0
Limit (dB)	45.0	45.1	-19.5	-18.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	12	45	12
RL (dB)	4.3	5.3	4.3	5.3
Freq. (MHz)	485.0	491.0	485.0	491.0
Limit (dB)	8.0	8.0	8.0	8.0

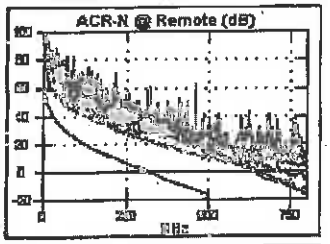


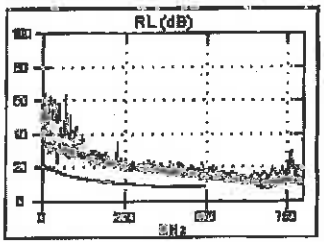


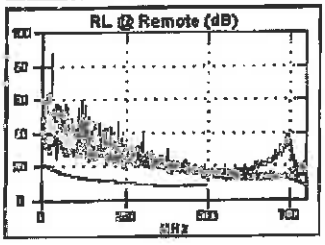












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-38

Test Summary: PASS

Date / Time 07/03/2012 01 46 42 PM
Headroom 6.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

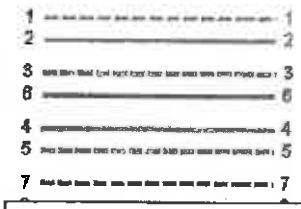
Operator TYLER
Software Version 2 5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

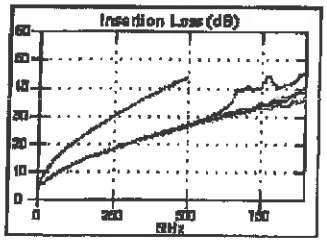
Length (ft), Limit 295	[Pair 12]	199
Prop. Delay (ns), Limit 498	[Pair 45]	312
Delay Skew (ns), Limit 44	[Pair 45]	18
Resistance (ohms)	[Pair 78]	8.6
Insertion Loss Margin (dB)	[Pair 36]	17.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

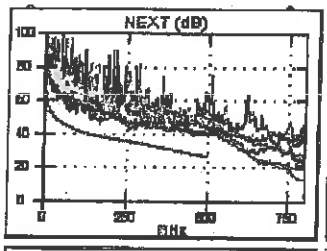
199 ft

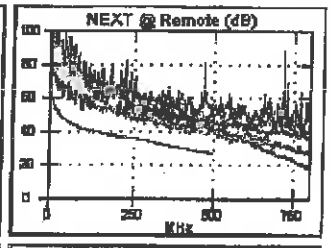
Wire Map (T568B)
PASS

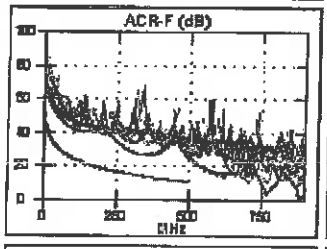


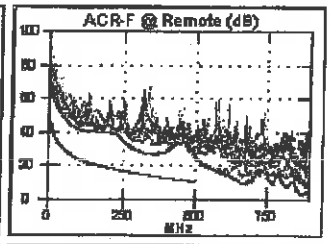
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	12-36	36-78	12-36
NEXT (dB)	6.8	9.7	10.8	10.6
Freq. (MHz)	167.5	427.0	457.0	478.0
Limit (dB)	38.2	28.9	27.9	27.3
Worst Pair	36	36	36	36
PS NEXT (dB)	8.2	9.8	12.3	11.4
Freq. (MHz)	260.0	284.0	500.0	496.0
Limit (dB)	32.4	31.8	23.8	23.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	12.6	12.6	14.6	14.3
Freq. (MHz)	336.0	325.0	500.0	500.0
Limit (dB)	13.7	14.0	10.2	10.2
Worst Pair	36	45	45	36
PS ACR-F (dB)	15.1	14.9	16.2	16.0
Freq. (MHz)	314.0	352.0	500.0	499.0
Limit (dB)	11.3	10.3	7.2	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	14.2	15.0	30.2	27.2
Freq. (MHz)	3.4	3.3	500.0	478.0
Limit (dB)	61.7	61.8	-17.1	-15.3
Worst Pair	78	78	36	36
PS ACR-N (dB)	15.7	15.9	29.5	28.5
Freq. (MHz)	6.5	6.5	500.0	496.0
Limit (dB)	54.0	54.0	-20.0	-19.7
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	5.2	6.9	5.2	6.9
Freq. (MHz)	485.0	500.0	485.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

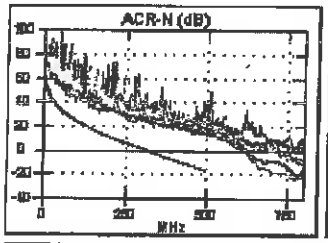


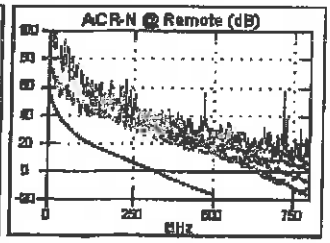


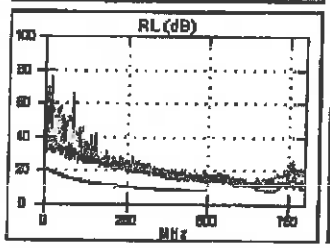


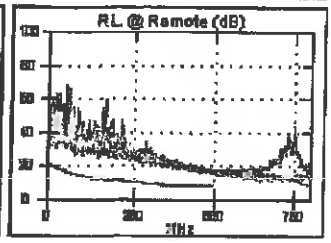












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-39

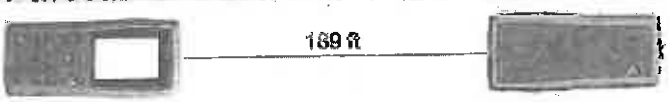
Date / Time: 07/03/2012 01:50:37 PM
Headroom: 8.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.6200
Limits Version: 1.7000
NVP: 69.9%

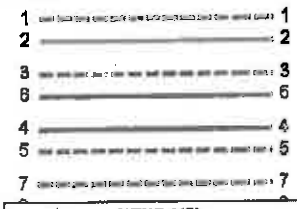
Test Summary: PASS

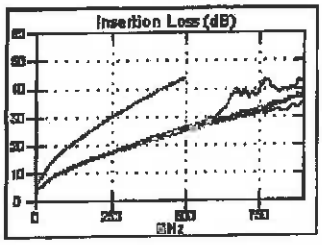
Model: DTX-1800
Main S/N: 9469069
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	189
Prop. Delay (ns), Limit 498	[Pair 45]	294
Delay Skew (ns), Limit 44	[Pair 45]	15
Resistance (ohms)	[Pair 12]	8.1
Insertion Loss Margin (dB)	[Pair 36]	18.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

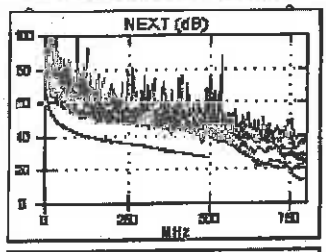


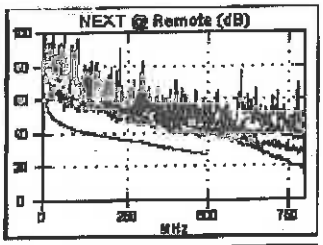
Wire Map (T568B)
PASS



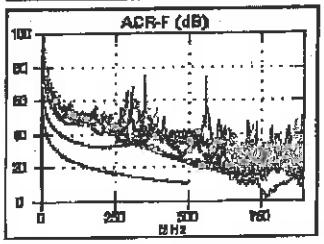


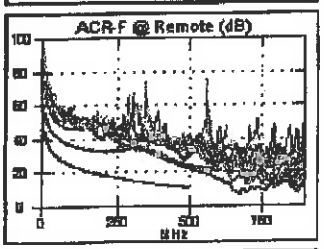
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-78	12-36
NEXT (dB)	8.3	9.5	8.3	9.5
Freq. (MHz)	480.0	436.0	480.0	479.0
Limit (dB)	27.2	28.6	27.2	27.3
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	10.1	10.4	10.1
Freq. (MHz)	480.0	479.0	480.0	479.0
Limit (dB)	24.4	24.4	24.4	24.4



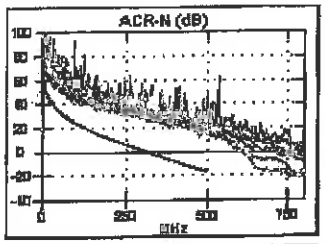


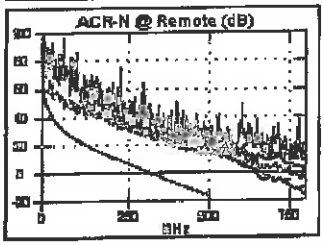
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	45-36	45-36
ACR-F (dB)	11.5	11.5	11.9	11.7
Freq. (MHz)	5.5	15.4	498.0	500.0
Limit (dB)	49.4	40.5	10.2	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	13.9	14.1	14.0	14.2
Freq. (MHz)	479.0	23.3	498.0	497.0
Limit (dB)	7.6	33.9	7.2	7.3



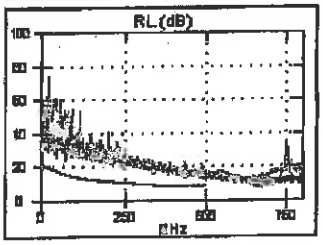


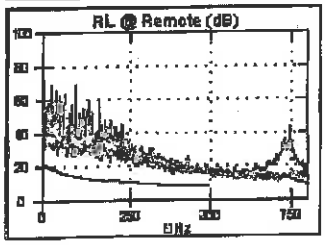
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	14.4	14.3	26.9	28.0
Freq. (MHz)	34.8	25.5	480.0	493.0
Limit (dB)	38.9	42.5	-15.5	-16.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.5	15.8	28.2	28.7
Freq. (MHz)	7.1	25.6	480.0	499.0
Limit (dB)	53.2	40.1	-18.4	-19.9





PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	4.5	6.6	4.5	6.6
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-40

Date / Time 07/03/2012 01:51:11 PM
Headroom 5.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

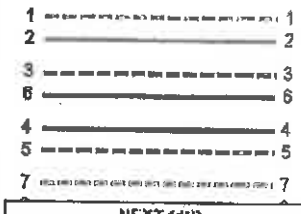
Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

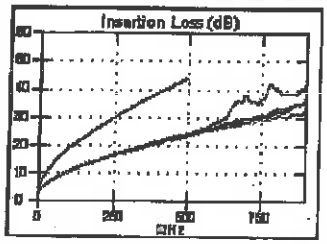
Length (ft), Limit 295	[Pair 12]	178
Prop. Delay (ns), Limit 498	[Pair 45]	276
Delay Skew (ns), Limit 44	[Pair 45]	14
Resistance (ohms)	[Pair 36]	7.6
Insertion Loss Margin (dB)	[Pair 36]	19.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

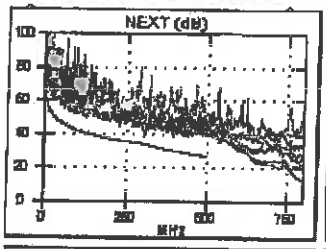
178 ft

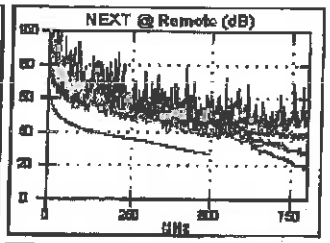
Wire Map (T568B)
PASS

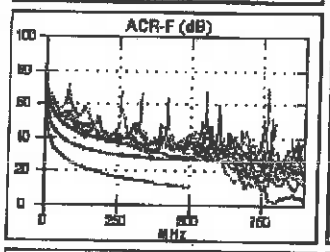


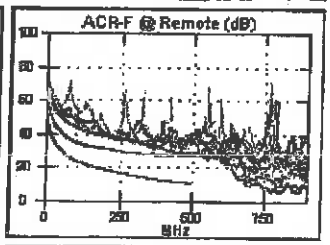
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	12-36	36-78	36-78
NEXT (dB)	5.0	9.4	10.2	10.4
Freq. (MHz)	307.0	360.0	442.0	496.0
Limit (dB)	33.7	31.4	28.4	26.8
Worst Pair	78	36	36	36
PS NEXT (dB)	6.6	10.0	10.8	10.0
Freq. (MHz)	307.0	480.0	443.0	480.0
Limit (dB)	31.1	24.4	25.6	24.4
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	36-45	45-36	36-45
ACR-F (dB)	10.7	10.7	14.5	14.8
Freq. (MHz)	2.1	30.3	423.0	424.0
Limit (dB)	57.6	34.6	11.7	11.6
Worst Pair	36	36	36	12
PS ACR-F (dB)	12.9	12.8	16.5	17.3
Freq. (MHz)	3.1	2.8	477.0	483.0
Limit (dB)	51.3	52.4	7.6	7.5
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	36-45	12-36
ACR-N (dB)	13.7	14.4	33.2	29.5
Freq. (MHz)	28.1	7.1	500.0	480.0
Limit (dB)	41.4	55.5	-17.1	-15.5
Worst Pair	36	36	45	36
PS ACR-N (dB)	13.4	15.0	33.0	29.2
Freq. (MHz)	7.5	7.4	500.0	480.0
Limit (dB)	52.7	52.8	-20.0	-18.4
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36	36	36	36
RL (dB)	6.1	6.5	6.1	6.5
Freq. (MHz)	440.0	488.0	440.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

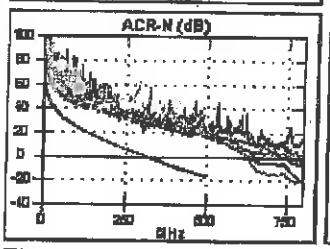


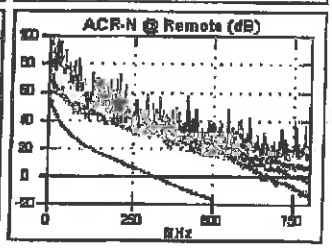


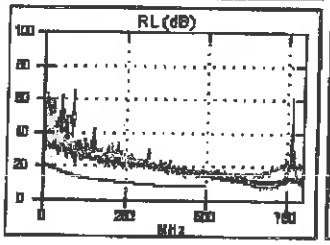


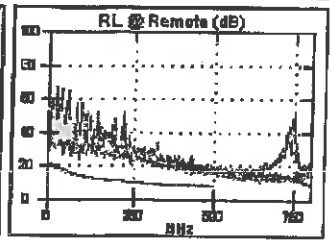












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-41

Test Summary: PASS

Date / Time: 07/03/2012 01:51:59 PM
Headroom 8.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

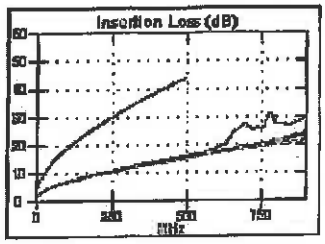
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

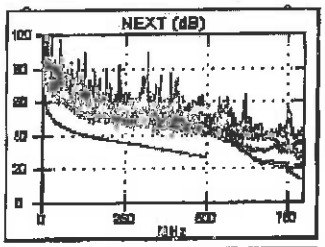
Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	174
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	4.7
Insertion Loss Margin (dB)	[Pair 36]	28.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

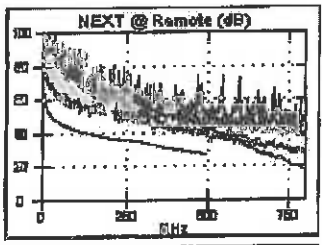
111 ft

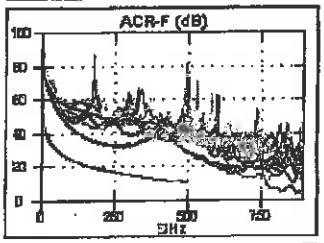
Wire Map (T568B)
PASS

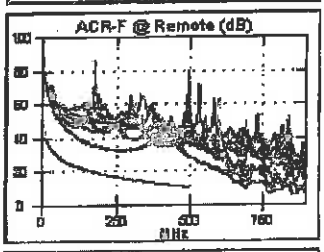
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-78	36-78
NEXT (dB)	8.7	9.8	12.9	11.2
Freq. (MHz)	142.0	331.0	498.0	499.0
Limit (dB)	39.4	32.6	26.7	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.9	10.3	13.3	10.4
Freq. (MHz)	227.5	435.0	496.0	499.0
Limit (dB)	33.4	25.8	23.9	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	45-36
ACR-F (dB)	15.1	15.2	17.5	17.7
Freq. (MHz)	199.5	199.5	500.0	500.0
Limit (dB)	18.2	18.2	10.2	10.2
Worst Pair	45	45	36	45
PS ACR-F (dB)	17.8	17.5	19.7	19.9
Freq. (MHz)	202.0	187.0	500.0	500.0
Limit (dB)	15.1	15.8	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
ACR-N (dB)	16.5	17.5	41.6	39.3
Freq. (MHz)	9.0	8.8	498.0	496.0
Limit (dB)	53.3	53.6	-16.9	-16.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.1	18.6	41.3	38.5
Freq. (MHz)	5.9	5.6	496.0	499.0
Limit (dB)	54.9	55.3	-19.7	-19.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	4.1	7.1	4.1	7.1
Freq. (MHz)	487.0	500.0	487.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

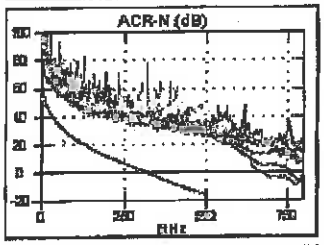


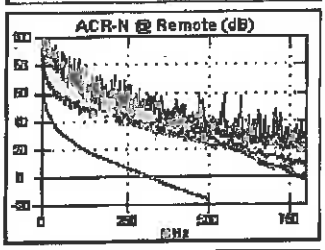


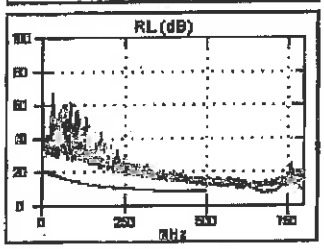


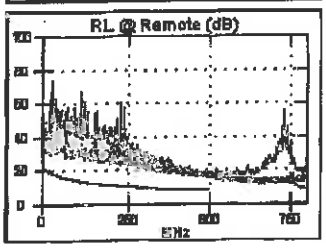












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-42

Test Summary: PASS

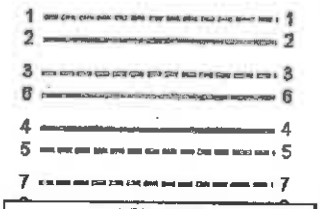
Date / Time 07/03/2012 01 58:43 PM
Headroom 7.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69.0%

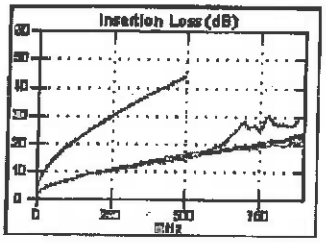
Model. DTX-1800
Main S/N 9469009
Remote S/N: 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

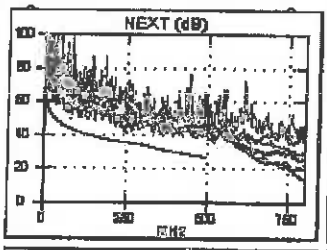
Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	174
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	4.9
Insertion Loss Margin (dB)	[Pair 36]	28.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

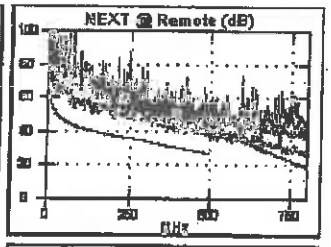
Wire Map (T568B)
PASS

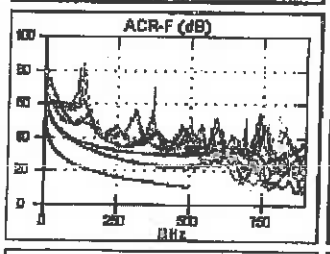


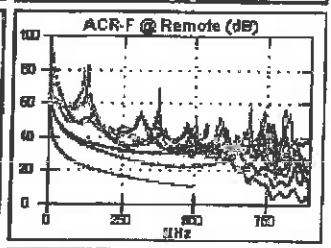
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	7.1	8.9	11.1	10.9
Freq. (MHz)	246.0	393.0	469.0	497.0
Limit (dB)	35.5	30.1	27.6	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.8	9.7	11.8	10.3
Freq. (MHz)	246.0	393.0	453.0	497.0
Limit (dB)	32.8	27.4	25.2	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	36-45
ACR-F (dB)	9.8	9.9	10.4	10.9
Freq. (MHz)	372.0	360.0	491.0	485.0
Limit (dB)	12.8	13.1	10.4	10.5
Worst Pair	36	45	36	45
PS ACR-F (dB)	12.3	12.6	12.7	13.3
Freq. (MHz)	438.0	324.0	485.0	491.0
Limit (dB)	8.4	11.0	7.5	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	12-36
ACR-N (dB)	12.9	14.8	41.1	38.8
Freq. (MHz)	3.5	3.5	500.0	497.0
Limit (dB)	61.7	61.7	-17.1	-16.9
Worst Pair	78	78	36	36
PS ACR-N (dB)	14.7	16.5	40.5	38.1
Freq. (MHz)	3.9	3.9	485.0	497.0
Limit (dB)	58.5	58.5	-18.8	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	4.8	6.3	4.8	6.3
Freq. (MHz)	498.0	490.0	498.0	490.0
Limit (dB)	8.0	8.0	8.0	8.0

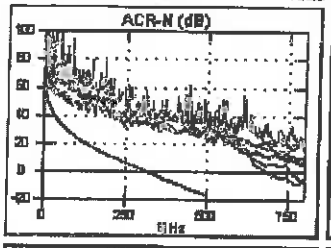


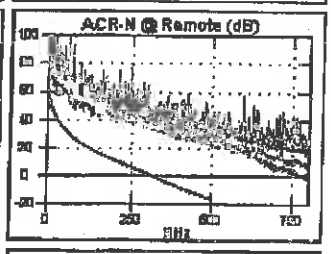


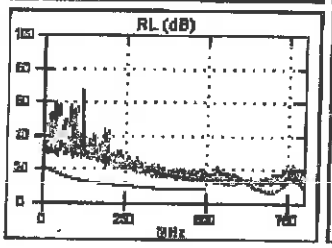


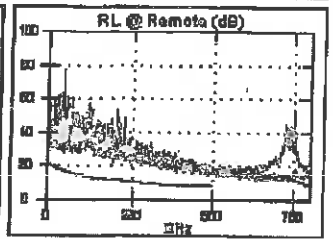












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-43

Test Summary: PASS

Date / Time: 07/03/2012 01:59:31 PM
Headroom: 5.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

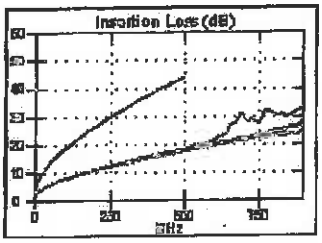
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

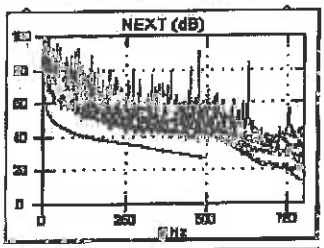
Length (ft), Limit 295	[Pair 12]	130
Prop. Delay (ns), Limit 498	[Pair 45]	203
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	5.6
Insertion Loss Margin (dB)	[Pair 36]	25.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

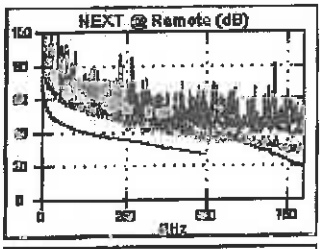
130 ft

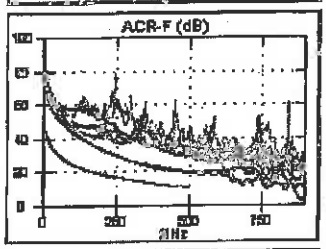
Wire Map (T568B)
PASS

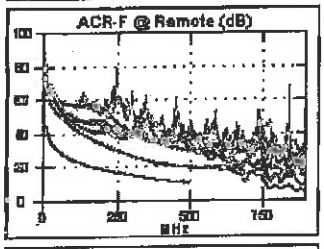


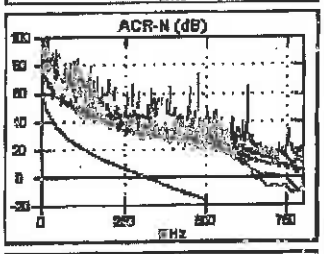
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	5.9	7.2	9.6	7.6
Freq. (MHz)	310.0	321.0	477.0	482.0
Limit (dB)	33.5	33.0	27.3	27.2
Worst Pair	36	36	36	36
PS NEXT (dB)	7.2	7.0	11.1	8.6
Freq. (MHz)	310.0	313.0	477.0	493.0
Limit (dB)	30.9	30.8	24.5	24.0
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	45-36	36-45
ACR-F (dB)	8.7	8.8	8.7	9.1
Freq. (MHz)	459.0	448.0	490.0	499.0
Limit (dB)	11.0	11.2	10.4	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	11.3	11.5	11.4	11.5
Freq. (MHz)	490.0	459.0	499.0	490.0
Limit (dB)	7.4	8.0	7.2	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	17.0	17.1	35.4	33.5
Freq. (MHz)	3.1	17.6	477.0	482.0
Limit (dB)	61.8	46.6	-15.2	-15.6
Worst Pair	36	45	36	36
PS ACR-N (dB)	17.9	18.2	36.1	34.2
Freq. (MHz)	3.3	12.3	477.0	493.0
Limit (dB)	58.8	48.0	-18.1	-19.4
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.2	4.8	4.2	4.8
Freq. (MHz)	500.0	497.0	500.0	497.0
Limit (dB)	8.0	8.0	8.0	8.0

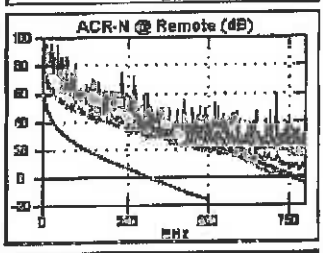


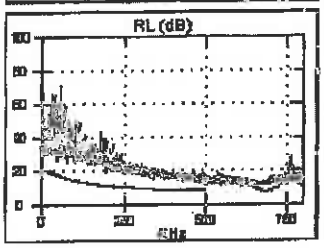


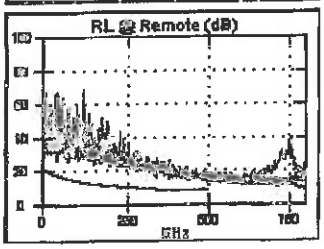












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-44

Test Summary: PASS

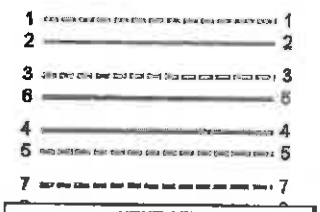
Date / Time: 07/03/2012 02:01:29 PM
Headroom 6.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

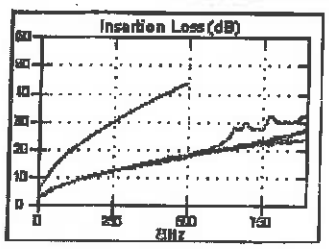
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

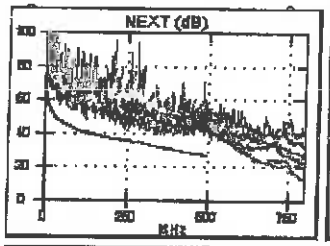
Length (ft), Limit 295	[Pair 12]	130
Prop. Delay (ns), Limit 498	[Pair 45]	202
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	5.6
Insertion Loss Margin (dB)	[Pair 36]	25.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

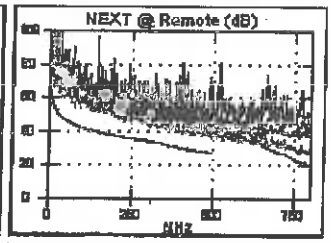
Wire Map (T568B)
PASS

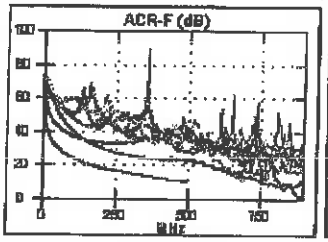


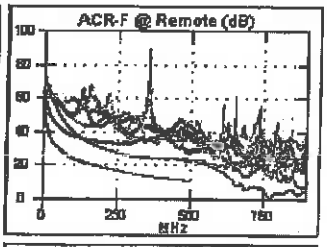
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	6.5	8.8	7.2	8.9
Freq. (MHz)	245.0	405.0	343.0	497.0
Limit (dB)	35.5	29.7	32.1	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.1	8.8	11.7	9.4
Freq. (MHz)	244.5	364.0	441.0	497.0
Limit (dB)	32.9	28.5	25.6	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	36-45	45-36
ACR-F (dB)	10.3	10.4	11.8	11.3
Freq. (MHz)	332.0	317.0	493.0	494.0
Limit (dB)	13.8	14.2	10.3	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	13.0	13.1	14.0	13.7
Freq. (MHz)	332.0	325.0	485.0	493.0
Limit (dB)	10.8	11.0	7.5	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	16.1	16.4	39.3	34.5
Freq. (MHz)	7.6	7.6	487.0	497.0
Limit (dB)	54.9	54.9	-16.1	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.3	17.7	35.4	34.9
Freq. (MHz)	7.6	7.5	441.0	497.0
Limit (dB)	52.5	52.7	-15.0	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	4.0	6.5	4.0	6.5
Freq. (MHz)	484.0	484.0	484.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

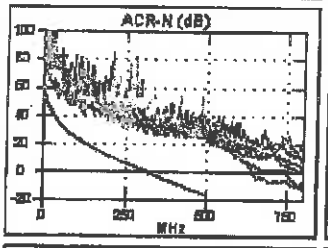


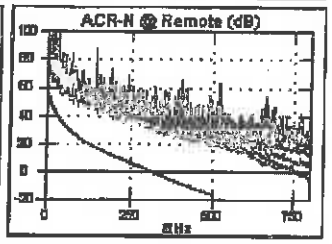


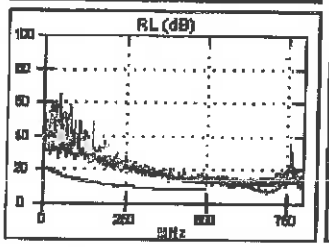


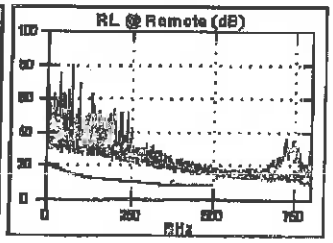












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-45

Test Summary: PASS

Date / Time: 07/03/2012 02:02:01 PM
Headroom: 6.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

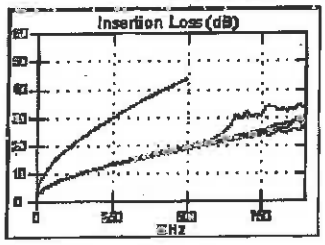
Model: DTX-1800
Main S/N: 9469609
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

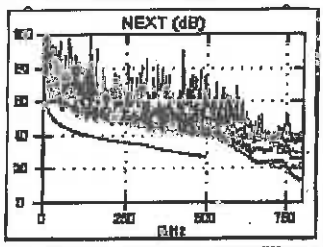
Length (ft), Limit 295	[Pair 12]	141
Prop. Delay (ns), Limit 498	[Pair 45]	220
Delay Skew (ns), Limit 44	[Pair 45]	12
Resistance (ohms)	[Pair 36]	6.2
Insertion Loss Margin (dB)	[Pair 36]	24.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

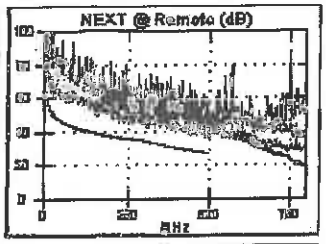
141 ft

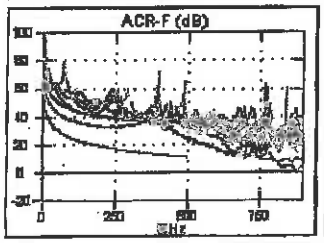
Wire Map (T568B)
PASS

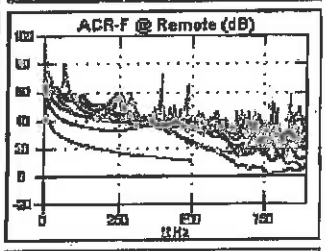
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	9.4	8.7	12.1	9.5
Freq. (MHz)	134.0	446.0	494.0	500.0
Limit (dB)	39.8	28.3	26.8	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.5	9.5	12.1	10.0
Freq. (MHz)	324.0	314.0	492.0	489.0
Limit (dB)	30.2	30.7	24.0	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	36-45	36-45	45-36
ACR-F (dB)	12.3	12.4	12.8	12.4
Freq. (MHz)	36.8	10.1	490.0	490.0
Limit (dB)	32.9	44.1	10.4	10.4
Worst Pair	45	45	45	36
PS ACR-F (dB)	14.9	14.8	15.6	15.1
Freq. (MHz)	3.4	10.6	495.0	490.0
Limit (dB)	50.6	40.7	7.3	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-45	36-78
ACR-N (dB)	14.7	15.8	37.0	34.6
Freq. (MHz)	4.8	4.5	498.0	500.0
Limit (dB)	59.1	59.5	-16.9	-17.1
Worst Pair	78	78	36	36
PS ACR-N (dB)	15.6	17.2	36.2	33.9
Freq. (MHz)	4.8	4.6	492.0	489.0
Limit (dB)	56.8	57.0	-19.3	-19.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	78	36	78	36
RL (dB)	5.1	6.4	5.1	6.4
Freq. (MHz)	494.0	488.0	494.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

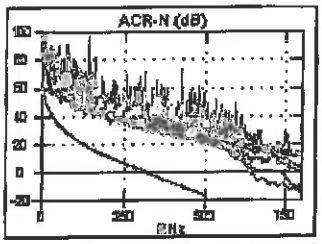


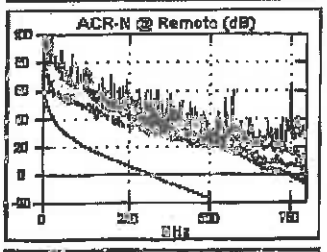


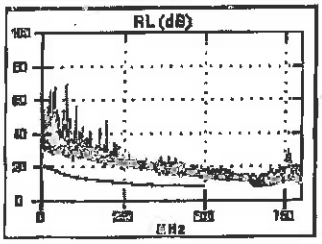


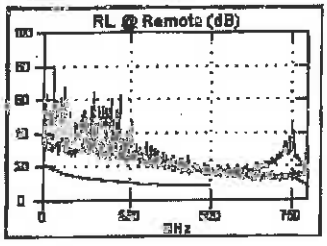












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-46

Test Summary: PASS

Date / Time: 07/03/2012 02:02:32 PM
Headroom 8.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

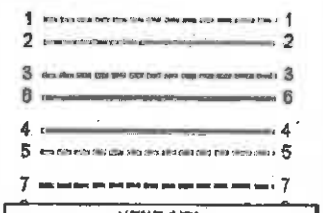
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	142
Prop. Delay (ns), Limit 498	[Pair 45]	220
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 78]	6.1
Insertion Loss Margin (dB)	[Pair 36]	24.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

142 ft

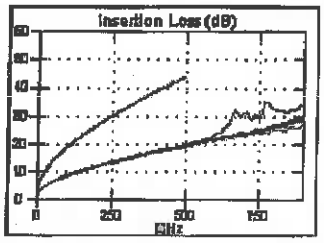
Wire Map (T568B)
PASS

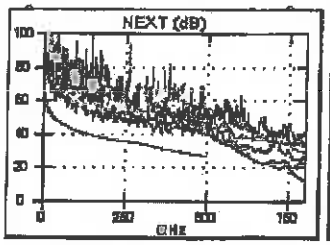


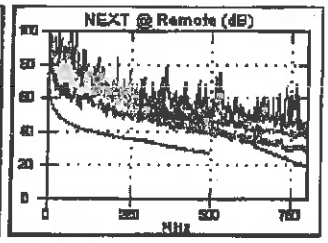
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	12-36	36-45	36-78
NEXT (dB)	8.9	10.2	12.4	10.6
Freq. (MHz)	339.0	277.0	499.0	473.0
Limit (dB)	32.2	34.6	26.7	27.4
Worst Pair	36	36	36	36
PS NEXT (dB)	10.9	9.7	14.0	11.3
Freq. (MHz)	339.0	385.0	500.0	497.0
Limit (dB)	29.6	27.7	23.8	23.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	13.8	13.5	13.8	13.5
Freq. (MHz)	497.0	497.0	499.0	497.0
Limit (dB)	10.3	10.3	10.2	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	16.3	16.0	16.3	16.0
Freq. (MHz)	497.0	497.0	499.0	499.0
Limit (dB)	7.3	7.3	7.2	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	16.7	17.5	36.9	36.1
Freq. (MHz)	2.9	22.9	499.0	498.0
Limit (dB)	62.0	43.8	-17.0	-16.9
Worst Pair	36	78	36	36
PS ACR-N (dB)	17.8	19.2	38.4	35.4
Freq. (MHz)	25.5	22.9	500.0	497.0
Limit (dB)	40.1	41.4	-20.0	-19.7
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.1	5.6	4.1	5.6
Freq. (MHz)	491.0	498.0	491.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

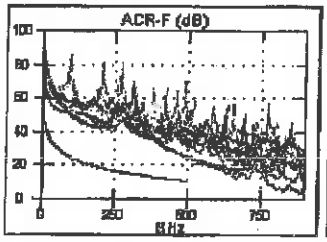
Compliant Network Standards:

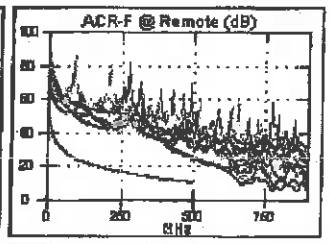
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

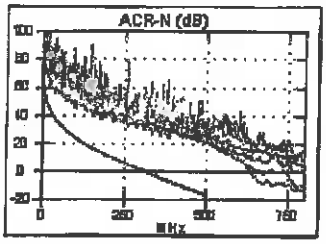


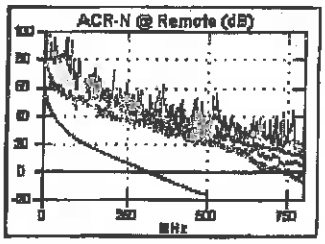


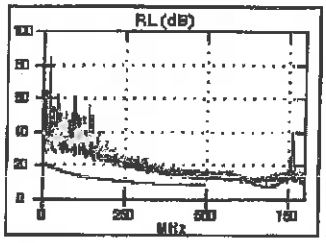


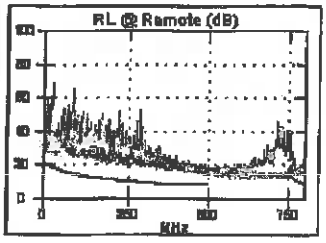












LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-S-47

Date / Time 07/03/2012 02:03:01 PM
Headroom 6.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

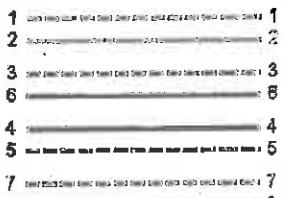
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS

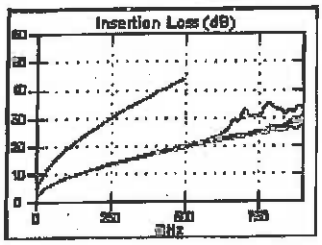
Model DTX-1800
Main S/N: 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

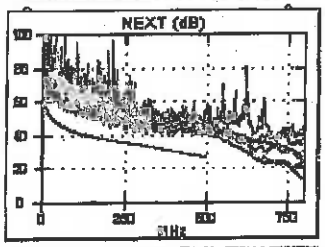
Length (ft), Limit 295	[Pair 12]	142
Prop. Delay (ns), Limit 498	[Pair 45]	222
Delay Skew (ns), Limit 44	[Pair 45]	12
Resistance (ohms)	[Pair 78]	6.2
Insertion Loss Margin (dB)	[Pair 36]	24.3
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

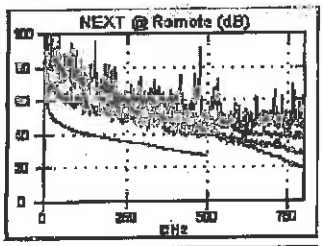
Wire Map (T568B)
PASS

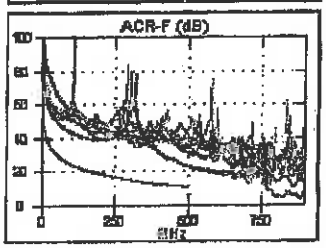


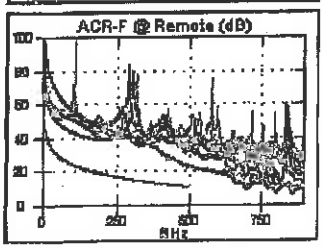
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	12-36
NEXT (dB)	6.8	9.5	9.3	10.7
Freq. (MHz)	278.0	18.3	387.0	498.0
Limit (dB)	34.6	53.7	30.3	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.1	10.1	12.2	10.7
Freq. (MHz)	279.0	278.0	471.0	499.0
Limit (dB)	31.9	31.9	24.7	23.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	12.1	11.8	12.1	11.8
Freq. (MHz)	491.0	491.0	493.0	495.0
Limit (dB)	10.4	10.4	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	14.4	14.6	14.4	14.6
Freq. (MHz)	491.0	491.0	491.0	491.0
Limit (dB)	7.4	7.4	7.4	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	12.9	13.6	37.5	34.8
Freq. (MHz)	18.4	18.4	491.0	498.0
Limit (dB)	46.2	46.2	-16.4	-16.9
Worst Pair	78	36	36	36
PS ACR-N (dB)	14.0	15.8	37.4	34.9
Freq. (MHz)	18.8	18.4	500.0	499.0
Limit (dB)	43.6	43.8	-20.0	-19.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	3.6	5.8	3.6	5.8
Freq. (MHz)	500.0	495.0	500.0	495.0
Limit (dB)	8.0	8.0	8.0	8.0

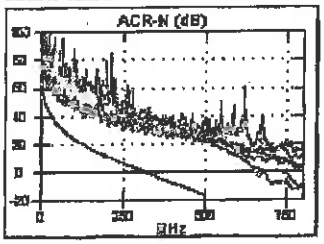


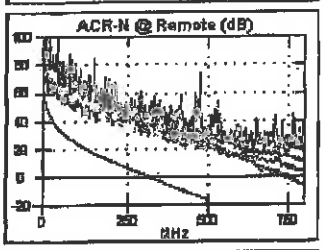


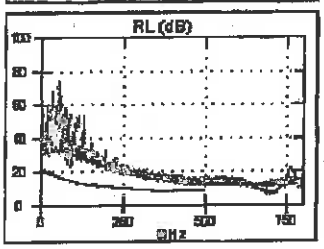


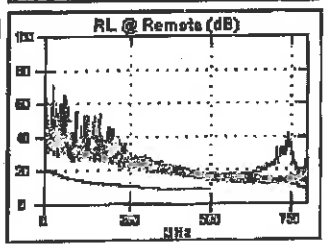












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-B-48

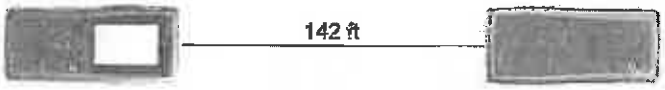
Test Summary: PASS

Date / Time: 07/09/2012 02:03:35 PM
Headroom: 7.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

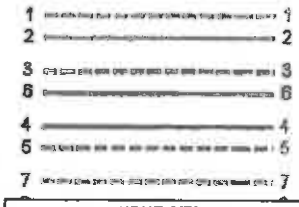
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

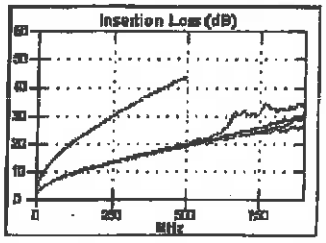
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	142
Prop. Delay (ns), Limit 498	[Pair 45]	221
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 78]	6.2
Insertion Loss Margin (dB)	[Pair 36]	24.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

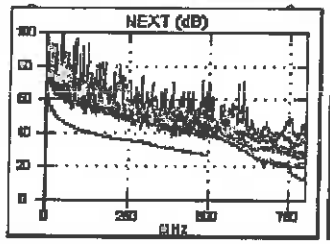


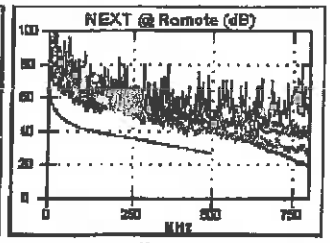
Wire Map (T568B)
PASS

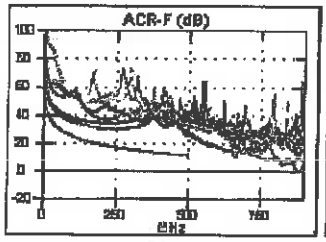


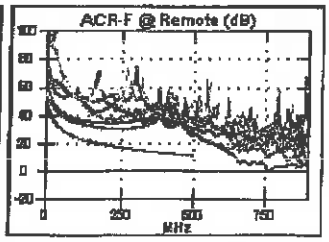


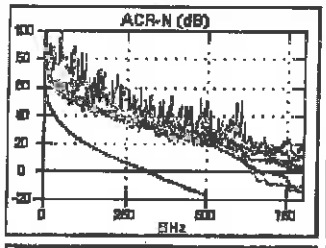
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
NEXT (dB)	7.6	8.1	9.7	8.1
Freq. (MHz)	389.0	421.0	486.0	421.0
Limit (dB)	30.3	29.1	27.1	29.1
Worst Pair	36	36	36	36
PS NEXT (dB)	8.5	9.4	10.9	10.9
Freq. (MHz)	389.0	421.0	500.0	500.0
Limit (dB)	27.5	26.3	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	9.9	9.9	14.9	14.4
Freq. (MHz)	27.0	17.3	498.0	498.0
Limit (dB)	35.6	39.5	10.2	10.2
Worst Pair	36	36	45	36
PS ACR-F (dB)	12.6	12.6	17.4	17.2
Freq. (MHz)	20.5	27.0	498.0	498.0
Limit (dB)	35.0	32.6	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	15.3	16.8	33.9	35.4
Freq. (MHz)	11.8	4.4	486.0	498.0
Limit (dB)	50.7	59.8	-16.0	-16.9
Worst Pair	78	78	36	36
PS ACR-N (dB)	16.4	18.4	35.1	35.1
Freq. (MHz)	9.4	9.3	500.0	500.0
Limit (dB)	50.6	50.7	-20.0	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	3.6	5.8	3.6	5.8
Freq. (MHz)	481.0	489.0	481.0	489.0
Limit (dB)	8.0	8.0	8.0	8.0

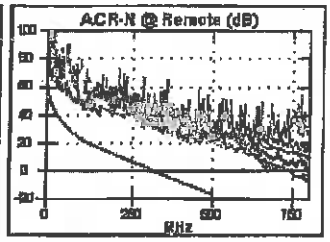


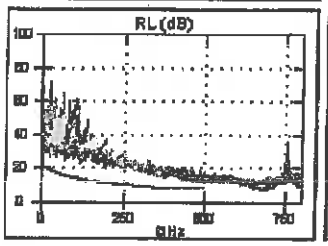


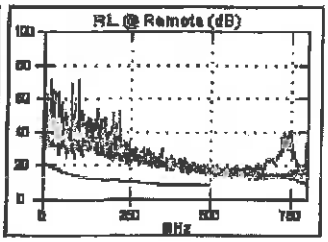












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-01

Test Summary: PASS

Date / Time: 07/03/2012 02:04:08 PM
Headroom: 8.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

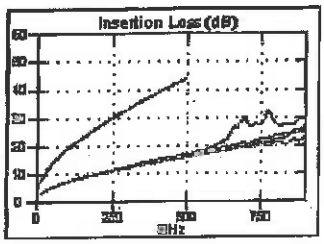
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.8%

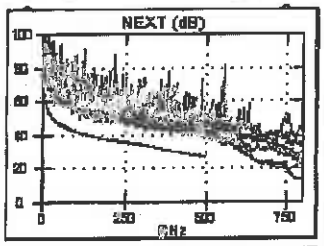
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

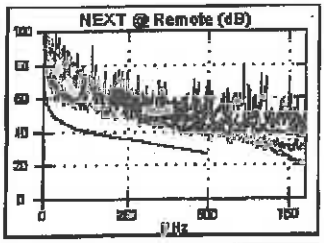
Length (ft), Limit 295	[Pair 12]	118
Prop. Delay (ns), Limit 498	[Pair 45]	184
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 78]	5.1
Insertion Loss Margin (dB)	[Pair 36]	27.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

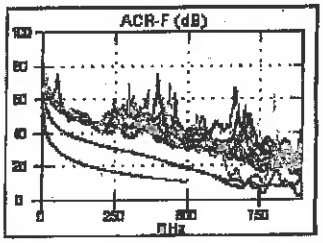
Wire Map (T568B)
PASS

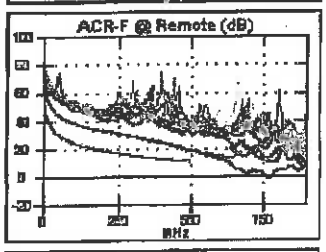
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.4	8.9	10.2	10.2
Freq. (MHz)	113.5	291.0	496.0	496.0
Limit (dB)	40.9	34.2	26.8	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	9.7	9.7	11.4	10.7
Freq. (MHz)	114.0	334.0	496.0	496.0
Limit (dB)	38.4	29.8	23.9	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	8.2	7.9	8.3	7.9
Freq. (MHz)	484.0	484.0	499.0	488.0
Limit (dB)	10.5	10.5	10.2	10.4
Worst Pair	36	36	36	36
PS ACR-F (dB)	10.9	10.9	10.9	10.9
Freq. (MHz)	488.0	484.0	499.0	484.0
Limit (dB)	7.4	7.5	7.2	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	15.7	16.2	38.2	38.2
Freq. (MHz)	35.8	36.0	496.0	496.0
Limit (dB)	38.5	38.4	-16.8	-16.8
Worst Pair	78	78	36	36
PS ACR-N (dB)	16.1	16.9	38.7	38.0
Freq. (MHz)	4.8	4.4	496.0	496.0
Limit (dB)	56.8	57.5	-19.7	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	78	36
RL (dB)	4.9	6.2	4.9	6.2
Freq. (MHz)	481.0	488.0	481.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

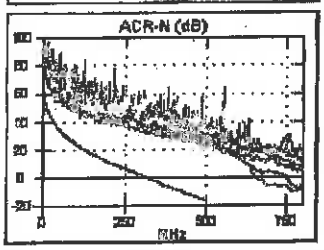


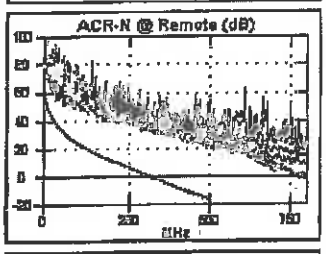


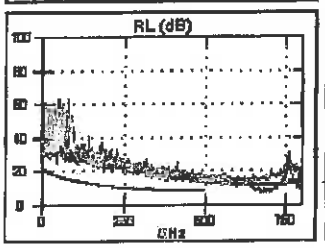


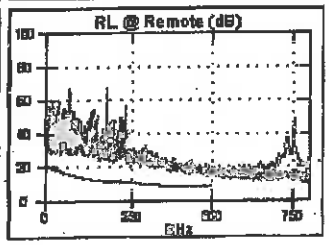












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-02

Test Summary: PASS

Date / Time 07/03/2012 02 04 48 PM
Headroom 7.9 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

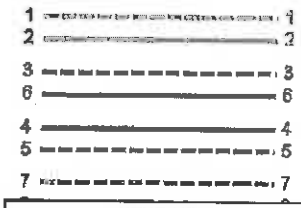
Operator TYLER
Software Version 2 5290
Limits Version 1 7000
NVP 69 0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469016
Main Adapter: DTX-PLA002
Remote Adapter DTX-PLA002

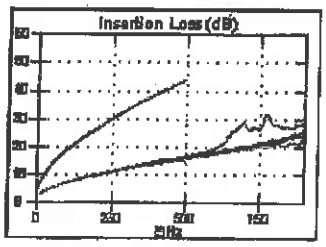
Length (ft), Limit 295	[Pair 12]	118
Prop. Delay (ns), Limit 498	[Pair 45]	184
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 12]	5.0
Insertion Loss Margin (dB)	[Pair 36]	27.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

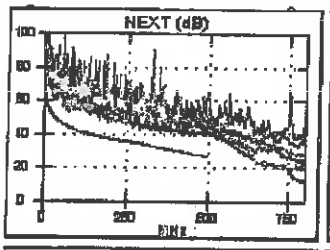
118 ft

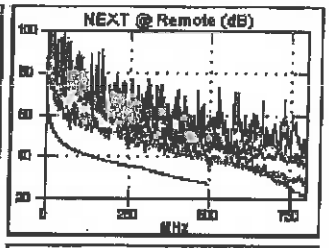
Wire Map (T568B)
PASS

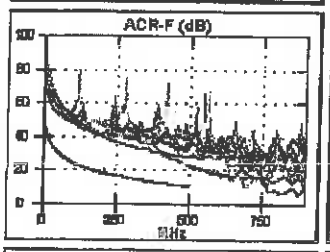


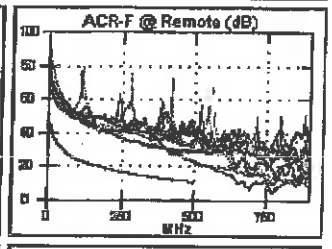
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	36-78
NEXT (dB)	7.9	8.5	11.9	9.7
Freq. (MHz)	293.0	249.5	484.0	500.0
Limit (dB)	34.2	35.4	27.1	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.4	8.3	12.0	10.3
Freq. (MHz)	293.0	303.0	490.0	500.0
Limit (dB)	31.6	31.3	24.1	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	12.5	12.2	12.5	12.2
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	15.0	14.9	15.0	14.9
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	7.2	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	36-45	36-78
ACR-N (dB)	16.4	17.3	39.2	37.8
Freq. (MHz)	5.3	6.8	484.0	500.0
Limit (dB)	58.2	56.0	-15.8	-17.1
Worst Pair	36	45	36	36
PS ACR-N (dB)	17.3	18.5	39.3	37.9
Freq. (MHz)	5.5	6.6	490.0	500.0
Limit (dB)	55.5	53.8	-19.2	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	4.6	7.8	4.6	7.8
Freq. (MHz)	492.0	465.0	492.0	465.0
Limit (dB)	8.0	8.0	8.0	8.0

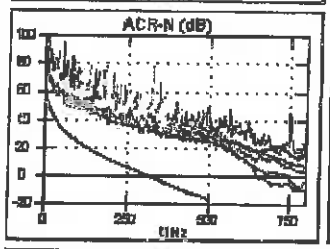


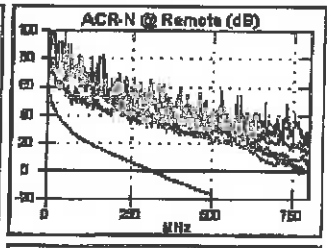


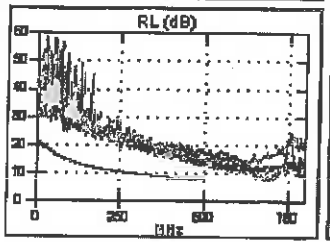


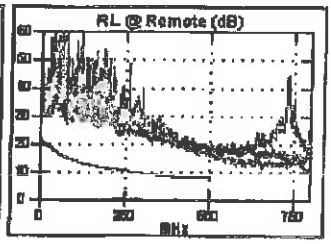












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-03

Date / Time: 07/03/2012 02:06:22 PM
Headroom: 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

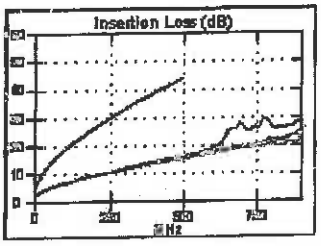
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

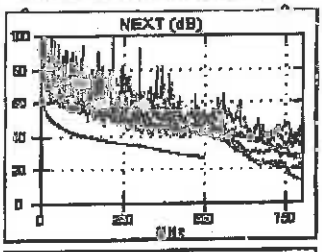
Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	173
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 78]	4.9
Insertion Loss Margin (dB)	[Pair 36]	28.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

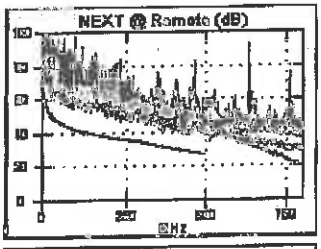
111 ft

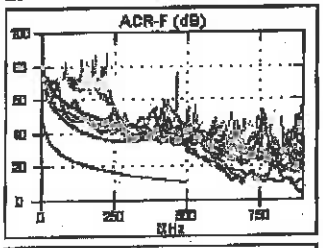
Wire Map (T568B)
PASS

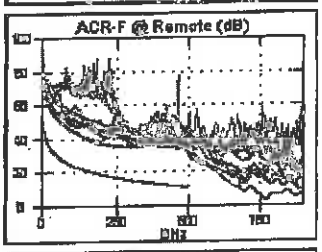
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.2	10.1	10.7	10.1
Freq. (MHz)	312.0	446.0	438.0	446.0
Limit (dB)	33.4	28.3	28.6	28.3
Worst Pair	36	36	36	36
PS NEXT (dB)	9.1	10.7	13.1	11.8
Freq. (MHz)	266.0	442.0	495.0	500.0
Limit (dB)	32.3	25.6	23.9	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	45-36
ACR-F (dB)	18.2	18.1	21.0	20.7
Freq. (MHz)	246.5	224.5	500.0	500.0
Limit (dB)	16.4	17.2	10.2	10.2
Worst Pair	45	45	36	36
PS ACR-F (dB)	19.6	19.5	21.3	21.8
Freq. (MHz)	204.0	189.5	500.0	500.0
Limit (dB)	15.0	15.6	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-45	12-36
ACR-N (dB)	14.6	16.3	41.8	40.3
Freq. (MHz)	3.4	5.8	495.0	496.0
Limit (dB)	61.7	57.4	-16.7	-16.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.7	17.1	41.0	40.0
Freq. (MHz)	6.3	5.8	495.0	500.0
Limit (dB)	54.3	55.1	-19.6	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	3.5	6.1	3.5	6.1
Freq. (MHz)	484.0	493.0	484.0	493.0
Limit (dB)	8.0	8.0	8.0	8.0

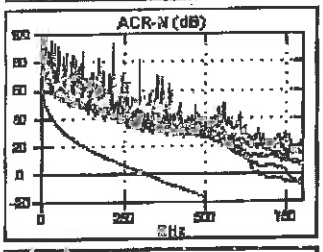


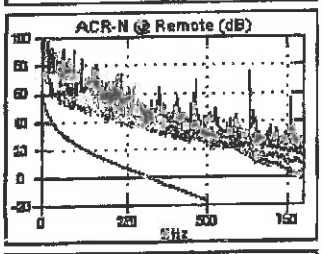


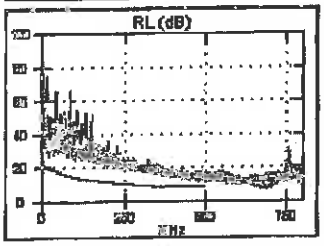


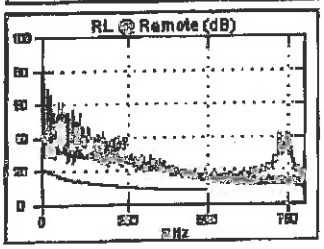












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-04

Date / Time 07/03/2012 02:27:46 PM
Headroom 8.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

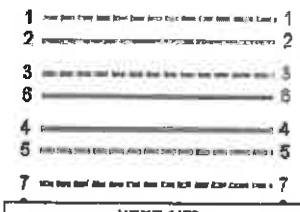
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP: 69.0%

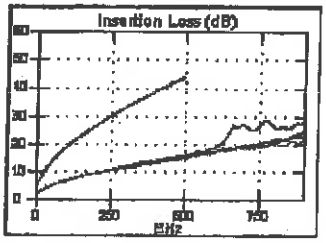
Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

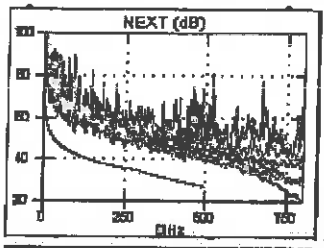
Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	173
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.9
Insertion Loss Margin (dB)	[Pair 36]	28.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

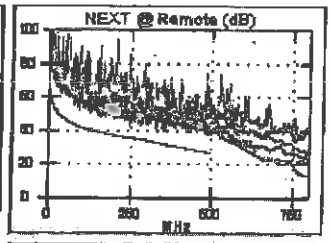
Wire Map (T568B)
PASS

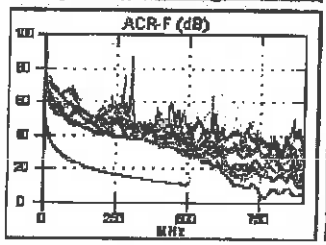


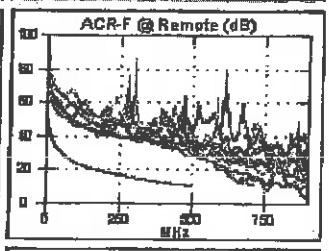


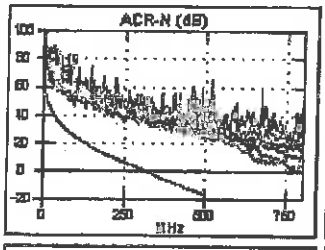
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.7	8.0	10.1	11.0
Freq. (MHz)	252.0	356.0	437.0	493.0
Limit (dB)	35.3	31.5	28.6	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	9.6	9.2	11.2	11.3
Freq. (MHz)	333.0	357.0	437.0	492.0
Limit (dB)	29.8	28.8	25.8	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	78-36	36-78	78-36
ACR-F (dB)	17.3	16.8	17.3	16.8
Freq. (MHz)	488.0	488.0	488.0	488.0
Limit (dB)	10.4	10.4	10.4	10.4
Worst Pair	36	36	36	36
PS ACR-F (dB)	19.2	19.3	19.2	19.3
Freq. (MHz)	500.0	488.0	500.0	494.0
Limit (dB)	7.2	7.4	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.0	18.0	40.2	39.2
Freq. (MHz)	6.3	5.5	499.0	493.0
Limit (dB)	56.7	57.8	-17.0	-16.5
Worst Pair	78	78	36	36
PS ACR-N (dB)	18.6	19.5	41.3	39.1
Freq. (MHz)	6.3	5.5	499.0	492.0
Limit (dB)	54.3	55.5	-19.9	-19.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.6	4.5	6.6	4.5
Freq. (MHz)	490.0	492.0	490.0	492.0
Limit (dB)	8.0	8.0	8.0	8.0

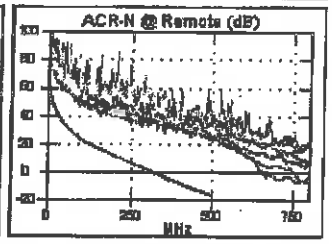


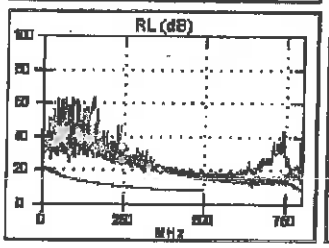


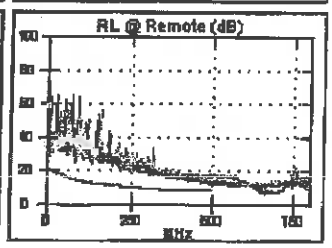












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-05
Date / Time: 07/09/2012, 02:28:33 PM
Headroom: 8.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.620D
Limits Version: 1.7000
NVP: 69.9%

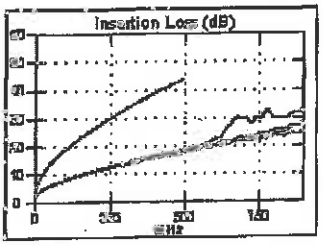
Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

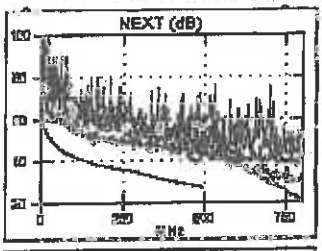
Length (ft), Limit 295	[Pair 12]	132
Prop. Delay (ns), Limit 498	[Pair 45]	206
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 78]	5.7
Insertion Loss Margin (dB)	[Pair 36]	25.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

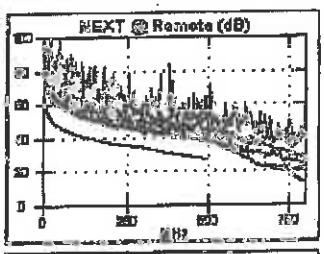
132 ft

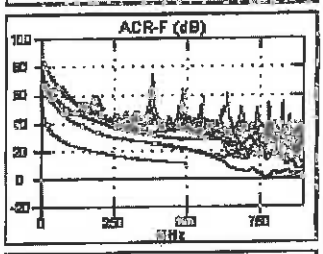
Wire Map (T568B)
PASS

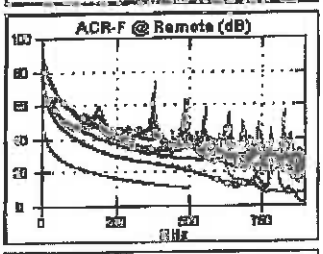
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	8.9	8.2	10.9	10.4
Freq. (MHz)	162.0	313.0	477.0	480.0
Limit (dB)	38.4	33.4	27.3	27.2
Worst Pair	78	36	36	36
PS NEXT (dB)	10.0	9.1	12.5	11.2
Freq. (MHz)	162.0	281.0	477.0	490.0
Limit (dB)	35.8	31.9	24.5	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	36-45	45-36	45-36
ACR-F (dB)	9.7	10.1	9.7	10.1
Freq. (MHz)	490.0	490.0	494.0	499.0
Limit (dB)	10.4	10.4	10.3	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	12.7	12.4	12.7	12.4
Freq. (MHz)	490.0	490.0	494.0	494.0
Limit (dB)	7.4	7.4	7.3	7.3
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	12.8	13.6	36.3	36.6
Freq. (MHz)	5.0	4.8	477.0	498.0
Limit (dB)	58.6	59.1	-15.2	-16.9
Worst Pair	36	78	36	36
PS ACR-N (dB)	14.0	14.7	37.3	36.4
Freq. (MHz)	4.9	5.1	477.0	490.0
Limit (dB)	56.6	56.1	-18.1	-19.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	6.3	3.7	6.3	3.7
Freq. (MHz)	488.0	484.0	488.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

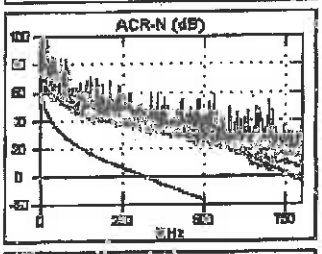


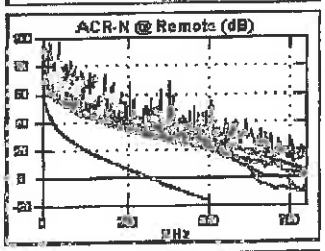


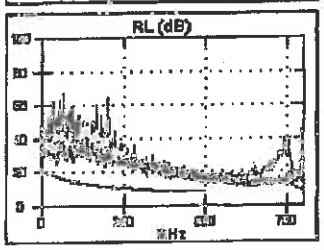


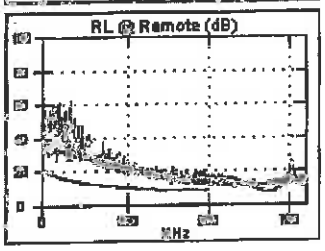












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-06

Test Summary: PASS

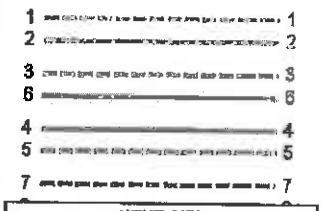
Date / Time 07/03/2012 02:30 42 PM
Headroom 8.2 dB (NEXT 45-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

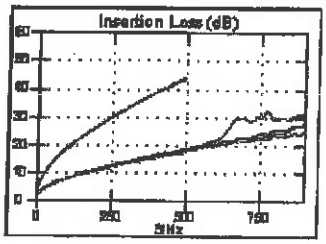
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

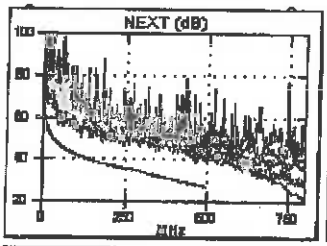
Length (ft), Limit 295	[Pair 12]	132
Prop. Delay (ns), Limit 498	[Pair 45]	206
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 12]	5.7
Insertion Loss Margin (dB)	[Pair 36]	25.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

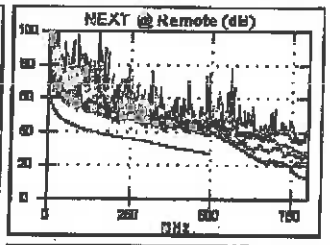
Wire Map (T568B)
PASS

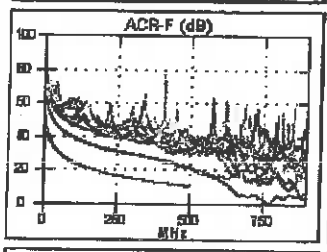


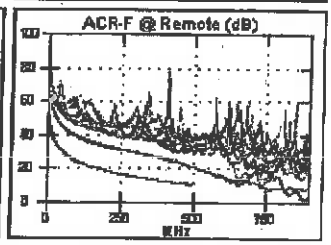
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	45-78	36-78	36-45
NEXT (dB)	9.4	8.2	10.7	10.8
Freq. (MHz)	47.5	218.5	469.0	483.0
Limit (dB)	47.1	36.3	27.6	27.1
Worst Pair	36	78	36	45
PS NEXT (dB)	10.8	8.2	12.9	11.7
Freq. (MHz)	182.0	219.0	500.0	498.0
Limit (dB)	35.0	33.7	23.8	23.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	10.1	10.4	10.1	10.4
Freq. (MHz)	489.0	494.0	489.0	499.0
Limit (dB)	10.4	10.3	10.4	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	12.3	12.9	12.3	12.9
Freq. (MHz)	489.0	490.0	489.0	490.0
Limit (dB)	7.4	7.4	7.4	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	45-78	36-78	36-45
ACR-N (dB)	14.7	15.1	38.5	37.2
Freq. (MHz)	12.4	18.9	500.0	500.0
Limit (dB)	50.2	45.9	-17.1	-17.1
Worst Pair	36	78	36	36
PS ACR-N (dB)	15.4	16.2	38.5	37.2
Freq. (MHz)	12.4	4.5	500.0	495.0
Limit (dB)	47.9	57.2	-20.0	-19.6
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	6.6	3.5	6.6	3.5
Freq. (MHz)	461.0	481.0	461.0	481.0
Limit (dB)	8.0	8.0	8.0	8.0

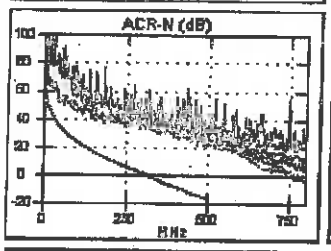


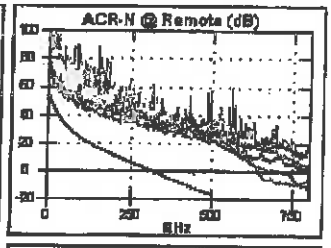


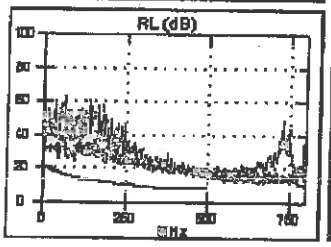


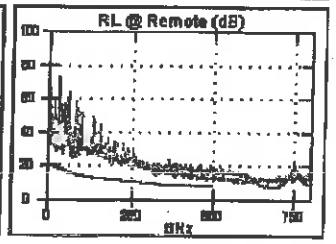












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-07

Test Summary: PASS

Date/Time: 07/03/2012 02:36:48 PM
Headroom: 8.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

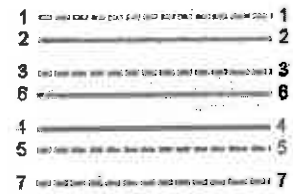
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

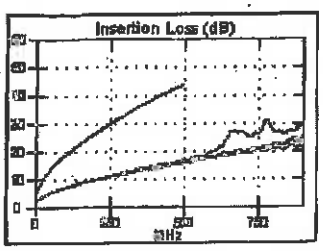
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	118
Prop. Delay (ns), Limit 498	[Pair 45]	183
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 12]	5.0
Insertion Loss Margin (dB)	[Pair 36]	27.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

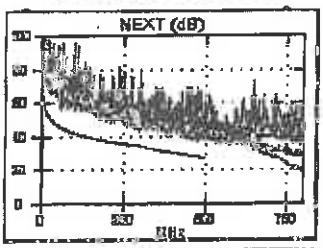
118 ft

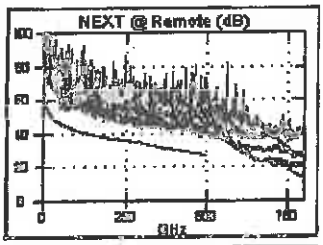
Wire Map (T568B)
PASS

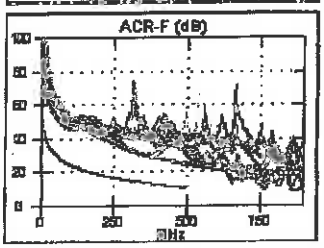


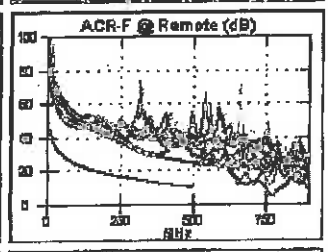


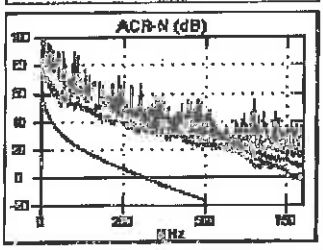
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.4	8.6	8.8	10.2
Freq. (MHz)	301.0	304.0	479.0	480.0
Limit (dB)	34.0	33.8	27.3	27.2
Worst Pair	36	36	36	36
PS NEXT (dB)	9.5	9.4	10.1	11.5
Freq. (MHz)	292.0	292.0	480.0	488.0
Limit (dB)	31.6	31.6	24.4	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	45-36	36-45
ACR-F (dB)	13.7	13.8	13.7	14.1
Freq. (MHz)	489.0	480.0	489.0	495.0
Limit (dB)	10.4	10.6	10.4	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	15.7	16.1	15.8	16.2
Freq. (MHz)	371.0	354.0	489.0	500.0
Limit (dB)	9.8	10.2	7.4	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	15.8	17.1	36.2	37.6
Freq. (MHz)	6.9	6.9	479.0	480.0
Limit (dB)	55.8	55.8	-15.4	-15.5
Worst Pair	36	78	36	36
PS ACR-N (dB)	17.6	18.8	37.0	38.5
Freq. (MHz)	6.9	6.6	480.0	488.0
Limit (dB)	53.5	53.8	-18.4	-19.0
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	4.6	4.7	4.6	4.7
Freq. (MHz)	492.0	500.0	492.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

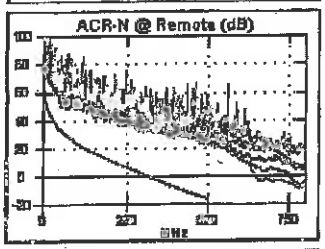


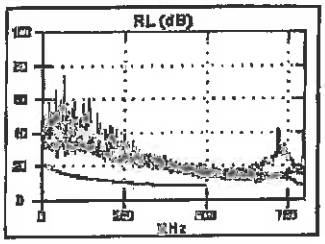


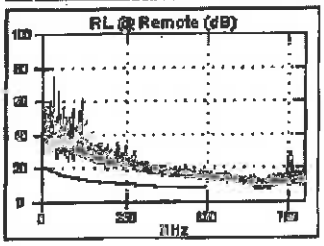












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

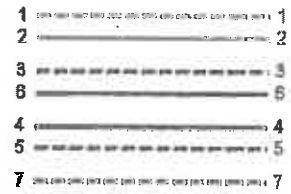
Cable ID: DMV-MTB-R1-C-08
Date / Time: 07/03/2012 02:37:54 PM
Headroom 7.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	118
Prop. Delay (ns), Limit 498	[Pair 45]	184
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 78]	5.1
Insertion Loss Margin (dB)	[Pair 36]	27.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

Wire Map (T568B)
PASS

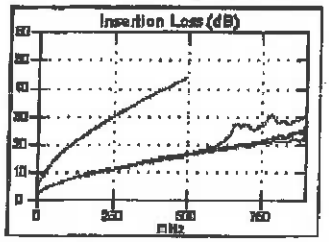


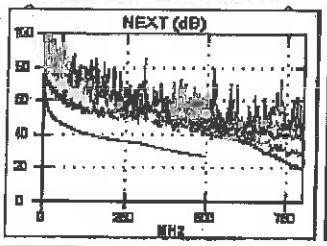
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	12-36
NEXT (dB)	11.3	7.3	13.5	11.8
Freq. (MHz)	86.5	291.0	496.0	478.0
Limit (dB)	42.9	34.2	26.8	27.3
Worst Pair	36	36	36	36
PS NEXT (dB)	11.8	7.6	13.9	11.9
Freq. (MHz)	291.0	291.0	493.0	487.0
Limit (dB)	31.6	31.6	24.0	24.2

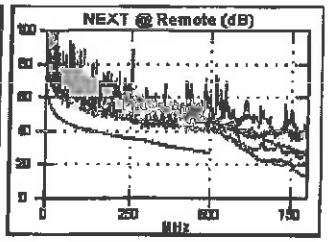
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	78-36	45-36	36-45
ACR-F (dB)	17.9	17.8	18.5	18.8
Freq. (MHz)	101.5	101.5	498.0	498.0
Limit (dB)	24.1	24.1	10.2	10.2
Worst Pair	36	36	36	36
PS ACR-F (dB)	19.9	19.7	19.9	19.7
Freq. (MHz)	483.0	490.0	493.0	499.0
Limit (dB)	7.5	7.4	7.3	7.2

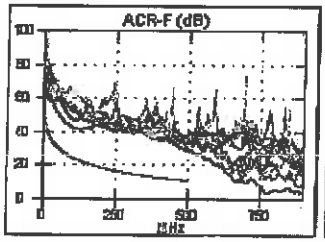
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	12-36
ACR-N (dB)	15.2	15.3	40.9	38.4
Freq. (MHz)	5.3	5.3	498.0	478.0
Limit (dB)	58.2	58.2	-16.9	-15.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.8	14.5	41.1	38.9
Freq. (MHz)	5.3	5.4	493.0	487.0
Limit (dB)	55.9	55.7	-19.4	-18.9

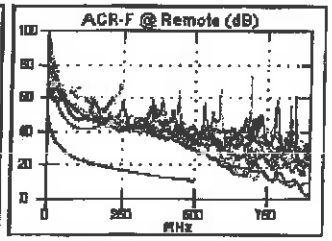
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	7.1	4.8	7.1	4.8
Freq. (MHz)	496.0	500.0	496.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

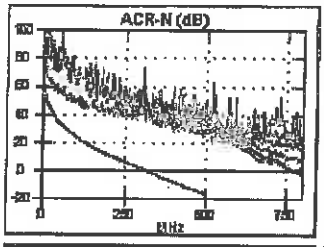


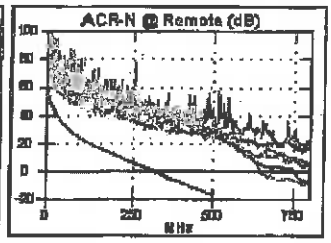


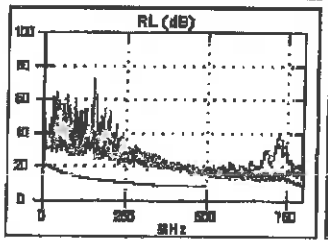


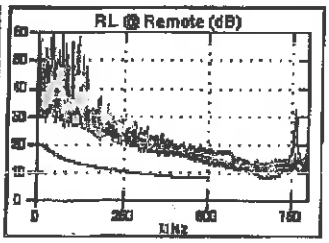












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

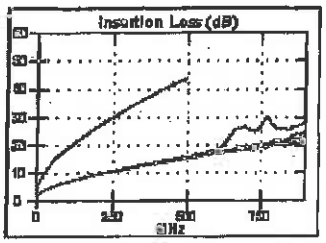
Cable ID: DMV-MTB-R1-C-09
Date / Time: 07/09/2012 02:40:53 PM
Headroom: 9.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

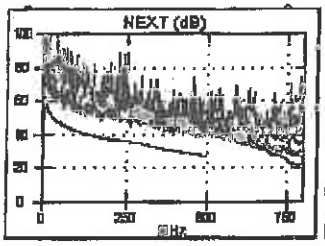
Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

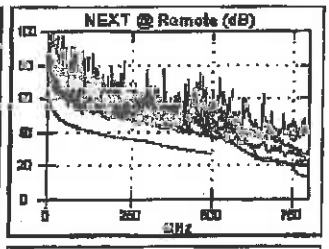
Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	173
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.8
Insertion Loss Margin (dB)	[Pair 36]	28.2
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

Wire Map (T568B)
PASS

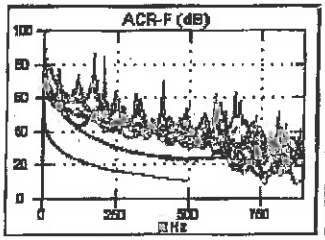


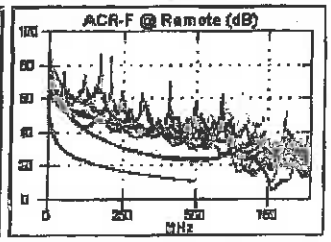
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	9.8	9.4	11.0	10.0
Freq. (MHz)	266.0	179.0	479.0	498.0
Limit (dB)	34.9	37.7	27.3	26.7
Worst Pair	36	36	12	36
PS NEXT (dB)	10.6	9.8	12.1	11.2
Freq. (MHz)	266.0	179.0	477.0	499.0
Limit (dB)	32.3	35.1	24.5	23.8



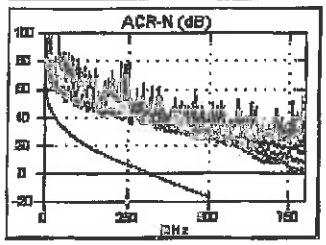


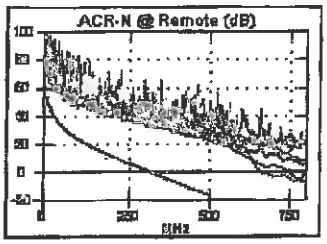
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	11.6	11.4	11.7	11.5
Freq. (MHz)	377.0	425.0	497.0	496.0
Limit (dB)	12.7	11.6	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	13.9	14.0	14.7	14.0
Freq. (MHz)	425.0	497.0	497.0	497.0
Limit (dB)	8.6	7.3	7.3	7.3



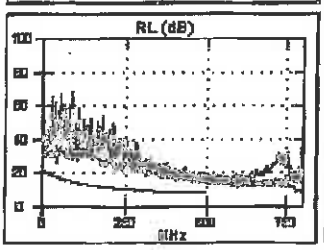


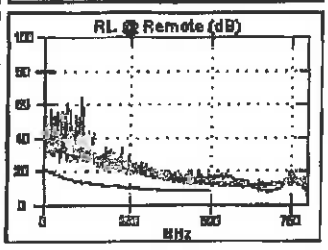
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.2	17.2	39.3	38.5
Freq. (MHz)	11.6	11.4	488.0	498.0
Limit (dB)	50.8	51.1	-16.1	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.9	18.3	40.4	39.4
Freq. (MHz)	11.5	11.5	489.0	499.0
Limit (dB)	48.6	48.6	-19.1	-19.9





PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	5.6	3.8	5.6	3.8
Freq. (MHz)	485.0	483.0	485.0	483.0
Limit (dB)	8.0	8.0	8.0	8.0





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-10

Test Summary: PASS

Date / Time: 07/03/2012 02:45:53 PM
Headroom 7.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

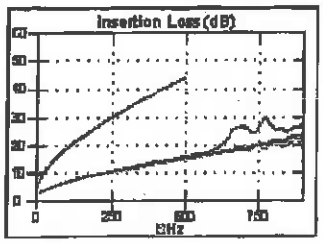
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

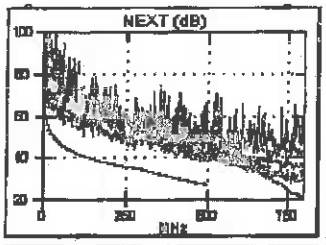
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

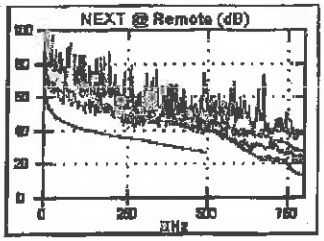
Length (ft), Limit 295	[Pair 12]	111
Prop. Delay (ns), Limit 498	[Pair 45]	173
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.9
Insertion Loss Margin (dB)	[Pair 36]	28.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

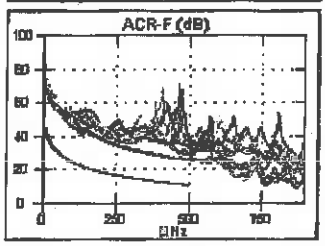
Wire Map (T568B)
PASS

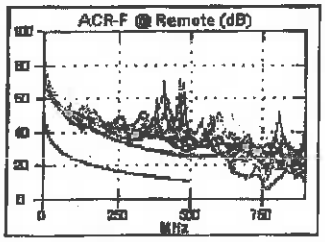
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	9.0	7.1	11.0	10.6
Freq. (MHz)	14.8	277.0	491.0	489.0
Limit (dB)	55.2	34.6	26.9	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	9.3	8.2	10.8	11.3
Freq. (MHz)	269.0	241.0	451.0	490.0
Limit (dB)	32.2	33.0	25.3	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	14.2	13.8	14.2	13.8
Freq. (MHz)	497.0	497.0	500.0	497.0
Limit (dB)	10.3	10.3	10.2	10.3
Worst Pair	36	36	36	36
PS ACR-F (dB)	16.3	15.4	16.4	15.4
Freq. (MHz)	464.0	492.0	489.0	493.0
Limit (dB)	7.9	7.4	7.4	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	13.4	14.7	39.0	39.1
Freq. (MHz)	14.8	14.8	491.0	490.0
Limit (dB)	48.5	48.5	-16.4	-16.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.5	16.5	39.5	39.3
Freq. (MHz)	14.6	14.6	477.0	490.0
Limit (dB)	46.2	46.2	-18.1	-19.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	4.9	4.4	4.9	4.4
Freq. (MHz)	484.0	484.0	484.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

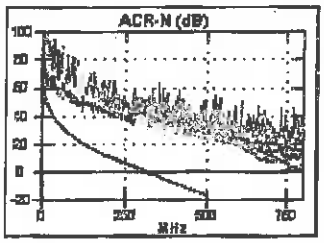


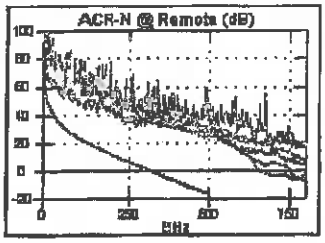


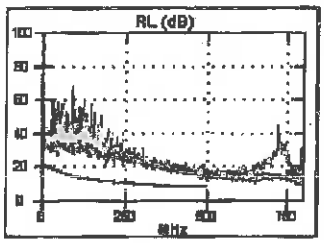


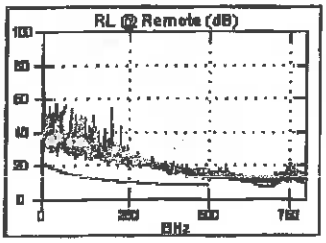












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version: 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-11

Test Summary: PASS

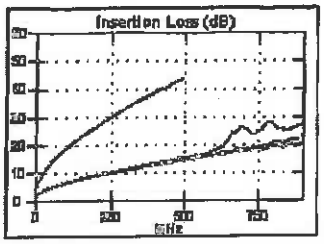
Date / Time: 07/03/2012 03:03:58 PM
Headroom 7.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

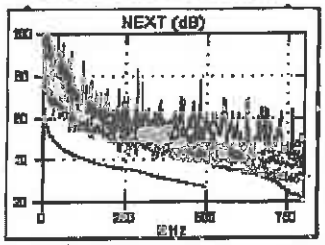
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469013
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

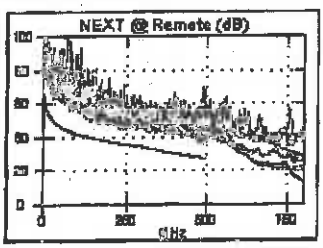
Length (ft), Limit 295	[Pair 12]	105
Prop. Delay (ns), Limit 498	[Pair 45]	164
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 78]	4.7
Insertion Loss Margin (dB)	[Pair 36]	29.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

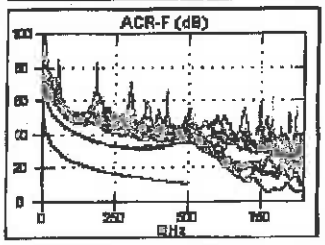
Wire Map (T568B)
PASS

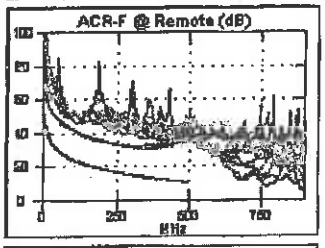


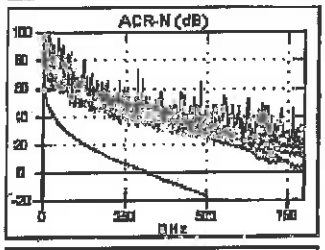
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	7.5	8.5	10.6	8.5
Freq. (MHz)	263.0	495.0	476.0	495.0
Limit (dB)	35.0	26.8	27.4	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	8.6	9.1	11.3	10.1
Freq. (MHz)	264.0	247.0	476.0	495.0
Limit (dB)	32.3	32.8	24.5	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.0	16.0	17.6	17.4
Freq. (MHz)	246.5	246.5	359.0	359.0
Limit (dB)	16.4	16.4	13.1	13.1
Worst Pair	45	45	45	36
PS ACR-F (dB)	18.3	18.5	19.5	20.6
Freq. (MHz)	229.5	219.0	359.0	402.0
Limit (dB)	14.0	14.4	10.1	9.1
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	17.5	19.0	38.9	37.8
Freq. (MHz)	6.4	31.0	476.0	495.0
Limit (dB)	56.5	40.3	-15.2	-16.7
Worst Pair	78	36	36	36
PS ACR-N (dB)	18.8	19.9	39.5	38.9
Freq. (MHz)	6.4	3.5	476.0	495.0
Limit (dB)	54.2	58.7	-18.0	-19.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	6.1	4.5	6.1	4.5
Freq. (MHz)	498.0	498.0	498.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

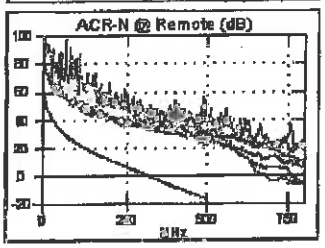


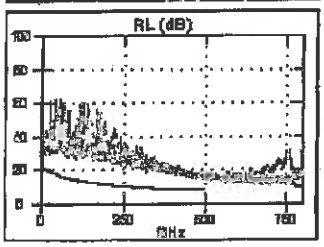


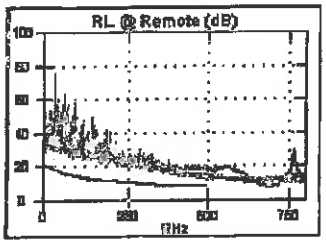












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-12

Test Summary: PASS

Date / Time 07/03/2012 03:05:13 PM
Headroom 7.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

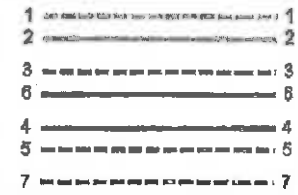
Operator: TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	105
Prop. Delay (ns), Limit 498	[Pair 45]	164
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.6
Insertion Loss Margin (dB)	[Pair 36]	28.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

105 ft

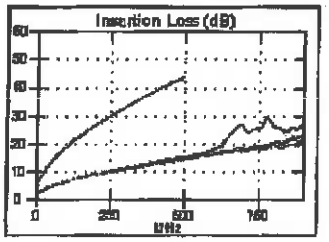
Wire Map (T568B)
PASS

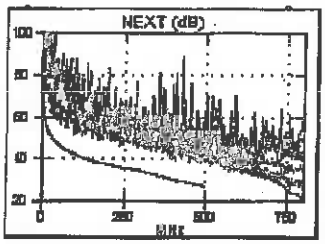


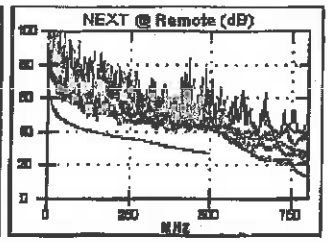
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.5	7.6	10.4	13.0
Freq. (MHz)	99.0	222.5	455.0	489.0
Limit (dB)	41.9	36.2	28.0	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	9.7	8.6	11.9	13.5
Freq. (MHz)	410.0	222.5	488.0	494.0
Limit (dB)	26.7	33.5	24.1	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	10.4	10.4	12.3	12.0
Freq. (MHz)	246.5	239.5	436.0	433.0
Limit (dB)	16.4	16.6	11.4	11.5
Worst Pair	36	36	36	36
PS ACR-F (dB)	11.9	12.1	14.8	14.5
Freq. (MHz)	138.5	107.0	436.0	422.0
Limit (dB)	18.4	20.6	8.4	8.7
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.2	16.7	41.0	41.8
Freq. (MHz)	8.8	2.4	500.0	489.0
Limit (dB)	53.6	62.0	-17.1	-16.2
Worst Pair	78	36	36	36
PS ACR-N (dB)	17.9	18.4	40.1	42.1
Freq. (MHz)	9.0	8.4	488.0	494.0
Limit (dB)	51.0	51.7	-19.0	-19.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	36	45
RL (dB)	6.0	3.8	6.0	3.8
Freq. (MHz)	466.0	486.0	466.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

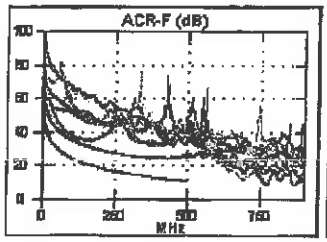
Compliant Network Standards:

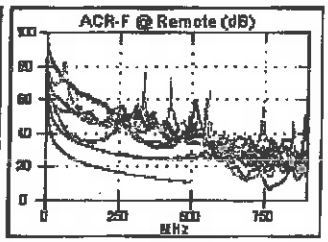
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

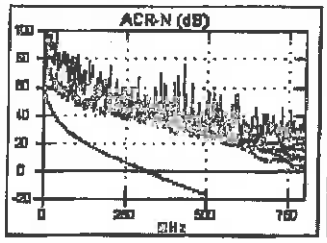


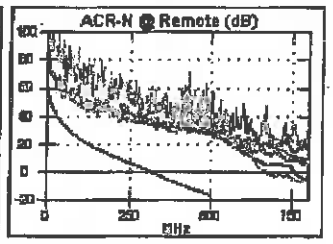


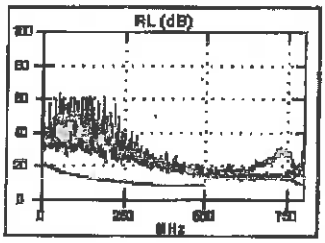


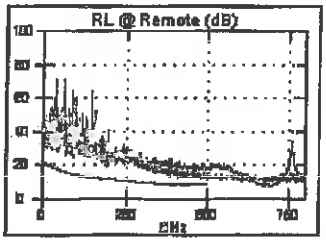












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-13

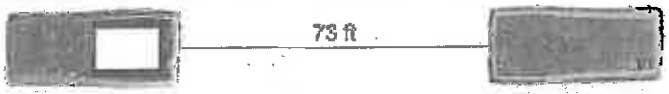
Date / Time: 07/03/2012 03:07:11 PM
Headroom: 8.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

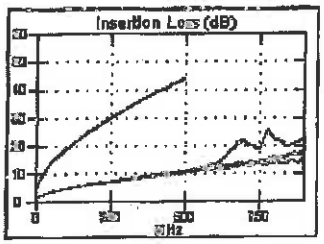
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

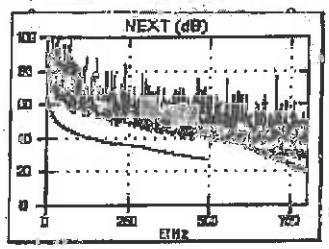
Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	113
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	33.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

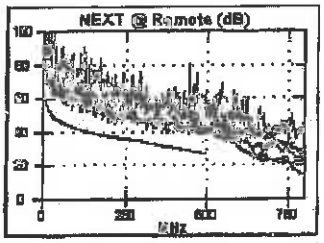


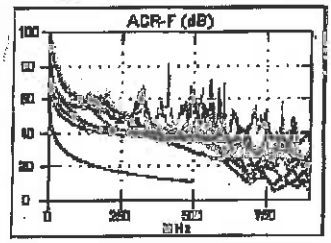
Wire Map (T568B)
PASS

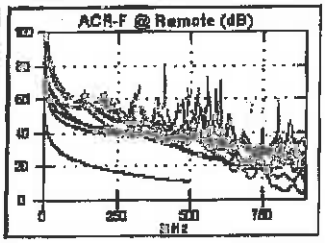
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	10.1	8.3	10.4	10.8
Freq. (MHz)	416.0	380.0	448.0	478.0
Limit (dB)	29.3	30.6	28.2	27.3
Worst Pair	36	36	36	36
PS NEXT (dB)	10.6	9.3	12.5	10.5
Freq. (MHz)	326.0	317.0	490.0	448.0
Limit (dB)	30.2	30.6	24.1	25.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	18.2	17.8	18.2	17.8
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	10.3	10.3	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	20.4	20.3	20.4	20.3
Freq. (MHz)	497.0	492.0	497.0	497.0
Limit (dB)	7.3	7.4	7.3	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.1	16.9	44.7	44.4
Freq. (MHz)	4.6	4.0	491.0	492.0
Limit (dB)	59.3	60.5	-16.4	-16.5
Worst Pair	36	78	36	36
PS ACR-N (dB)	18.0	17.8	45.2	45.6
Freq. (MHz)	4.6	3.9	491.0	500.0
Limit (dB)	57.0	58.5	-19.3	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.3	4.2	5.3	4.2
Freq. (MHz)	500.0	499.0	500.0	499.0
Limit (dB)	8.0	8.0	8.0	8.0

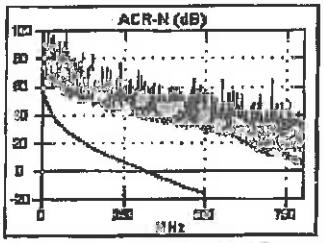


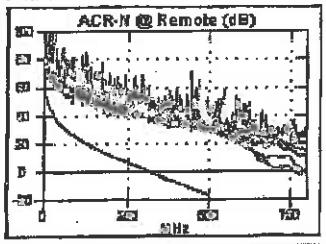


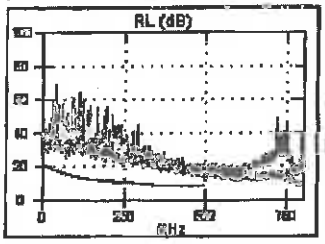


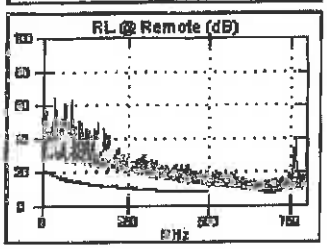












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-14

Test Summary: PASS

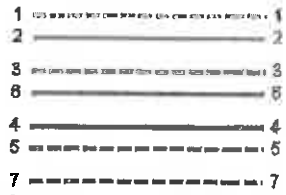
Date / Time: 07/03/2012 03:07:52 PM
Headroom 8.8 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

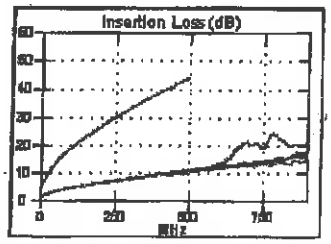
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.6%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

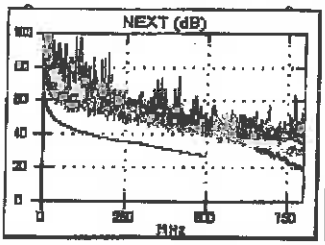
Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	113
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 78]	3.2
Insertion Loss Margin (dB)	[Pair 36]	33.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

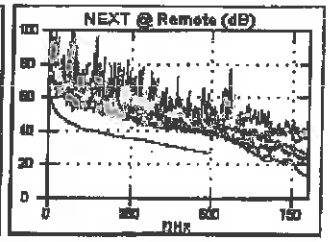
Wire Map (T568B)
PASS

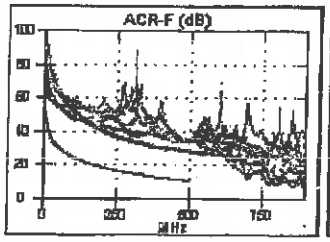


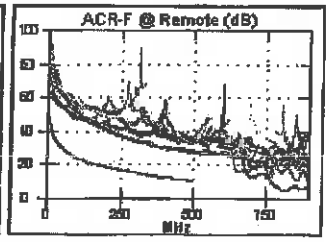


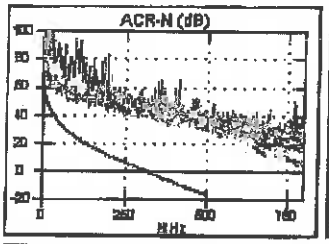
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-45
NEXT (dB)	9.1	8.8	12.0	10.7
Freq. (MHz)	77.0	290.0	500.0	500.0
Limit (dB)	43.7	34.3	26.7	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	10.8	9.2	12.9	11.0
Freq. (MHz)	77.0	303.0	499.0	500.0
Limit (dB)	41.2	31.3	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.8	16.5	16.8	16.6
Freq. (MHz)	477.0	478.0	482.0	487.0
Limit (dB)	10.6	10.6	10.5	10.4
Worst Pair	45	36	45	36
PS ACR-F (dB)	18.2	18.4	18.2	18.4
Freq. (MHz)	477.0	478.0	477.0	487.0
Limit (dB)	7.6	7.6	7.6	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.3	17.1	45.2	44.2
Freq. (MHz)	13.1	13.0	500.0	500.0
Limit (dB)	49.6	49.7	-17.1	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.6	18.2	46.0	44.2
Freq. (MHz)	4.1	8.8	499.0	500.0
Limit (dB)	58.0	51.2	-19.9	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.3	4.9	6.3	4.9
Freq. (MHz)	495.0	494.0	495.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

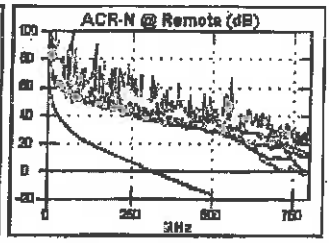


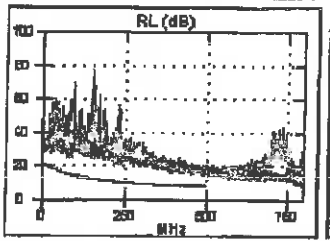


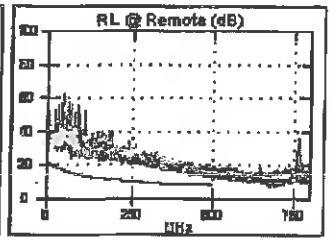












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-15

Date / Time: 07/09/2012 03:12:14 PM
Headroom 6.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

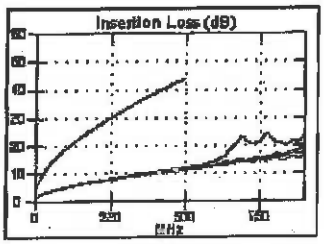
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

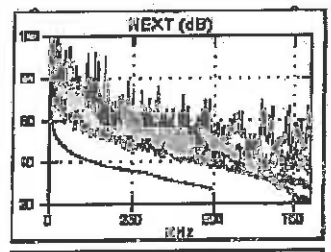
Model: DTX-1800
Main S/N: 9469909
Remote S/N: 9469918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

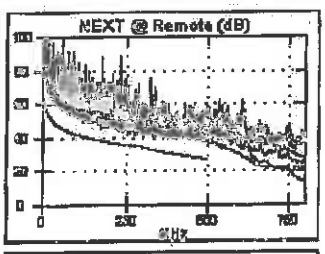
Length (ft), Limit 295	[Pair 12]	81
Prop. Delay (ns), Limit 498	[Pair 45]	126
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 78]	3.5
Insertion Loss Margin (dB)	[Pair 36]	32.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

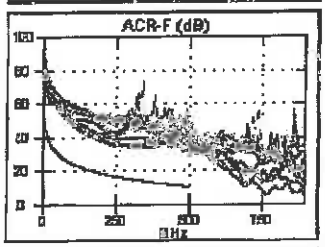
Wire Map (T568B)
PASS

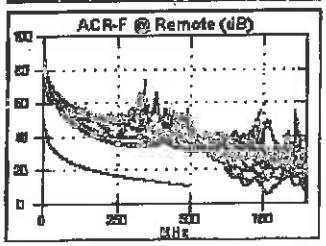


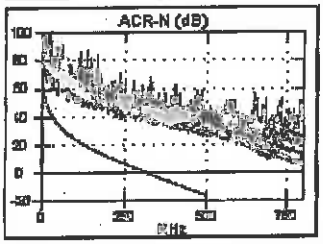
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	9.8	6.4	9.8	10.4
Freq. (MHz)	492.0	306.0	492.0	489.0
Limit (dB)	26.9	33.7	26.9	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	9.5	6.6	10.8	11.5
Freq. (MHz)	343.0	306.0	480.0	492.0
Limit (dB)	29.4	31.1	24.4	24.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-78	78-36
ACR-F (dB)	18.4	18.4	21.3	20.6
Freq. (MHz)	245.5	245.0	500.0	500.0
Limit (dB)	16.4	16.4	10.2	10.2
Worst Pair	45	45	78	78
PS ACR-F (dB)	19.4	20.4	22.5	22.5
Freq. (MHz)	245.5	232.5	487.0	489.0
Limit (dB)	13.4	13.9	7.4	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	12-36	36-45
ACR-N (dB)	17.7	18.7	41.6	42.4
Freq. (MHz)	10.4	10.9	492.0	489.0
Limit (dB)	52.0	51.5	-16.5	-16.2
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.1	18.5	43.6	43.2
Freq. (MHz)	10.6	5.8	500.0	492.0
Limit (dB)	49.4	55.1	-20.0	-19.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.5	3.7	6.5	3.7
Freq. (MHz)	489.0	461.0	489.0	461.0
Limit (dB)	8.0	8.0	8.0	8.0

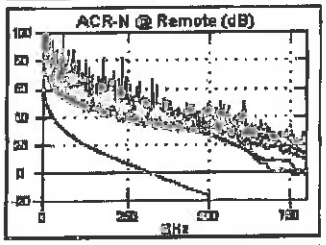


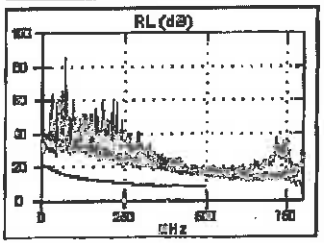


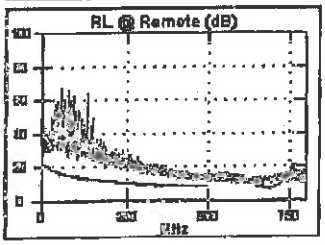












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-16

Test Summary: PASS

Date / Time 07/03/2012 03 13:34 PM
Headroom 9.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

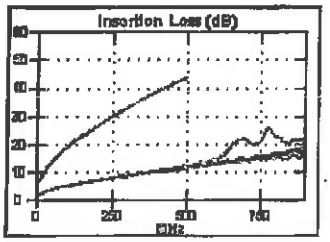
Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

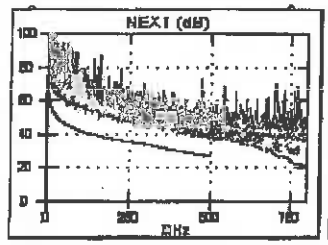
Length (ft), Limit 295	[Pair 12]	81
Prop. Delay (ns), Limit 498	[Pair 45]	126
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.4
Insertion Loss Margin (dB)	[Pair 36]	32.1
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

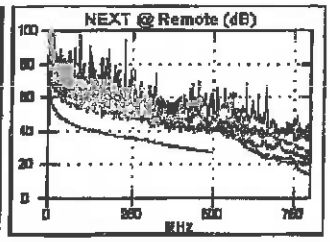
81 ft

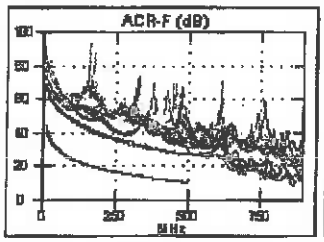
Wire Map (T568B)
PASS

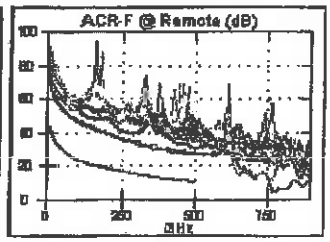


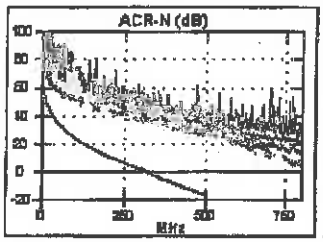
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	9.6	9.1	9.6	9.7
Freq. (MHz)	309.0	313.0	496.0	443.0
Limit (dB)	33.6	33.4	26.8	28.4
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	9.3	10.9	11.0
Freq. (MHz)	323.0	310.0	497.0	486.0
Limit (dB)	30.3	30.9	23.8	24.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	16.2	15.9	16.4	15.9
Freq. (MHz)	478.0	474.0	500.0	487.0
Limit (dB)	10.6	10.7	10.2	10.4
Worst Pair	36	36	36	36
PS ACR-F (dB)	18.4	17.8	18.6	17.8
Freq. (MHz)	441.0	486.0	493.0	487.0
Limit (dB)	8.3	7.5	7.3	7.4
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	12-36	12-36	36-78
ACR-N (dB)	18.1	16.8	41.5	43.3
Freq. (MHz)	11.9	14.8	496.0	486.0
Limit (dB)	50.6	48.5	-16.8	-16.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.0	17.9	42.7	42.4
Freq. (MHz)	15.5	15.5	497.0	486.0
Limit (dB)	45.6	45.6	-19.7	-18.8
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	5.0	5.2	5.0	5.2
Freq. (MHz)	489.0	500.0	489.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

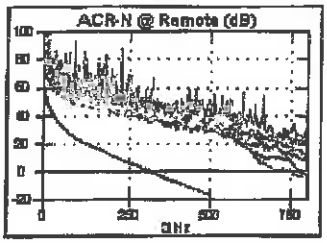


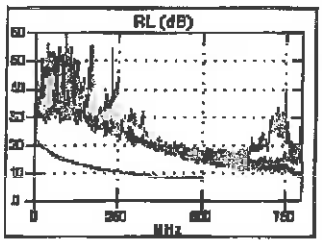


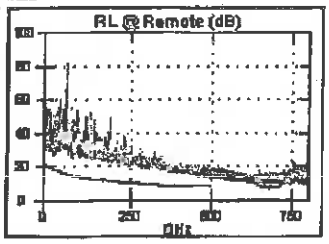












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-17

Test Summary: PASS

Date / Time 07/03/2012 03:15:22 PM
Headroom 5.9 dB (NEXT 45-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/16/2007

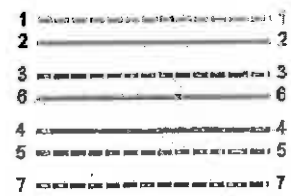
Operator: TYLER
Software Version 2.6290
Limits Version 1.7000
NVP 68.0%

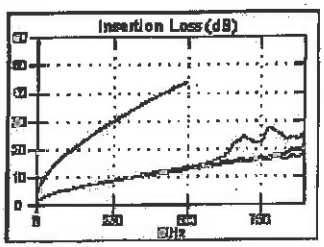
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	91
Prop. Delay (ns), Limit 498	[Pair 45]	141
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	4.0
Insertion Loss Margin (dB)	[Pair 36]	30.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

91 ft.

Wire Map (T568B)
PASS



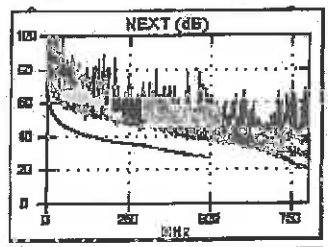


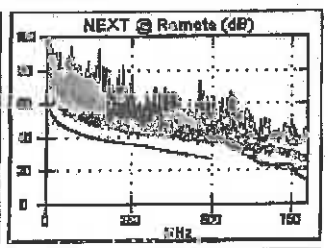
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	45-78
NEXT (dB)	9.0	5.9	9.7	8.0
Freq. (MHz)	433.0	249.5	496.0	457.0
Limit (dB)	28.7	35.4	26.8	27.9
Worst Pair	36	78	36	45
PS NEXT (dB)	9.2	7.3	10.1	10.3
Freq. (MHz)	283.0	250.0	456.0	495.0
Limit (dB)	31.8	32.7	25.1	23.9

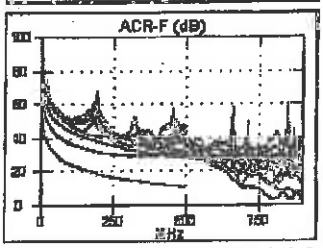
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-78	12-78
ACR-F (dB)	12.0	12.0	17.8	17.0
Freq. (MHz)	2.3	2.3	499.0	469.0
Limit (dB)	57.1	57.1	10.2	10.8
Worst Pair	45	45	78	78
PS ACR-F (dB)	14.5	14.5	18.9	19.1
Freq. (MHz)	3.3	3.1	487.0	500.0
Limit (dB)	51.0	51.3	7.4	7.2

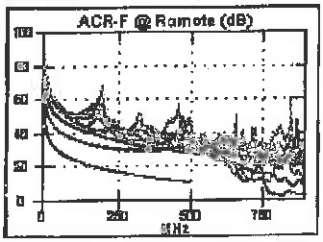
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	12-36	45-78
ACR-N (dB)	16.3	16.0	40.4	40.4
Freq. (MHz)	4.1	23.5	496.0	495.0
Limit (dB)	60.3	43.5	-16.8	-16.7
Worst Pair	78	78	36	45
PS ACR-N (dB)	17.3	17.1	42.8	41.2
Freq. (MHz)	4.1	15.6	500.0	495.0
Limit (dB)	58.0	45.5	-20.0	-19.6

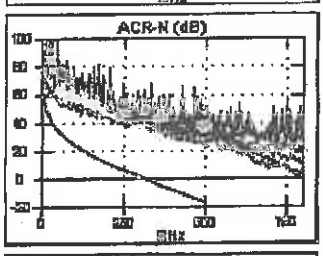
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.2	2.5	5.2	2.5
Freq. (MHz)	479.0	482.0	479.0	482.0
Limit (dB)	8.0	8.0	8.0	8.0

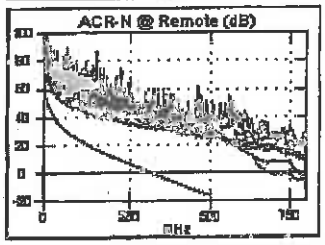


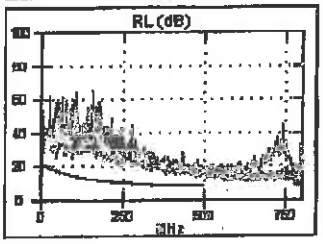


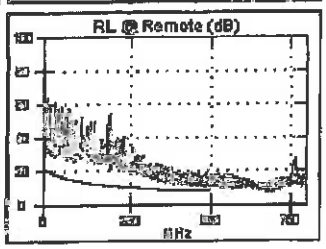












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-18

Test Summary: PASS

Date / Time 07/03/2012 03:16:08 PM
Headroom 5.7 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

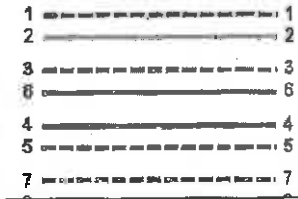
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

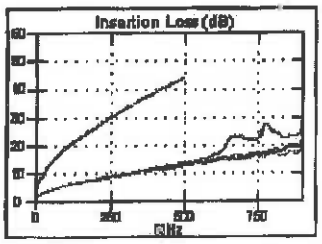
Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	91
Prop. Delay (ns), Limit 498	[Pair 45]	142
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	3.9
Insertion Loss Margin (dB)	[Pair 36]	30.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

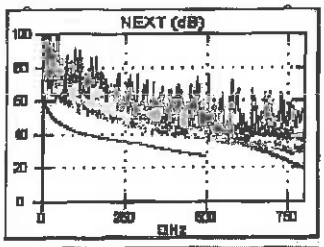
91 ft

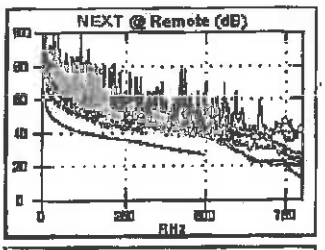
Wire Map (T568B)
PASS

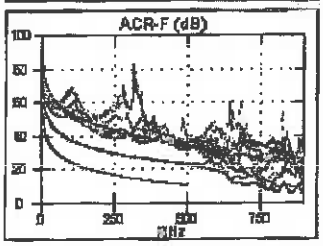


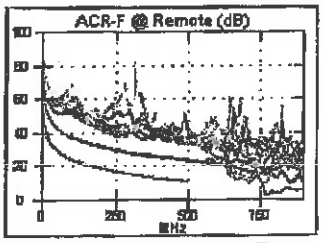


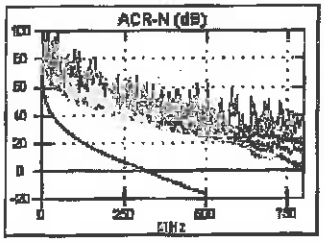
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	12-36
NEXT (dB)	8.3	5.7	10.0	8.7
Freq. (MHz)	316.0	199.0	485.0	466.0
Limit (dB)	33.3	37.0	27.1	27.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.8	6.5	9.8	8.2
Freq. (MHz)	401.0	227.5	496.0	470.0
Limit (dB)	27.1	33.4	23.9	24.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	12.2	11.9	12.4	11.9
Freq. (MHz)	469.0	497.0	497.0	497.0
Limit (dB)	10.8	10.3	10.3	10.3
Worst Pair	36	45	45	36
PS ACR-F (dB)	14.8	14.7	14.8	14.8
Freq. (MHz)	469.0	475.0	497.0	497.0
Limit (dB)	7.8	7.7	7.3	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	12-36
ACR-N (dB)	17.8	15.3	40.8	40.9
Freq. (MHz)	4.1	4.1	496.0	499.0
Limit (dB)	60.3	60.3	-16.8	-17.0
Worst Pair	12	12	36	36
PS ACR-N (dB)	17.7	16.1	40.3	39.8
Freq. (MHz)	3.9	4.0	496.0	496.0
Limit (dB)	58.5	58.3	-19.7	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.1	3.3	5.1	3.3
Freq. (MHz)	493.0	484.0	493.0	484.0
Limit (dB)	8.0	8.0	8.0	8.0

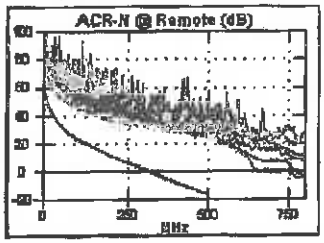


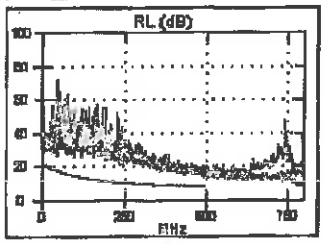


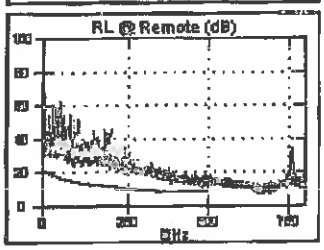












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-19

Test Summary: PASS

Date / Time 07/03/2012 03:17:10 PM
Headroom 5.5 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.6200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	79
Prop. Delay (ns), Limit 498	[Pair 45]	124
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 12]	3.4
Insertion Loss Margin (dB)	[Pair 36]	32.0
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

79 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	12-36
NEXT (dB)	9.3	5.5	11.1	9.5
Freq. (MHz)	166.0	146.0	496.0	483.0
Limit (dB)	38.3	39.2	26.8	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	7.2	11.9	9.3
Freq. (MHz)	397.0	82.8	496.0	483.0
Limit (dB)	27.2	40.7	23.9	24.3

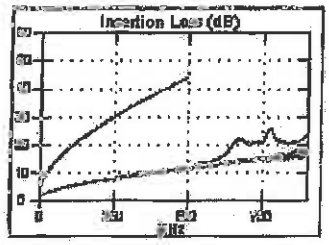
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.4	15.3	15.9	16.5
Freq. (MHz)	309.0	309.0	428.0	481.0
Limit (dB)	14.4	14.4	11.6	10.5
Worst Pair	45	36	45	36
PS ACR-F (dB)	17.5	17.2	18.3	19.1
Freq. (MHz)	309.0	314.0	428.0	485.0
Limit (dB)	11.4	11.3	8.6	7.5

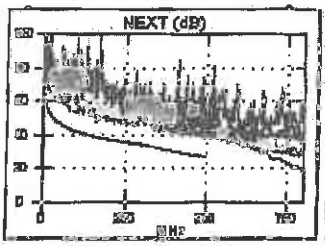
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	12-36
ACR-N (dB)	15.0	13.6	43.1	40.8
Freq. (MHz)	6.1	11.0	496.0	483.0
Limit (dB)	56.8	51.4	-16.8	-15.7
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.8	15.4	44.0	41.3
Freq. (MHz)	4.4	4.0	499.0	492.0
Limit (dB)	57.5	58.3	-19.9	-19.3

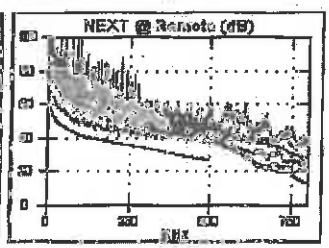
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.2	3.6	5.2	3.6
Freq. (MHz)	483.0	496.0	483.0	496.0
Limit (dB)	8.0	8.0	8.0	8.0

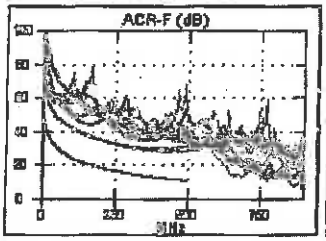
Compliant Network Standards:

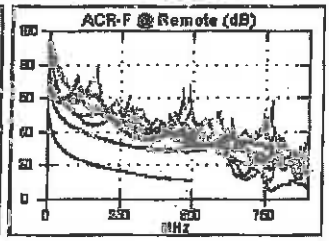
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

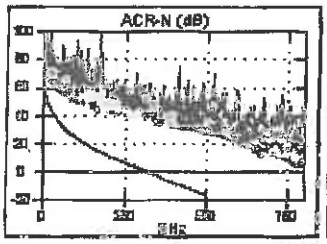


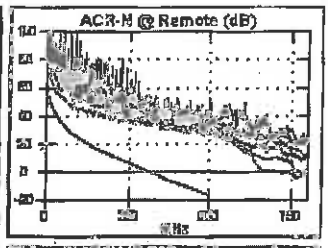


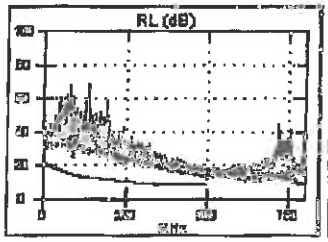


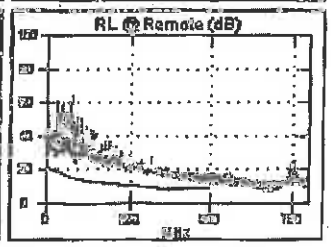












LinkWare Version 7.2

Project: MARTINSBURG DMV
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Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-20

Test Summary: PASS

Date / Time 07/03/2012 03:17:54 PM
Headroom 7.9 dB (NEXT 45-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

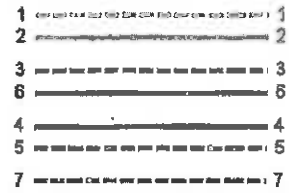
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N: 9469009
Remote S/N 9489018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

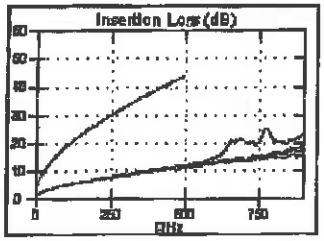
Length (ft), Limit 295	[Pair 12]	79
Prop. Delay (ns), Limit 498	[Pair 45]	124
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.5
Insertion Loss Margin (dB)	[Pair 36]	32.1
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

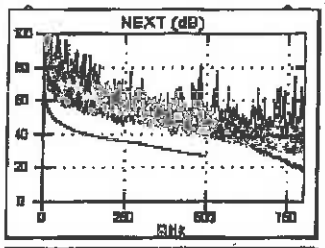
79 ft

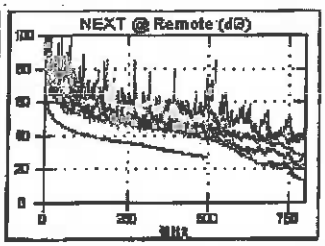
Wire Map (T568B)
PASS

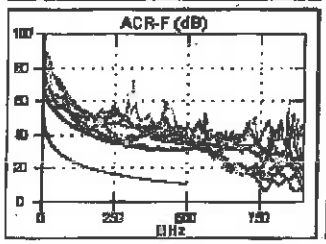


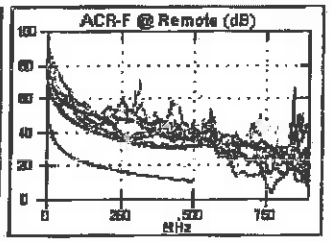
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	45-78	12-36	36-45
NEXT (dB)	10.2	7.9	10.5	10.1
Freq. (MHz)	249.5	289.0	497.0	496.0
Limit (dB)	35.4	34.3	26.7	26.8
Worst Pair	36	45	36	36
PS NEXT (dB)	10.8	8.2	10.9	10.3
Freq. (MHz)	245.5	289.0	499.0	496.0
Limit (dB)	32.8	31.7	23.8	23.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	17.7	17.5	18.4	18.9
Freq. (MHz)	367.0	363.0	420.0	465.0
Limit (dB)	12.9	13.0	11.7	10.8
Worst Pair	45	36	45	36
PS ACR-F (dB)	19.2	19.0	20.6	21.5
Freq. (MHz)	288.0	292.0	469.0	499.0
Limit (dB)	12.0	11.9	7.8	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-78	45-78	12-36	36-45
ACR-N (dB)	18.3	17.2	42.6	42.7
Freq. (MHz)	10.4	18.9	497.0	496.0
Limit (dB)	52.0	45.9	-16.9	-16.8
Worst Pair	78	78	36	36
PS ACR-N (dB)	19.6	19.1	43.0	42.4
Freq. (MHz)	5.8	18.8	499.0	496.0
Limit (dB)	55.1	43.6	-19.9	-19.7
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	5.8	4.6	5.8	4.6
Freq. (MHz)	489.0	496.0	489.0	496.0
Limit (dB)	8.0	8.0	8.0	8.0

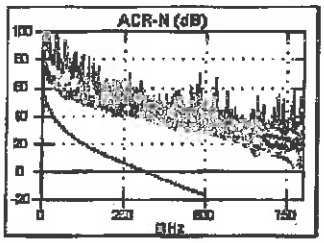


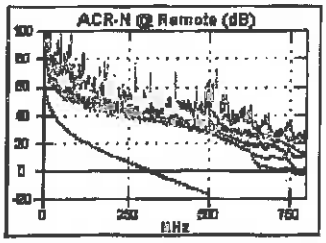


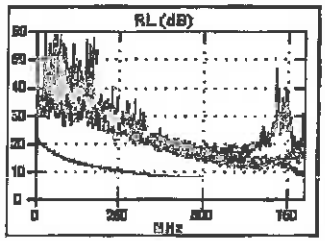


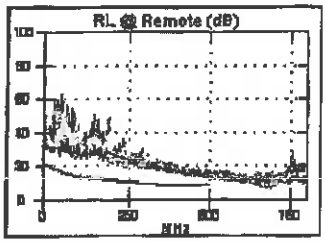












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-21

Test Summary: PASS

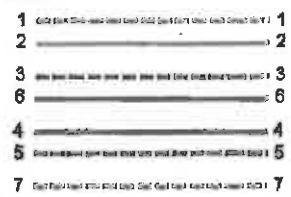
Date / Time: 07/03/2012 03:18:46 PM
Headroom 7.2 dB (NEXT 36-78)
Test Limit: TIA Cat 5A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

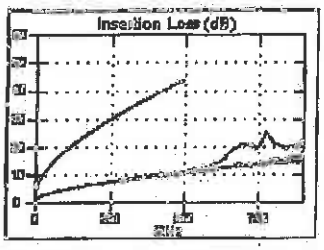
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1600
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

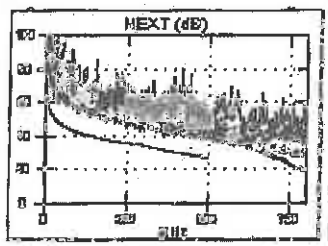
Length (ft), Limit 295	[Pair 12]	75
Prop. Delay (ns), Limit 498	[Pair 45]	116
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 78]	3.2
Insertion Loss Margin (dB)	[Pair 36]	33.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

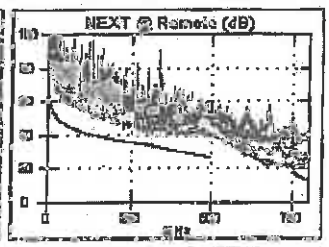
Wire Map (T568B)
PASS

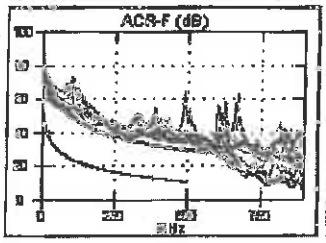


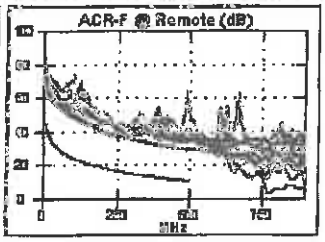


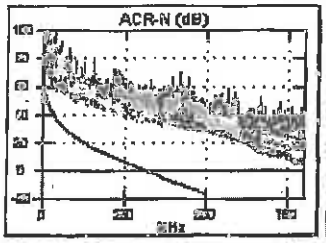
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	7.7	7.2	10.6	12.1
Freq. (MHz)	293.0	230.5	481.0	490.0
Limit (dB)	34.2	35.9	27.2	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	8.9	7.3	11.9	12.4
Freq. (MHz)	306.0	292.0	490.0	490.0
Limit (dB)	31.1	31.6	24.1	24.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	18.8	18.7	19.0	18.7
Freq. (MHz)	477.0	443.0	499.0	499.0
Limit (dB)	10.6	11.3	10.2	10.2
Worst Pair	45	45	45	36
PS ACR-F (dB)	20.0	20.4	20.8	20.5
Freq. (MHz)	442.0	473.0	499.0	499.0
Limit (dB)	8.3	7.7	7.2	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.6	20.4	44.1	45.0
Freq. (MHz)	29.5	3.6	499.0	491.0
Limit (dB)	40.8	61.4	-17.0	-16.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	20.7	22.5	45.1	45.0
Freq. (MHz)	29.4	3.6	499.0	490.0
Limit (dB)	38.5	58.6	-19.9	-19.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.2	3.9	4.2	3.9
Freq. (MHz)	497.0	498.0	497.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

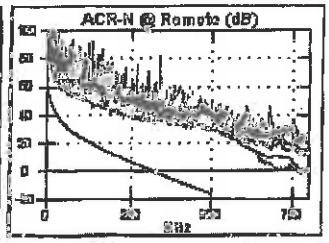


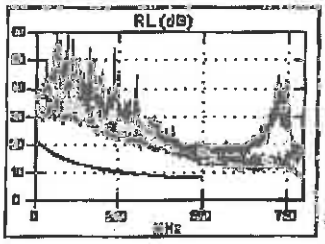


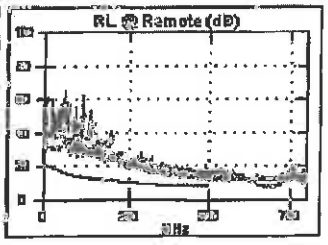












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-22

Test Summary: PASS

Date / Time 07/03/2012 03 19 28 PM
Headroom 8.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2 5200
Limits Version 1 7000
NVP 69 0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	76
Prop. Delay (ns), Limit 498	[Pair 45]	119
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 12]	3.2
Insertion Loss Margin (dB)	[Pair 36]	32.7
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

76 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	8.7	9.5	11.1	10.1
Freq. (MHz)	156.0	64.8	473.0	493.0
Limit (dB)	38.7	44.9	27.4	26.9
Worst Pair	12	36	36	36
PS NEXT (dB)	10.5	9.5	12.5	10.4
Freq. (MHz)	315.0	428.0	500.0	492.0
Limit (dB)	30.7	26.1	23.8	24.0

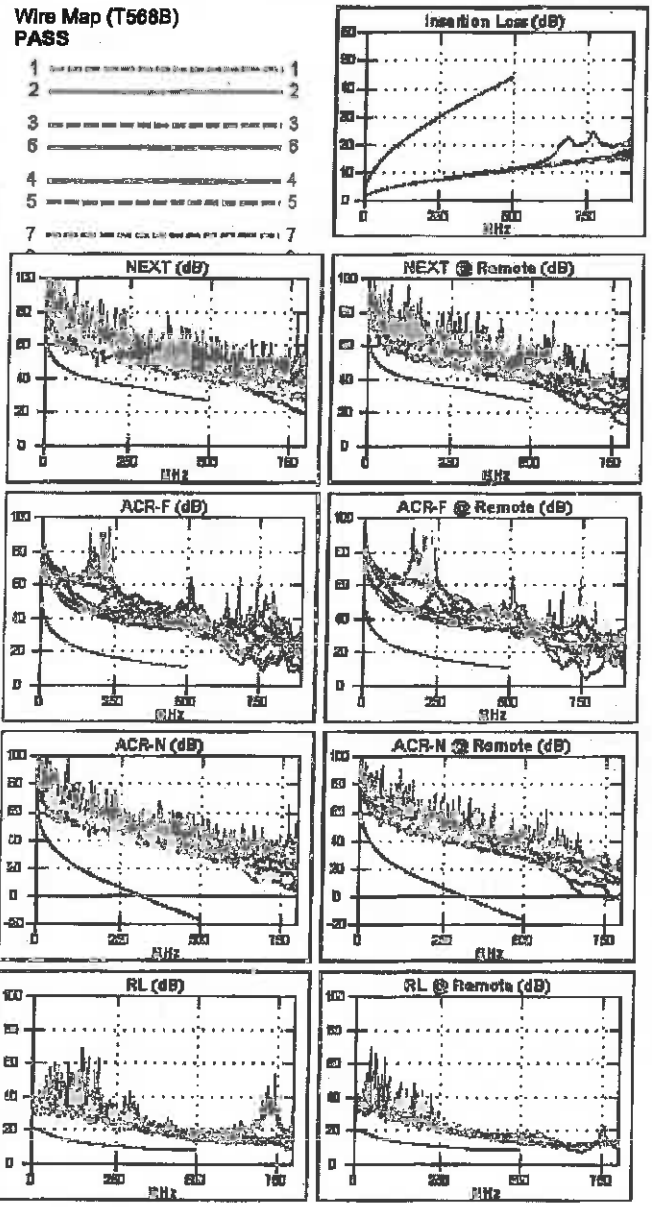
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	21.1	20.9	22.2	21.8
Freq. (MHz)	249.5	368.0	492.0	488.0
Limit (dB)	16.2	12.9	10.4	10.4
Worst Pair	45	36	45	36
PS ACR-F (dB)	21.8	22.0	21.8	22.0
Freq. (MHz)	295.0	364.0	433.0	482.0
Limit (dB)	11.8	10.0	8.5	7.5

N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.6	17.1	44.3	43.3
Freq. (MHz)	3.9	3.5	495.0	498.0
Limit (dB)	60.8	61.7	-16.7	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.3	18.4	45.2	42.7
Freq. (MHz)	3.9	34.3	500.0	491.0
Limit (dB)	58.5	36.6	-20.0	-19.3

PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.1	3.8	5.1	3.8
Freq. (MHz)	495.0	495.0	495.0	495.0
Limit (dB)	8.0	8.0	8.0	8.0

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive



LinkWare Version 7 2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.fiw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-23

Test Summary: PASS

Date / Time 07/03/2012 03:20:22 PM
Headroom 7.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator: TYLER
Software Version 2.5200
Limits Version 1.7000
NVP: 69.0%

Model DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	73
Prop. Delay (ns), Limit 498	[Pair 45]	114
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	32.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

73 ft

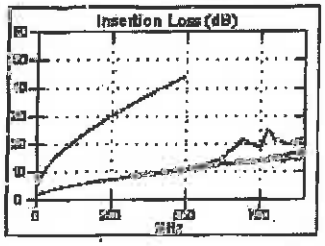
Wire Map (T568B)
PASS

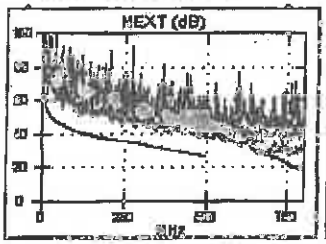
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	36-78	36-45
NEXT (dB)	9.0	7.8	10.4	9.0
Freq. (MHz)	283.0	344.0	497.0	500.0
Limit (dB)	34.4	32.0	26.7	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.2	8.8	10.5	8.8
Freq. (MHz)	389.0	496.0	497.0	496.0
Limit (dB)	27.5	23.9	23.8	23.9

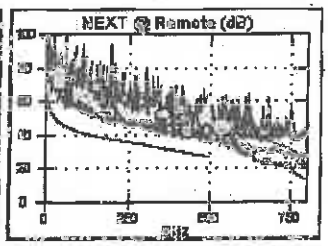
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	7.8	7.5	7.8	7.5
Freq. (MHz)	497.0	492.0	497.0	496.0
Limit (dB)	10.3	10.4	10.3	10.3
Worst Pair	45	36	45	36
PS ACR-F (dB)	10.6	10.7	10.6	10.7
Freq. (MHz)	497.0	497.0	497.0	497.0
Limit (dB)	7.3	7.3	7.3	7.3

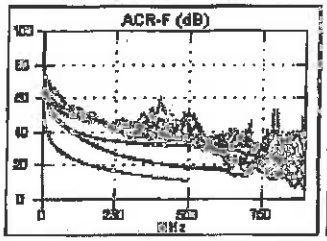
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	15.8	16.8	43.9	42.4
Freq. (MHz)	8.8	17.9	497.0	500.0
Limit (dB)	53.6	46.5	-16.9	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.6	18.2	43.3	41.6
Freq. (MHz)	9.0	9.0	497.0	496.0
Limit (dB)	51.0	51.0	-19.7	-19.7

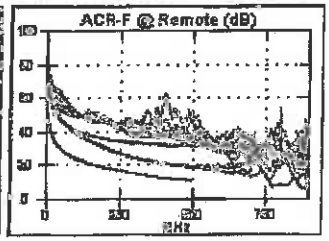
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	4.1	3.6	4.1	3.6
Freq. (MHz)	444.0	480.0	444.0	480.0
Limit (dB)	8.0	8.0	8.0	8.0

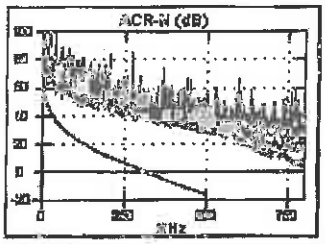


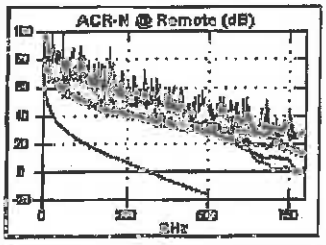


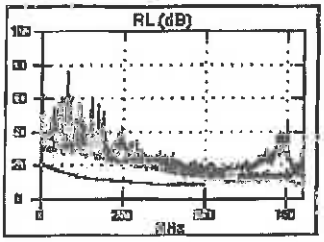


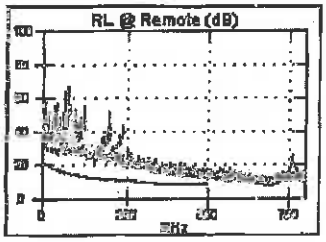












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-156	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-24

Test Summary: PASS

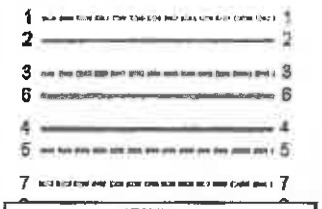
Date / Time 07/03/2012 08:23:45 PM
Headroom 6.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

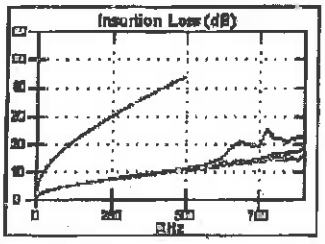
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

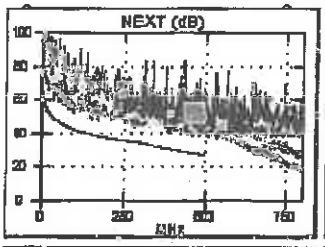
Length (ft), Limit 295	[Pair 12]	74
Prop. Delay (ns), Limit 498	[Pair 45]	115
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	3.2
Insertion Loss Margin (dB)	[Pair 36]	32.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

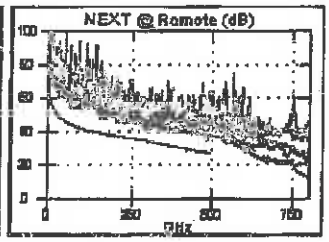
Wire Map (T568B)
PASS

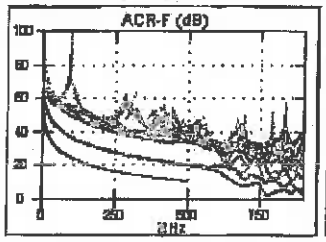


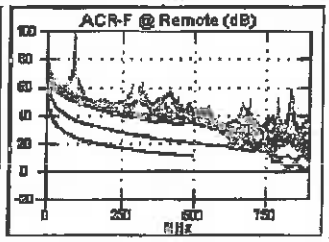


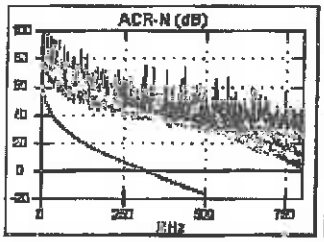
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	9.2	6.3	11.1	7.9
Freq. (MHz)	285.0	303.0	484.0	489.0
Limit (dB)	34.4	33.9	27.1	27.0
Worst Pair	36	36	36	45
PS NEXT (dB)	10.2	6.6	11.9	9.4
Freq. (MHz)	281.0	303.0	484.0	489.0
Limit (dB)	31.9	31.3	24.2	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	36-45	45-36
ACR-F (dB)	9.5	9.1	9.6	9.1
Freq. (MHz)	477.0	494.0	498.0	494.0
Limit (dB)	10.6	10.3	10.2	10.3
Worst Pair	45	45	45	45
PS ACR-F (dB)	12.4	12.3	12.4	12.3
Freq. (MHz)	493.0	477.0	498.0	496.0
Limit (dB)	7.3	7.6	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	15.8	16.5	43.3	40.8
Freq. (MHz)	4.5	4.0	484.0	489.0
Limit (dB)	59.5	60.5	-15.8	-16.2
Worst Pair	78	78	36	45
PS ACR-N (dB)	17.5	17.2	44.1	42.3
Freq. (MHz)	4.6	3.9	484.0	489.0
Limit (dB)	57.0	58.5	-18.7	-19.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	4.4	2.8	4.4	2.8
Freq. (MHz)	497.0	459.0	497.0	459.0
Limit (dB)	8.0	8.0	8.0	8.0

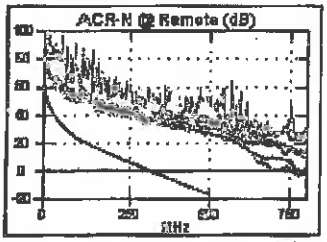


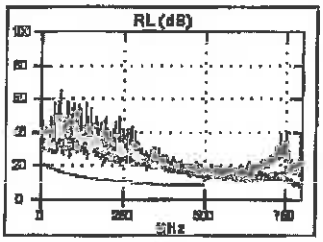


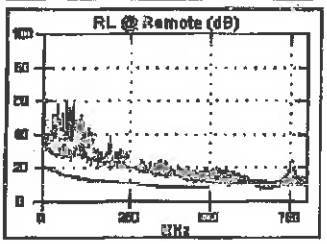












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-25
Date / Time 07/03/2012 03:43:44 PM
Headroom 8.4 dB (NEXT 45-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/16/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS
Model: DTX-1800
Main S/N: 8469009
Remote S/N: 8469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	64
Prop. Delay (ns), Limit 498	[Pair 45]	100
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 78]	2.8
Insertion Loss Margin (dB)	[Pair 36]	34.1
Frequency (MHz)	[Pair 36]	498.0
Limit (dB)	[Pair 36]	43.6

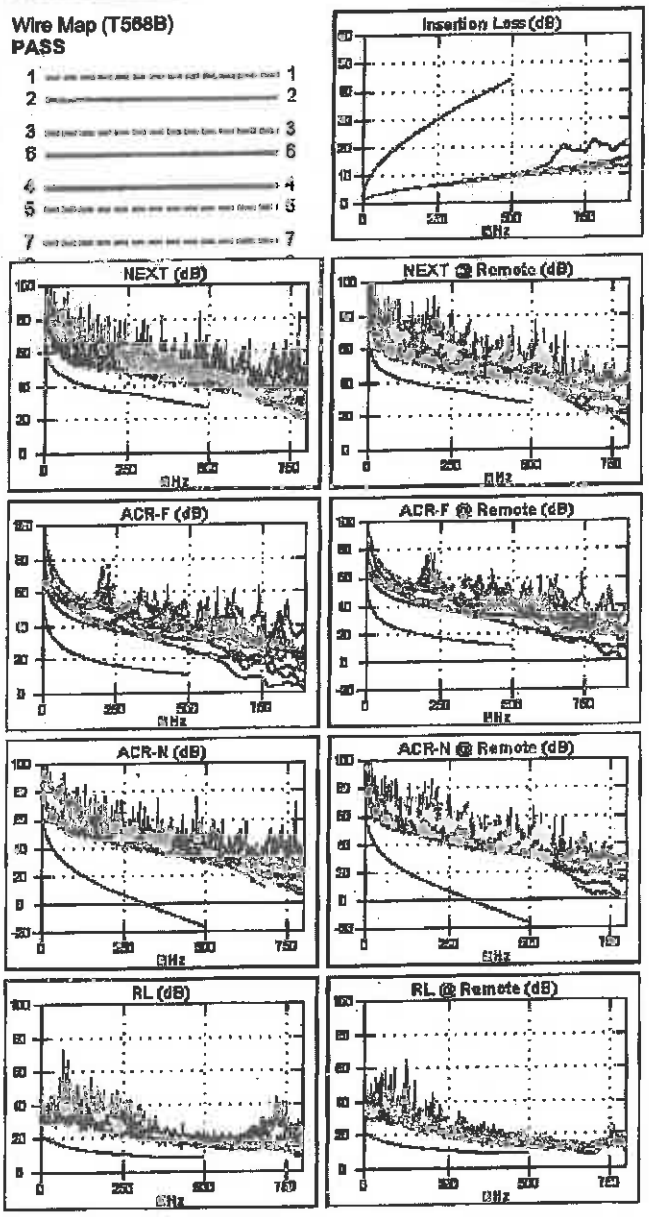
64 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-78	36-78	36-78
NEXT (dB)	8.4	8.7	9.3	11.4
Freq. (MHz)	230.5	328.0	469.0	486.0
Limit (dB)	35.9	32.7	27.6	27.1
Worst Pair	45	78	36	45
PS NEXT (dB)	9.7	9.3	10.4	11.8
Freq. (MHz)	230.0	230.5	462.0	500.0
Limit (dB)	33.3	33.3	24.9	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	14.9	14.8	14.9	14.8
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	10.2	10.2	10.2	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	17.6	17.7	17.6	17.7
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	7.2	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	16.2	17.3	44.9	45.6
Freq. (MHz)	5.3	5.0	497.0	486.0
Limit (dB)	58.2	58.6	-16.9	-16.0
Worst Pair	78	78	36	45
PS ACR-N (dB)	17.7	18.5	45.1	46.5
Freq. (MHz)	10.6	3.9	491.0	500.0
Limit (dB)	49.4	58.5	-19.3	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.9	3.4	5.9	3.4
Freq. (MHz)	499.0	483.0	499.0	483.0
Limit (dB)	8.0	8.0	8.0	8.0

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive



LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-26
Date / Time 07/03/2012 03:44:42 PM
Headroom 5.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

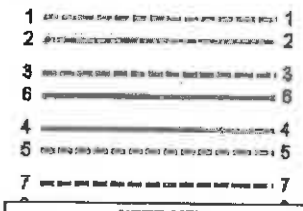
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

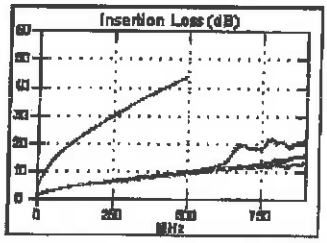
Test Summary: PASS
Model: DTX-1800
Main S/N 9469009
Remote S/N 9468018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	64
Prop. Delay (ns), Limit 498	[Pair 45]	100
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 36]	2.8
Insertion Loss Margin (dB)	[Pair 36]	33.5
Frequency (MHz)	[Pair 36]	488.0
Limit (dB)	[Pair 36]	43.1

64 ft

Wire Map (T568B)
PASS



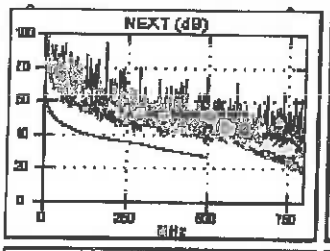


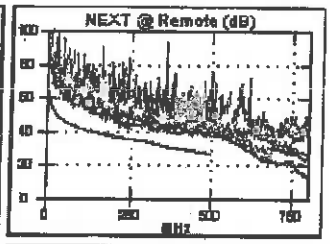
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	7.6	5.5	8.6	10.7
Freq. (MHz)	355.0	247.0	493.0	500.0
Limit (dB)	31.6	35.4	26.9	26.7
Worst Pair	36	36	36	45
PS NEXT (dB)	8.6	7.0	9.7	11.5
Freq. (MHz)	294.0	247.5	492.0	500.0
Limit (dB)	31.5	32.8	24.0	23.8

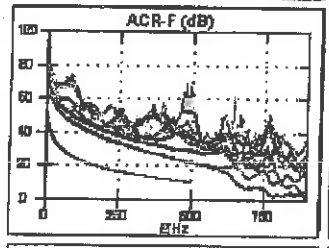
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	11.4	11.4	11.5	11.4
Freq. (MHz)	490.0	484.0	500.0	500.0
Limit (dB)	10.4	10.5	10.2	10.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	14.1	14.2	14.2	14.2
Freq. (MHz)	492.0	490.0	500.0	500.0
Limit (dB)	7.4	7.4	7.2	7.2

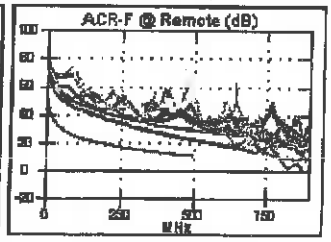
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-78	36-45
ACR-N (dB)	20.6	20.0	43.0	45.3
Freq. (MHz)	3.3	17.1	493.0	500.0
Limit (dB)	61.8	46.9	-16.5	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	21.6	21.7	43.5	45.3
Freq. (MHz)	4.0	3.5	492.0	493.0
Limit (dB)	58.3	58.7	-19.3	-19.4

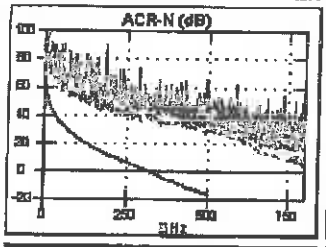
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	78	78
RL (dB)	6.0	3.3	6.0	3.3
Freq. (MHz)	483.0	488.0	483.0	488.0
Limit (dB)	8.0	8.0	8.0	8.0

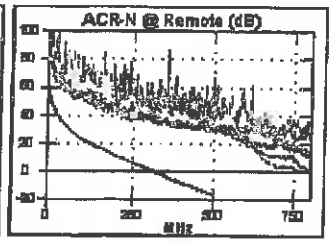


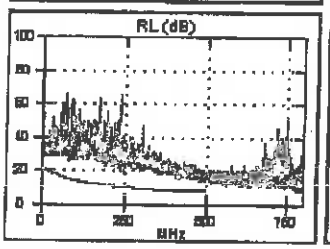


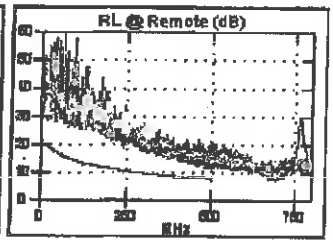












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-27

Date / Time: 07/03/2012, 03:45:26 PM
Headroom: 7.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

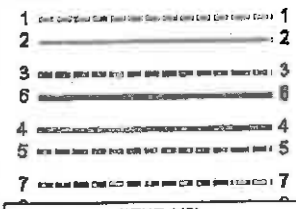
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

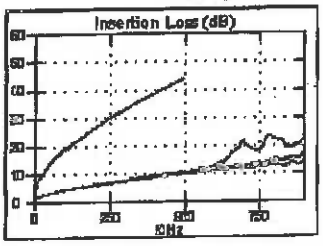
Length (ft), Limit 295	[Pair 12]	69
Prop. Delay (ns), Limit 498	[Pair 36]	106
Delay Skew (ns), Limit 44	[Pair 36]	5
Resistance (ohms)	[Pair 78]	3.0
Insertion Loss Margin (dB)	[Pair 36]	33.5
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

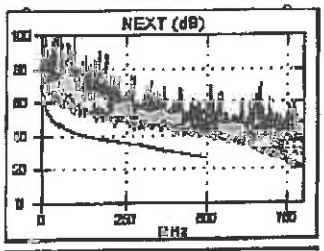
69 ft

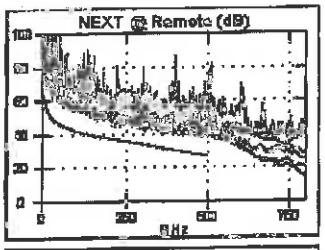
Wire Map (T568B)
PASS

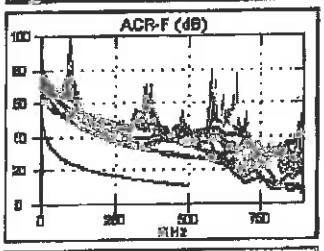


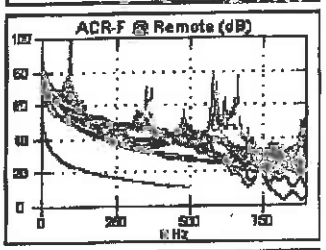
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	8.3	7.5	11.6	10.6
Freq. (MHz)	280.0	313.0	480.0	482.0
Limit (dB)	34.5	33.4	27.2	27.2
Worst Pair	36	36	36	45
PS NEXT (dB)	9.3	8.2	11.8	11.5
Freq. (MHz)	280.0	313.0	480.0	482.0
Limit (dB)	31.9	30.8	24.4	24.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.2	15.9	16.2	15.9
Freq. (MHz)	498.0	497.0	498.0	498.0
Limit (dB)	10.2	10.3	10.2	10.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	18.1	18.6	18.1	18.6
Freq. (MHz)	497.0	498.0	498.0	498.0
Limit (dB)	7.3	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	18.8	19.2	45.8	45.1
Freq. (MHz)	19.3	32.3	499.0	498.0
Limit (dB)	45.7	39.8	-17.0	-16.9
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.3	19.4	46.1	44.4
Freq. (MHz)	4.6	4.0	500.0	481.0
Limit (dB)	57.0	58.3	-20.0	-18.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	78	12
RL (dB)	5.5	4.6	5.5	4.6
Freq. (MHz)	500.0	471.0	500.0	471.0
Limit (dB)	8.0	8.0	8.0	8.0

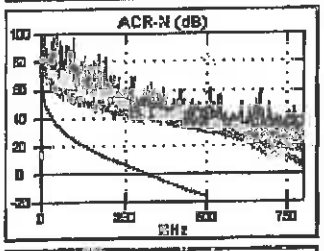


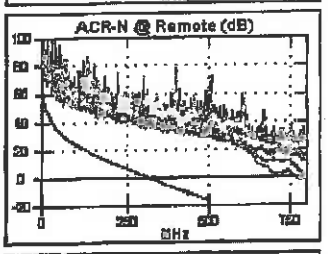


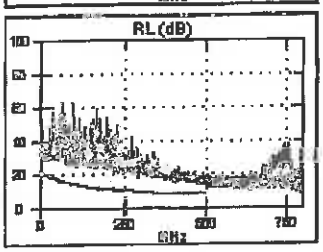


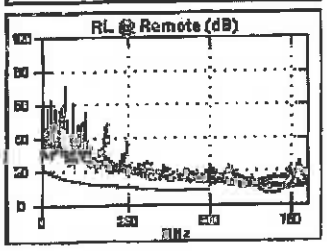












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-28

Test Summary: PASS

Date / Time 07/09/2012 03:46:05 PM
Headroom 7.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469918
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	69
Prop. Delay (ns), Limit 498	[Pair 45]	107
Delay Skew (ns), Limit 44	[Pair 45]	5
Resistance (ohms)	[Pair 36]	3.0
Insertion Loss Margin (dB)	[Pair 36]	33.1
Frequency (MHz)	[Pair 36]	495.0
Limit (dB)	[Pair 36]	43.5

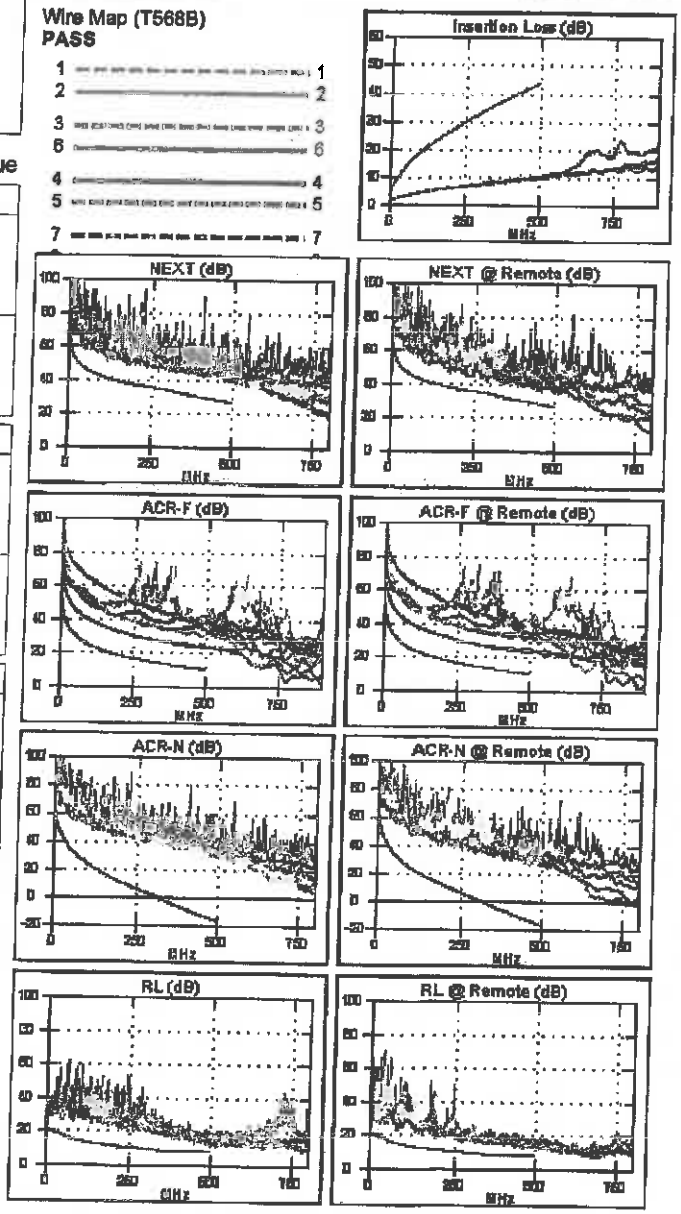
69 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-45
NEXT (dB)	10.4	7.2	12.2	8.6
Freq. (MHz)	118.0	296.0	496.0	500.0
Limit (dB)	40.7	34.1	26.8	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	11.2	8.6	11.7	10.3
Freq. (MHz)	275.0	296.0	496.0	500.0
Limit (dB)	32.0	31.5	23.9	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	12.6	12.0	12.6	12.0
Freq. (MHz)	373.0	490.0	495.0	495.0
Limit (dB)	12.8	10.4	10.3	10.3
Worst Pair	36	36	45	36
PS ACR-F (dB)	15.2	15.0	15.2	15.3
Freq. (MHz)	392.0	377.0	495.0	495.0
Limit (dB)	9.3	9.7	7.3	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	36-45
ACR-N (dB)	16.7	18.0	45.5	42.6
Freq. (MHz)	14.8	7.6	496.0	500.0
Limit (dB)	48.5	54.9	-16.8	-17.1
Worst Pair	78	36	36	36
PS ACR-N (dB)	18.1	18.4	45.0	43.8
Freq. (MHz)	15.1	7.5	496.0	500.0
Limit (dB)	45.8	52.7	-19.7	-20.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	4.6	3.8	4.6	3.8
Freq. (MHz)	498.0	463.0	498.0	463.0
Limit (dB)	8.0	8.0	8.0	8.0

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive



LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-29

Test Summary: PASS

Date / Time: 07/03/2012 03:47:53 PM
Headroom 6.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

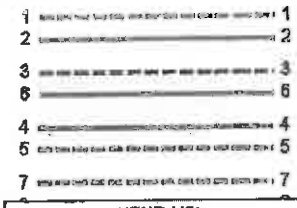
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	80
Prop. Delay (ns), Limit 498	[Pair 45]	125
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 36]	3.4
Insertion Loss Margin (dB)	[Pair 36]	31.6
Frequency (MHz)	[Pair 36]	491.0
Limit (dB)	[Pair 36]	43.3

80 ft

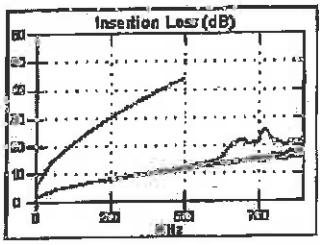
Wire Map (T568B)
PASS

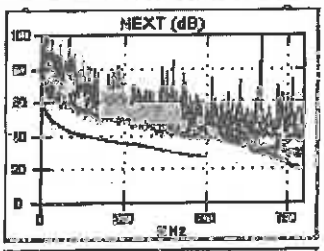


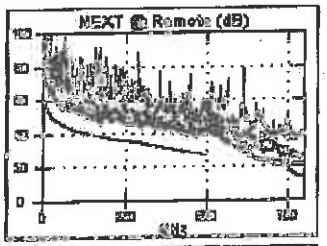
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	8.8	6.5	10.4	8.6
Freq. (MHz)	350.0	175.5	488.0	472.0
Limit (dB)	31.8	37.9	27.0	27.5
Worst Pair	36	78	36	36
PS NEXT (dB)	9.0	7.8	10.5	10.1
Freq. (MHz)	279.0	175.5	472.0	472.0
Limit (dB)	31.9	35.3	24.6	24.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	13.2	12.7	13.2	12.7
Freq. (MHz)	490.0	490.0	490.0	490.0
Limit (dB)	10.4	10.4	10.4	10.4
Worst Pair	45	36	45	36
PS ACR-F (dB)	16.0	15.4	16.0	15.5
Freq. (MHz)	490.0	481.0	490.0	499.0
Limit (dB)	7.4	7.5	7.4	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	15.4	15.1	41.9	40.4
Freq. (MHz)	3.9	3.5	488.0	472.0
Limit (dB)	60.8	61.7	-16.1	-14.8
Worst Pair	78	36	36	36
PS ACR-N (dB)	17.0	16.7	41.6	41.2
Freq. (MHz)	3.9	3.8	472.0	472.0
Limit (dB)	58.5	58.6	-17.7	-17.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	12	12
RL (dB)	5.0	4.0	5.0	4.0
Freq. (MHz)	488.0	500.0	488.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

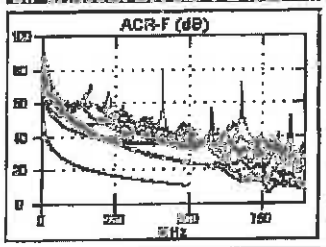
Compliant Network Standards:

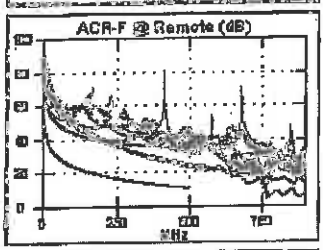
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

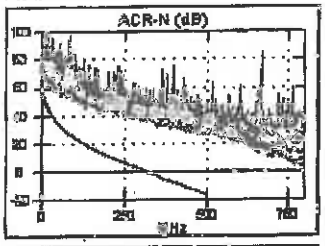


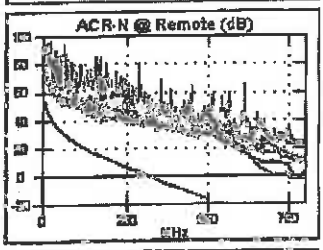


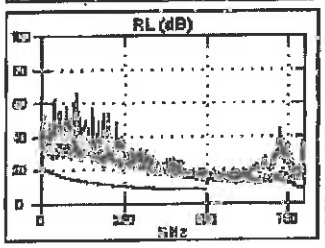


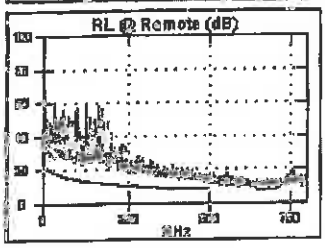












LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-30

Test Summary: PASS

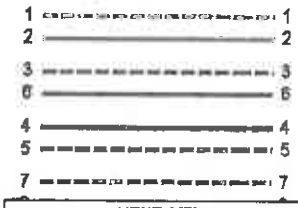
Date / Time 07/03/2012 08:52:37 PM
Headroom 8.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type. Cat 6 UTP
Calibration Date 07/19/2007

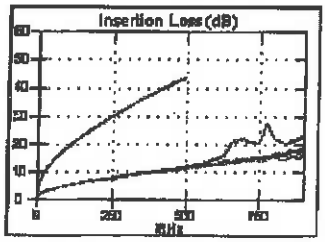
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

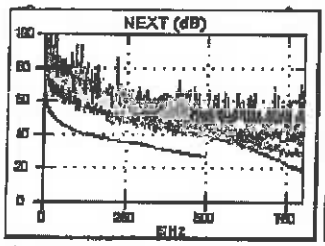
Length (ft), Limit 295	[Pair 12]	81
Prop. Delay (ns), Limit 498	[Pair 45]	125
Delay Skew (ns), Limit 44	[Pair 45]	6
Resistance (ohms)	[Pair 12]	3.4
Insertion Loss Margin (dB)	[Pair 36]	32.2
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

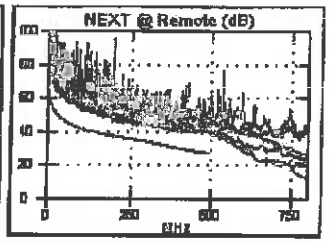
Wire Map (T568B)
PASS

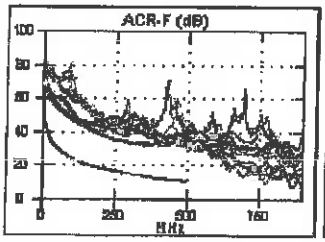


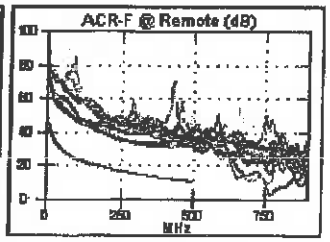


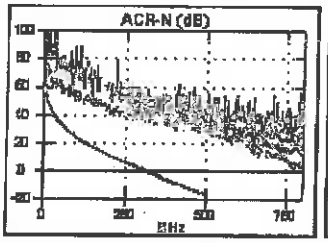
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	9.6	8.3	10.7	11.5
Freq. (MHz)	408.0	195.5	479.0	500.0
Limit (dB)	29.6	37.1	27.3	26.7
Worst Pair	36	36	36	36
PS NEXT (dB)	9.6	8.1	11.5	11.3
Freq. (MHz)	275.0	270.0	482.0	499.0
Limit (dB)	32.0	32.1	24.3	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	18.2	18.1	19.5	19.3
Freq. (MHz)	362.0	362.0	427.0	427.0
Limit (dB)	13.0	13.0	11.6	11.6
Worst Pair	45	45	45	36
PS ACR-F (dB)	19.7	20.3	19.7	21.2
Freq. (MHz)	422.0	275.0	422.0	471.0
Limit (dB)	8.7	12.4	8.7	7.7
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	36-45
ACR-N (dB)	17.5	18.7	42.1	44.1
Freq. (MHz)	8.4	6.5	479.0	500.0
Limit (dB)	54.0	56.3	-15.4	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.3	18.1	42.9	43.4
Freq. (MHz)	6.6	6.5	482.0	499.0
Limit (dB)	53.8	54.0	-18.5	-19.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.0	4.1	6.0	4.1
Freq. (MHz)	490.0	492.0	490.0	492.0
Limit (dB)	8.0	8.0	8.0	8.0

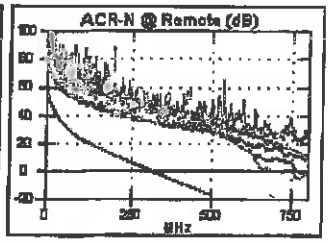


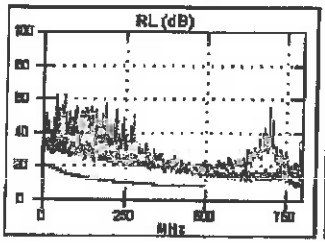


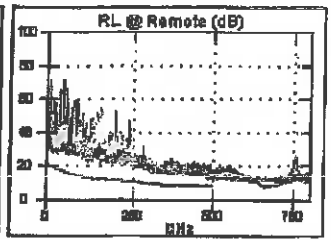












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-31

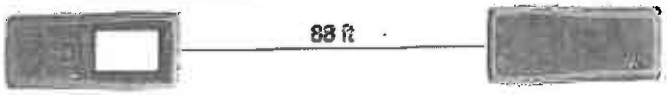
Date / Time: 07/03/2012 03:54:31 PM
Headroom: 9.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.9200
Limits Version: 1.7000
NVP: 69.0%

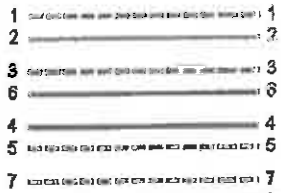
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469019
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	88
Prop. Delay (ns), Limit 498	[Pair 45]	137
Delay Skew (ns), Limit 44	[Pair 45]	7
Resistance (ohms)	[Pair 12]	3.7
Insertion Loss Margin (dB)	[Pair 36]	30.7
Frequency (MHz)	[Pair 36]	489.0
Limit (dB)	[Pair 36]	43.2



Wire Map (T568B)
PASS

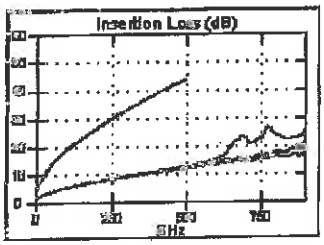


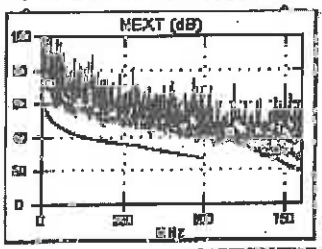
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	8.8	9.7	8.8	9.8
Freq. (MHz)	191.0	296.0	481.0	491.0
Limit (dB)	37.3	34.1	27.2	26.9
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	10.6	11.0	11.0
Freq. (MHz)	334.0	292.0	481.0	491.0
Limit (dB)	29.8	31.6	24.3	24.0

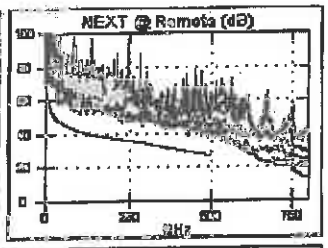
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	17.0	16.9	18.3	18.2
Freq. (MHz)	367.0	367.0	476.0	476.0
Limit (dB)	12.9	12.9	10.6	10.6
Worst Pair	36	36	36	36
PS ACR-F (dB)	18.7	18.7	19.0	19.6
Freq. (MHz)	395.0	423.0	437.0	476.0
Limit (dB)	9.3	8.7	8.4	7.6

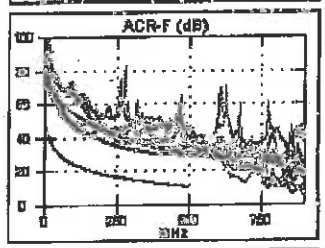
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	18.3	17.9	40.1	41.3
Freq. (MHz)	40.5	3.5	481.0	491.0
Limit (dB)	37.0	61.7	-15.6	-16.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	19.0	18.8	42.3	41.9
Freq. (MHz)	3.9	3.8	491.0	491.0
Limit (dB)	58.5	58.6	-19.3	-19.3

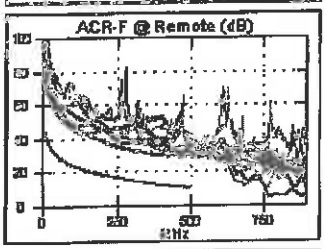
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36	45	36	45
RL (dB)	6.4	4.7	6.4	4.7
Freq. (MHz)	488.0	494.0	488.0	494.0
Limit (dB)	8.0	8.0	8.0	8.0

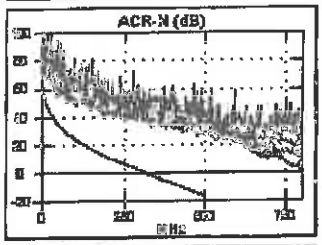


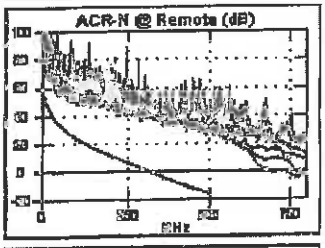


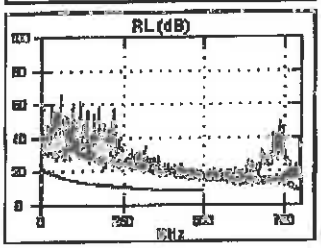


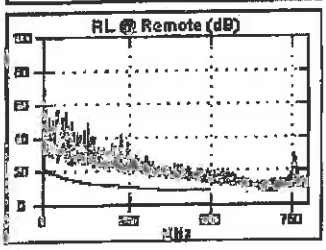












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-32

Date / Time: 07/03/2012 03:55:44 PM
Headroom 7.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

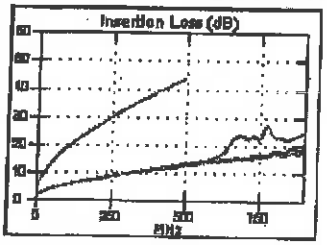
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

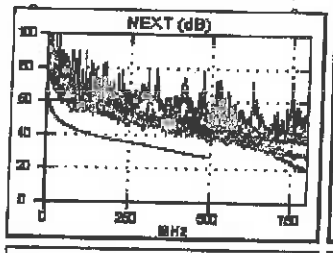
Length (ft), Limit 295	[Pair 12]	90
Prop. Delay (ns), Limit 498	[Pair 45]	141
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	3.9
Insertion Loss Margin (dB)	[Pair 36]	30.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

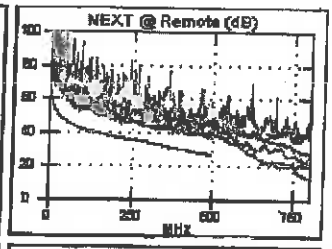
90 ft

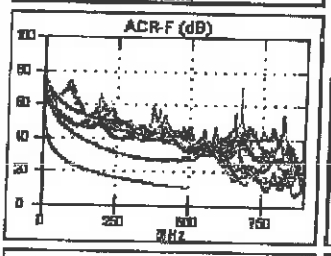
Wire Map (T568B)
PASS

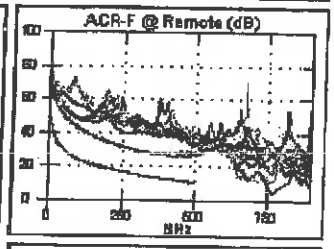
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	8.0	7.8	9.4	9.4
Freq. (MHz)	294.0	218.0	495.0	487.0
Limit (dB)	34.2	36.3	26.8	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	8.4	8.7	10.8	9.8
Freq. (MHz)	295.0	218.0	495.0	487.0
Limit (dB)	31.5	33.7	23.9	24.2
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	13.6	13.5	14.2	14.0
Freq. (MHz)	364.0	364.0	422.0	422.0
Limit (dB)	13.0	13.0	11.7	11.7
Worst Pair	45	36	45	36
PS ACR-F (dB)	16.2	16.4	17.2	17.3
Freq. (MHz)	364.0	364.0	472.0	464.0
Limit (dB)	10.0	10.0	7.7	7.9
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	12-36	36-78
ACR-N (dB)	17.0	17.6	40.1	40.2
Freq. (MHz)	3.8	5.0	495.0	487.0
Limit (dB)	61.1	58.6	-16.7	-16.1
Worst Pair	45	36	36	36
PS ACR-N (dB)	17.7	18.0	41.5	40.2
Freq. (MHz)	5.3	4.0	495.0	487.0
Limit (dB)	55.9	58.3	-19.6	-18.9
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	78	12	78
RL (dB)	5.5	3.8	5.5	3.8
Freq. (MHz)	500.0	486.0	500.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

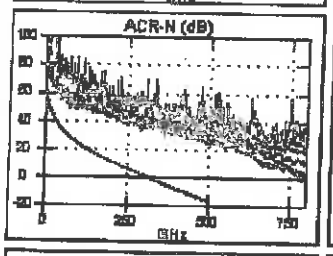


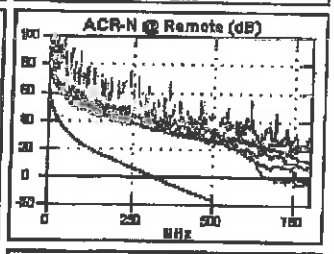


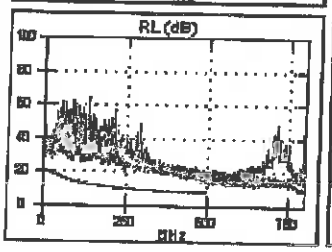


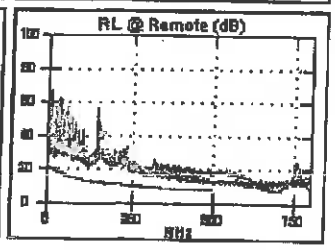












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-33

Date / Time: 07/03/2012 03:57:29 PM
Headroom: 6.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

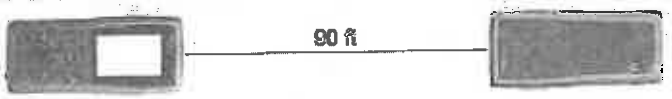
Model: DTX-1800
Main S/N: 9489009
Remote S/N: 9489018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	90
Prop. Delay (ns), Limit 498	[Pair 45]	141
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 12]	3.9
Insertion Loss Margin (dB)	[Pair 36]	30.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

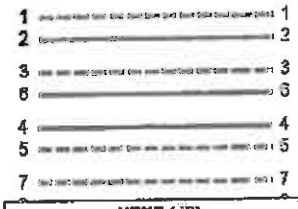
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	8.1	8.0	10.2	10.9
Freq. (MHz)	289.0	257.0	477.0	494.0
Limit (dB)	34.3	35.1	27.3	26.8
Worst Pair	36	36	36	45
PS NEXT (dB)	8.3	8.8	10.7	11.6
Freq. (MHz)	289.0	257.0	492.0	498.0
Limit (dB)	31.7	32.5	24.0	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	9.7	9.6	10.2	10.1
Freq. (MHz)	377.0	365.0	486.0	500.0
Limit (dB)	12.7	12.9	10.5	10.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	12.5	12.3	12.9	12.7
Freq. (MHz)	377.0	377.0	486.0	486.0
Limit (dB)	9.7	9.7	7.5	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.2	16.5	41.9	41.9
Freq. (MHz)	17.4	16.9	492.0	494.0
Limit (dB)	46.8	47.1	-16.5	-16.6
Worst Pair	36	36	36	45
PS ACR-N (dB)	18.1	18.3	41.3	42.8
Freq. (MHz)	17.4	16.8	492.0	498.0
Limit (dB)	44.4	44.8	-19.3	-19.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.0	4.1	5.0	4.1
Freq. (MHz)	490.0	485.0	490.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

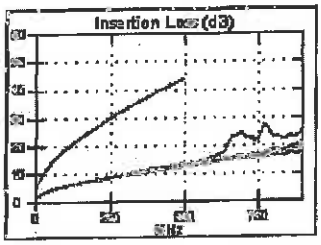
Compliant Network Standards:

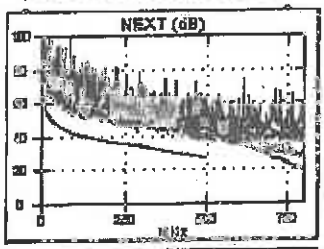
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

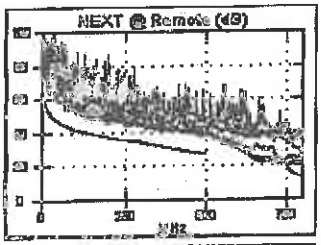


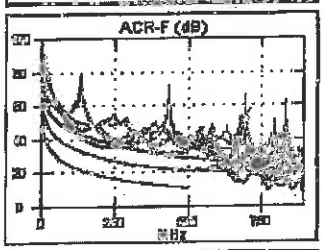
Wire Map (T568B)
PASS

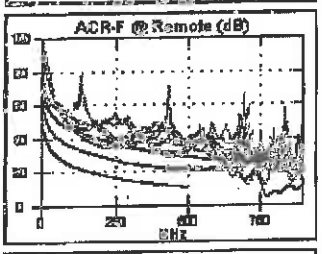


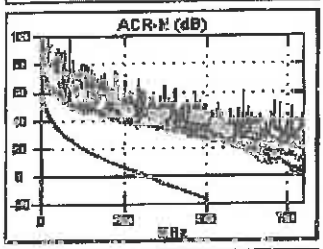


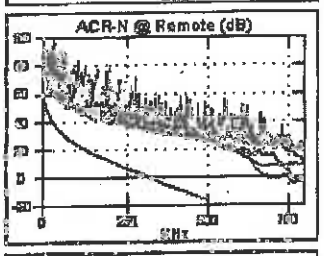


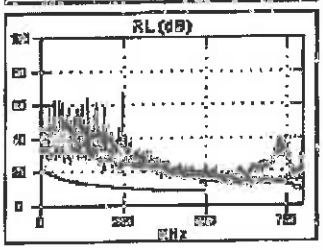


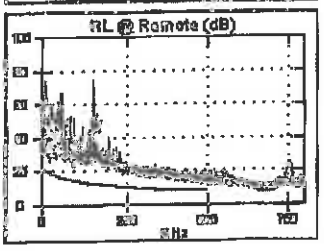












LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-34

Date / Time 07/03/2012 03:59:52 PM
Headroom 8.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

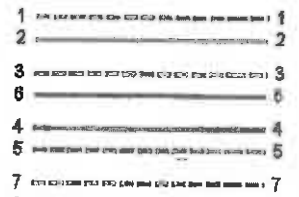
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS

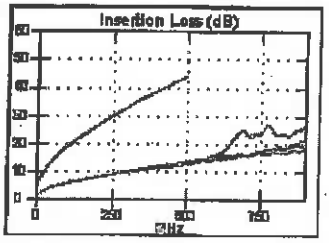
Model DTX-1800
Main S/N. 9469009
Remote S/N. 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

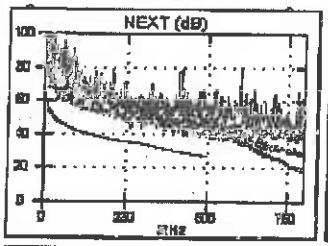
Length (ft), Limit 295	[Pair 12]	93
Prop. Delay (ns), Limit 498	[Pair 45]	146
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 78]	4.1
Insertion Loss Margin (dB)	[Pair 36]	30.6
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

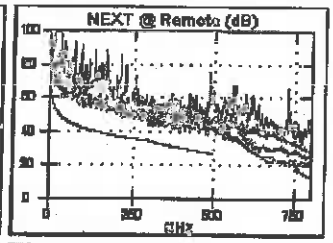
Wire Map (T568B)
PASS

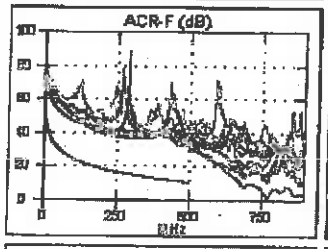


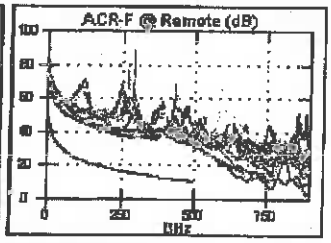
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	8.6	9.2	11.6	10.3
Freq. (MHz)	267.0	303.0	498.0	484.0
Limit (dB)	34.9	33.9	26.7	27.1
Worst Pair	36	36	36	36
PS NEXT (dB)	10.0	9.4	11.3	11.6
Freq. (MHz)	268.0	315.0	476.0	484.0
Limit (dB)	32.2	30.7	24.5	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	20.7	20.7	21.5	21.9
Freq. (MHz)	248.5	248.5	500.0	500.0
Limit (dB)	16.3	16.3	10.2	10.2
Worst Pair	12	12	36	45
PS ACR-F (dB)	21.5	21.6	22.4	22.6
Freq. (MHz)	7.1	7.3	500.0	499.0
Limit (dB)	44.1	44.0	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	12-36	36-78
ACR-N (dB)	18.3	17.6	42.0	40.8
Freq. (MHz)	7.0	17.4	498.0	484.0
Limit (dB)	55.6	46.8	-16.9	-15.8
Worst Pair	78	78	36	36
PS ACR-N (dB)	19.1	18.6	41.0	41.4
Freq. (MHz)	6.9	6.9	476.0	484.0
Limit (dB)	53.5	53.5	-18.0	-18.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.7	5.1	6.7	5.1
Freq. (MHz)	499.0	495.0	499.0	495.0
Limit (dB)	8.0	8.0	8.0	8.0

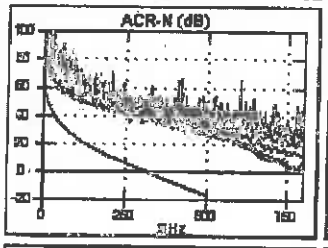


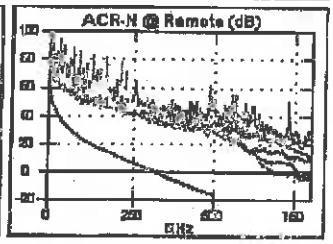


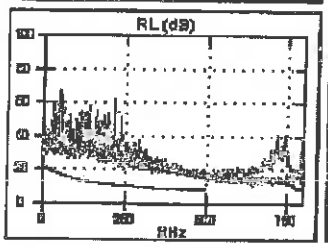


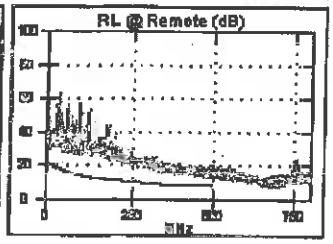












Compliant Network Standards:

10BASE-T	100BASE-TX	1000BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-35

Date / Time: 07/03/2012 04:01:24 PM
Headroom 5.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat.6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	93
Prop. Delay (ns), Limit 498	[Pair 45]	145
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.1
Insertion Loss Margin (dB)	[Pair 36]	30.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

93 ft

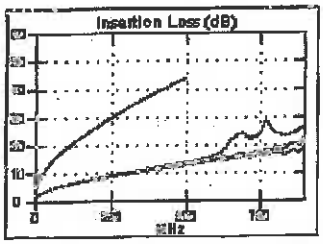
Wire Map (T568B)
PASS

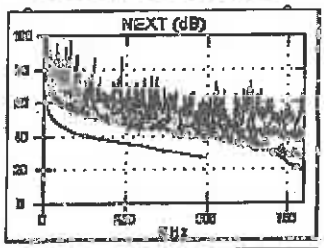
1 — 1
2 — 2
3 — 3
6 — 6
4 — 4
5 — 5
7 — 7

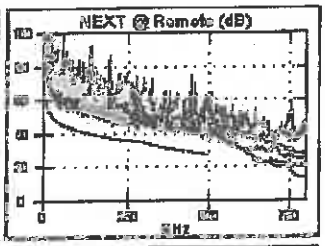
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	36-78	36-78
NEXT (dB)	5.7	7.8	9.7	9.7
Freq. (MHz)	291.0	204.0	495.0	481.0
Limit (dB)	34.2	36.8	26.8	27.2
Worst Pair	36	45	36	78
PS NEXT (dB)	7.2	8.6	10.7	10.9
Freq. (MHz)	291.0	269.0	495.0	481.0
Limit (dB)	31.6	32.2	23.9	24.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	12.1	11.9	13.3	12.8
Freq. (MHz)	359.0	355.0	493.0	490.0
Limit (dB)	13.1	13.2	10.3	10.4
Worst Pair	45	36	45	45
PS ACR-F (dB)	14.7	14.8	15.5	15.6
Freq. (MHz)	359.0	359.0	491.0	494.0
Limit (dB)	10.1	10.1	7.4	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	16.2	16.8	40.6	40.1
Freq. (MHz)	3.9	3.5	495.0	481.0
Limit (dB)	60.8	61.7	-16.7	-15.6
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.8	17.8	40.9	40.8
Freq. (MHz)	3.9	3.8	495.0	481.0
Limit (dB)	58.5	58.6	-19.6	-18.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	6.2	4.7	6.2	4.7
Freq. (MHz)	497.0	481.0	497.0	481.0
Limit (dB)	8.0	8.0	8.0	8.0

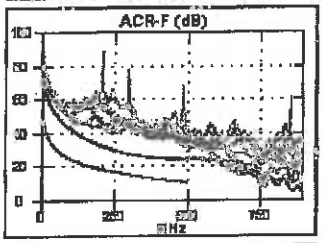
Compliant Network Standards:

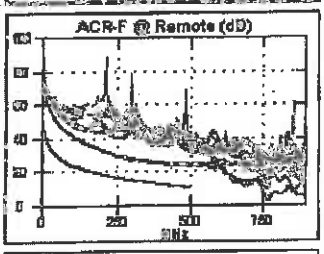
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

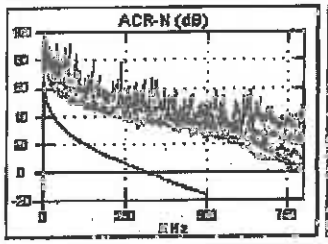


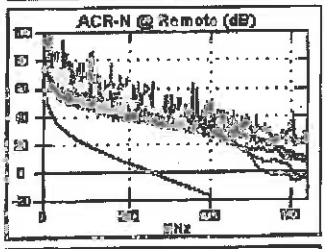


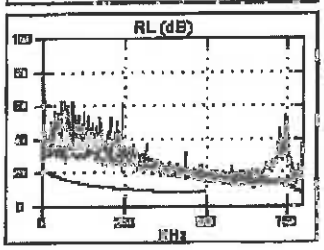


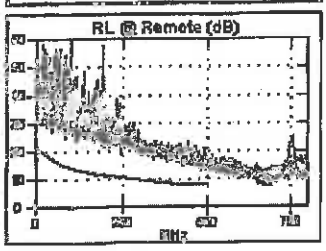












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-36

Test Summary: PASS

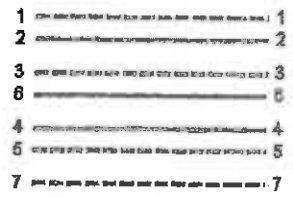
Date / Time 07/03/2012 04:04:42 PM
Headroom 8.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

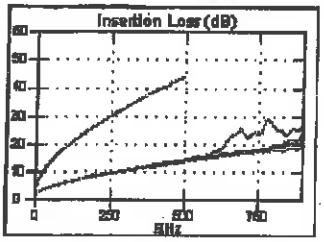
Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1600
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

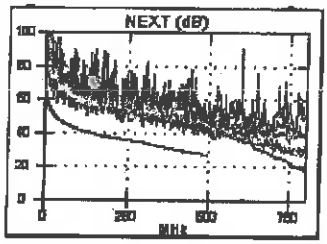
Length (ft), Limit 295	[Pair 12]	100
Prop. Delay (ns), Limit 498	[Pair 45]	156
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.4
Insertion Loss Margin (dB)	[Pair 36]	29.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

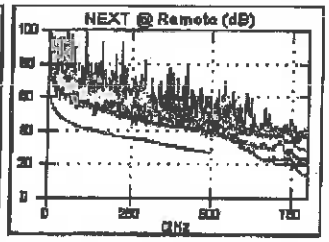
Wire Map (T568B)
PASS

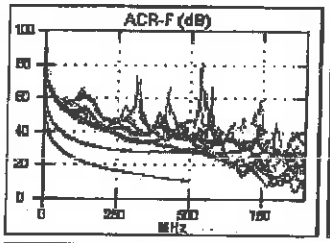


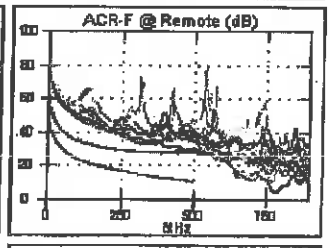


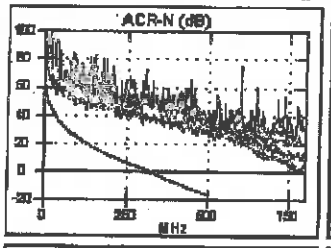
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	9.0	8.1	11.5	9.9
Freq. (MHz)	36.0	256.0	467.0	488.0
Limit (dB)	49.0	35.2	27.6	27.0
Worst Pair	36	36	36	36
PS NEXT (dB)	10.6	8.8	13.0	10.1
Freq. (MHz)	36.0	256.0	459.0	488.0
Limit (dB)	46.5	32.5	25.0	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	10.3	10.3	14.0	14.8
Freq. (MHz)	2.0	2.0	359.0	392.0
Limit (dB)	58.2	58.2	13.1	12.3
Worst Pair	45	45	36	36
PS ACR-F (dB)	13.2	13.2	16.7	16.1
Freq. (MHz)	3.1	3.1	389.0	365.0
Limit (dB)	51.3	51.3	9.4	9.9
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	15.5	14.4	40.7	39.8
Freq. (MHz)	6.1	6.0	467.0	488.0
Limit (dB)	56.8	57.0	-14.4	-16.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.6	16.3	41.4	39.4
Freq. (MHz)	5.8	6.0	459.0	488.0
Limit (dB)	55.1	54.7	-16.6	-19.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	36	45
RL (dB)	6.0	4.3	6.0	4.3
Freq. (MHz)	488.0	478.0	488.0	478.0
Limit (dB)	8.0	8.0	8.0	8.0

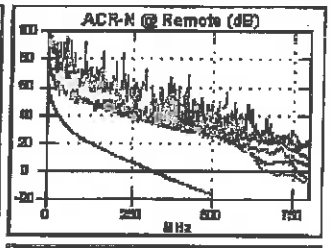


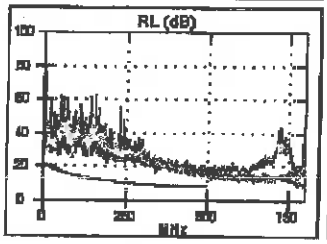


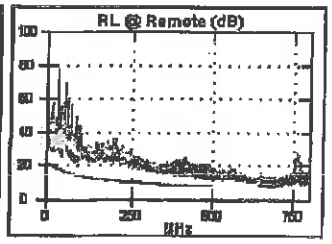












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-37

Date / Time: 07/03/2012 04:06:55 PM
Headroom: 6.8 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9460000
Remote S/N: 9460318
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	100
Prop. Delay (ns), Limit 498	[Pair 45]	157
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.4
Insertion Loss Margin (dB)	[Pair 36]	29.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

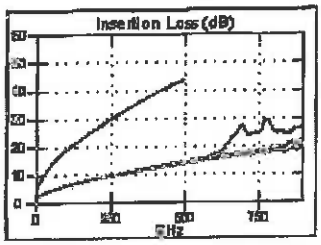
100 ft

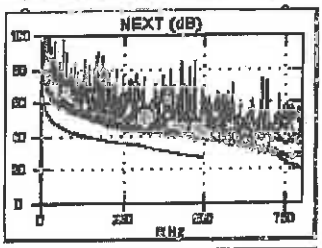
Wire Map (T568B)
PASS

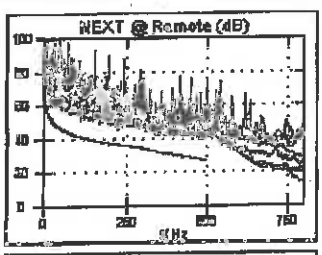
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	6.8	9.2	8.6	12.4
Freq. (MHz)	258.0	223.0	476.0	476.0
Limit (dB)	35.1	36.2	27.4	27.4
Worst Pair	36	36	36	36
PS NEXT (dB)	7.2	9.8	9.5	12.6
Freq. (MHz)	259.0	318.0	476.0	484.0
Limit (dB)	32.4	30.5	24.5	24.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	8.8	8.8	10.8	10.6
Freq. (MHz)	82.5	193.0	496.0	496.0
Limit (dB)	25.9	18.5	10.3	10.3
Worst Pair	45	36	36	36
PS ACR-F (dB)	11.6	11.6	12.9	12.8
Freq. (MHz)	82.5	200.0	477.0	496.0
Limit (dB)	22.9	15.2	7.6	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	14.4	14.9	38.1	42.7
Freq. (MHz)	6.8	6.4	476.0	490.0
Limit (dB)	56.0	56.5	-15.2	-16.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.6	15.9	38.4	41.7
Freq. (MHz)	6.8	3.5	476.0	484.0
Limit (dB)	53.6	58.7	-18.0	-18.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.1	4.5	6.1	4.5
Freq. (MHz)	484.0	490.0	484.0	490.0
Limit (dB)	8.0	8.0	8.0	8.0

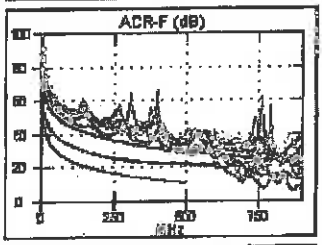
Compliant Network Standards:

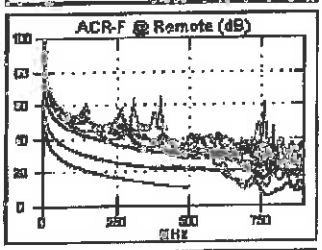
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

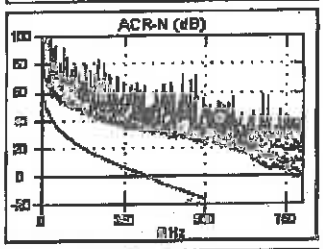


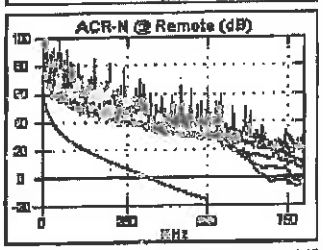


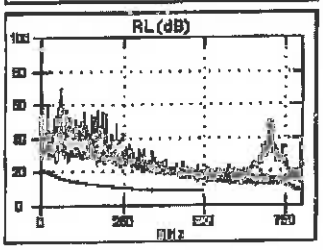


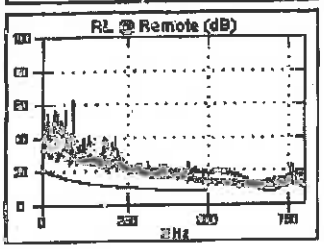












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-38

Date / Time: 07/03/2012 04:22:35 PM
Headroom 9.0 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

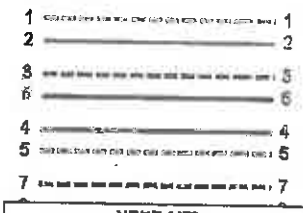
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

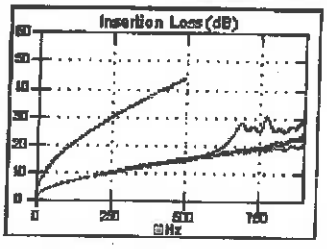
Length (ft), Limit 295	[Pair 12]	108
Prop. Delay (ns), Limit 498	[Pair 45]	167
Delay Skew (ns), Limit 44	[Pair 45]	8
Resistance (ohms)	[Pair 36]	4.7
Insertion Loss Margin (dB)	[Pair 36]	28.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

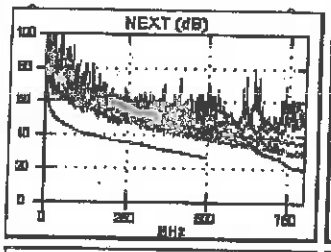
108 ft

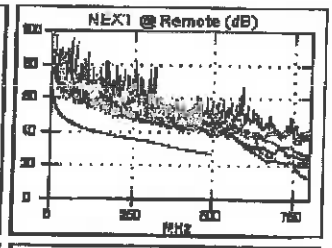
Wire Map (T568B)
PASS

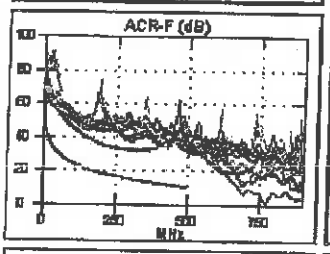


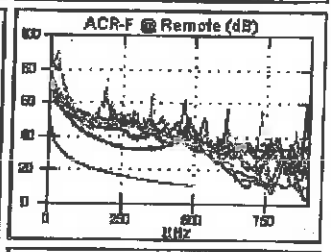
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-78
NEXT (dB)	9.0	10.0	9.8	10.4
Freq. (MHz)	295.0	408.0	470.0	495.0
Limit (dB)	34.2	29.6	27.5	26.8
Worst Pair	36	36	36	36
PS NEXT (dB)	10.2	10.1	11.1	10.8
Freq. (MHz)	224.0	310.0	494.0	495.0
Limit (dB)	33.5	30.9	23.9	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	16.6	16.6	17.3	17.3
Freq. (MHz)	242.0	242.0	317.0	317.0
Limit (dB)	16.5	16.5	14.2	14.2
Worst Pair	45	45	45	12
PS ACR-F (dB)	18.7	19.0	21.2	22.4
Freq. (MHz)	275.0	272.0	414.0	482.0
Limit (dB)	12.4	12.5	8.8	7.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	16.3	17.6	39.4	39.6
Freq. (MHz)	21.3	21.3	497.0	495.0
Limit (dB)	44.6	44.6	-16.9	-16.7
Worst Pair	78	36	36	36
PS ACR-N (dB)	18.3	19.1	39.6	39.4
Freq. (MHz)	15.1	21.5	494.0	495.0
Limit (dB)	45.8	42.1	-19.5	-19.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.3	5.5	5.3	5.5
Freq. (MHz)	497.0	500.0	497.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

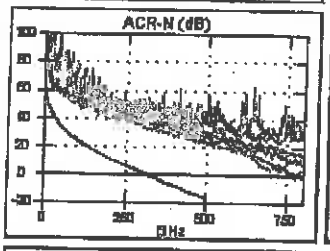


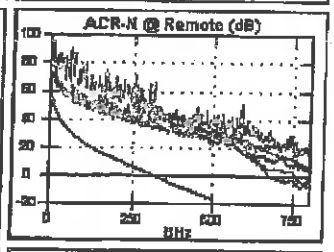


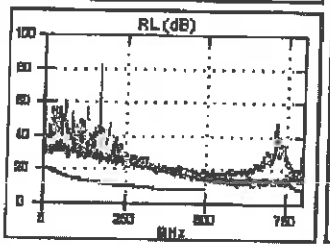


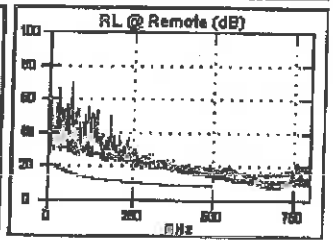












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-39

Test Summary: PASS

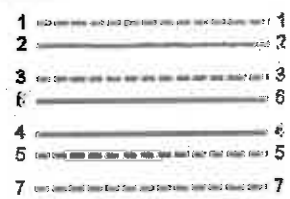
Date / Time: 07/03/2012 04:25:30 PM
Headroom: 6.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/18/2007

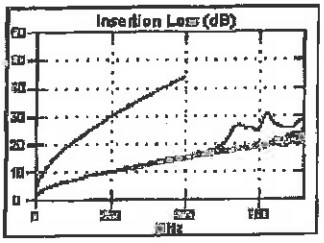
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469069
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 12]	107
Prop. Delay (ns), Limit 498	[Pair 45]	167
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 78]	4.7
Insertion Loss Margin (dB)	[Pair 36]	28.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

Wire Map (T568B)
PASS



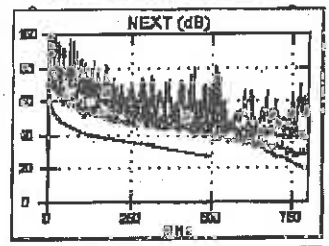


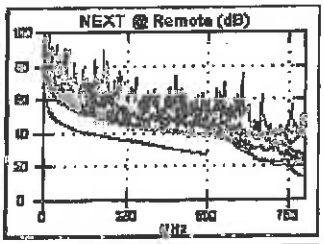
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	8.5	6.7	11.2	9.9
Freq. (MHz)	270.0	271.0	489.0	465.0
Limit (dB)	34.8	34.8	27.0	27.7
Worst Pair	36	36	36	36
PS NEXT (dB)	8.4	7.7	11.4	12.0
Freq. (MHz)	270.0	270.0	484.0	494.0
Limit (dB)	32.1	32.1	24.2	23.9

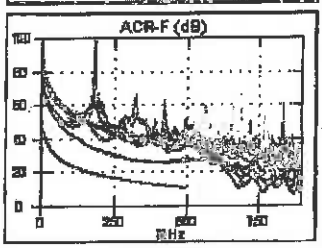
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	12.7	12.6	13.6	13.3
Freq. (MHz)	321.0	364.0	426.0	426.0
Limit (dB)	14.1	13.0	11.6	11.6
Worst Pair	45	36	45	45
PS ACR-F (dB)	15.3	15.1	15.5	15.8
Freq. (MHz)	321.0	321.0	439.0	432.0
Limit (dB)	11.1	11.1	8.3	8.5

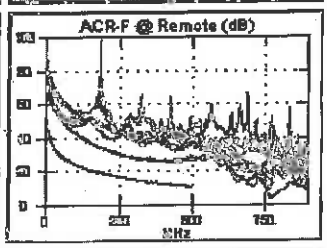
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-45	12-36	36-45
ACR-N (dB)	16.6	16.8	39.4	39.5
Freq. (MHz)	3.4	3.9	489.0	490.0
Limit (dB)	61.7	60.8	-16.2	-16.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.3	16.9	39.5	40.5
Freq. (MHz)	13.5	3.8	484.0	494.0
Limit (dB)	47.0	58.6	-18.7	-19.5

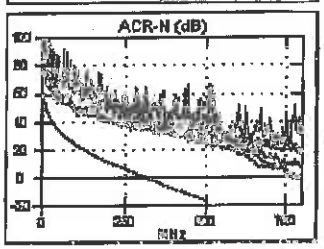
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	6.6	5.0	6.6	5.0
Freq. (MHz)	500.0	486.0	500.0	486.0
Limit (dB)	8.0	8.0	8.0	8.0

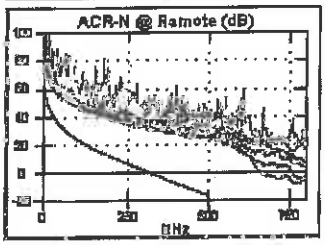


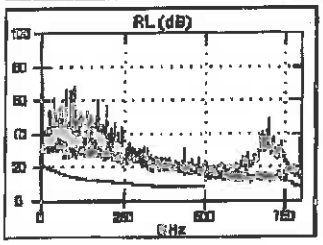


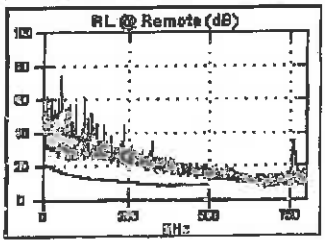












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-40

Date / Time 07/03/2012 04:27:11 PM
Headroom 7.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.9%

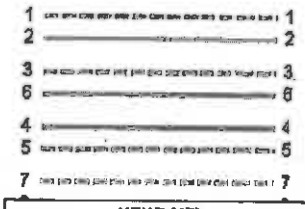
Test Summary: PASS

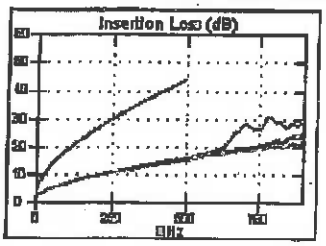
Model: DTX-1800
Main S/N 9469009
Remote S/N 9469016
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	115
Prop. Delay (ns), Limit 498	[Pair 45]	179
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	5.0
Insertion Loss Margin (dB)	[Pair 36]	28.0
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

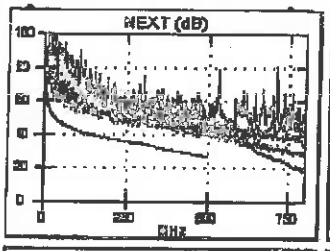
115 ft

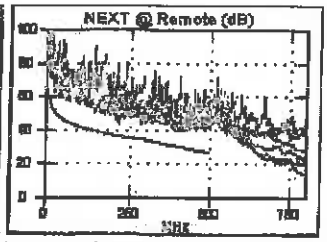
Wire Map (T568B)
PASS

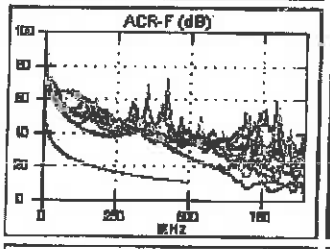


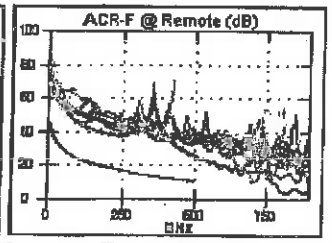


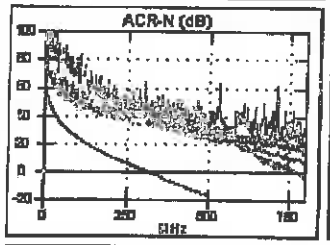
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12-36	36-78	36-78	36-78
NEXT (dB)	9.5	7.4	11.2	9.1
Freq. (MHz)	271.0	218.0	475.0	391.0
Limit (dB)	34.8	36.3	27.4	30.2
Worst Pair	78	36	36	36
PS NEXT (dB)	10.3	9.1	11.4	10.8
Freq. (MHz)	224.5	218.0	469.0	423.0
Limit (dB)	33.5	33.7	24.7	26.3
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	15.6	15.3	15.6	15.5
Freq. (MHz)	486.0	485.0	500.0	500.0
Limit (dB)	10.5	10.5	10.2	10.2
Worst Pair	45	36	45	36
PS ACR-F (dB)	17.1	17.4	17.1	17.4
Freq. (MHz)	486.0	497.0	491.0	498.0
Limit (dB)	7.5	7.3	7.4	7.2
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
ACR-N (dB)	15.7	17.0	40.5	41.0
Freq. (MHz)	5.6	5.5	500.0	483.0
Limit (dB)	57.6	57.8	-17.1	-15.7
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.3	18.0	40.6	40.6
Freq. (MHz)	5.6	5.4	499.0	483.0
Limit (dB)	55.3	55.7	-19.9	-18.6
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	45	12	45
RL (dB)	6.1	5.4	6.1	5.4
Freq. (MHz)	496.0	492.0	496.0	492.0
Limit (dB)	8.0	8.0	8.0	8.0

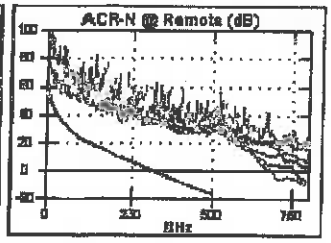


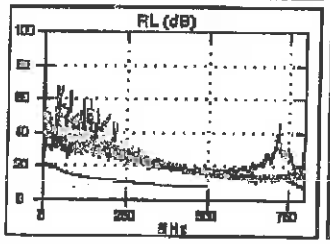


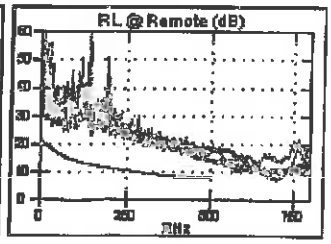












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-41

Test Summary: PASS

Date / Time: 07/03/2012 04:34:04 PM
Headroom: 7.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

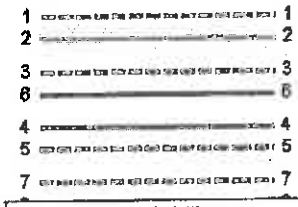
Operator: TYLER
Software Version: 2.6200
Limits Version: 1.7000
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

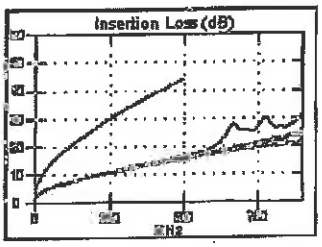
Length (ft), Limit 295	[Pair 12]	115
Prop. Delay (ns), Limit 498	[Pair 45]	178
Delay Skew (ns), Limit 44	[Pair 45]	9
Resistance (ohms)	[Pair 36]	4.9
Insertion Loss Margin (dB)	[Pair 36]	27.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

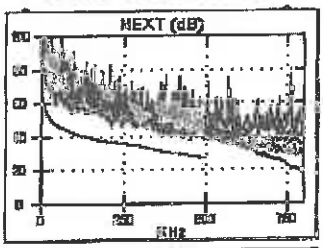
115 ft

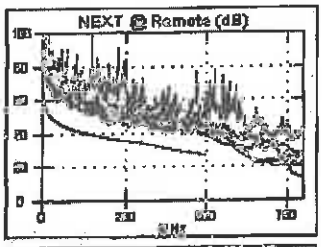
Wire Map (T568B)
PASS

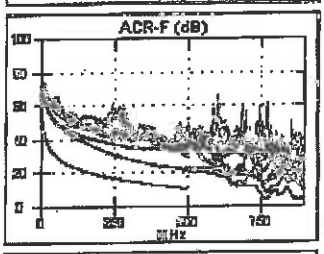


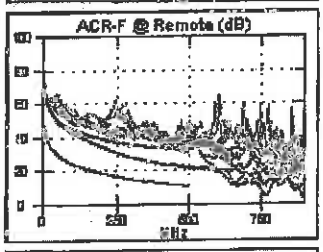
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	9.2	7.7	9.3	11.5
Freq. (MHz)	216.0	378.0	457.0	497.0
Limit (dB)	36.4	30.7	27.9	26.7
Worst Pair	36	36	12	45
PS NEXT (dB)	10.0	8.9	11.7	12.3
Freq. (MHz)	396.0	378.0	498.0	497.0
Limit (dB)	27.2	27.9	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	10.6	10.8	10.6	10.8
Freq. (MHz)	497.0	484.0	498.0	487.0
Limit (dB)	10.3	10.5	10.2	10.4
Worst Pair	36	45	36	45
PS ACR-F (dB)	13.1	13.5	13.1	13.5
Freq. (MHz)	497.0	499.0	498.0	499.0
Limit (dB)	7.3	7.2	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	19.5	19.2	38.6	39.7
Freq. (MHz)	45.8	31.0	498.0	497.0
Limit (dB)	35.4	40.3	-16.9	-16.9
Worst Pair	78	78	36	36
PS ACR-N (dB)	21.0	19.4	39.6	39.5
Freq. (MHz)	19.6	19.3	498.0	485.0
Limit (dB)	43.1	43.3	-19.8	-18.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	78	12	78
RL (dB)	5.8	4.6	5.8	4.6
Freq. (MHz)	488.0	481.0	488.0	481.0
Limit (dB)	8.0	8.0	8.0	8.0

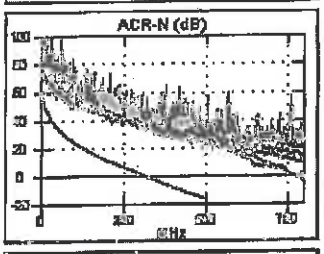


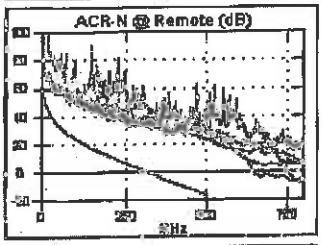


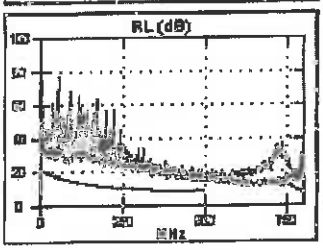


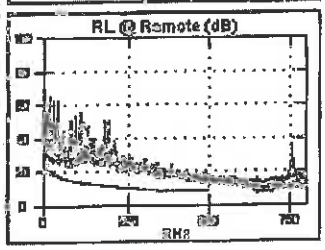












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-42

Date / Time: 07/03/2012 04:37:23 PM
Headroom 6.6 dB (NEXT 12-36)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

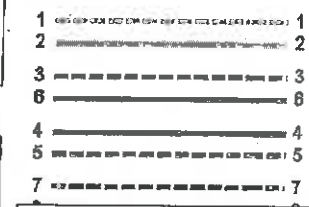
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469069
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

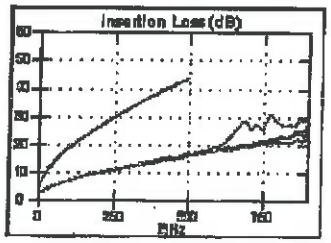
Length (ft), Limit 295	[Pair 12]	119
Prop. Delay (ns), Limit 498	[Pair 45]	186
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	5.2
Insertion Loss Margin (dB)	[Pair 36]	27.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

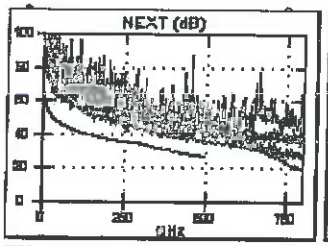
119 ft

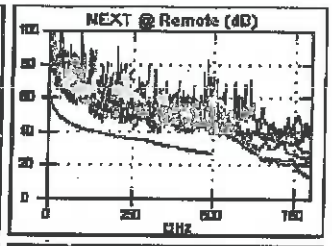
Wire Map (T568B)
PASS

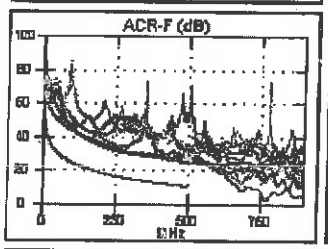


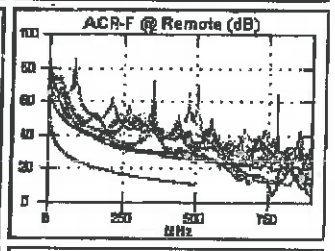
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
NEXT (dB)	6.6	6.7	7.9	11.4
Freq. (MHz)	360.0	321.0	498.0	500.0
Limit (dB)	31.4	33.0	26.7	26.7
Worst Pair	36	36	36	45
PS NEXT (dB)	7.3	7.7	8.5	12.7
Freq. (MHz)	443.0	321.0	499.0	499.0
Limit (dB)	25.6	30.4	23.8	23.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-78	12-78	78-12	12-78
ACR-F (dB)	14.0	13.7	14.2	13.7
Freq. (MHz)	484.0	491.0	498.0	493.0
Limit (dB)	10.5	10.4	10.2	10.3
Worst Pair	78	78	78	78
PS ACR-F (dB)	15.1	15.1	15.1	15.3
Freq. (MHz)	438.0	475.0	482.0	490.0
Limit (dB)	8.4	7.7	7.5	7.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	36-45
ACR-N (dB)	18.0	17.0	35.1	39.1
Freq. (MHz)	3.5	3.5	498.0	500.0
Limit (dB)	61.7	61.7	-16.9	-17.1
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.2	17.6	35.8	39.6
Freq. (MHz)	3.6	3.6	499.0	491.0
Limit (dB)	58.6	58.6	-19.9	-19.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	6.2	4.2	6.2	4.2
Freq. (MHz)	441.0	492.0	441.0	492.0
Limit (dB)	8.0	8.0	8.0	8.0

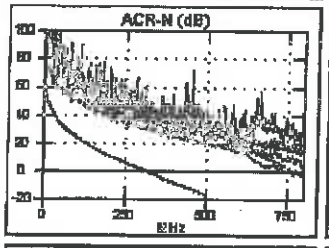


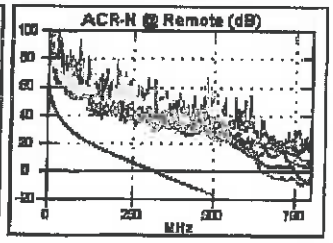


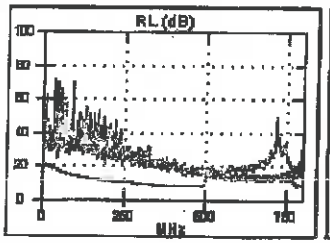


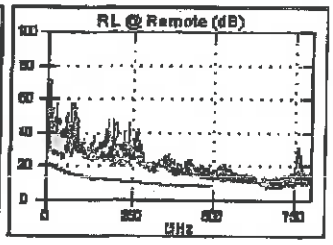












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-43

Date / Time: 07/03/2012 04:38:16 PM
Headroom 7.7 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

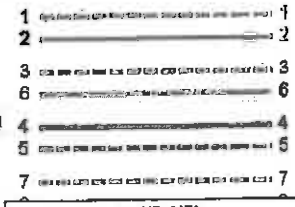
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

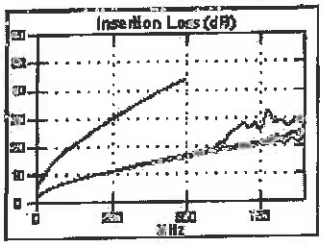
Length (ft), Limit 295	[Pair 12]	118
Prop. Delay (ns), Limit 498	[Pair 45]	185
Delay Skew (ns), Limit 44	[Pair 45]	11
Resistance (ohms)	[Pair 36]	5.1
Insertion Loss Margin (dB)	[Pair 36]	27.5
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

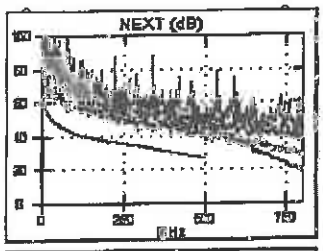
118 ft

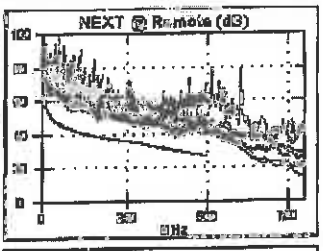
Wire Map (T568B)
PASS

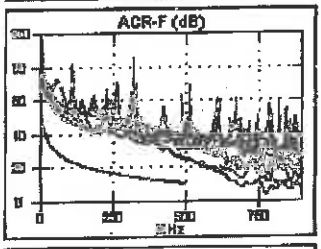


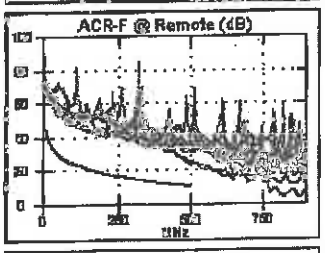
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	9.6	7.7	12.0	7.7
Freq. (MHz)	296.0	404.0	490.0	404.0
Limit (dB)	34.1	29.7	26.9	29.7
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	9.0	13.5	9.0
Freq. (MHz)	296.0	387.0	490.0	405.0
Limit (dB)	31.5	27.6	24.1	26.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	14.0	14.0	14.0	14.0
Freq. (MHz)	496.0	500.0	496.0	500.0
Limit (dB)	10.3	10.2	10.3	10.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	16.4	16.1	16.4	16.1
Freq. (MHz)	498.0	496.0	498.0	498.0
Limit (dB)	7.2	7.3	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	15.2	14.7	39.7	39.7
Freq. (MHz)	19.5	16.3	490.0	491.0
Limit (dB)	45.5	47.5	-16.3	-16.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.5	16.2	40.7	40.0
Freq. (MHz)	16.4	16.3	490.0	494.0
Limit (dB)	45.0	45.1	-19.2	-19.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.9	4.8	5.9	4.8
Freq. (MHz)	496.0	500.0	496.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

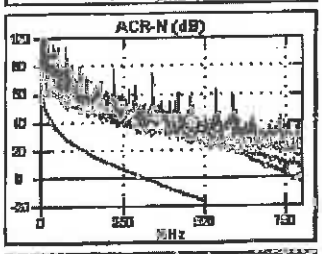


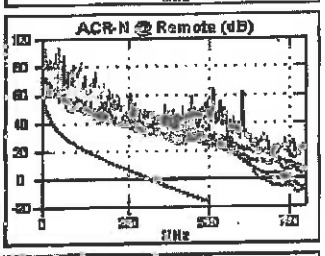


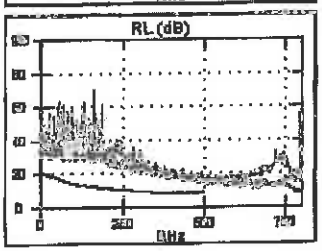


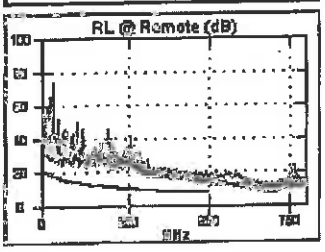












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-44

Date / Time 07/03/2012 04:40:37 PM
Headroom 7.1 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 07/19/2007

Operator TYLER
Software Version 2.5200
Limits Version 1.7000
NVP 69.0%

Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 12]	119
Prop. Delay (ns), Limit 498	[Pair 45]	185
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	5.2
Insertion Loss Margin (dB)	[Pair 36]	27.4
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

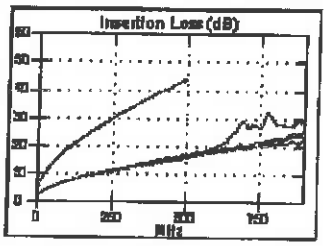
119 ft

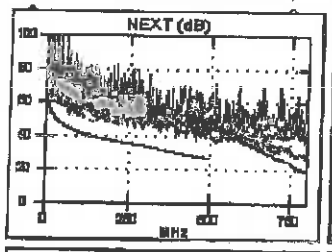
Wire Map (T568B)
PASS

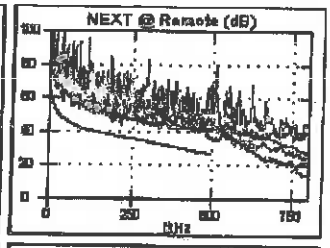
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	36-78	36-78
NEXT (dB)	8.3	7.1	10.0	8.2
Freq. (MHz)	72.5	219.0	457.0	496.0
Limit (dB)	44.1	36.3	27.9	26.8
Worst Pair	36	36	78	36
PS NEXT (dB)	9.8	8.5	12.2	9.9
Freq. (MHz)	72.3	219.0	458.0	496.0
Limit (dB)	41.6	33.7	25.1	23.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-78	78-36
ACR-F (dB)	14.0	14.0	14.8	14.0
Freq. (MHz)	186.5	186.5	493.0	490.0
Limit (dB)	18.8	18.8	10.3	10.4
Worst Pair	36	36	78	36
PS ACR-F (dB)	14.8	14.8	16.5	16.5
Freq. (MHz)	157.0	168.5	499.0	496.0
Limit (dB)	17.3	16.7	7.2	7.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-78	36-78
ACR-N (dB)	14.3	13.5	36.6	36.1
Freq. (MHz)	4.6	4.4	457.0	496.0
Limit (dB)	59.3	59.8	-13.6	-16.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.0	14.6	40.8	37.1
Freq. (MHz)	4.1	4.1	488.0	496.0
Limit (dB)	58.0	58.0	-19.0	-19.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	5.7	4.2	5.7	4.2
Freq. (MHz)	461.0	485.0	461.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

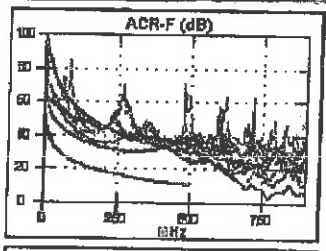
Compliant Network Standards:

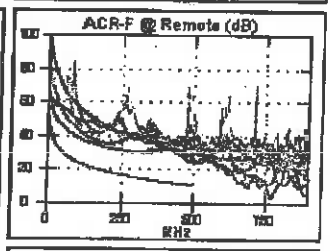
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

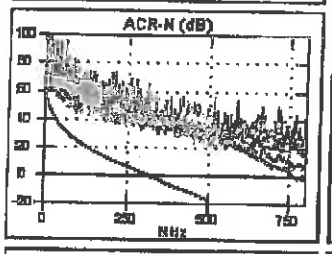


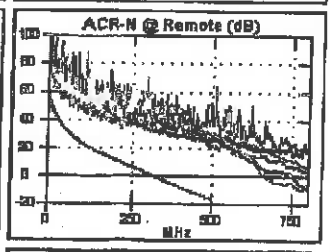


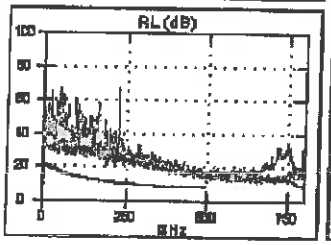


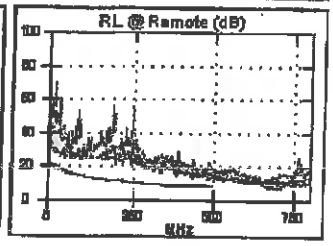












LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-45

Date / Time: 07/03/2012 04:41:48 PM
Headroom 7.6 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

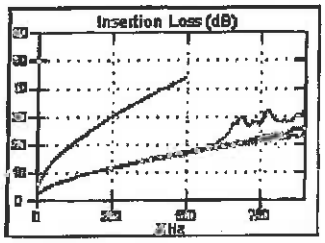
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7000
NVP: 69.0%

Test Summary: PASS

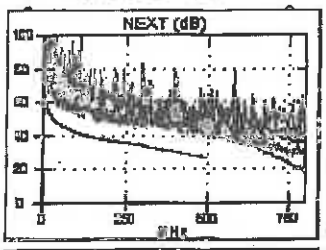
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

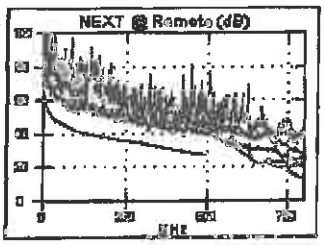
Length (ft), Limit 295	[Pair 12]	123
Prop. Delay (ns), Limit 498	[Pair 45]	192
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	5.2
Insertion Loss Margin (dB)	[Pair 36]	26.8
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

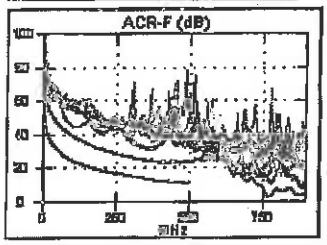
Wire Map (T568B)
PASS

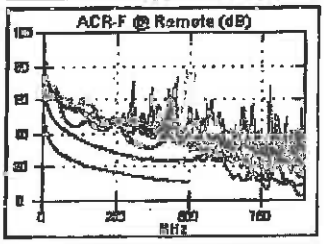


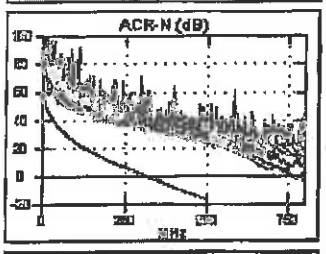
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	9.2	7.8	13.1	9.1
Freq. (MHz)	45.3	323.0	495.0	429.0
Limit (dB)	47.4	32.9	26.8	28.9
Worst Pair	36	36	36	36
PS NEXT (dB)	10.7	8.9	13.6	9.8
Freq. (MHz)	221.0	323.0	498.0	429.0
Limit (dB)	33.6	30.3	23.8	26.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	10.6	10.5	11.5	11.3
Freq. (MHz)	364.0	347.0	472.0	472.0
Limit (dB)	13.0	13.4	10.7	10.7
Worst Pair	36	36	45	36
PS ACR-F (dB)	13.0	12.9	14.0	14.3
Freq. (MHz)	355.0	364.0	472.0	471.0
Limit (dB)	10.2	10.0	7.7	7.7
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	13.2	14.0	39.7	39.2
Freq. (MHz)	5.4	5.3	495.0	498.0
Limit (dB)	58.0	58.2	-16.7	-16.9
Worst Pair	78	78	36	36
PS ACR-N (dB)	14.4	14.8	40.2	40.1
Freq. (MHz)	5.3	5.3	498.0	500.0
Limit (dB)	55.9	55.9	-19.8	-20.0
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36	45	36	45
RL (dB)	6.3	3.2	6.3	3.2
Freq. (MHz)	488.0	485.0	488.0	485.0
Limit (dB)	8.0	8.0	8.0	8.0

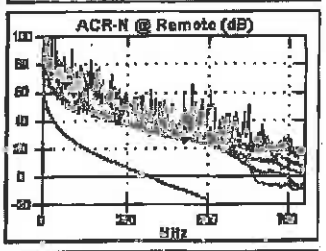


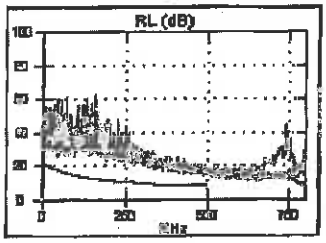


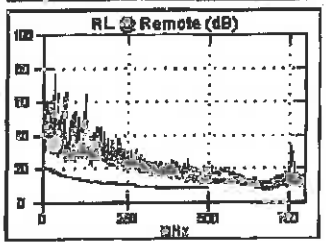












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

Project: MARTINSBURG DMV
martinsburg_dmv_(dad)a.flw

Site: MARTINSBURG/DMV

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTB-R1-C-46

Test Summary: PASS

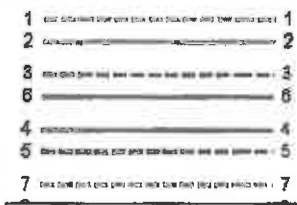
Date / Time 07/03/2012 04:42:40 PM
Headroom 6.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type Cat 6 UTP
Calibration Date 07/19/2007

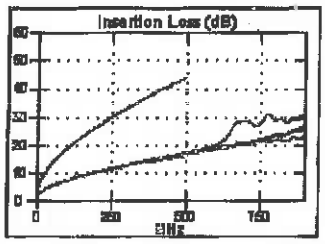
Operator. TYLER
Software Version. 2.5200
Limits Version 1.7000
NVP 69.0%

Model DTX-1800
Main S/N 9469069
Remote S/N 9469918
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

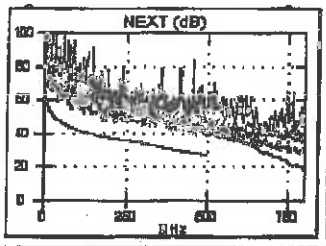
Length (ft), Limit 295	[Pair 12]	123
Prop. Delay (ns), Limit 498	[Pair 45]	192
Delay Skew (ns), Limit 44	[Pair 45]	10
Resistance (ohms)	[Pair 36]	5.2
Insertion Loss Margin (dB)	[Pair 36]	26.9
Frequency (MHz)	[Pair 36]	500.0
Limit (dB)	[Pair 36]	43.8

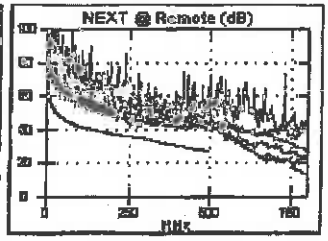
Wire Map (T568B)
PASS

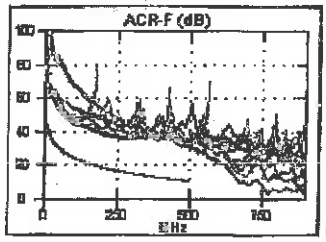


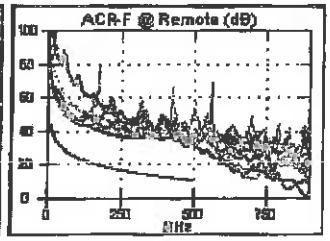


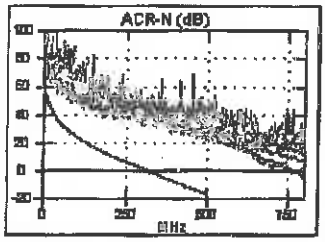
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	9.9	6.4	11.2	12.2
Freq. (MHz)	179.0	282.0	469.0	489.0
Limit (dB)	37.7	34.5	27.6	27.0
Worst Pair	78	36	36	36
PS NEXT (dB)	10.8	7.7	12.0	12.3
Freq. (MHz)	187.5	282.0	500.0	489.0
Limit (dB)	34.8	31.8	23.8	24.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	45-36
ACR-F (dB)	19.7	19.7	20.1	20.1
Freq. (MHz)	200.0	254.0	500.0	495.0
Limit (dB)	18.2	16.1	10.2	10.3
Worst Pair	36	36	36	45
PS ACR-F (dB)	19.5	20.7	19.5	20.9
Freq. (MHz)	499.0	486.0	499.0	499.0
Limit (dB)	7.2	7.5	7.2	7.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	12-36	36-78
ACR-N (dB)	16.1	17.5	38.9	39.2
Freq. (MHz)	13.3	16.0	499.0	489.0
Limit (dB)	49.5	47.6	-17.0	-16.2
Worst Pair	78	78	36	36
PS ACR-N (dB)	16.9	17.0	38.9	38.7
Freq. (MHz)	13.3	13.3	500.0	489.0
Limit (dB)	47.2	47.2	-20.0	-19.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	6.8	4.5	6.8	4.5
Freq. (MHz)	500.0	500.0	500.0	500.0
Limit (dB)	8.0	8.0	8.0	8.0

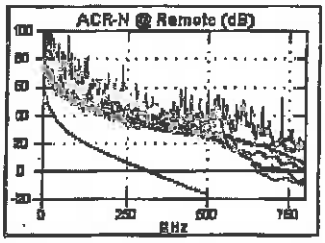


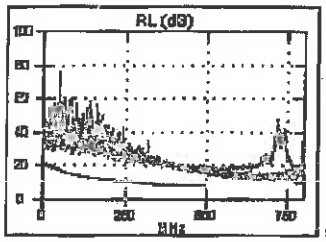


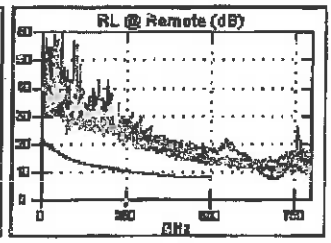












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DMV-MTE-R1-C-47

Date / Time: 07/03/2012 04:44:10 PM
Headroom: 7.0 dB (NEXT 36-78)
Test Limit: TIA Cat 6A Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 07/19/2007

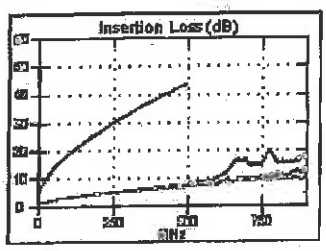
Operator: TYLER
Software Version: 2.5200
Limits Version: 1.7600
NVP: 69.0%

Test Summary: PASS

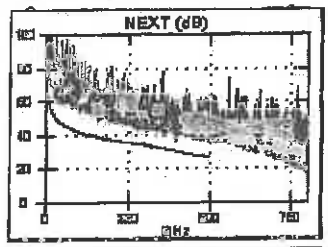
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469019
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

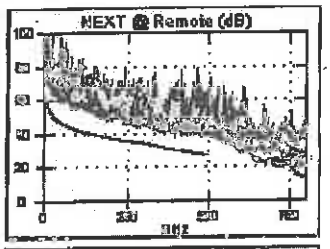
Length (ft), Limit 295	[Pair 12]	47
Prop. Delay (ns), Limit 498	[Pair 45]	73
Delay Skew (ns), Limit 44	[Pair 45]	4
Resistance (ohms)	[Pair 36]	2.1
Insertion Loss Margin (dB)	[Pair 36]	36.3
Frequency (MHz)	[Pair 36]	499.0
Limit (dB)	[Pair 36]	43.7

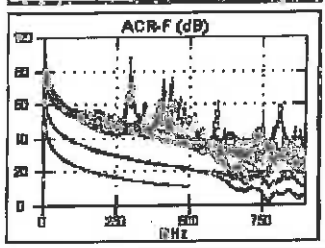
Wire Map (T568B)
PASS

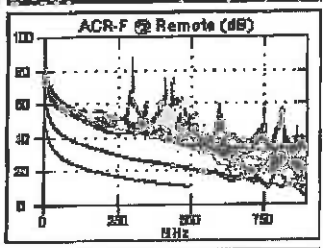


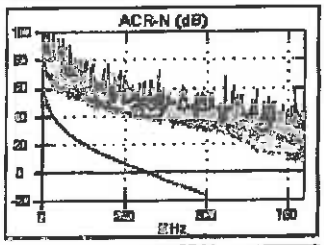
	Worst Case Margin		Worst Case Value	
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
NEXT (dB)	7.0	7.8	9.1	10.0
Freq. (MHz)	398.0	396.0	499.0	479.0
Limit (dB)	29.9	30.0	26.7	27.3
Worst Pair	36	36	36	36
PS NEXT (dB)	7.8	9.1	9.9	11.3
Freq. (MHz)	279.0	353.0	498.0	477.0
Limit (dB)	31.9	29.0	23.8	24.5
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	45-36	45-36	45-36	45-36
ACR-F (dB)	10.4	10.3	10.4	10.3
Freq. (MHz)	474.0	495.0	496.0	495.0
Limit (dB)	10.7	10.3	10.3	10.3
Worst Pair	36	45	36	45
PS ACR-F (dB)	13.3	13.3	13.3	13.3
Freq. (MHz)	474.0	474.0	496.0	494.0
Limit (dB)	7.7	7.7	7.3	7.3
N/A	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	17.5	17.8	45.4	45.9
Freq. (MHz)	6.3	6.3	499.0	479.0
Limit (dB)	56.7	56.7	-17.0	-15.4
Worst Pair	78	36	36	36
PS ACR-N (dB)	18.6	19.1	46.1	46.6
Freq. (MHz)	6.6	5.3	498.0	477.0
Limit (dB)	53.8	55.9	-19.8	-18.1
PASS	**MAIN**	**SR**	**MAIN**	**SR**
Worst Pair	12	12	12	12
RL (dB)	4.5	3.5	4.5	3.5
Freq. (MHz)	499.0	498.0	499.0	498.0
Limit (dB)	8.0	8.0	8.0	8.0

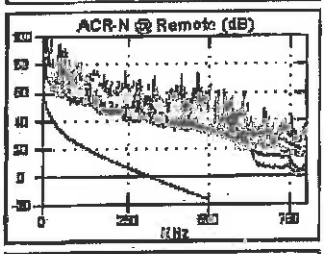


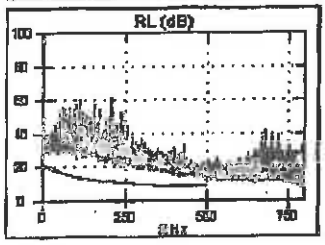


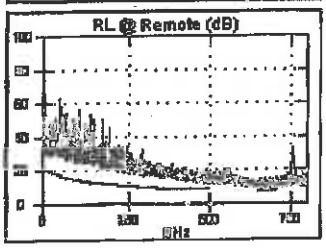












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	10GBASE-T	ATM-25
ATM-51	ATM-155	100VG-AnyLan
TR-4	TR-16 Active	TR-16 Passive

LinkWare Version 7.2

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID	Summary	Test Limit	Length	Headroom	Date / Time:
DMV-MTB-R1-A-01	PASS	TIA Cat 6A Perm. Link	38 ft	6.1 dB (NEXT)	07/03/2012 04:57 PM
DMV-MTB-R1-A-02	PASS	TIA Cat 6A Perm. Link	38 ft	5.9 dB (NEXT)	07/03/2012 04:59 PM
DMV-MTB-R1-A-03	PASS	TIA Cat 6A Perm. Link	40 ft	6.8 dB (NEXT)	07/03/2012 05:05 PM
DMV-MTB-R1-A-04	PASS	TIA Cat 6A Perm. Link	40 ft	6.5 dB (NEXT)	07/03/2012 05:08 PM
DMV-MTB-R1-A-17	PASS	TIA Cat 6A Perm. Link	56 ft	7.2 dB (NEXT)	07/03/2012 12:32 AM
DMV-MTB-R1-A-18	PASS	TIA Cat 6A Perm. Link	56 ft	7.8 dB (NEXT)	07/03/2012 12:40 AM
DMV-MTB-R1-A-19	PASS	TIA Cat 6A Perm. Link	58 ft	7.0 dB (NEXT)	07/03/2012 11:59 AM
DMV-MTB-R1-A-20	PASS	TIA Cat 6A Perm. Link	58 ft	6.7 dB (NEXT)	07/03/2012 12:01 PM
DMV-MTB-R1-A-21	PASS	TIA Cat 6A Perm. Link	67 ft	8.2 dB (NEXT)	07/03/2012 12:02 PM
DMV-MTB-R1-A-22	PASS	TIA Cat 6A Perm. Link	67 ft	7.5 dB (NEXT)	07/03/2012 12:03 PM
DMV-MTB-R1-A-23	PASS	TIA Cat 6A Perm. Link	73 ft	7.9 dB (NEXT)	07/03/2012 12:05 PM
DMV-MTB-R1-A-24	PASS	TIA Cat 6A Perm. Link	73 ft	8.8 dB (NEXT)	07/03/2012 12:05 PM
DMV-MTB-R1-A-25	PASS	TIA Cat 6A Perm. Link	80 ft	8.9 dB (NEXT)	07/03/2012 12:37 PM
DMV-MTB-R1-A-26	PASS	TIA Cat 6A Perm. Link	81 ft	7.6 dB (NEXT)	07/03/2012 12:37 PM
DMV-MTB-R1-A-27	PASS	TIA Cat 6A Perm. Link	73 ft	7.3 dB (NEXT)	07/03/2012 12:39 PM
DMV-MTB-R1-A-28	PASS	TIA Cat 6A Perm. Link	73 ft	8.0 dB (NEXT)	07/03/2012 12:39 PM
DMV-MTB-R1-A-29	PASS	TIA Cat 6A Perm. Link	75 ft	7.6 dB (NEXT)	07/03/2012 12:40 PM
DMV-MTB-R1-A-30	PASS	TIA Cat 6A Perm. Link	75 ft	9.2 dB (NEXT)	07/03/2012 12:41 PM
DMV-MTB-R1-A-31	PASS	TIA Cat 6A Perm. Link	78 ft	7.9 dB (NEXT)	07/03/2012 12:42 PM
DMV-MTB-R1-A-32	PASS	TIA Cat 6A Perm. Link	78 ft	8.3 dB (NEXT)	07/03/2012 12:42 PM
DMV-MTB-R1-A-33	PASS	TIA Cat 6A Perm. Link	88 ft	8.2 dB (NEXT)	07/03/2012 12:43 PM
DMV-MTB-R1-A-34	PASS	TIA Cat 6A Perm. Link	88 ft	7.8 dB (NEXT)	07/03/2012 12:44 PM
DMV-MTB-R1-A-35	PASS	TIA Cat 6A Perm. Link	85 ft	7.8 dB (NEXT)	07/03/2012 12:45 PM
DMV-MTB-R1-A-36	PASS	TIA Cat 6A Perm. Link	85 ft	10.3 dB (NEXT)	07/03/2012 12:46 PM
DMV-MTB-R1-A-37	PASS	TIA Cat 6A Perm. Link	86 ft	8.7 dB (NEXT)	07/03/2012 12:47 PM
DMV-MTB-R1-A-38	PASS	TIA Cat 6A Perm. Link	86 ft	4.1 dB (NEXT)	07/03/2012 12:48 PM
DMV-MTB-R1-A-39	PASS	TIA Cat 6A Perm. Link	93 ft	8.6 dB (NEXT)	07/03/2012 12:48 PM
DMV-MTB-R1-A-40	PASS	TIA Cat 6A Perm. Link	93 ft	7.9 dB (NEXT)	07/03/2012 12:49 PM
DMV-MTB-R1-A-41	PASS	TIA Cat 6A Perm. Link	93 ft	7.5 dB (NEXT)	07/03/2012 12:50 PM
DMV-MTB-R1-A-42	PASS	TIA Cat 6A Perm. Link	93 ft	7.6 dB (NEXT)	07/03/2012 12:50 PM
DMV-MTB-R1-A-43	PASS	TIA Cat 6A Perm. Link	97 ft	8.0 dB (NEXT)	07/03/2012 12:51 PM
DMV-MTB-R1-A-44	PASS	TIA Cat 6A Perm. Link	97 ft	7.7 dB (NEXT)	07/03/2012 12:51 PM
DMV-MTB-R1-A-45	PASS	TIA Cat 6A Perm. Link	100 ft	8.8 dB (NEXT)	07/03/2012 12:52 PM
DMV-MTB-R1-A-46	PASS	TIA Cat 6A Perm. Link	100 ft	5.9 dB (NEXT)	07/03/2012 12:53 PM
DMV-MTB-R1-A-47	PASS	TIA Cat 6A Perm. Link	100 ft	9.1 dB (NEXT)	07/03/2012 12:54 PM
DMV-MTB-R1-A-48	PASS	TIA Cat 6A Perm. Link	100 ft	8.7 dB (NEXT)	07/03/2012 12:54 PM
DMV-MTB-R1-B-01	PASS	TIA Cat 6A Perm. Link	108 ft	8.2 dB (NEXT)	07/03/2012 12:55 PM
DMV-MTB-R1-B-02	PASS	TIA Cat 6A Perm. Link	108 ft	8.9 dB (NEXT)	07/03/2012 12:57 PM
DMV-MTB-R1-B-03	PASS	TIA Cat 6A Perm. Link	113 ft	8.1 dB (NEXT)	07/03/2012 12:58 PM
DMV-MTB-R1-B-04	PASS	TIA Cat 6A Perm. Link	112 ft	8.1 dB (NEXT)	07/03/2012 12:58 PM
DMV-MTB-R1-B-05	PASS	TIA Cat 6A Perm. Link	107 ft	8.9 dB (NEXT)	07/03/2012 12:59 PM
DMV-MTB-R1-B-06	PASS	TIA Cat 6A Perm. Link	108 ft	7.6 dB (NEXT)	07/03/2012 01:00 PM
DMV-MTB-R1-B-07	PASS	TIA Cat 6A Perm. Link	112 ft	7.2 dB (NEXT)	07/03/2012 01:00 PM
DMV-MTB-R1-B-08	PASS	TIA Cat 6A Perm. Link	111 ft	8.2 dB (NEXT)	07/03/2012 01:01 PM
DMV-MTB-R1-B-09	PASS	TIA Cat 6A Perm. Link	112 ft	8.3 dB (NEXT)	07/03/2012 01:02 PM
DMV-MTB-R1-B-10	PASS	TIA Cat 6A Perm. Link	139 ft	7.2 dB (NEXT)	07/03/2012 01:02 PM
DMV-MTB-R1-B-11	PASS	TIA Cat 6A Perm. Link	139 ft	8.2 dB (NEXT)	07/03/2012 01:03 PM
DMV-MTB-R1-B-12	PASS	TIA Cat 6A Perm. Link	158 ft	8.9 dB (NEXT)	07/03/2012 01:05 PM
DMV-MTB-R1-B-13	PASS	TIA Cat 6A Perm. Link	158 ft	7.4 dB (NEXT)	07/03/2012 01:05 PM
DMV-MTB-R1-B-14	PASS	TIA Cat 6A Perm. Link	155 ft	6.6 dB (NEXT)	07/03/2012 01:06 PM
DMV-MTB-R1-B-15	PASS	TIA Cat 6A Perm. Link	155 ft	8.7 dB (NEXT)	07/03/2012 01:07 PM
DMV-MTB-R1-B-16	PASS	TIA Cat 6A Perm. Link	138 ft	8.5 dB (NEXT)	07/03/2012 01:09 PM
DMV-MTB-R1-B-17	PASS	TIA Cat 6A Perm. Link	138 ft	8.4 dB (NEXT)	07/03/2012 01:09 PM
DMV-MTB-R1-B-18	PASS	TIA Cat 6A Perm. Link	167 ft	7.0 dB (NEXT)	07/03/2012 01:13 PM
DMV-MTB-R1-B-19	PASS	TIA Cat 6A Perm. Link	166 ft	6.5 dB (NEXT)	07/03/2012 01:14 PM
DMV-MTB-R1-B-20	PASS	TIA Cat 6A Perm. Link	175 ft	7.1 dB (NEXT)	07/03/2012 01:14 PM
DMV-MTB-R1-B-21	PASS	TIA Cat 6A Perm. Link	176 ft	8.2 dB (NEXT)	07/03/2012 01:15 PM
DMV-MTB-R1-B-22	PASS	TIA Cat 6A Perm. Link	170 ft	8.3 dB (NEXT)	07/03/2012 01:15 PM
DMV-MTB-R1-B-23	PASS	TIA Cat 6A Perm. Link	170 ft	8.2 dB (NEXT)	07/03/2012 01:16 PM
DMV-MTB-R1-B-24	PASS	TIA Cat 6A Perm. Link	185 ft	7.3 dB (NEXT)	07/03/2012 01:17 PM

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID	Summary	Test Limit	Length	Headroom	Date / Time:
DMV-MTB-R1-B-25	PASS	TIA Cat 6A Perm. Link	187 ft	6.6 dB (NEXT)	07/03/2012 01:17 PM
DMV-MTB-R1-B-26	PASS	TIA Cat 6A Perm. Link	193 ft	6.9 dB (NEXT)	07/03/2012 01:18 PM
DMV-MTB-R1-B-27	PASS	TIA Cat 6A Perm. Link	194 ft	8.0 dB (NEXT)	07/03/2012 01:18 PM
DMV-MTB-R1-B-28	PASS	TIA Cat 6A Perm. Link	158 ft	7.3 dB (NEXT)	07/03/2012 01:19 PM
DMV-MTB-R1-B-29	PASS	TIA Cat 6A Perm. Link	158 ft	7.3 dB (NEXT)	07/03/2012 01:20 PM
DMV-MTB-R1-B-30	PASS	TIA Cat 6A Perm. Link	187 ft	7.4 dB (NEXT)	07/03/2012 01:20 PM
DMV-MTB-R1-B-31	PASS	TIA Cat 6A Perm. Link	189 ft	7.5 dB (NEXT)	07/03/2012 01:22 PM
DMV-MTB-R1-B-32	PASS	TIA Cat 6A Perm. Link	206 ft	8.3 dB (NEXT)	07/03/2012 01:23 PM
DMV-MTB-R1-B-33	PASS	TIA Cat 6A Perm. Link	204 ft	8.3 dB (NEXT)	07/03/2012 01:23 PM
DMV-MTB-R1-B-34	PASS	TIA Cat 6A Perm. Link	197 ft	5.0 dB (NEXT)	07/03/2012 01:40 PM
DMV-MTB-R1-B-35	PASS	TIA Cat 6A Perm. Link	197 ft	8.4 dB (NEXT)	07/03/2012 01:41 PM
DMV-MTB-R1-B-36	PASS	TIA Cat 6A Perm. Link	202 ft	5.3 dB (NEXT)	07/03/2012 01:41 PM
DMV-MTB-R1-B-37	PASS	TIA Cat 6A Perm. Link	197 ft	6.6 dB (NEXT)	07/03/2012 01:42 PM
DMV-MTB-R1-B-38	PASS	TIA Cat 6A Perm. Link	200 ft	6.8 dB (NEXT)	07/03/2012 01:46 PM
DMV-MTB-R1-B-39	PASS	TIA Cat 6A Perm. Link	189 ft	8.3 dB (NEXT)	07/03/2012 01:50 PM
DMV-MTB-R1-B-40	PASS	TIA Cat 6A Perm. Link	178 ft	5.0 dB (NEXT)	07/03/2012 01:51 PM
DMV-MTB-R1-B-41	PASS	TIA Cat 6A Perm. Link	111 ft	8.7 dB (NEXT)	07/03/2012 01:51 PM
DMV-MTB-R1-B-42	PASS	TIA Cat 6A Perm. Link	111 ft	7.1 dB (NEXT)	07/03/2012 01:58 PM
DMV-MTB-R1-B-43	PASS	TIA Cat 6A Perm. Link	130 ft	5.9 dB (NEXT)	07/03/2012 01:59 PM
DMV-MTB-R1-B-44	PASS	TIA Cat 6A Perm. Link	130 ft	6.5 dB (NEXT)	07/03/2012 02:01 PM
DMV-MTB-R1-B-45	PASS	TIA Cat 6A Perm. Link	141 ft	8.7 dB (NEXT)	07/03/2012 02:02 PM
DMV-MTB-R1-B-46	PASS	TIA Cat 6A Perm. Link	142 ft	8.9 dB (NEXT)	07/03/2012 02:02 PM
DMV-MTB-R1-B-47	PASS	TIA Cat 6A Perm. Link	143 ft	6.8 dB (NEXT)	07/03/2012 02:03 PM
DMV-MTB-R1-B-48	PASS	TIA Cat 6A Perm. Link	143 ft	7.6 dB (NEXT)	07/03/2012 02:03 PM
DMV-MTB-R1-C-01	PASS	TIA Cat 6A Perm. Link	118 ft	8.4 dB (NEXT)	07/03/2012 02:04 PM
DMV-MTB-R1-C-02	PASS	TIA Cat 6A Perm. Link	118 ft	7.9 dB (NEXT)	07/03/2012 02:04 PM
DMV-MTB-R1-C-03	PASS	TIA Cat 6A Perm. Link	111 ft	8.2 dB (NEXT)	07/03/2012 02:06 PM
DMV-MTB-R1-C-04	PASS	TIA Cat 6A Perm. Link	111 ft	8.0 dB (NEXT)	07/03/2012 02:27 PM
DMV-MTB-R1-C-05	PASS	TIA Cat 6A Perm. Link	132 ft	8.2 dB (NEXT)	07/03/2012 02:28 PM
DMV-MTB-R1-C-06	PASS	TIA Cat 6A Perm. Link	132 ft	8.2 dB (NEXT)	07/03/2012 02:30 PM
DMV-MTB-R1-C-07	PASS	TIA Cat 6A Perm. Link	118 ft	8.4 dB (NEXT)	07/03/2012 02:35 PM
DMV-MTB-R1-C-08	PASS	TIA Cat 6A Perm. Link	118 ft	7.3 dB (NEXT)	07/03/2012 02:37 PM
DMV-MTB-R1-C-09	PASS	TIA Cat 6A Perm. Link	111 ft	9.4 dB (NEXT)	07/03/2012 02:40 PM
DMV-MTB-R1-C-10	PASS	TIA Cat 6A Perm. Link	111 ft	7.1 dB (NEXT)	07/03/2012 02:45 PM
DMV-MTB-R1-C-11	PASS	TIA Cat 6A Perm. Link	105 ft	7.5 dB (NEXT)	07/03/2012 03:03 PM
DMV-MTB-R1-C-12	PASS	TIA Cat 6A Perm. Link	105 ft	7.6 dB (NEXT)	07/03/2012 03:05 PM
DMV-MTB-R1-C-13	PASS	TIA Cat 6A Perm. Link	73 ft	8.3 dB (NEXT)	07/03/2012 03:07 PM
DMV-MTB-R1-C-14	PASS	TIA Cat 6A Perm. Link	73 ft	8.8 dB (NEXT)	07/03/2012 03:07 PM
DMV-MTB-R1-C-15	PASS	TIA Cat 6A Perm. Link	81 ft	6.4 dB (NEXT)	07/03/2012 03:12 PM
DMV-MTB-R1-C-16	PASS	TIA Cat 6A Perm. Link	81 ft	9.1 dB (NEXT)	07/03/2012 03:13 PM
DMV-MTB-R1-C-17	PASS	TIA Cat 6A Perm. Link	91 ft	5.9 dB (NEXT)	07/03/2012 03:15 PM
DMV-MTB-R1-C-18	PASS	TIA Cat 6A Perm. Link	91 ft	5.7 dB (NEXT)	07/03/2012 03:16 PM
DMV-MTB-R1-C-19	PASS	TIA Cat 6A Perm. Link	79 ft	5.5 dB (NEXT)	07/03/2012 03:17 PM
DMV-MTB-R1-C-20	PASS	TIA Cat 6A Perm. Link	79 ft	7.9 dB (NEXT)	07/03/2012 03:17 PM
DMV-MTB-R1-C-21	PASS	TIA Cat 6A Perm. Link	75 ft	7.2 dB (NEXT)	07/03/2012 03:18 PM
DMV-MTB-R1-C-22	PASS	TIA Cat 6A Perm. Link	76 ft	8.7 dB (NEXT)	07/03/2012 03:19 PM
DMV-MTB-R1-C-23	PASS	TIA Cat 6A Perm. Link	73 ft	7.8 dB (NEXT)	07/03/2012 03:20 PM
DMV-MTB-R1-C-24	PASS	TIA Cat 6A Perm. Link	74 ft	6.3 dB (NEXT)	07/03/2012 03:23 PM
DMV-MTB-R1-C-25	PASS	TIA Cat 6A Perm. Link	64 ft	8.4 dB (NEXT)	07/03/2012 03:43 PM
DMV-MTB-R1-C-26	PASS	TIA Cat 6A Perm. Link	64 ft	5.5 dB (NEXT)	07/03/2012 03:44 PM
DMV-MTB-R1-C-27	PASS	TIA Cat 6A Perm. Link	69 ft	7.5 dB (NEXT)	07/03/2012 03:45 PM
DMV-MTB-R1-C-28	PASS	TIA Cat 6A Perm. Link	69 ft	7.2 dB (NEXT)	07/03/2012 03:46 PM
DMV-MTB-R1-C-29	PASS	TIA Cat 6A Perm. Link	80 ft	6.5 dB (NEXT)	07/03/2012 03:47 PM
DMV-MTB-R1-C-30	PASS	TIA Cat 6A Perm. Link	81 ft	8.3 dB (NEXT)	07/03/2012 03:52 PM
DMV-MTB-R1-C-31	PASS	TIA Cat 6A Perm. Link	88 ft	8.8 dB (NEXT)	07/03/2012 03:54 PM
DMV-MTB-R1-C-32	PASS	TIA Cat 6A Perm. Link	90 ft	7.8 dB (NEXT)	07/03/2012 03:55 PM
DMV-MTB-R1-C-33	PASS	TIA Cat 6A Perm. Link	90 ft	8.0 dB (NEXT)	07/03/2012 03:57 PM
DMV-MTB-R1-C-34	PASS	TIA Cat 6A Perm. Link	93 ft	8.6 dB (NEXT)	07/03/2012 03:59 PM
DMV-MTB-R1-C-35	PASS	TIA Cat 6A Perm. Link	93 ft	5.7 dB (NEXT)	07/03/2012 04:01 PM
DMV-MTB-R1-C-36	PASS	TIA Cat 6A Perm. Link	100 ft	8.1 dB (NEXT)	07/03/2012 04:04 PM

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID	Summary	Test Limit	Length	Headroom	Date / Time:
DMV-MTB-R1-C-37	PASS	TIA Cat 6A Perm. Link	100 ft	6.8 dB (NEXT)	07/03/2012 04:06 PM
DMV-MTB-R1-C-38	PASS	TIA Cat 6A Perm. Link	108 ft	9.0 dB (NEXT)	07/03/2012 04:22 PM
DMV-MTB-R1-C-39	PASS	TIA Cat 6A Perm. Link	107 ft	6.7 dB (NEXT)	07/03/2012 04:25 PM
DMV-MTB-R1-C-40	PASS	TIA Cat 6A Perm. Link	115 ft	7.4 dB (NEXT)	07/03/2012 04:27 PM
DMV-MTB-R1-C-41	PASS	TIA Cat 6A Perm. Link	115 ft	7.7 dB (NEXT)	07/03/2012 04:34 PM
DMV-MTB-R1-C-42	PASS	TIA Cat 6A Perm. Link	119 ft	6.6 dB (NEXT)	07/03/2012 04:37 PM
DMV-MTB-R1-C-43	PASS	TIA Cat 6A Perm. Link	118 ft	7.7 dB (NEXT)	07/03/2012 04:38 PM
DMV-MTB-R1-C-44	PASS	TIA Cat 6A Perm. Link	119 ft	7.1 dB (NEXT)	07/03/2012 04:40 PM
DMV-MTB-R1-C-45	PASS	TIA Cat 6A Perm. Link	124 ft	7.8 dB (NEXT)	07/03/2012 04:41 PM
DMV-MTB-R1-C-46	PASS	TIA Cat 6A Perm. Link	124 ft	6.4 dB (NEXT)	07/03/2012 04:42 PM
DMV-MTB-R1-C-47	PASS	TIA Cat 6A Perm. Link	47 ft	7.0 dB (NEXT)	07/03/2012 04:44 PM

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Total Length:	14741 ft
Number of Reports:	131
Number of Passing Reports:	131
Number of Failing Reports:	0
Number of Warning Reports:	0
Documentation Only:	0

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID	Summary	Test Limit	Length	Headroom	Date / Time
DOH-D4-SUB-THL-A01	PASS	TIA Cat 6 Perm. Link	58 ft	4.4 dB (NEXT)	11/17/2014 01:35 AM
DOH-D4-SUB-THL-A02	PASS	TIA Cat 6 Perm. Link	58 ft	4.6 dB (NEXT)	11/17/2014 01:41 AM
DOH-D4-SUB-THL-A03	PASS	TIA Cat 6 Perm. Link	47 ft	3.3 dB (NEXT)	11/17/2014 01:42 AM
DOH-D4-SUB-THL-A04	PASS	TIA Cat 6 Perm. Link	47 ft	4.4 dB (NEXT)	11/17/2014 01:42 AM
DOH-D4-SUB-THL-A05	PASS	TIA Cat 6 Perm. Link	56 ft	5.3 dB (NEXT)	11/17/2014 01:42 AM
DOH-D4-SUB-THL-A06	PASS	TIA Cat 6 Perm. Link	56 ft	4.3 dB (NEXT)	11/17/2014 01:44 AM
DOH-D4-SUB-THL-A07	PASS	TIA Cat 6 Perm. Link	56 ft	6.1 dB (NEXT)	11/17/2014 01:44 AM
DOH-D4-SUB-THL-A08	PASS	TIA Cat 6 Perm. Link	56 ft	6.1 dB (NEXT)	11/17/2014 01:45 AM
DOH-D4-SUB-THL-A09	PASS	TIA Cat 6 Perm. Link	35 ft	8.3 dB (NEXT)	11/17/2014 01:46 AM
DOH-D4-SUB-THL-A10	PASS	TIA Cat 6 Perm. Link	35 ft	4.2 dB (NEXT)	11/17/2014 01:46 AM
DOH-D4-SUB-THL-A11	PASS	TIA Cat 6 Perm. Link	45 ft	7.2 dB (NEXT)	11/17/2014 01:48 AM
DOH-D4-SUB-THL-A12	PASS	TIA Cat 6 Perm. Link	45 ft	5.3 dB (NEXT)	11/17/2014 01:49 AM
DOH-D4-SUB-THL-A13	PASS	TIA Cat 6 Perm. Link	73 ft	7.5 dB (NEXT)	11/17/2014 01:50 AM
DOH-D4-SUB-THL-A14	PASS	TIA Cat 6 Perm. Link	74 ft	6.9 dB (NEXT)	11/17/2014 01:50 AM
DOH-D4-SUB-THL-A15	PASS	TIA Cat 6 Perm. Link	52 ft	3.0 dB (NEXT)	11/17/2014 01:52 AM
DOH-D4-SUB-THL-A16	PASS	TIA Cat 6 Perm. Link	52 ft	3.6 dB (NEXT)	11/17/2014 01:53 AM

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Total Length:	845 ft
Number of Reports:	16
Number of Passing Reports:	16
Number of Failing Reports:	0
Number of Warning Reports:	0
Documentation Only:	0

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A01

Test Summary: PASS

Date / Time 11/17/2014 01:35:26 AM
Headroom 4.4 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type Cat 6 UTP
Calibration Date 08/19/2014

Operator JOE
Software Version 2.7400
Limits Version 1.9300
NVP 69.0%

Model. DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter, DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 45]	58
Prop. Delay (ns), Limit 498	[Pair 12]	90
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 12]	2.9
Insertion Loss Margin (dB)	[Pair 36]	24.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

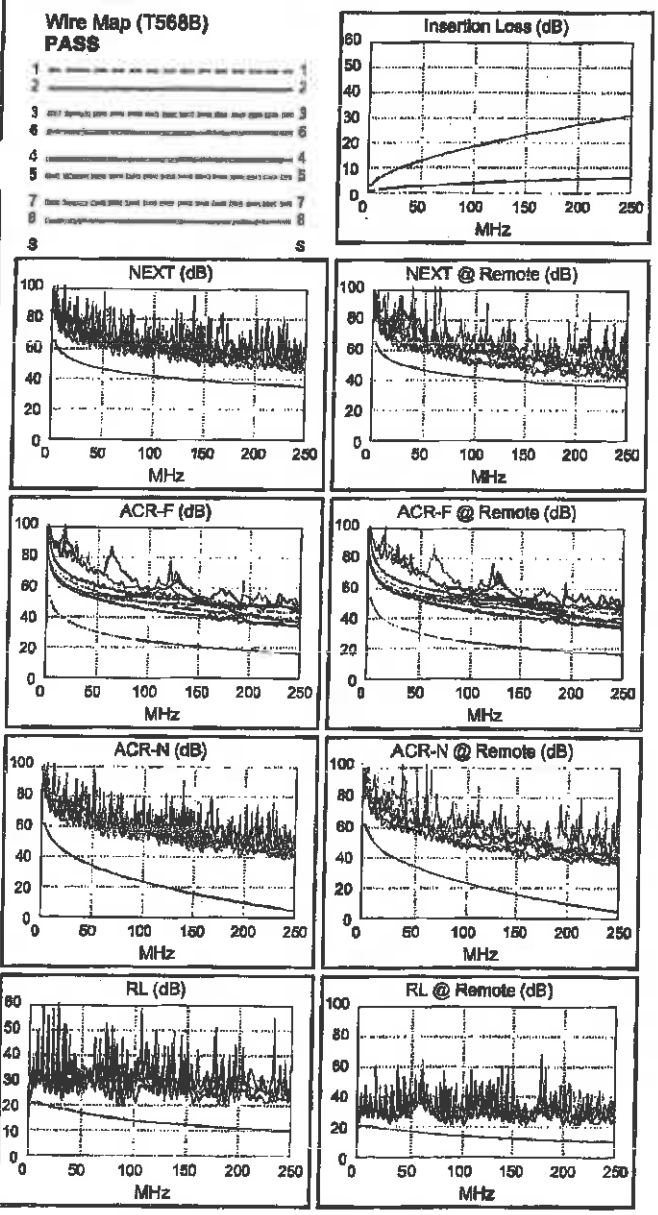
58 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	36-45	12-45	36-45
NEXT (dB)	8.2	4.4	8.2	4.9
Freq. (MHz)	239.0	158.5	239.0	250.0
Limit (dB)	35.7	38.6	35.7	35.3
Worst Pair	36	45	36	36
PS NEXT (dB)	9.1	5.8	9.1	6.7
Freq. (MHz)	245.0	159.0	245.0	250.0
Limit (dB)	32.9	36.0	32.9	32.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	17.2	17.0	17.2	17.0
Freq. (MHz)	249.0	249.0	249.5	249.5
Limit (dB)	16.3	16.3	16.2	16.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.7	17.8	17.7	19.2
Freq. (MHz)	249.0	1.0	249.0	250.0
Limit (dB)	13.3	61.2	13.3	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-45
ACR-N (dB)	16.0	15.8	33.2	30.0
Freq. (MHz)	8.8	8.4	244.5	250.0
Limit (dB)	53.6	54.0	4.8	4.2
Worst Pair	78	78	36	36
PS ACR-N (dB)	15.1	14.8	34.2	31.6
Freq. (MHz)	8.3	8.0	250.0	250.0
Limit (dB)	51.8	52.1	1.6	1.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	36
RL (dB)	5.1	6.8	5.1	9.2
Freq. (MHz)	89.8	89.8	89.8	157.0
Limit (dB)	14.5	14.5	14.5	12.0

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	



LinkWare Version 9.0

Project: DEFAULT
mvt tester.flw

Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A02

Date / Time: 11/17/2014 01:41:26 AM
Headroom 4.5 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 06/19/2014

Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 45]	58
Prop. Delay (ns), Limit 498	[Pair 12]	90
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	3.0
Insertion Loss Margin (dB)	[Pair 36]	24.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

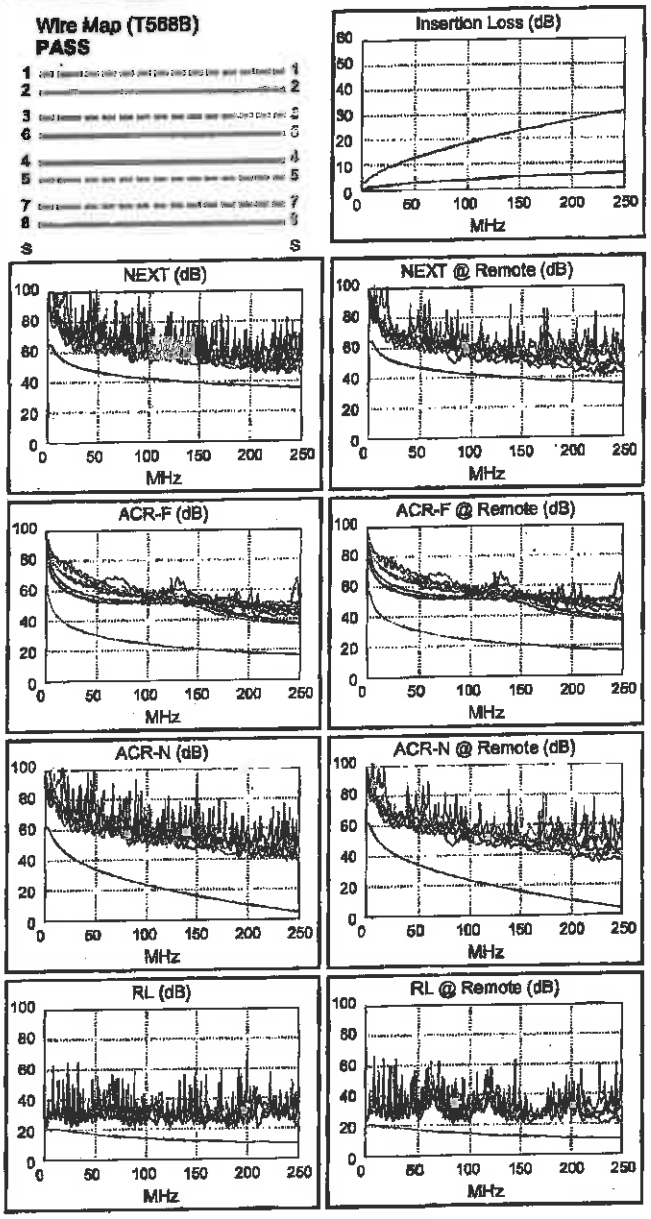
58 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	8.1	4.5	8.1	4.6
Freq. (MHz)	250.0	220.5	250.0	227.0
Limit (dB)	35.3	36.2	35.3	36.0
Worst Pair	36	45	36	45
PS NEXT (dB)	8.1	5.3	8.6	5.3
Freq. (MHz)	214.5	227.5	249.5	227.5
Limit (dB)	33.8	33.4	32.7	33.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	78-45	45-78	78-45	45-78
ACR-F (dB)	19.8	19.8	19.8	19.9
Freq. (MHz)	242.0	242.0	249.0	249.5
Limit (dB)	16.5	16.5	16.3	16.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	19.5	19.9	19.5	20.3
Freq. (MHz)	249.0	1.0	250.0	249.5
Limit (dB)	13.3	61.2	13.2	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	17.2	16.5	33.1	28.3
Freq. (MHz)	26.3	18.3	250.0	227.0
Limit (dB)	42.1	46.2	4.2	6.6
Worst Pair	36	36	36	45
PS ACR-N (dB)	17.1	16.9	33.4	29.1
Freq. (MHz)	3.9	25.4	249.5	227.5
Limit (dB)	58.5	40.1	1.7	3.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	7.3	6.8	9.9	9.6
Freq. (MHz)	83.8	83.8	211.0	235.0
Limit (dB)	14.8	14.8	10.8	10.3

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	



LinkWare Version 9.0

Project: DEFAULT
mvt tester.flw

Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A03

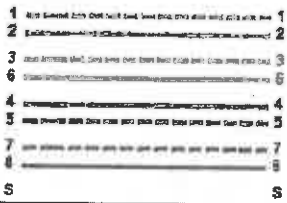
Date / Time 11/17/2014, 01 42 04 AM
Headroom 3.3 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date 08/19/2014

Operator: JOE
Software Version 2.7400
Limits Version 1.9300
NVP: 69.0%

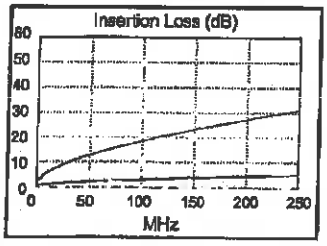
Test Summary: PASS
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

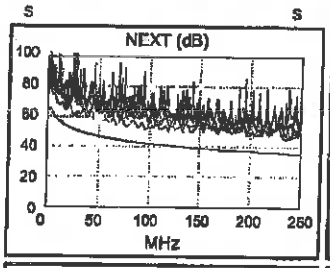
Length (ft), Limit 295	[Pair 36]	47
Prop. Delay (ns), Limit 498	[Pair 12]	72
Delay Skew (ns), Limit 44	[Pair 12]	3
Resistance (ohms)	[Pair 45]	2.4
Insertion Loss Margin (dB)	[Pair 36]	26.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

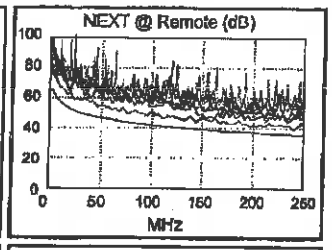
Wire Map (T568B)
PASS

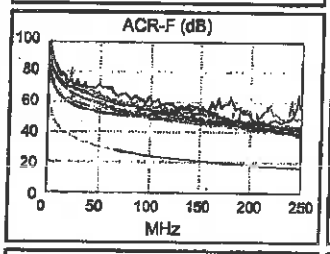


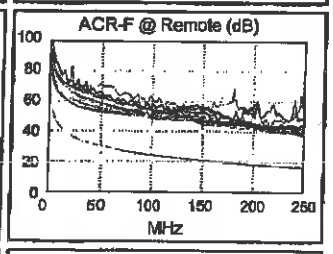
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-78	45-78
NEXT (dB)	9.0	3.3	9.1	3.3
Freq. (MHz)	95.5	240.0	233.5	240.0
Limit (dB)	42.2	35.6	35.8	35.6
Worst Pair	36	45	36	45
PS NEXT (dB)	8.9	5.3	8.9	5.3
Freq. (MHz)	234.5	240.0	234.5	240.0
Limit (dB)	33.2	33.0	33.2	33.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-12	12-45	45-12	12-45
ACR-F (dB)	21.2	21.2	21.3	21.2
Freq. (MHz)	10.5	11.4	249.5	249.5
Limit (dB)	43.8	43.1	16.2	16.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	20.0	20.1	20.8	21.8
Freq. (MHz)	1.0	1.0	246.0	250.0
Limit (dB)	61.2	61.2	13.4	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-78	45-78
ACR-N (dB)	14.9	14.0	34.3	28.8
Freq. (MHz)	3.5	3.4	233.5	240.0
Limit (dB)	61.7	61.8	5.9	5.3
Worst Pair	78	45	36	45
PS ACR-N (dB)	16.3	15.8	34.1	30.9
Freq. (MHz)	4.1	9.4	234.5	240.0
Limit (dB)	58.0	50.6	3.2	2.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	6.6	6.1	6.6	7.7
Freq. (MHz)	136.0	135.0	136.0	199.5
Limit (dB)	12.7	12.7	12.7	11.0

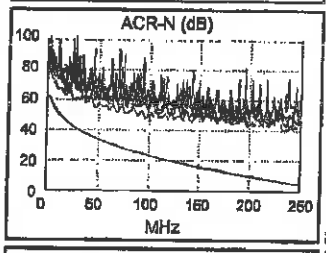


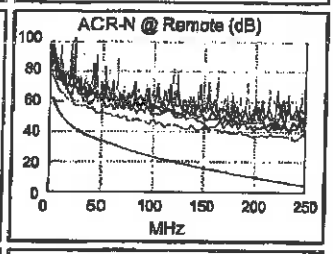


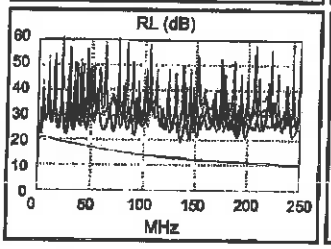


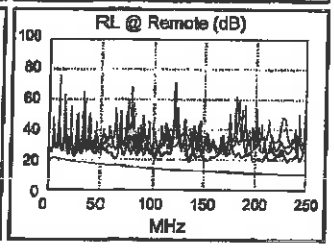












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A04

Date / Time 11/17/2014 01:42:25 AM
Headroom 4.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 45]	47
Prop. Delay (ns), Limit 498	[Pair 12]	72
Delay Skew (ns), Limit 44	[Pair 12]	3
Resistance (ohms)	[Pair 45]	2.4
Insertion Loss Margin (dB)	[Pair 36]	26.0
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

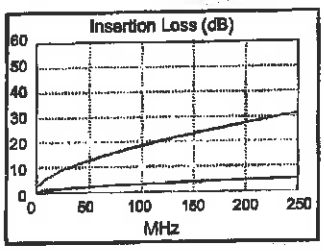
47 ft

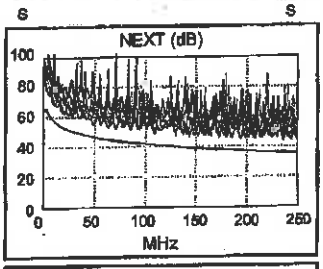
Wire Map (T568B)
PASS

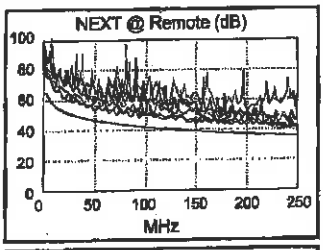
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN*	SR
Worst Pair	36-78	36-78	36-78	36-78
NEXT (dB)	7.6	4.4	8.0	4.4
Freq. (MHz)	193.5	242.0	250.0	242.0
Limit (dB)	37.2	35.6	35.3	35.6
Worst Pair	78	36	36	36
PS NEXT (dB)	9.0	4.0	9.5	4.0
Freq. (MHz)	193.5	240.5	250.0	240.5
Limit (dB)	34.6	33.0	32.7	33.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-12	12-45	36-45	45-36
ACR-F (dB)	19.2	19.3	21.0	20.8
Freq. (MHz)	28.9	28.6	247.0	247.0
Limit (dB)	35.0	35.1	16.3	16.3
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.8	18.5	20.9	20.9
Freq. (MHz)	1.0	1.0	247.0	250.0
Limit (dB)	61.2	61.2	13.3	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-78
ACR-N (dB)	15.6	14.6	34.1	30.8
Freq. (MHz)	3.6	3.6	250.0	250.0
Limit (dB)	61.4	61.4	4.2	4.2
Worst Pair	12	36	36	36
PS ACR-N (dB)	17.3	16.2	35.5	29.4
Freq. (MHz)	3.9	4.0	250.0	240.5
Limit (dB)	58.5	58.3	1.6	2.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	36	12	36
RL (dB)	5.7	4.7	8.7	6.2
Freq. (MHz)	89.3	89.0	184.0	212.5
Limit (dB)	14.5	14.5	11.4	10.7

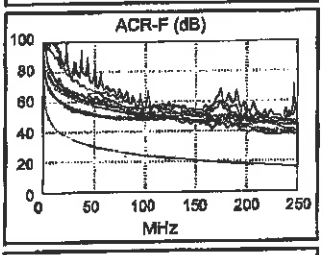
Compliant Network Standards:

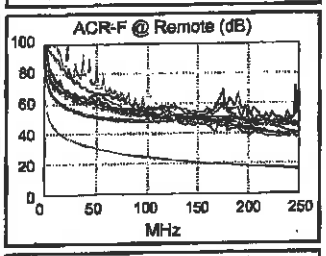
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

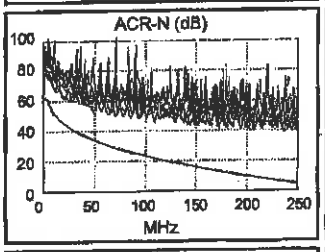


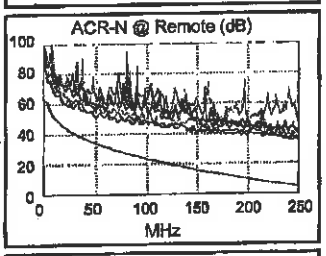


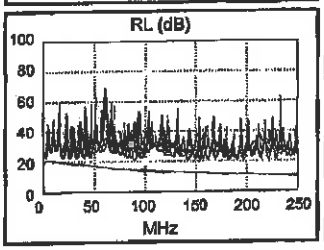


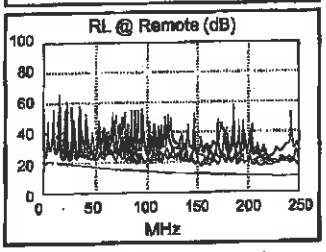












LinkWare Version 9.0

Project: DEFAULT
mvt tester.flw

Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A05

Date / Time: 11/17/2014 01:42:57 AM
Headroom: 5.3 dB (NEXT 12-36)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

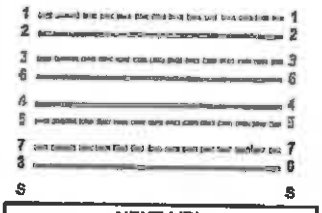
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

Test Summary: PASS

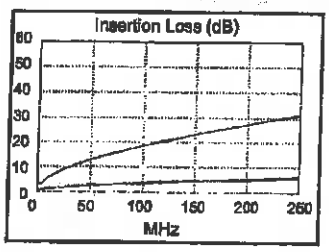
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

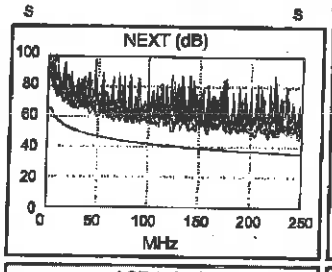
Length (ft), Limit 295	[Pair 36]	56
Prop. Delay (ns), Limit 498	[Pair 12]	86
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	2.9
Insertion Loss Margin (dB)	[Pair 36]	25.2
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

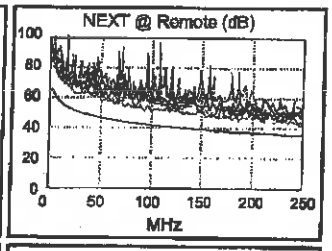
Wire Map (T568B)
PASS

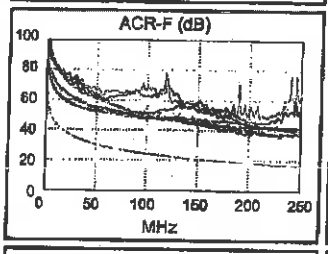


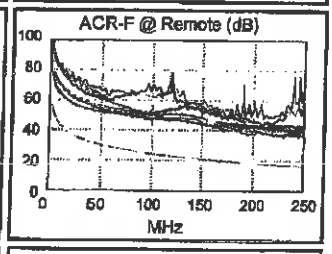
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	12-36
NEXT (dB)	9.5	5.3	9.6	5.3
Freq. (MHz)	216.5	217.5	246.5	217.5
Limit (dB)	36.4	36.3	35.4	36.3
Worst Pair	36	36	36	36
PS NEXT (dB)	10.4	6.4	10.5	6.4
Freq. (MHz)	216.5	247.5	246.5	247.5
Limit (dB)	33.7	32.8	32.8	32.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	18.5	18.5	18.5	18.5
Freq. (MHz)	230.0	230.0	230.0	230.0
Limit (dB)	17.0	17.0	17.0	17.0
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.8	18.6	19.3	19.1
Freq. (MHz)	1.0	229.5	249.5	247.5
Limit (dB)	61.2	14.0	13.2	13.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	12-36
ACR-N (dB)	19.5	18.5	34.5	31.4
Freq. (MHz)	8.3	8.1	246.5	247.5
Limit (dB)	54.1	54.3	4.6	4.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.4	17.3	35.4	31.4
Freq. (MHz)	8.3	8.0	246.5	247.5
Limit (dB)	51.8	52.1	2.0	1.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	6.4	3.2	6.4	3.2
Freq. (MHz)	104.5	104.0	104.5	104.0
Limit (dB)	13.8	13.8	13.8	13.8

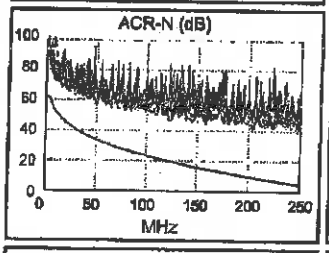


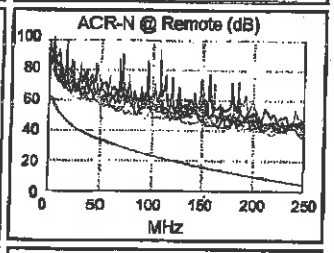


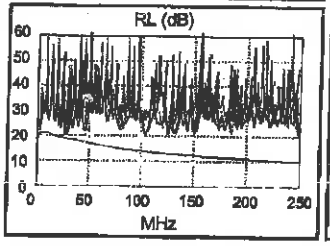


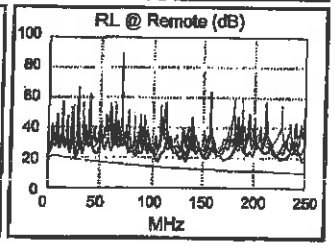












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: DEFAULT
mvt tester.flw

Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A06

Date / Time: 11/17/2014 01:44:25 AM
Headroom: 4.3 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

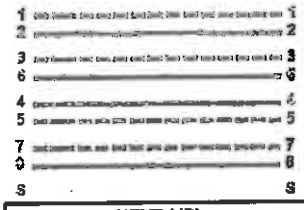
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

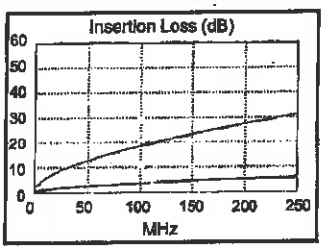
Test Summary: PASS

Model: DTX-1600
Main S/N: 9469006
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

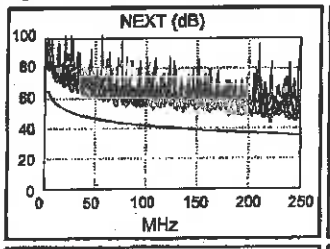
Length (ft), Limit 295	[Pair 45]	56
Prop. Delay (ns), Limit 498	[Pair 12]	86
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	2.9
Insertion Loss Margin (dB)	[Pair 36]	25.2
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

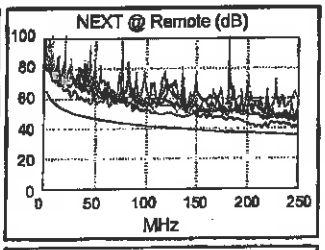
Wire Map (T568B)
PASS

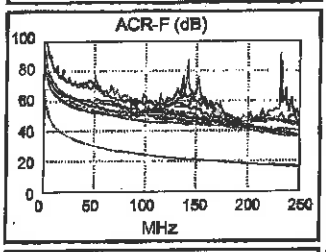


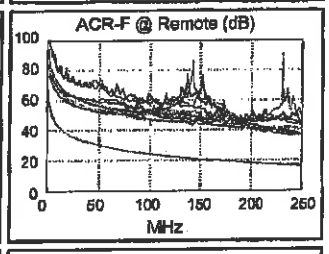


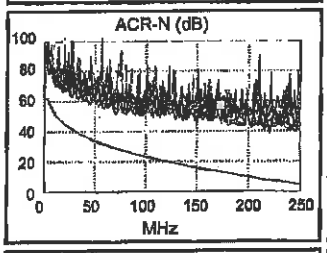
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	8.2	4.3	8.2	4.7
Freq. (MHz)	220.5	214.5	220.5	250.0
Limit (dB)	36.2	36.4	36.2	35.3
Worst Pair	36	36	36	36
PS NEXT (dB)	7.8	5.5	7.8	5.8
Freq. (MHz)	220.5	221.0	220.5	245.5
Limit (dB)	33.6	33.6	33.6	32.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	78-45	45-78	45-36	45-78
ACR-F (dB)	19.6	19.5	19.8	19.5
Freq. (MHz)	237.5	237.0	246.0	237.0
Limit (dB)	16.7	16.7	16.4	16.7
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.6	18.4	18.9	18.8
Freq. (MHz)	1.0	1.0	249.5	250.0
Limit (dB)	61.2	61.2	13.2	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-45	12-36	36-45
ACR-N (dB)	18.0	16.8	34.4	30.1
Freq. (MHz)	4.0	3.8	245.0	250.0
Limit (dB)	60.6	61.1	4.7	4.2
Worst Pair	45	45	36	36
PS ACR-N (dB)	17.6	17.6	31.3	30.7
Freq. (MHz)	4.0	3.8	220.5	245.5
Limit (dB)	58.3	58.6	4.7	2.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	5.3	4.8	5.3	6.2
Freq. (MHz)	76.5	82.5	76.5	153.5
Limit (dB)	15.2	14.8	15.2	12.1

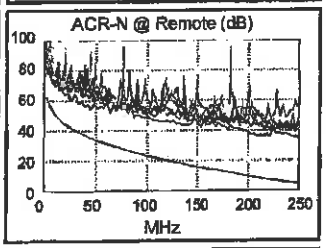


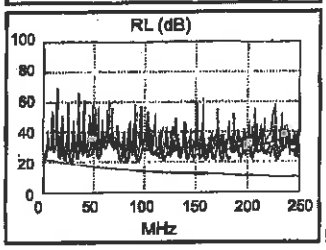


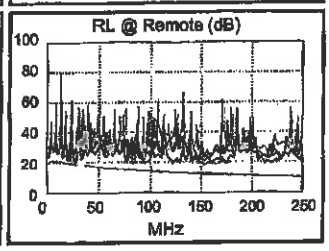












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 8.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A07

Test Summary: PASS

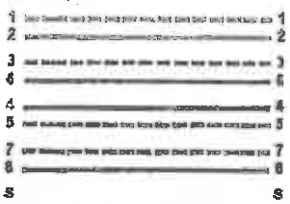
Date / Time 11/17/2014 01 44 45 AM
Headroom 6.1 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type Cat 6 UTP
Calibration Date 08/19/2014

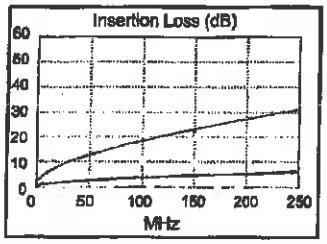
Operator JOE
Software Version 2 7400
Limits Version 1 9300
NVP 69 0%

Model DTX-1800
Main S/N 9469008
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

Length (ft), Limit 295	[Pair 45]	56
Prop. Delay (ns), Limit 498	[Pair 12]	87
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	3.0
Insertion Loss Margin (dB)	[Pair 78]	25.1
Frequency (MHz)	[Pair 78]	250.0
Limit (dB)	[Pair 78]	31.1

Wire Map (T568B)
PASS



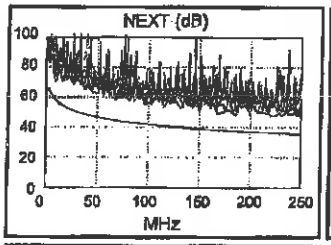


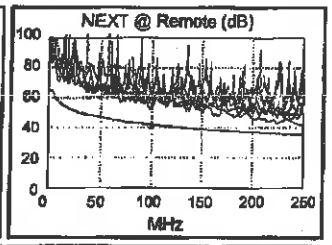
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	10.3	6.1	11.2	6.1
Freq. (MHz)	185.0	247.5	222.0	247.5
Limit (dB)	37.5	35.4	36.2	35.4
Worst Pair	36	36	36	36
PS NEXT (dB)	11.1	7.9	11.1	7.9
Freq. (MHz)	247.5	246.0	247.5	246.0
Limit (dB)	32.8	32.8	32.8	32.8

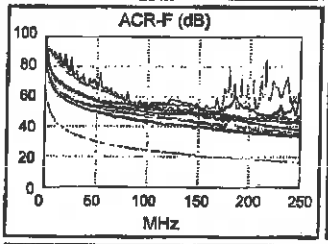
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	17.0	16.9	17.2	17.3
Freq. (MHz)	239.5	239.5	250.0	250.0
Limit (dB)	16.6	16.6	16.2	16.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.3	17.6	17.3	17.6
Freq. (MHz)	248.5	248.5	248.5	250.0
Limit (dB)	13.3	13.3	13.3	13.2

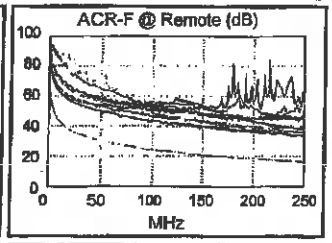
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-78	36-45
ACR-N (dB)	16.9	16.6	37.4	31.2
Freq. (MHz)	9.0	9.1	248.0	247.5
Limit (dB)	53.3	53.2	4.4	4.5
Worst Pair	78	78	36	36
PS ACR-N (dB)	17.2	16.7	36.1	32.8
Freq. (MHz)	9.0	9.0	247.5	246.0
Limit (dB)	51.0	51.0	1.9	2.0

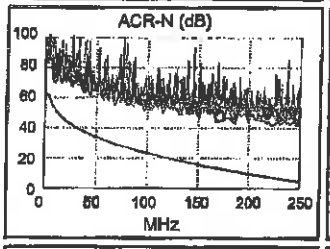
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	3.8	2.4	3.8	3.6
Freq. (MHz)	123.0	123.0	123.0	226.5
Limit (dB)	13.1	13.1	13.1	10.4

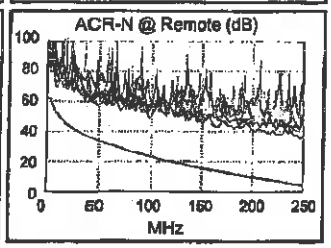


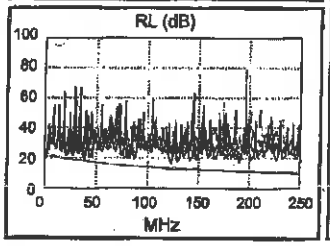


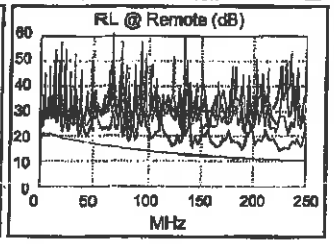












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9 0

Project: DEFAULT
mvt tester.flw

Site: DODRIDGE HEADQUARTERS

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A08

Date / Time: 11/17/2014 01:45:02 AM
Headroom: 6.1 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/18/2014

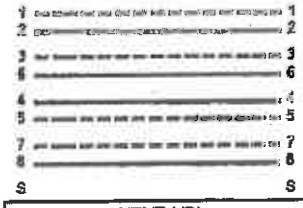
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

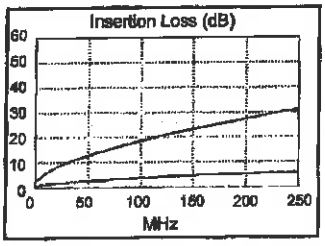
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

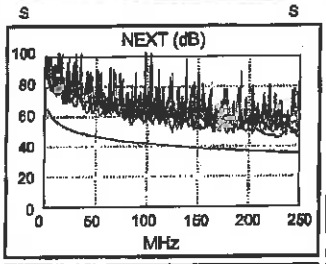
Length (ft), Limit 295	[Pair 45]	56
Prop. Delay (ns), Limit 498	[Pair 12]	87
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	2.9
Insertion Loss Margin (dB)	[Pair 36]	25.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

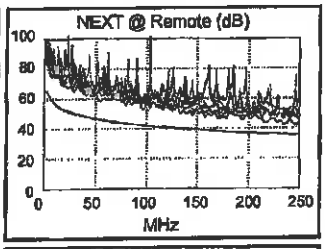
Wire Map (T568B)
PASS

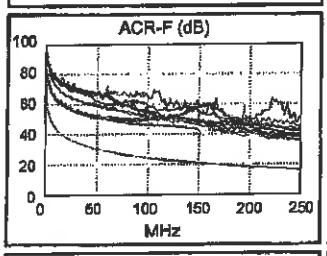


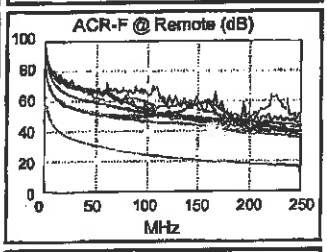


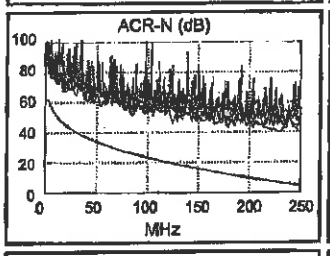
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	9.8	6.1	9.8	6.1
Freq. (MHz)	229.5	235.5	229.5	235.5
Limit (dB)	35.9	35.8	35.9	35.8
Worst Pair	36	45	36	45
PS NEXT (dB)	10.5	7.7	10.5	7.7
Freq. (MHz)	229.5	235.0	229.5	235.5
Limit (dB)	33.3	33.2	33.3	33.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	78-45	45-78	45-78	45-78
ACR-F (dB)	19.1	19.0	19.2	19.0
Freq. (MHz)	244.5	244.5	247.0	244.5
Limit (dB)	16.4	16.4	16.3	16.4
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.5	18.4	19.3	19.7
Freq. (MHz)	1.1	1.0	245.5	247.0
Limit (dB)	60.2	61.2	13.4	13.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-45	36-45	36-78	36-45
ACR-N (dB)	20.4	19.4	33.8	31.6
Freq. (MHz)	5.8	7.1	229.5	246.0
Limit (dB)	57.4	55.5	6.3	4.6
Worst Pair	45	45	36	36
PS ACR-N (dB)	19.5	19.1	34.5	33.3
Freq. (MHz)	5.1	5.8	229.5	247.0
Limit (dB)	56.1	55.1	3.7	1.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	7.3	5.4	10.3	7.2
Freq. (MHz)	81.5	81.3	245.5	222.5
Limit (dB)	14.9	14.9	10.1	10.5

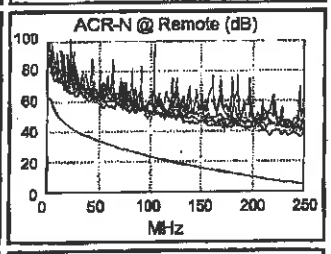


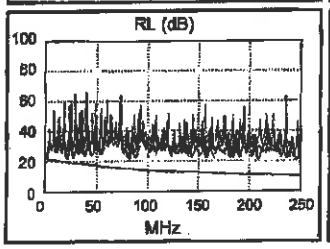


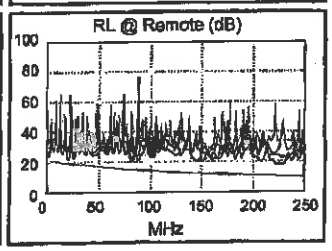












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A09

Date / Time 11/17/2014 01:46:14 AM
Headroom 8.3 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type Cat 6 UTP
Calibration Date 08/19/2014

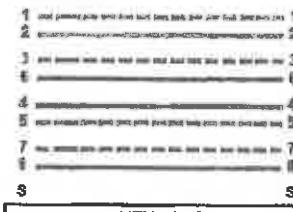
Operator JOE
Software Version 2.7400
Limits Version 1.9300
NVP 69.0%

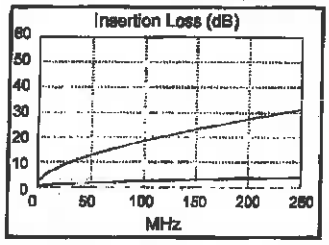
Test Summary: PASS

Model DTX-1800
Main S/N 9469009
Remote S/N 9469018
Main Adapter DTX-PLA002
Remote Adapter DTX-PLA002

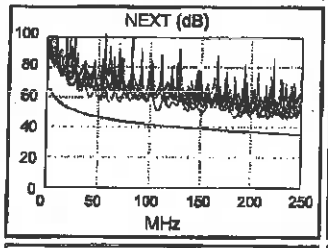
Length (ft), Limit 295	[Pair 45]	35
Prop. Delay (ns), Limit 498	[Pair 12]	55
Delay Skew (ns), Limit 44	[Pair 12]	3
Resistance (ohms)	[Pair 45]	2.0
Insertion Loss Margin (dB)	[Pair 36]	27.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

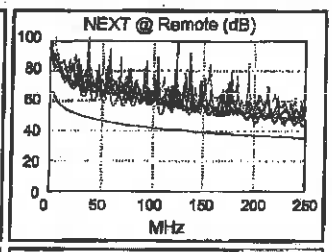
Wire Map (T568B)
PASS

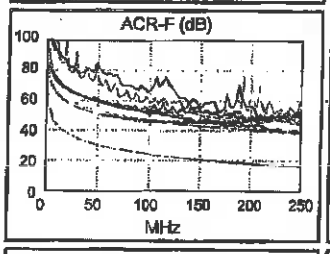


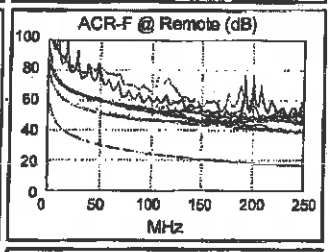


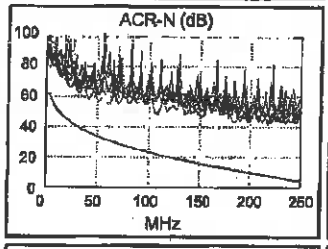
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-45	36-78	36-45
NEXT (dB)	8.7	8.3	9.7	8.3
Freq. (MHz)	183.0	230.0	217.0	247.5
Limit (dB)	37.6	35.9	36.3	35.4
Worst Pair	36	45	36	36
PS NEXT (dB)	10.0	8.5	10.3	8.8
Freq. (MHz)	198.0	230.0	236.0	247.0
Limit (dB)	34.4	33.3	33.1	32.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-45	45-36
ACR-F (dB)	20.1	20.2	22.1	22.0
Freq. (MHz)	14.5	8.3	250.0	250.0
Limit (dB)	41.0	45.9	16.2	16.2
Worst Pair	45	45	45	36
PS ACR-F (dB)	18.5	18.0	24.1	24.2
Freq. (MHz)	1.0	1.0	250.0	250.0
Limit (dB)	61.2	61.2	13.2	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-78	36-45
ACR-N (dB)	22.3	20.5	34.8	35.5
Freq. (MHz)	41.0	3.4	217.0	249.0
Limit (dB)	36.6	61.8	7.7	4.3
Worst Pair	78	78	36	36
PS ACR-N (dB)	22.0	20.7	36.6	35.8
Freq. (MHz)	5.4	3.8	236.0	247.0
Limit (dB)	55.7	58.6	3.0	1.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	10.6	8.7	10.6	8.7
Freq. (MHz)	241.5	242.0	241.5	242.0
Limit (dB)	10.2	10.2	10.2	10.2

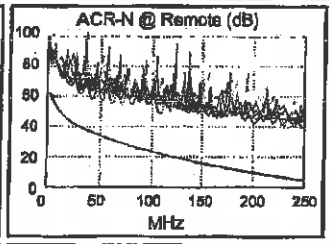


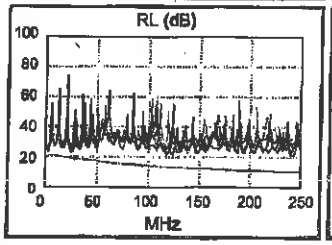


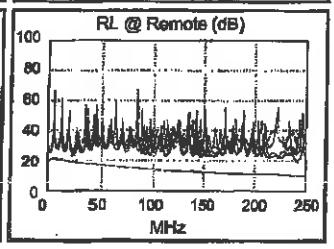












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 8.0

Project: DEFAULT
mvt tester.flw

Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A10

Test Summary: PASS

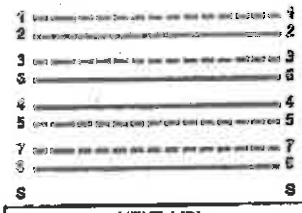
Date / Time: 11/17/2014 01:46:36 AM
Headroom: 4.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

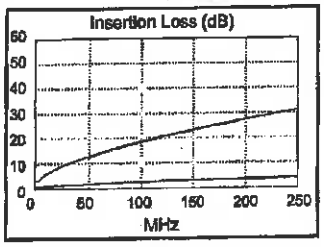
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469016
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

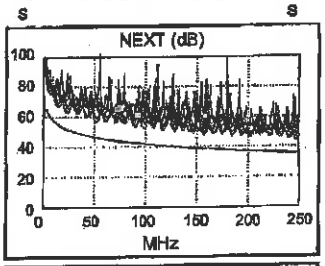
Length (ft), Limit 295	[Pair 45]	35
Prop. Delay (ns), Limit 498	[Pair 12]	55
Delay Skew (ns), Limit 44	[Pair 12]	3
Resistance (ohms)	[Pair 36]	1.8
Insertion Loss Margin (dB)	[Pair 36]	27.2
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

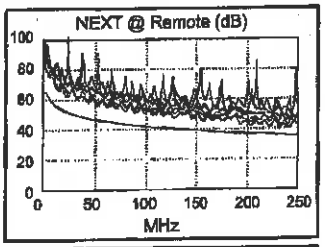
Wire Map (T568B)
PASS

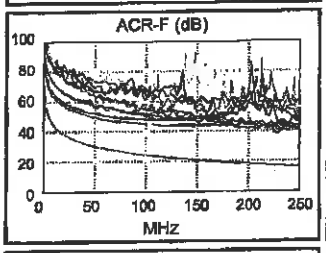


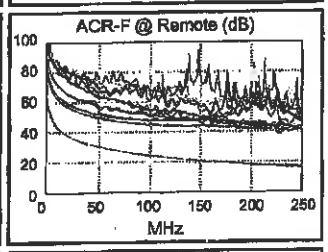


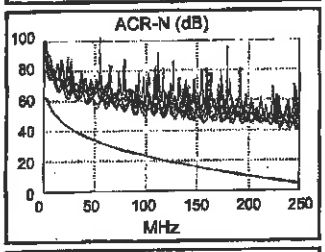
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	8.2	4.2	8.2	4.2
Freq. (MHz)	241.0	232.5	241.0	232.5
Limit (dB)	35.6	35.9	35.6	35.9
Worst Pair	36	45	36	45
PS NEXT (dB)	8.0	4.7	8.0	4.7
Freq. (MHz)	240.5	233.0	240.5	233.0
Limit (dB)	33.0	33.2	33.0	33.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	45-36	36-45
ACR-F (dB)	18.9	18.9	20.7	20.8
Freq. (MHz)	7.0	7.9	227.5	227.5
Limit (dB)	47.3	46.3	17.0	17.0
Worst Pair	45	45	36	45
PS ACR-F (dB)	18.7	18.6	22.3	22.6
Freq. (MHz)	1.1	1.0	227.5	227.5
Limit (dB)	60.2	61.2	14.0	14.0
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-45	12-36	36-45
ACR-N (dB)	17.7	17.1	34.8	30.5
Freq. (MHz)	14.5	3.5	241.0	232.5
Limit (dB)	48.6	61.7	5.1	6.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.3	16.4	34.6	32.5
Freq. (MHz)	5.3	4.3	241.0	250.0
Limit (dB)	55.9	57.8	2.5	1.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	9.4	9.8	9.4	9.8
Freq. (MHz)	247.5	246.0	247.5	246.0
Limit (dB)	10.1	10.1	10.1	10.1

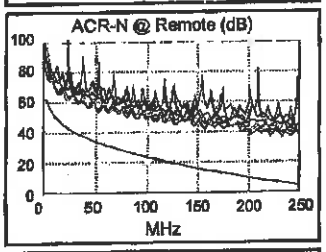


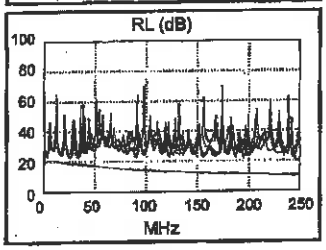


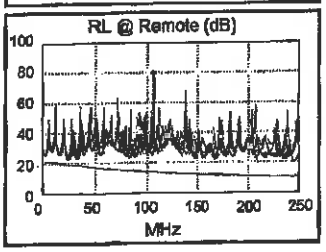












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: DEFAULT
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Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A11

Test Summary: PASS

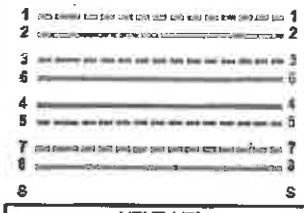
Date / Time 11/17/2014 01:48:42 AM
Headroom 7.2 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

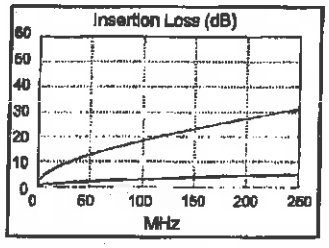
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

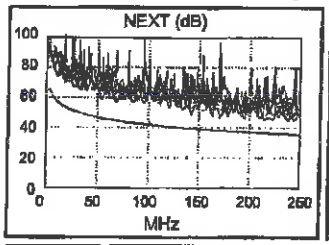
Length (ft), Limit 295	[Pair 45]	45
Prop. Delay (ns), Limit 498	[Pair 12]	70
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 12]	2.3
Insertion Loss Margin (dB)	[Pair 36]	26.2
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

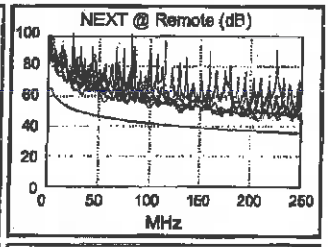
Wire Map (T568B)
PASS

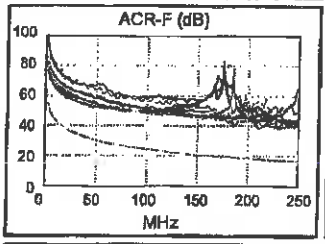


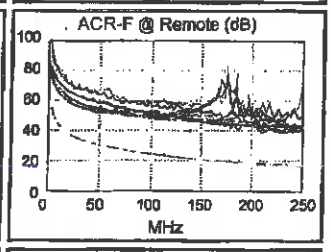


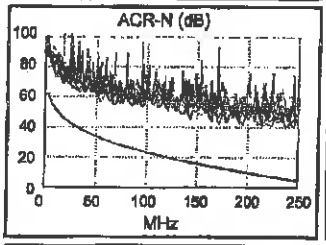
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	36-78	45-78
NEXT (dB)	8.6	7.2	8.6	7.2
Freq. (MHz)	193.5	207.5	215.0	208.0
Limit (dB)	37.2	36.7	36.4	36.6
Worst Pair	36	45	36	45
PS NEXT (dB)	9.0	7.3	9.0	7.3
Freq. (MHz)	214.5	207.5	214.5	207.5
Limit (dB)	33.8	34.1	33.8	34.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	36-45	45-36
ACR-F (dB)	20.6	20.7	21.3	21.2
Freq. (MHz)	209.5	209.5	229.5	229.5
Limit (dB)	17.8	17.8	17.0	17.0
Worst Pair	45	45	45	45
PS ACR-F (dB)	19.3	19.2	21.4	21.9
Freq. (MHz)	1.0	1.0	230.0	208.0
Limit (dB)	61.2	61.2	14.0	14.8
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-78	45-78
ACR-N (dB)	21.7	20.5	34.9	30.8
Freq. (MHz)	10.4	9.3	237.5	208.0
Limit (dB)	51.9	53.0	5.5	8.7
Worst Pair	78	78	36	45
PS ACR-N (dB)	21.6	20.2	36.0	31.0
Freq. (MHz)	9.9	17.1	243.5	207.5
Limit (dB)	50.1	44.5	2.3	6.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	8.8	8.2	10.3	8.4
Freq. (MHz)	116.5	132.0	247.5	237.0
Limit (dB)	13.3	12.8	10.1	10.3

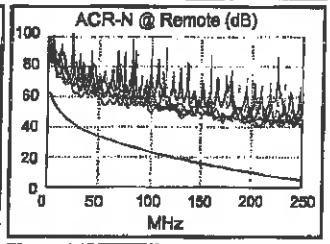


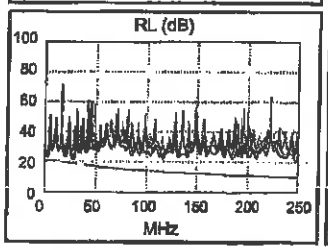


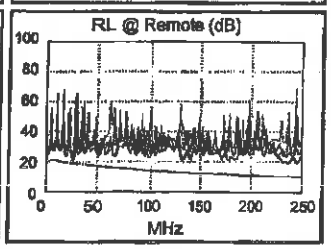












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.6

Project: DEFAULT
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Site: DODRIDGE HEADQUARTERS

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A12

Date / Time: 11/17/2014 01:49:02 AM
Headroom: 5.3 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

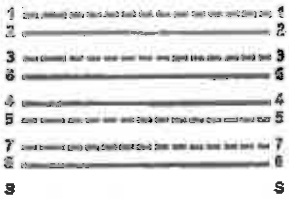
Operator: JOE
Software Version: 2.7400
Limits Version: 1.8300
NVP: 69.0%

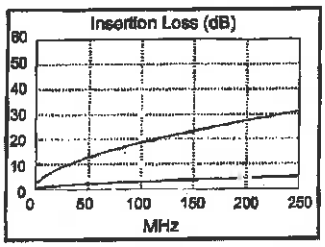
Test Summary: PASS

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

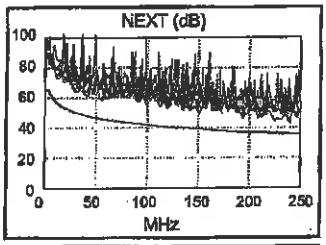
Length (ft), Limit 295	[Pair 45]	45
Prop. Delay (ns), Limit 498	[Pair 12]	69
Delay Skew (ns), Limit 44	[Pair 12]	3
Resistance (ohms)	[Pair 36]	2.3
Insertion Loss Margin (dB)	[Pair 36]	26.2
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

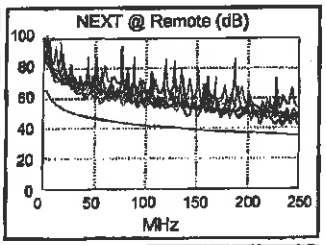
Wire Map (T568B)
PASS

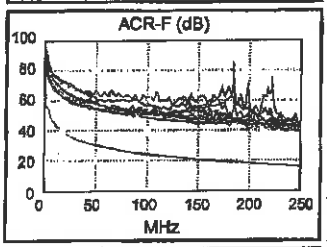


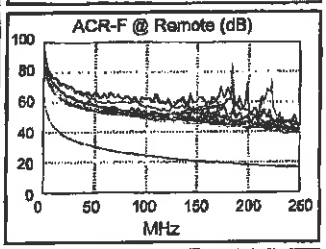


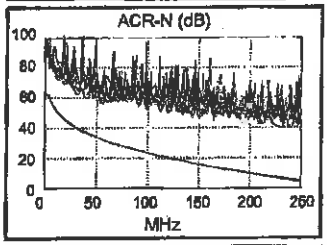
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	7.9	5.3	7.9	5.3
Freq. (MHz)	239.0	233.5	239.0	233.5
Limit (dB)	35.7	35.8	35.7	35.8
Worst Pair	36	45	36	45
PS NEXT (dB)	9.4	5.9	9.4	5.9
Freq. (MHz)	239.0	233.5	239.0	233.5
Limit (dB)	33.0	33.2	33.0	33.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	22.1	22.0	22.1	22.0
Freq. (MHz)	235.0	235.0	235.5	235.5
Limit (dB)	16.8	16.8	16.7	16.7
Worst Pair	45	45	45	45
PS ACR-F (dB)	21.2	21.0	22.5	23.0
Freq. (MHz)	1.1	1.0	245.0	248.0
Limit (dB)	60.2	61.2	13.4	13.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	36-78	36-45
ACR-N (dB)	21.5	19.8	33.6	30.6
Freq. (MHz)	11.3	12.3	239.0	234.0
Limit (dB)	51.1	50.3	5.4	5.9
Worst Pair	78	78	36	45
PS ACR-N (dB)	20.9	19.8	35.0	31.3
Freq. (MHz)	11.1	11.6	239.0	233.5
Limit (dB)	48.9	48.5	2.7	3.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	45	78	45
RL (dB)	9.9	10.0	10.0	10.0
Freq. (MHz)	183.5	237.5	190.0	237.5
Limit (dB)	11.4	10.2	11.2	10.2

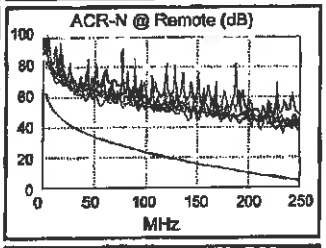


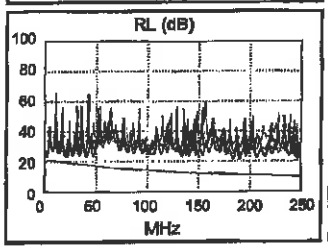


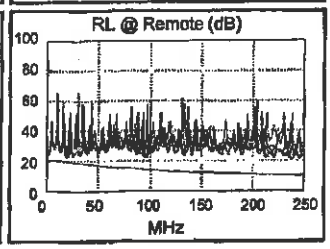












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 5.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A13

Test Summary: PASS

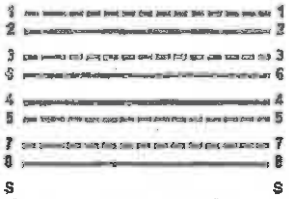
Date / Time: 11/17/2014 01:50:04 AM
Headroom 7.5 dB (NEXT 36-78)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/18/2014

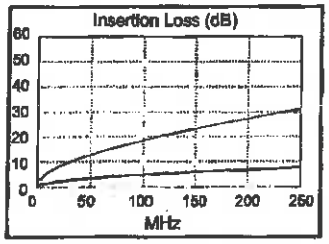
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 45]	73
Prop. Delay (ns), Limit 498	[Pair 12]	114
Delay Skew (ns), Limit 44	[Pair 12]	6
Resistance (ohms)	[Pair 45]	3.8
Insertion Loss Margin (dB)	[Pair 36]	23.4
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

Wire Map (T568B)
PASS



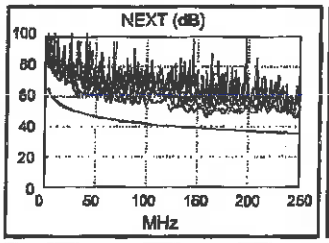


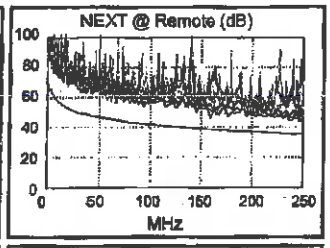
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
NEXT (dB)	7.5	7.7	10.5	8.5
Freq. (MHz)	159.0	159.0	245.5	247.0
Limit (dB)	38.6	38.6	35.5	35.4
Worst Pair	36	36	36	36
PS NEXT (dB)	8.9	8.3	9.6	8.3
Freq. (MHz)	159.0	236.0	244.5	236.0
Limit (dB)	36.0	33.1	32.9	33.1

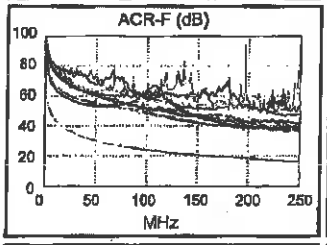
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	18.7	18.9	18.7	18.9
Freq. (MHz)	237.0	237.0	237.0	237.0
Limit (dB)	16.7	16.7	16.7	16.7
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.6	18.6	19.7	18.6
Freq. (MHz)	195.5	200.0	249.5	237.0
Limit (dB)	15.4	15.2	13.2	13.7

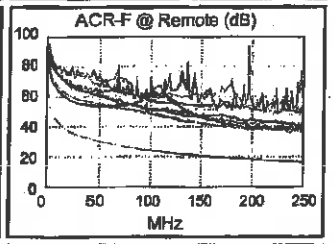
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-78	36-78	36-45
ACR-N (dB)	18.2	19.6	33.7	32.0
Freq. (MHz)	3.5	6.5	245.5	247.0
Limit (dB)	61.7	56.3	4.7	4.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.1	18.6	32.7	31.0
Freq. (MHz)	3.4	6.5	244.5	236.0
Limit (dB)	58.8	54.0	2.2	3.0

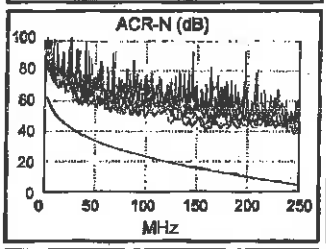
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	78
RL (dB)	5.3	8.0	8.9	10.0
Freq. (MHz)	42.5	40.8	212.5	222.0
Limit (dB)	17.7	17.9	10.7	10.5

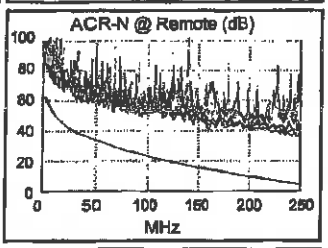


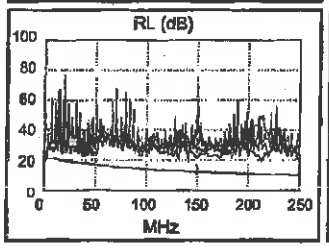


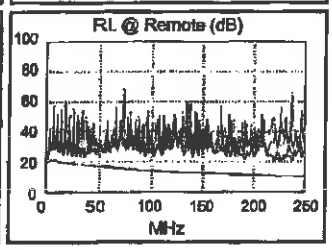












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A14

Test Summary: PASS

Date / Time: 11/17/2014 01:50:22 AM
Headroom 6.9 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

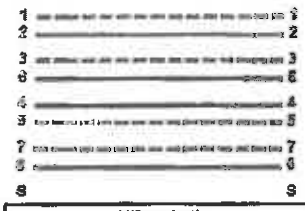
Operator: JOE
Software Version: 2.7400
Limits Version: 1.9300
NVP: 69.0%

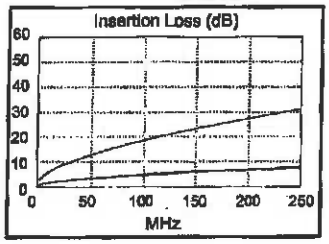
Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 45]	74
Prop. Delay (ns), Limit 498	[Pair 12]	114
Delay Skew (ns), Limit 44	[Pair 12]	5
Resistance (ohms)	[Pair 12]	3.7
Insertion Loss Margin (dB)	[Pair 36]	23.4
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

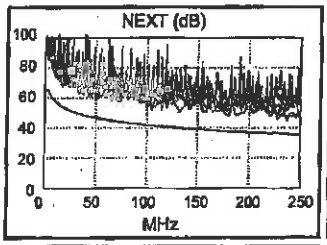
74 ft

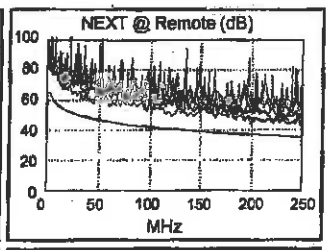
Wire Map (T568B)
PASS

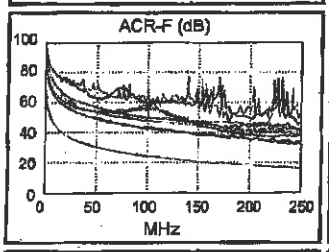


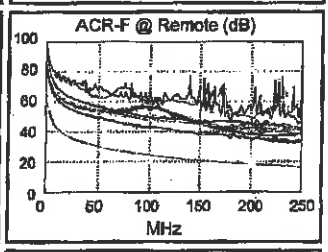


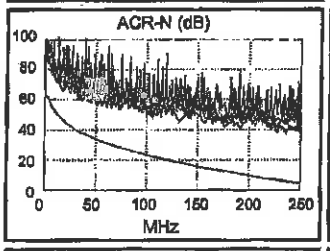
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	36-78	36-45
NEXT (dB)	9.5	6.9	9.5	7.2
Freq. (MHz)	236.0	200.0	236.0	249.0
Limit (dB)	35.7	36.9	35.7	35.4
Worst Pair	36	45	36	45
PS NEXT (dB)	9.7	7.2	9.7	7.6
Freq. (MHz)	235.5	199.5	235.5	237.5
Limit (dB)	33.1	34.3	33.1	33.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.3	15.1	15.3	15.1
Freq. (MHz)	237.5	237.5	237.5	237.5
Limit (dB)	16.7	16.7	16.7	16.7
Worst Pair	45	45	45	45
PS ACR-F (dB)	16.9	17.1	16.9	17.8
Freq. (MHz)	200.0	1.1	237.5	242.0
Limit (dB)	15.2	60.2	13.7	13.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	36-78	36-45
ACR-N (dB)	19.2	18.4	32.1	30.7
Freq. (MHz)	16.6	16.6	236.0	249.0
Limit (dB)	47.2	47.2	5.7	4.3
Worst Pair	78	45	36	45
PS ACR-N (dB)	20.8	18.4	32.3	31.4
Freq. (MHz)	15.6	2.4	235.5	249.0
Limit (dB)	45.4	59.0	3.1	1.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	45	45
RL (dB)	6.4	6.1	9.7	8.9
Freq. (MHz)	42.5	53.8	215.0	221.0
Limit (dB)	17.7	16.7	10.7	10.6

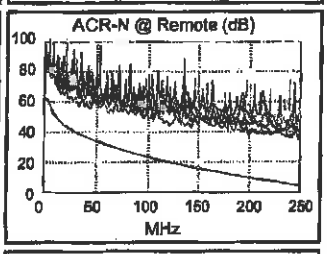


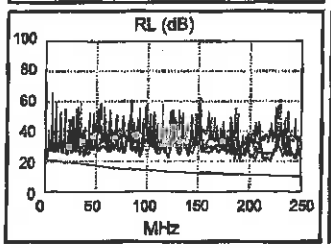


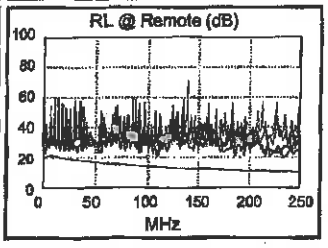












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A15

Test Summary: PASS

Date / Time: 11/17/2014 01:52:25 AM
Headroom: 3.0 dB (NEXT 36-45)
Test Limit: TIA Cat 5 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 09/19/2014

Operator: JOE
Software Version: 2.7490
Limits Version: 1.9300
NVP: 69.0%

Model: DTX-1800
Main S/N: 9469009
Remote S/N: 9469018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

Length (ft), Limit 295	[Pair 45]	52
Prop. Delay (ns), Limit 498	[Pair 12]	80
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	2.7
Insertion Loss Margin (dB)	[Pair 36]	25.6
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

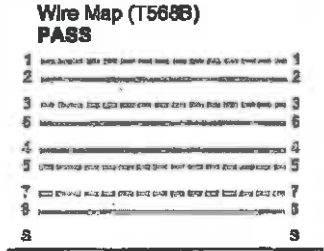
52 ft

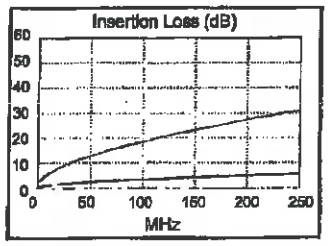
Wire Map (T568B)
PASS

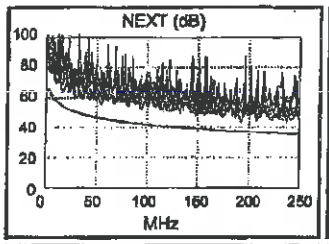
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	6.5	3.0	8.2	3.0
Freq. (MHz)	192.0	237.0	250.0	237.0
Limit (dB)	37.2	35.7	35.3	35.7
Worst Pair	36	36	36	36
PS NEXT (dB)	7.0	5.0	7.0	5.0
Freq. (MHz)	250.0	237.0	250.0	237.0
Limit (dB)	32.7	33.1	32.7	33.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-12	12-45	78-45	45-78
ACR-F (dB)	19.5	19.5	20.5	20.5
Freq. (MHz)	13.4	13.8	241.5	241.5
Limit (dB)	41.7	41.4	16.5	16.5
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.5	18.7	20.0	20.2
Freq. (MHz)	1.1	1.0	242.0	250.0
Limit (dB)	60.2	61.2	13.5	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
ACR-N (dB)	15.6	14.5	33.8	27.9
Freq. (MHz)	16.5	16.0	250.0	237.0
Limit (dB)	47.2	47.6	4.2	5.6
Worst Pair	45	45	36	36
PS ACR-N (dB)	16.8	15.6	32.6	29.9
Freq. (MHz)	15.8	15.9	250.0	237.0
Limit (dB)	45.3	45.3	1.6	2.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	6.8	5.0	8.7	6.4
Freq. (MHz)	120.5	104.0	234.5	220.5
Limit (dB)	13.2	13.8	10.3	10.6

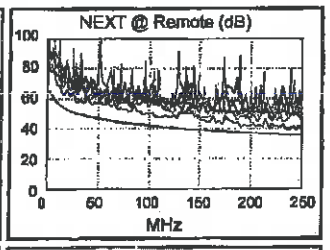
Compliant Network Standards:

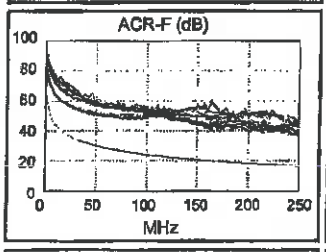
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

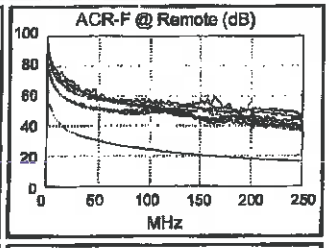


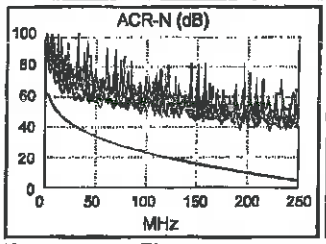


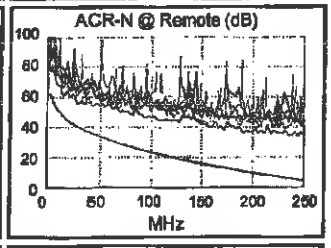


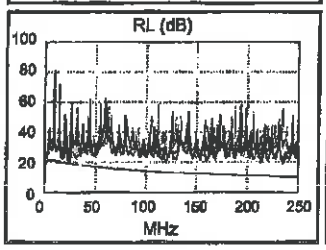


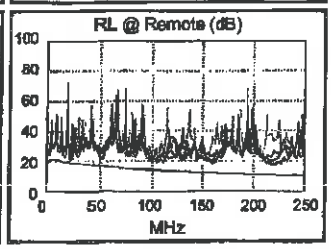












LinkWare Version 9.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOH-D4-SUB-THL-A16

Date / Time: 11/17/2014 01:53:36 AM
Headroom: 3.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Perm. Link
Cable Type: Cat 6 UTP
Calibration Date: 08/19/2014

Operator: JOE
Software Version: 2.7400
Limits Version: 1.9800
NVP: 69.6%

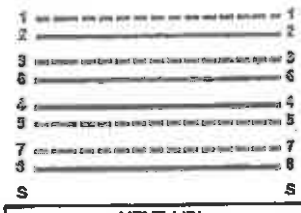
Test Summary: PASS

Model: DTX-1800
Main S/N: 9468089
Remote S/N: 9468018
Main Adapter: DTX-PLA002
Remote Adapter: DTX-PLA002

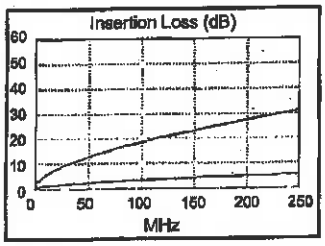
Length (ft), Limit 295	[Pair 45]	52
Prop. Delay (ns), Limit 498	[Pair 12]	80
Delay Skew (ns), Limit 44	[Pair 12]	4
Resistance (ohms)	[Pair 45]	2.6
Insertion Loss Margin (dB)	[Pair 36]	25.6
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	31.1

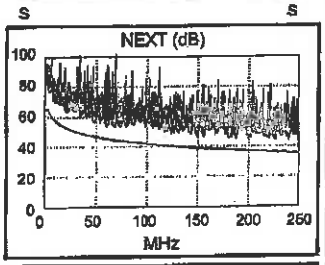
52 ft

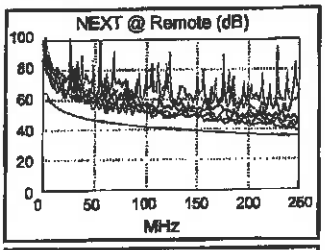
Wire Map (T568B)
PASS

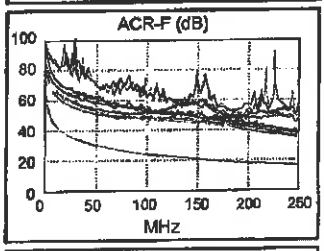


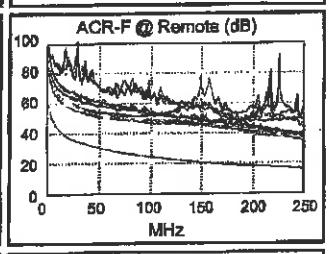
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	36-78	36-45
NEXT (dB)	7.0	3.6	7.0	3.6
Freq. (MHz)	180.5	248.0	180.5	248.0
Limit (dB)	37.7	35.4	37.7	35.4
Worst Pair	78	36	36	45
PS NEXT (dB)	9.0	4.5	10.0	4.7
Freq. (MHz)	180.5	238.0	218.0	248.0
Limit (dB)	35.1	33.1	33.7	32.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	78-45	45-78	78-45	45-78
ACR-F (dB)	18.7	18.6	18.7	18.6
Freq. (MHz)	248.0	247.5	248.0	247.5
Limit (dB)	16.3	16.3	16.3	16.3
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.8	18.9	18.8	19.0
Freq. (MHz)	248.5	1.0	249.5	250.0
Limit (dB)	13.3	61.2	13.2	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-78	36-78	36-45
ACR-N (dB)	16.1	15.7	34.1	29.2
Freq. (MHz)	3.6	14.3	239.0	248.0
Limit (dB)	61.4	48.8	5.4	4.4
Worst Pair	45	78	45	45
PS ACR-N (dB)	15.4	15.1	36.7	30.3
Freq. (MHz)	3.9	9.4	248.5	248.0
Limit (dB)	58.5	50.6	1.8	1.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	36	45
RL (dB)	6.4	5.0	6.4	5.0
Freq. (MHz)	87.5	227.0	87.5	227.0
Limit (dB)	14.6	10.4	14.6	10.4

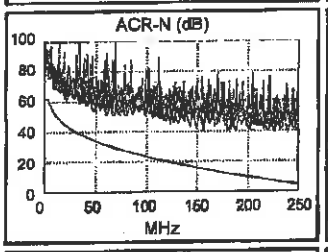


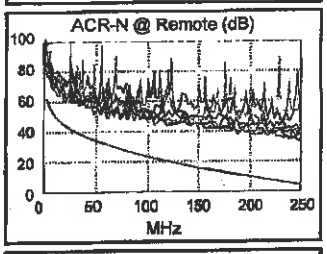


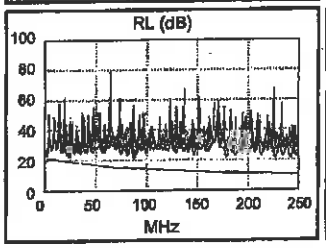


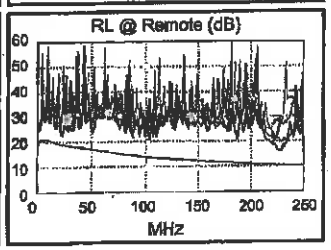












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 8.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID	Summary	Test Limit	Length	Headroom	Date / Time
DOT-D4-TAYLOR HQ-A01	PASS	TIA Cat 6 Channel	119 ft	6.9 dB (NEXT)	09/16/2014 05:21 PM
DOT-D4-TAYLOR HQ-A02	PASS	TIA Cat 6 Channel	120 ft	6.9 dB (NEXT)	09/16/2014 05:24 PM
DOT-D4-TAYLOR HQ-A03	PASS	TIA Cat 6 Channel	142 ft	8.3 dB (NEXT)	09/16/2014 05:28 PM
DOT-D4-TAYLOR HQ-A04	PASS	TIA Cat 6 Channel	143 ft	5.5 dB (NEXT)	09/16/2014 05:29 PM
DOT-D4-TAYLOR HQ-A05	PASS	TIA Cat 6 Channel	130 ft	6.8 dB (NEXT)	09/16/2014 05:30 PM
DOT-D4-TAYLOR HQ-A06	PASS	TIA Cat 6 Channel	130 ft	10.4 dB (NEXT)	09/16/2014 05:30 PM
DOT-D4-TAYLOR HQ-A07	PASS	TIA Cat 6 Channel	130 ft	5.3 dB (NEXT)	09/16/2014 05:31 PM
DOT-D4-TAYLOR HQ-A08	PASS	TIA Cat 6 Channel	130 ft	8.7 dB (NEXT)	09/16/2014 05:31 PM
DOT-D4-TAYLOR HQ-A09	PASS	TIA Cat 6 Channel	143 ft	6.8 dB (NEXT)	09/16/2014 05:32 PM
DOT-D4-TAYLOR HQ-A10	PASS	TIA Cat 6 Channel	143 ft	2.7 dB (NEXT)	09/16/2014 05:32 PM
DOT-D4-TAYLOR HQ-A11	PASS	TIA Cat 6 Channel	110 ft	7.1 dB (NEXT)	09/16/2014 05:32 PM
DOT-D4-TAYLOR HQ-A12	PASS	TIA Cat 6 Channel	110 ft	7.5 dB (NEXT)	09/16/2014 05:33 PM
DOT-D4-TAYLOR HQ-A13	PASS	TIA Cat 6 Channel	97 ft	8.0 dB (NEXT)	09/16/2014 05:33 PM
DOT-D4-TAYLOR HQ-A14	PASS	TIA Cat 6 Channel	97 ft	5.5 dB (NEXT)	09/16/2014 05:34 PM
DOT-D4-TAYLOR HQ-A15	PASS	TIA Cat 6 Channel	65 ft	8.2 dB (NEXT)	09/16/2014 05:34 PM
DOT-D4-TAYLOR HQ-A16	PASS	TIA Cat 6 Channel	65 ft	6.5 dB (NEXT)	09/16/2014 05:35 PM
DOT-D4-TAYLOR HQ-A17	PASS	TIA Cat 6 Channel	92 ft	5.2 dB (NEXT)	09/16/2014 05:38 PM
DOT-D4-TAYLOR HQ-A18	PASS	TIA Cat 6 Channel	92 ft	9.3 dB (NEXT)	09/16/2014 05:38 PM
DOT-D4-TAYLOR HQ-A19	PASS	TIA Cat 6 Channel	88 ft	8.5 dB (NEXT)	09/16/2014 05:40 PM
DOT-D4-TAYLOR HQ-A20	PASS	TIA Cat 6 Channel	88 ft	7.1 dB (NEXT)	09/16/2014 05:40 PM
DOT-D4-TAYLOR HQ-A21	PASS	TIA Cat 6 Channel	100 ft	5.8 dB (NEXT)	09/16/2014 05:42 PM
DOT-D4-TAYLOR HQ-A22	PASS	TIA Cat 6 Channel	99 ft	7.8 dB (NEXT)	09/16/2014 05:42 PM
DOT-D4-TAYLOR HQ-A23	PASS	TIA Cat 6 Channel	103 ft	6.6 dB (NEXT)	09/16/2014 05:43 PM
DOT-D4-TAYLOR HQ-A24	PASS	TIA Cat 6 Channel	103 ft	5.8 dB (NEXT)	09/16/2014 05:43 PM
DOT-D4-TAYLOR HQ-A25	PASS	TIA Cat 6 Channel	98 ft	8.0 dB (NEXT)	09/16/2014 06:08 PM
DOT-D4-TAYLOR HQ-A26	PASS	TIA Cat 6 Channel	98 ft	10.1 dB (NEXT)	09/16/2014 06:09 PM
DOT-D4-TAYLOR HQ-A27	PASS	TIA Cat 6 Channel	113 ft	7.7 dB (NEXT)	09/16/2014 06:13 PM
DOT-D4-TAYLOR HQ-A28	PASS	TIA Cat 6 Channel	113 ft	8.6 dB (NEXT)	09/16/2014 06:14 PM
DOT-D4-TAYLOR HQ-A29	PASS	TIA Cat 6 Channel	143 ft	9.2 dB (NEXT)	09/16/2014 06:15 PM
DOT-D4-TAYLOR HQ-A30	PASS	TIA Cat 6 Channel	143 ft	8.2 dB (NEXT)	09/16/2014 06:15 PM
DOT-D4-TAYLOR HQ-A31	PASS	TIA Cat 6 Channel	143 ft	8.5 dB (NEXT)	09/16/2014 06:15 PM
DOT-D4-TAYLOR HQ-A32	PASS	TIA Cat 6 Channel	143 ft	5.2 dB (NEXT)	09/16/2014 06:16 PM
DOT-D4-TAYLOR HQ-A33	PASS	TIA Cat 6 Channel	89 ft	9.4 dB (NEXT)	09/16/2014 06:17 PM
DOT-D4-TAYLOR HQ-A34	PASS	TIA Cat 6 Channel	89 ft	5.9 dB (NEXT)	09/16/2014 06:17 PM
DOT-D4-TAYLOR HQ-A35	FAIL	TIA Cat 6 Channel	424 ft	5.2 dB (NEXT)	09/16/2014 06:20 PM
DOT-D4-TAYLOR HQ-A36	FAIL	TIA Cat 6 Channel	424 ft	10.0 dB (NEXT)	09/16/2014 06:21 PM
DOT-D4-TAYLOR HQ-A37	PASS	TIA Cat 6 Channel	170 ft	7.8 dB (NEXT)	09/16/2014 06:24 PM
DOT-D4-TAYLOR HQ-A38	PASS	TIA Cat 6 Channel	170 ft	10.5 dB (NEXT)	09/16/2014 06:25 PM

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Total Length:	4999 ft
Number of Reports:	38
Number of Passing Reports:	36
Number of Failing Reports:	2
Number of Warning Reports:	0
Documentation Only:	0

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A01

Date / Time 09/16/2014 05:21:07 PM
Headroom 6.9 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type UltraMedia 7504
Calibration Date 12/06/2013

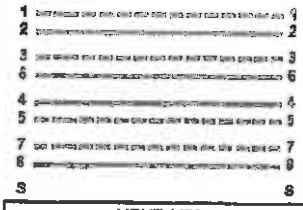
Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

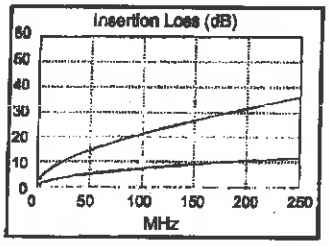
Test Summary: PASS

Model DTX-1800
Main S/N 9248049
Remote S/N 9248050
Main Adapter DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 45]	119
Prop. Delay (ns), Limit 555	[Pair 12]	170
Delay Skew (ns), Limit 50	[Pair 12]	6
Resistance (ohms)	[Pair 12]	6.0
Insertion Loss Margin (dB)	[Pair 78]	24.0
Frequency (MHz)	[Pair 78]	250.0
Limit (dB)	[Pair 78]	35.9

Wire Map (T568B)
PASS



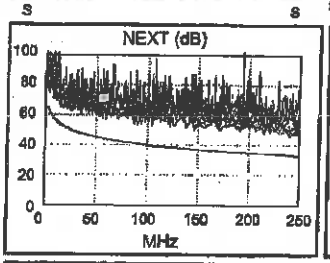


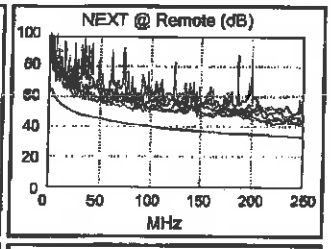
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	12-36
NEXT (dB)	10.8	6.9	12.4	7.7
Freq. (MHz)	3.0	218.5	240.5	247.5
Limit (dB)	65.0	34.1	33.4	33.2
Worst Pair	36	36	36	36
PS NEXT (dB)	12.1	7.1	13.4	7.1
Freq. (MHz)	8.4	221.0	234.0	230.5
Limit (dB)	55.3	31.1	30.7	30.8

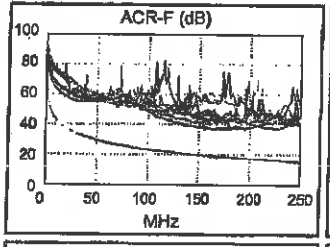
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	45-12	45-12	12-45
ACR-F (dB)	17.9	17.9	19.2	19.2
Freq. (MHz)	155.0	155.0	194.5	194.5
Limit (dB)	19.5	19.5	17.5	17.5
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.9	19.0	18.9	20.1
Freq. (MHz)	160.0	167.5	162.5	194.5
Limit (dB)	16.2	15.8	16.0	14.5

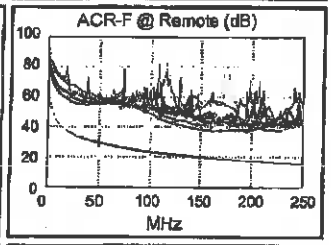
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	12-36
ACR-N (dB)	13.1	15.3	35.9	31.6
Freq. (MHz)	3.0	6.8	240.5	247.5
Limit (dB)	61.5	54.2	-1.7	-2.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.3	15.1	36.5	32.0
Freq. (MHz)	2.9	7.0	234.0	250.0
Limit (dB)	58.6	51.3	-3.9	-5.8

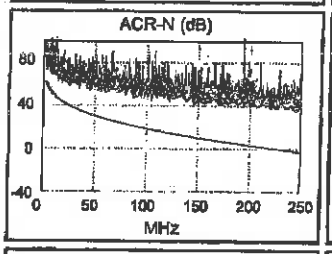
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	45	45
RL (dB)	7.8	7.7	10.3	10.3
Freq. (MHz)	18.9	18.9	144.5	242.0
Limit (dB)	17.6	17.6	10.4	8.2

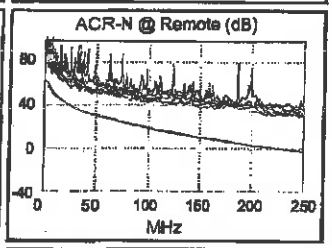


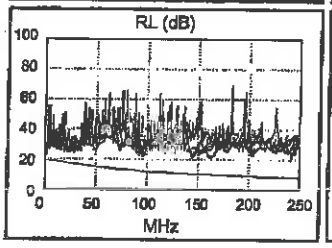


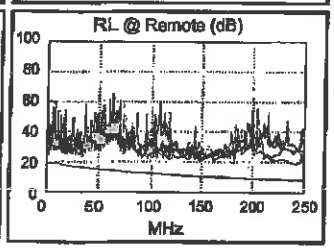












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: D-4 MARION HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A02

Date / Time: 09/16/2014 05:24:47 PM
Headroom 5.9 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

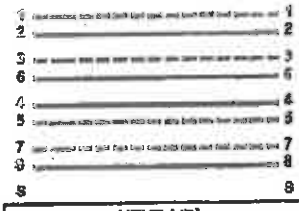
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

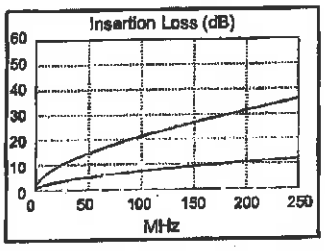
Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

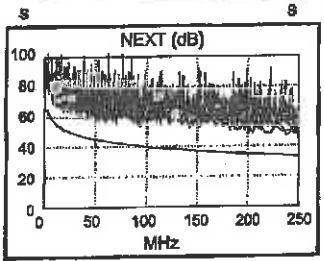
Length (ft), Limit 328	[Pair 45]	120
Prop. Delay (ns), Limit 555	[Pair 78]	171
Delay Skew (ns), Limit 50	[Pair 78]	6
Resistance (ohms)	[Pair 45]	6.1
Insertion Loss Margin (dB)	[Pair 45]	23.9
Frequency (MHz)	[Pair 45]	250.0
Limit (dB)	[Pair 45]	35.9

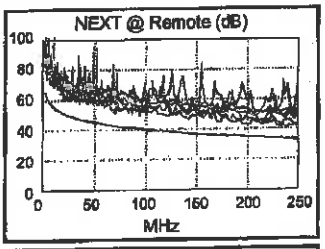
Wire Map (T568B)
PASS

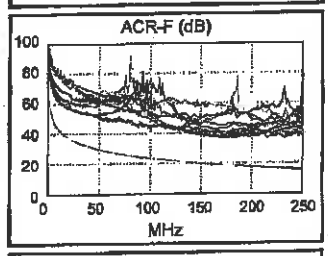


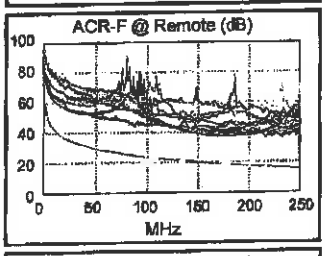


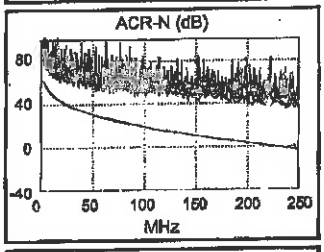
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	12.4	6.9	13.7	6.9
Freq. (MHz)	18.5	238.0	237.5	238.0
Limit (dB)	52.2	33.5	33.5	33.5
Worst Pair	36	45	36	45
PS NEXT (dB)	13.2	8.5	14.6	9.0
Freq. (MHz)	8.6	231.0	236.5	247.5
Limit (dB)	55.1	30.8	30.6	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	45-12	36-45	36-45
ACR-F (dB)	18.3	18.3	18.4	19.7
Freq. (MHz)	168.0	168.0	186.5	215.5
Limit (dB)	18.8	18.8	17.8	16.6
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.1	17.8	18.2	18.1
Freq. (MHz)	160.0	163.0	185.5	172.0
Limit (dB)	16.2	16.0	14.9	15.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
ACR-N (dB)	16.5	15.3	36.9	30.1
Freq. (MHz)	8.5	21.6	237.5	238.0
Limit (dB)	51.9	41.7	-1.4	-1.4
Worst Pair	36	36	45	45
PS ACR-N (dB)	17.1	16.7	39.1	32.8
Freq. (MHz)	8.6	4.6	250.0	247.5
Limit (dB)	49.2	55.2	-5.8	-5.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	45	45	45
RL (dB)	8.5	6.5	12.8	6.5
Freq. (MHz)	21.9	236.0	202.0	236.0
Limit (dB)	17.3	8.3	8.9	8.3

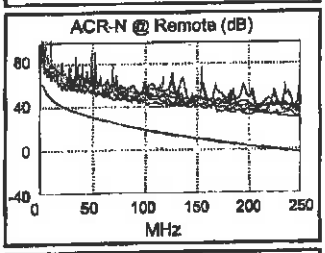


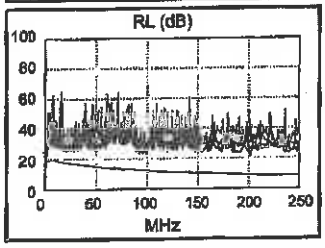


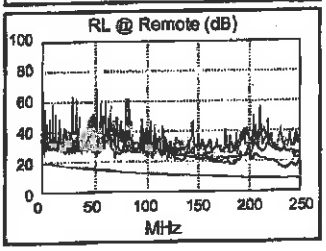












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A03

Date / Time: 09/16/2014 05:28:55 PM
Headroom 8.3 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

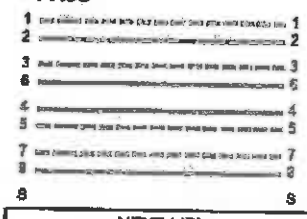
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

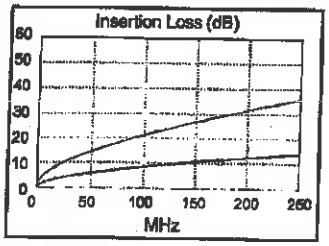
Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	142
Prop. Delay (ns), Limit 555	[Pair 12]	203
Delay Skew (ns), Limit 50	[Pair 12]	8
Resistance (ohms)	[Pair 45]	7.1
Insertion Loss Margin (dB)	[Pair 36]	21.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

Wire Map (T568B)
PASS



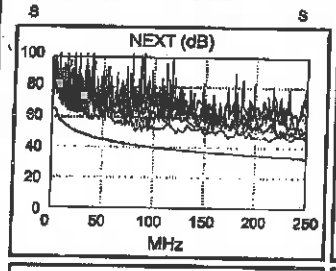


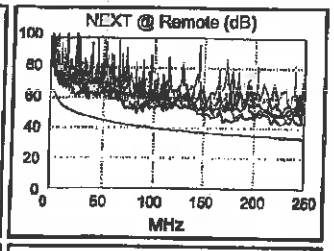
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-45	45-78	36-45
NEXT (dB)	8.7	8.3	10.3	8.8
Freq. (MHz)	82.3	169.0	214.0	226.0
Limit (dB)	41.4	36.0	34.3	33.9
Worst Pair	45	45	45	45
PS NEXT (dB)	10.8	10.1	12.3	10.1
Freq. (MHz)	9.8	226.0	250.0	226.0
Limit (dB)	54.2	30.9	30.2	30.9

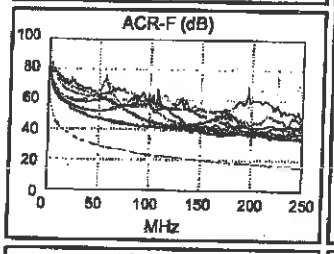
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-78	78-45
ACR-F (dB)	16.8	16.8	18.0	18.0
Freq. (MHz)	89.8	89.8	249.0	248.5
Limit (dB)	24.2	24.2	15.3	15.4
Worst Pair	36	36	45	45
PS ACR-F (dB)	17.3	17.0	17.6	17.3
Freq. (MHz)	1.0	1.8	247.5	244.0
Limit (dB)	60.3	55.4	12.4	12.5

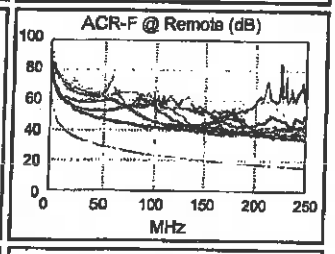
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-45	45-78	36-45
ACR-N (dB)	14.7	14.4	32.1	31.3
Freq. (MHz)	9.5	4.1	234.5	245.5
Limit (dB)	50.8	58.7	-1.0	-2.3
Worst Pair	78	45	45	36
PS ACR-N (dB)	14.5	14.6	34.3	32.7
Freq. (MHz)	3.9	3.9	250.0	246.5
Limit (dB)	56.8	56.8	-5.8	-5.4

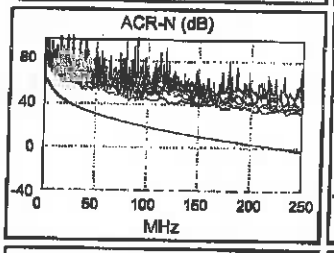
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	8.2	9.2	8.2	9.7
Freq. (MHz)	75.5	107.0	75.5	230.0
Limit (dB)	13.2	11.7	13.2	8.4

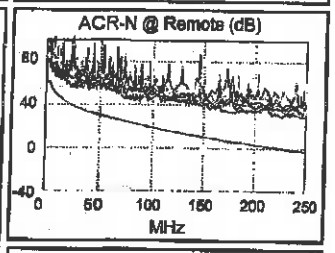


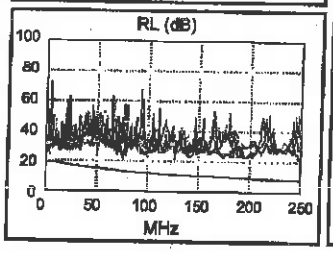


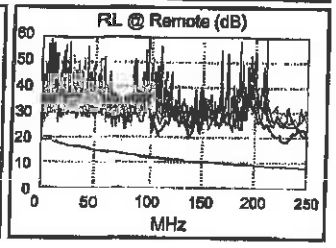












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.fiw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A04

Date / Time: 09/16/2014 05:29:12 PM
Headroom: 5.5 dB (NEXT 36-45)
Test Limits: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.8%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	204
Delay Skew (ns), Limit 50	[Pair 12]	8
Resistance (ohms)	[Pair 45]	7.3
Insertion Loss Margin (dB)	[Pair 12]	21.9
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

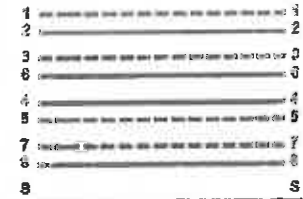
143 ft

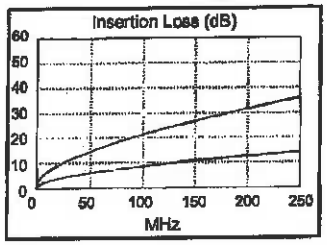
Wire Map (T568B)
PASS

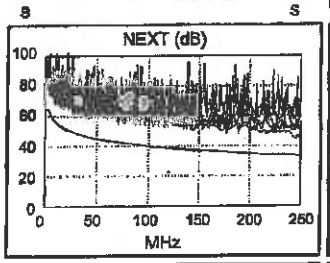
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	11.3	5.5	11.3	5.5
Freq. (MHz)	245.0	246.0	245.0	246.0
Limit (dB)	33.3	33.2	33.3	33.2
Worst Pair	45	36	36	36
PS NEXT (dB)	11.6	7.2	13.4	7.2
Freq. (MHz)	9.6	246.0	243.0	246.0
Limit (dB)	54.3	30.3	30.4	30.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-45	45-12	12-45
ACR-F (dB)	18.6	18.6	18.7	18.7
Freq. (MHz)	184.5	231.5	246.0	246.0
Limit (dB)	17.9	16.0	15.4	15.4
Worst Pair	36	45	12	45
PS ACR-F (dB)	19.6	19.3	19.8	19.3
Freq. (MHz)	1.0	246.5	245.5	246.5
Limit (dB)	60.3	12.4	12.5	12.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-36	12-36	36-45
ACR-N (dB)	14.8	12.7	33.0	27.2
Freq. (MHz)	4.3	7.3	245.0	246.0
Limit (dB)	58.5	53.5	-2.3	-2.4
Worst Pair	45	36	36	36
PS ACR-N (dB)	14.4	12.7	35.1	28.9
Freq. (MHz)	4.1	7.1	245.0	246.0
Limit (dB)	56.2	51.1	-5.2	-5.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	36	45	45
RL (dB)	8.4	9.4	10.1	10.6
Freq. (MHz)	74.8	77.8	147.0	221.5
Limit (dB)	13.3	13.1	10.3	8.5

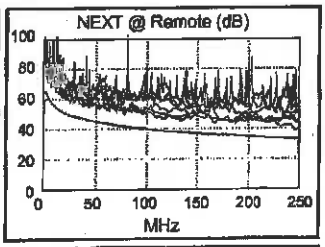
Compliant Network Standards:

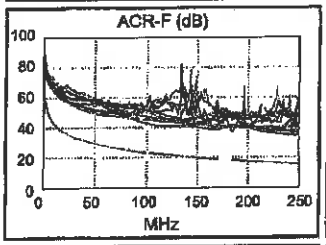
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

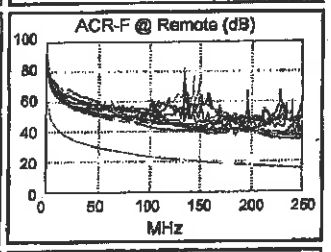


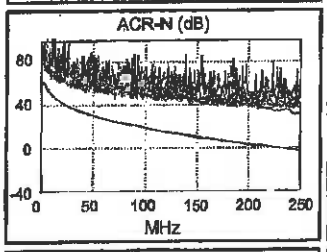


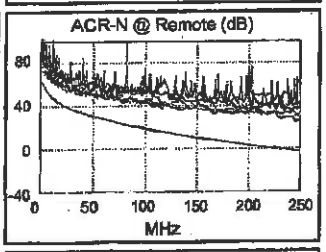


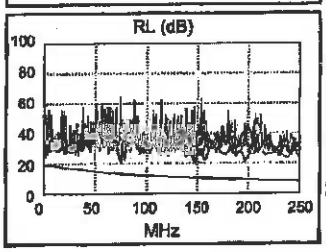


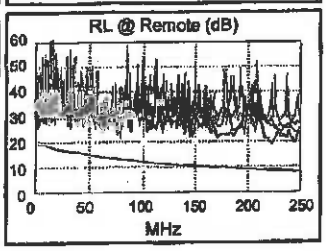












LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A05

Test Summary: PASS

Date / Time 09/18/2014 05:30:38 PM
Headroom 5.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type UltraMedia 7504
Calibration Date 12/06/2013

Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP: 74.0%

Model DTX-1800
Main S/N 9248949
Remote S/N 9248050
Main Adapter: DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 45]	130
Prop. Delay (ns), Limit 555	[Pair 78]	186
Delay Skew (ns), Limit 50	[Pair 78]	7
Resistance (ohms)	[Pair 12]	6.5
Insertion Loss Margin (dB)	[Pair 45]	23.0
Frequency (MHz)	[Pair 45]	250.0
Limit (dB)	[Pair 45]	35.9

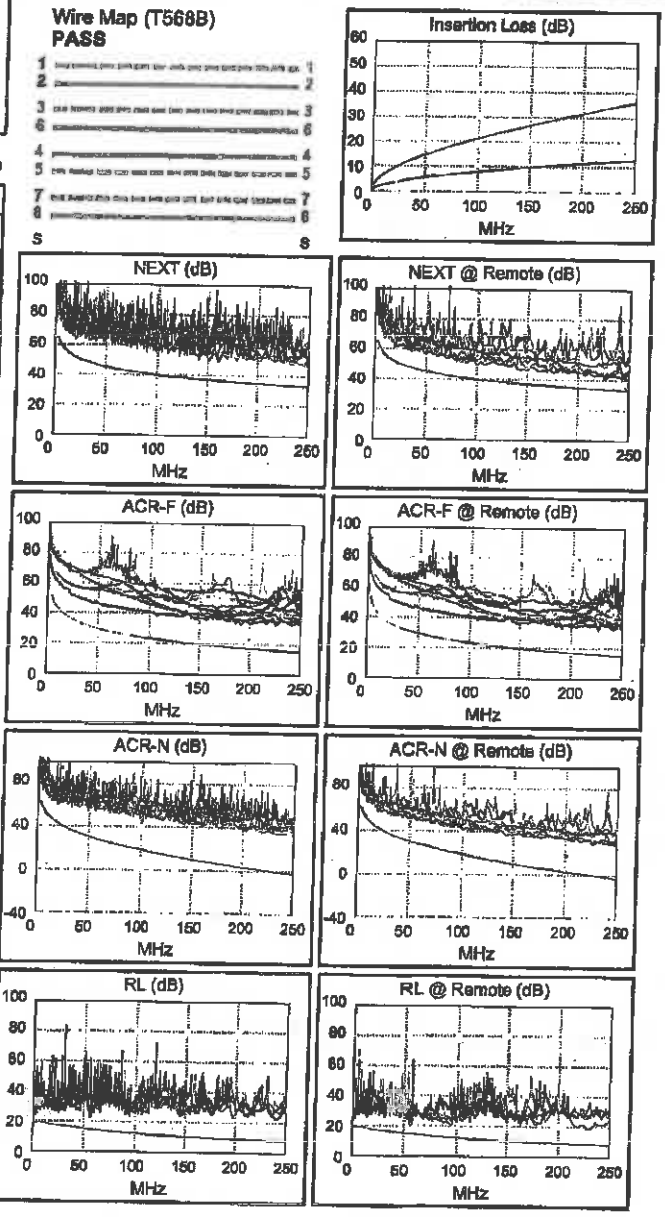
130 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	11.8	6.6	13.0	6.6
Freq. (MHz)	19.9	226.0	250.0	226.0
Limit (dB)	51.7	33.9	33.1	33.9
Worst Pair	36	36	36	36
PS NEXT (dB)	11.9	6.4	14.1	6.4
Freq. (MHz)	10.4	226.0	236.5	226.0
Limit (dB)	53.7	30.9	30.6	30.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	15.2	15.2	16.5	16.5
Freq. (MHz)	190.0	190.0	226.5	226.5
Limit (dB)	17.7	17.7	16.2	16.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	16.3	16.8	19.0	18.3
Freq. (MHz)	146.0	1.0	249.5	226.5
Limit (dB)	17.0	60.3	12.3	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-78	12-36	36-45
ACR-N (dB)	17.0	14.6	36.1	30.2
Freq. (MHz)	10.4	9.1	250.0	247.5
Limit (dB)	49.9	51.2	-2.8	-2.5
Worst Pair	36	36	12	36
PS ACR-N (dB)	15.9	14.3	38.0	29.9
Freq. (MHz)	10.4	9.3	250.0	247.0
Limit (dB)	47.3	48.5	-5.8	-5.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	8.6	6.4	14.5	10.4
Freq. (MHz)	56.0	55.5	238.5	231.0
Limit (dB)	14.5	14.6	8.2	8.4

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	



LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A06

Date / Time: 09/19/2014 05:39:58 PM
Headroom: 10.4 dB (NEXT 36-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

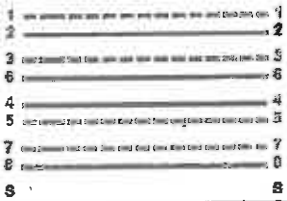
Test Summary: PASS

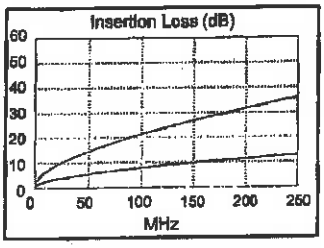
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	130
Prop. Delay (ns), Limit 555	[Pair 78]	186
Delay Skew (ns), Limit 50	[Pair 78]	7
Resistance (ohms)	[Pair 12]	6.6
Insertion Loss Margin (dB)	[Pair 36]	23.0
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

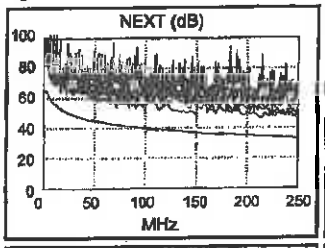
130 ft

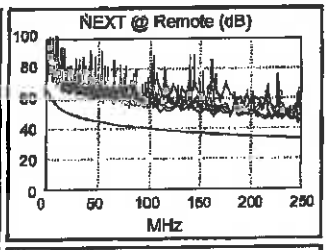
Wire Map (T568B)
PASS

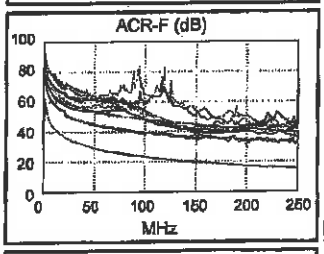


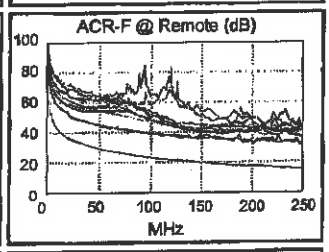


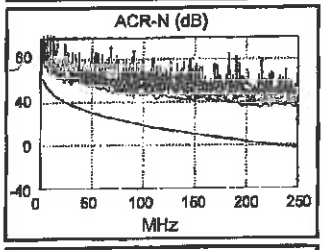
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-78	45-78	36-78
NEXT (dB)	11.6	10.4	11.6	10.4
Freq. (MHz)	214.0	246.5	214.0	246.5
Limit (dB)	34.3	33.2	34.3	33.2
Worst Pair	78	36	45	36
PS NEXT (dB)	12.0	11.0	13.9	11.0
Freq. (MHz)	16.5	247.5	248.0	247.5
Limit (dB)	50.4	30.2	30.2	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	45-36
ACR-F (dB)	14.7	14.8	16.0	16.0
Freq. (MHz)	46.8	24.0	247.5	247.5
Limit (dB)	29.9	35.7	15.4	15.4
Worst Pair	45	45	45	45
PS ACR-F (dB)	15.8	16.0	17.5	18.0
Freq. (MHz)	1.0	1.1	248.0	248.5
Limit (dB)	60.3	59.2	12.4	12.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-78	45-78	36-78
ACR-N (dB)	16.4	15.8	32.6	33.3
Freq. (MHz)	7.5	6.5	214.0	247.0
Limit (dB)	53.1	54.5	1.5	-2.5
Worst Pair	78	78	45	36
PS ACR-N (dB)	16.0	16.6	36.9	33.9
Freq. (MHz)	7.3	6.5	248.0	247.5
Limit (dB)	50.9	52.0	-5.6	-5.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	45	45	45
RL (dB)	10.2	8.8	11.4	12.5
Freq. (MHz)	19.8	43.5	113.0	234.0
Limit (dB)	17.5	15.6	11.5	8.3

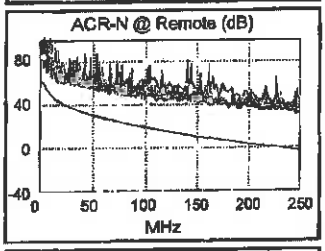


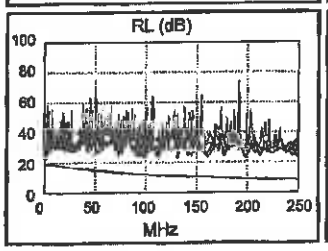


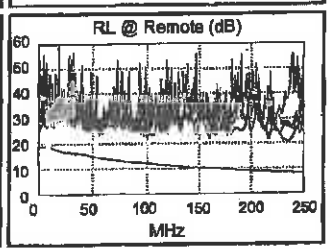












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.fiw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A07

Date / Time: 09/16/2014 05:31:26 PM
Headroom: 5.3 dB (NEXT 36-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

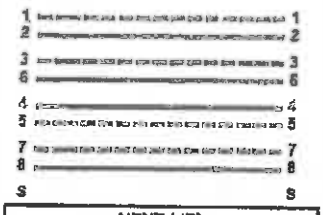
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9900
NVP: 74.0%

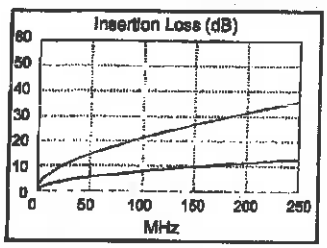
Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

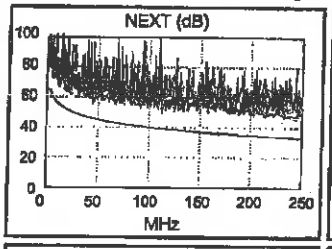
Length (ft), Limit 328	[Pair 45]	130
Prop. Delay (ns), Limit 555	[Pair 12]	184
Delay Skew (ns), Limit 50	[Pair 12]	6
Resistance (ohms)	[Pair 12]	6.5
Insertion Loss Margin (dB)	[Pair 78]	23.1
Frequency (MHz)	[Pair 78]	250.0
Limit (dB)	[Pair 78]	35.9

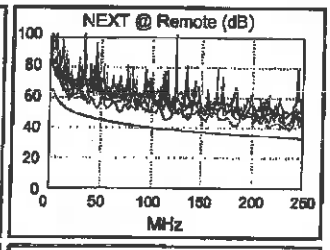
Wire Map (T568B)
PASS

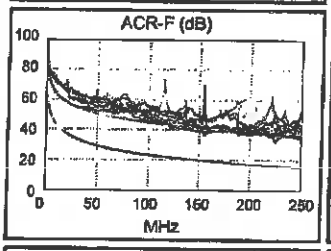


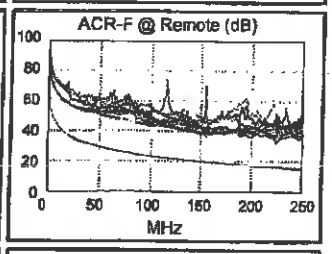


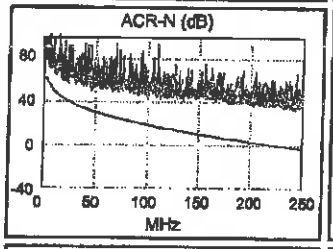
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	36-78
NEXT (dB)	9.9	5.3	11.5	5.3
Freq. (MHz)	45.8	237.0	240.5	237.0
Limit (dB)	45.7	33.5	33.4	33.5
Worst Pair	36	78	36	78
PS NEXT (dB)	11.6	6.2	12.3	6.2
Freq. (MHz)	21.1	234.5	240.5	234.5
Limit (dB)	48.6	30.6	30.4	30.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	16.5	16.6	16.5	16.6
Freq. (MHz)	224.5	224.5	224.5	224.5
Limit (dB)	16.2	16.2	16.2	16.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	18.3	17.8	18.3	18.6
Freq. (MHz)	225.0	154.5	225.0	224.5
Limit (dB)	13.2	16.5	13.2	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	12-36	12-36	36-78
ACR-N (dB)	15.4	12.5	34.1	27.8
Freq. (MHz)	5.1	19.3	240.5	237.0
Limit (dB)	56.8	43.1	-1.7	-1.3
Worst Pair	78	36	36	78
PS ACR-N (dB)	15.2	13.2	34.9	30.1
Freq. (MHz)	5.4	19.5	240.5	250.0
Limit (dB)	53.8	40.3	-4.7	-5.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	12	45	45
RL (dB)	7.3	4.6	7.6	7.3
Freq. (MHz)	25.6	35.0	71.0	230.0
Limit (dB)	17.0	16.3	13.5	8.4

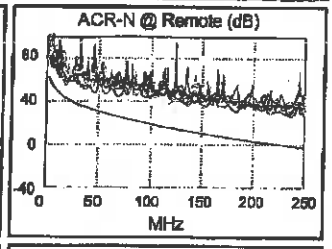


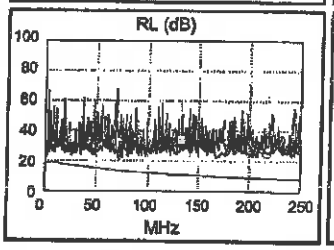


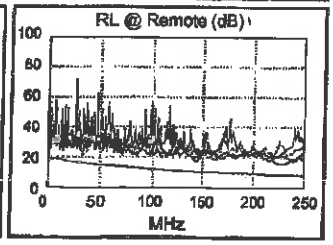












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A08

Test Summary: PASS

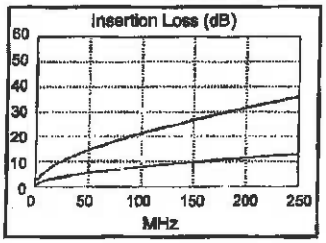
Date/Time: 08/16/2014 05:31:41 PM
Headroom 8.7 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.0300
NVP: 74.0%

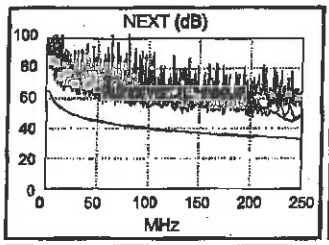
Model: DTX-1800
Main S/N: 9248048
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

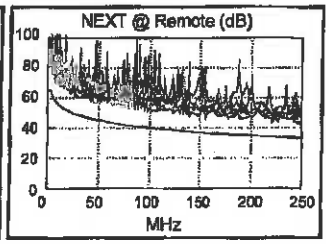
Length (ft), Limit 328	[Pair 45]	130
Prop. Delay (ns), Limit 555	[Pair 78]	185
Delay Skew (ns), Limit 50	[Pair 78]	7
Resistance (ohms)	[Pair 12]	6.5
Insertion Loss Margin (dB)	[Pair 45]	23.0
Frequency (MHz)	[Pair 45]	250.0
Limit (dB)	[Pair 45]	35.9

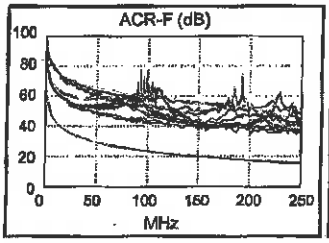
Wire Map (T568B)
PASS

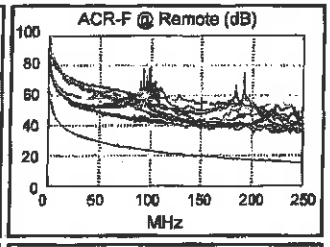


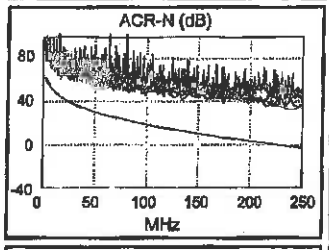
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	11.6	8.7	11.6	8.7
Freq. (MHz)	233.5	249.5	240.5	249.5
Limit (dB)	33.6	33.1	33.4	33.1
Worst Pair	36	36	36	36
PS NEXT (dB)	12.2	10.1	12.2	10.7
Freq. (MHz)	243.0	227.0	243.0	249.0
Limit (dB)	30.4	30.9	30.4	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	17.5	17.5	17.5	17.6
Freq. (MHz)	185.5	185.5	201.0	201.0
Limit (dB)	17.9	17.9	17.2	17.2
Worst Pair	45	36	36	45
PS ACR-F (dB)	17.8	17.8	18.8	20.3
Freq. (MHz)	1.1	1.0	227.0	248.0
Limit (dB)	59.2	60.3	13.1	12.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	12-36	36-45
ACR-N (dB)	17.2	15.5	34.1	31.7
Freq. (MHz)	3.0	7.9	240.5	249.5
Limit (dB)	61.5	52.7	-1.7	-2.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.1	16.0	35.0	33.8
Freq. (MHz)	3.0	7.8	243.0	249.0
Limit (dB)	58.5	50.3	-5.0	-5.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	45	45	45
RL (dB)	9.2	8.1	13.7	8.1
Freq. (MHz)	20.0	120.0	173.0	120.0
Limit (dB)	17.5	11.2	9.6	11.2

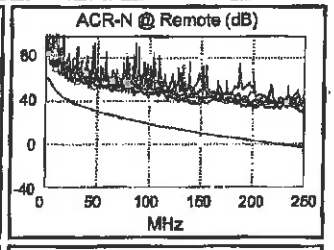


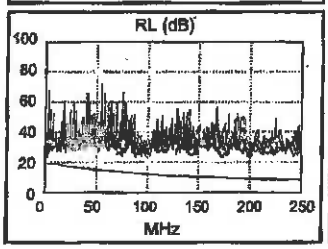


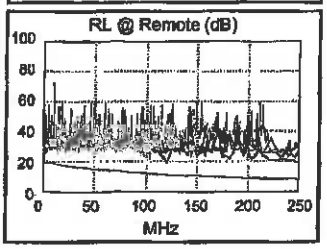












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A09

Date / Time 09/16/2014 05:32:07 PM
Headroom 6.8 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

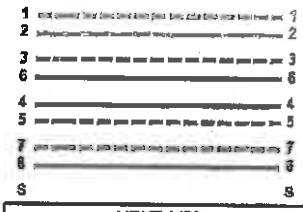
Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

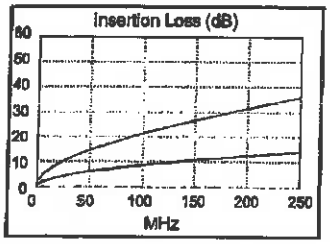
Test Summary: PASS

Model DTX-1800
Main S/N 9248049
Remote S/N 9248050
Main Adapter DTX-CHA001
Remote Adapter DTX-CHA001

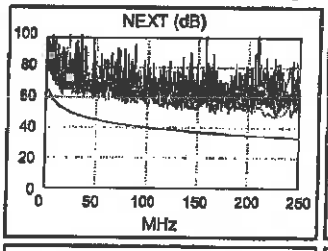
Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	205
Delay Skew (ns), Limit 50	[Pair 12]	8
Resistance (ohms)	[Pair 45]	7.3
Insertion Loss Margin (dB)	[Pair 45]	21.7
Frequency (MHz)	[Pair 45]	250.0
Limit (dB)	[Pair 45]	35.9

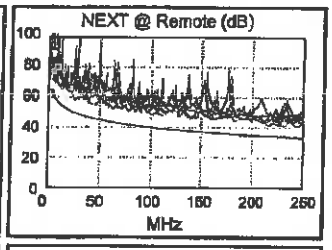
Wire Map (T568B)
PASS



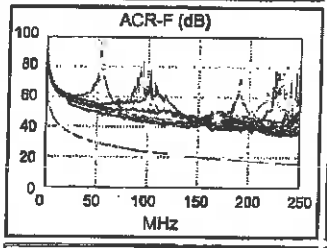


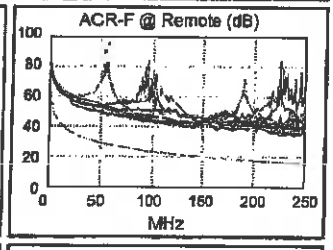
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	45-78
NEXT (dB)	10.3	6.8	13.3	6.8
Freq. (MHz)	16.1	242.5	226.0	242.5
Limit (dB)	53.2	33.3	33.9	33.3
Worst Pair	36	45	36	45
PS NEXT (dB)	11.2	7.6	13.3	7.6
Freq. (MHz)	15.6	242.0	226.5	242.0
Limit (dB)	50.8	30.4	30.9	30.4



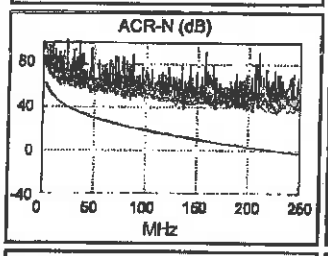


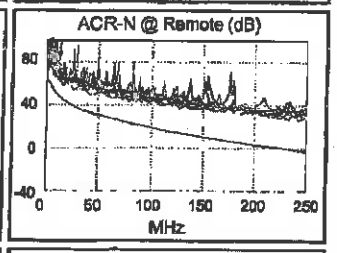
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-12	12-45	45-12	12-45
ACR-F (dB)	18.4	18.4	18.7	18.6
Freq. (MHz)	229.0	229.0	240.5	240.5
Limit (dB)	16.1	16.1	15.6	15.6
Worst Pair	36	36	45	45
PS ACR-F (dB)	17.5	17.6	19.4	18.3
Freq. (MHz)	1.9	1.8	246.0	241.5
Limit (dB)	54.8	55.4	12.4	12.6



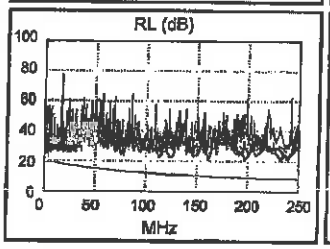


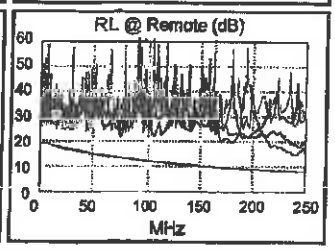
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	45-78
ACR-N (dB)	15.0	12.3	33.9	28.1
Freq. (MHz)	2.5	2.4	226.0	242.5
Limit (dB)	61.8	61.9	0.0	-2.0
Worst Pair	78	78	36	45
PS ACR-N (dB)	15.4	14.0	33.9	28.9
Freq. (MHz)	6.6	6.0	226.5	242.0
Limit (dB)	51.8	52.8	-3.0	-4.9





PASS	MAIN	SR	MAIN	SR
Worst Pair	78	45	45	45
RL (dB)	8.3	6.6	12.3	6.6
Freq. (MHz)	23.4	241.5	232.5	241.5
Limit (dB)	17.2	8.2	8.3	8.2





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A10

Test Summary: PASS

Date / Time 09/16/2014 05:32:23 PM
Headroom 2.7 dB (NEXT 12-36)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/08/2013

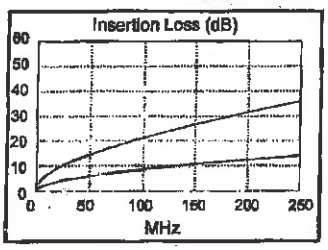
Operator JOHN
Software Version 2.7400
Limits Version 1.0980
NVP 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

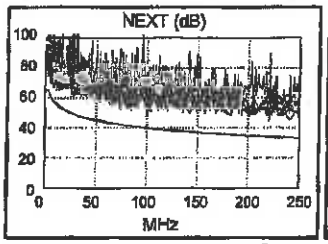
Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	204
Delay Skew (ns), Limit 50	[Pair 12]	8
Resistance (ohms)	[Pair 12]	7.2
Insertion Loss Margin (dB)	[Pair 12]	21.8
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

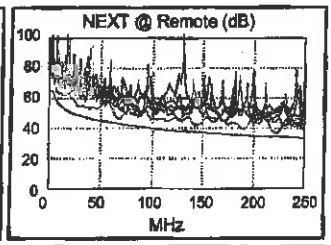
143 ft

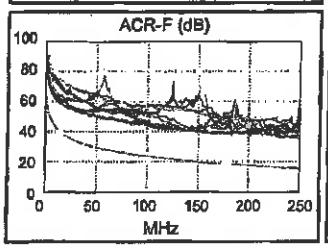
Wire Map (T568B)
PASS

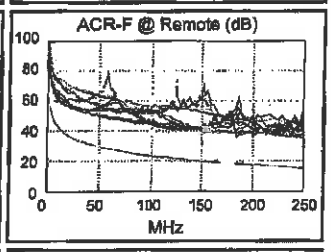


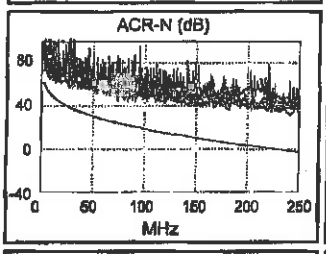
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-45	12-36
NEXT (dB)	8.5	2.7	12.1	2.7
Freq. (MHz)	8.0	223.5	240.5	223.5
Limit (dB)	58.2	34.0	33.4	34.0
Worst Pair	36	36	45	36
PS NEXT (dB)	10.2	5.0	13.6	5.2
Freq. (MHz)	8.0	66.8	241.0	223.5
Limit (dB)	55.6	40.1	30.4	31.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-12	12-45
ACR-F (dB)	18.1	18.1	19.8	19.8
Freq. (MHz)	184.0	184.0	250.0	250.0
Limit (dB)	18.0	18.0	15.3	15.3
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.7	17.5	20.1	20.5
Freq. (MHz)	1.0	1.0	236.5	242.5
Limit (dB)	60.3	60.3	12.8	12.6
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-45	12-36
ACR-N (dB)	11.3	9.1	33.5	23.3
Freq. (MHz)	2.9	7.3	240.5	223.5
Limit (dB)	61.6	53.5	-1.7	0.3
Worst Pair	36	36	45	36
PS ACR-N (dB)	13.6	11.4	35.0	28.3
Freq. (MHz)	7.8	7.5	241.0	249.5
Limit (dB)	50.3	50.6	-4.7	-5.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	12	45	45
RL (dB)	6.8	4.8	11.0	10.0
Freq. (MHz)	23.8	23.3	160.5	244.5
Limit (dB)	17.1	17.2	9.9	8.1

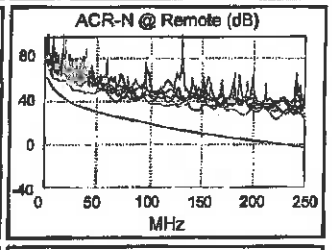


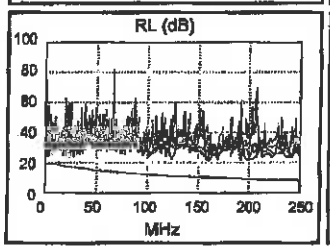


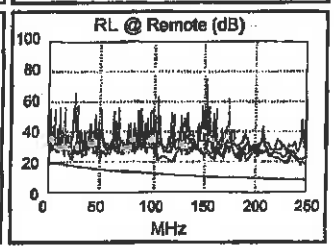












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 6.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A11

Date / Time: 09/10/2014 05 32 56 PM
Headroom 7.1 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

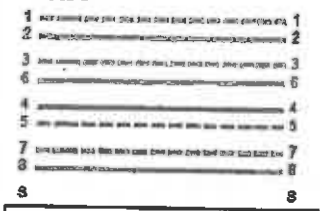
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Test Summary: PASS

Model: DTX-1800
Main S/N: 9248949
Remote S/N: 9248950
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	110
Prop. Delay (ns), Limit 555	[Pair 12]	157
Delay Skew (ns), Limit 50	[Pair 12]	6
Resistance (ohms)	[Pair 12]	5.6
Insertion Loss Margin (dB)	[Pair 36]	24.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

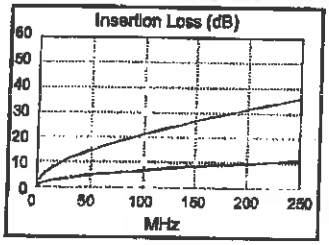
Wire Map (T568B)
PASS

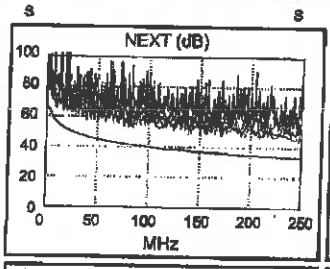


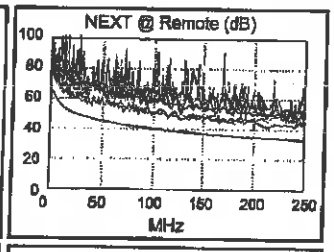
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	9.7	7.1	11.6	7.1
Freq. (MHz)	9.8	210.0	247.0	210.0
Limit (dB)	56.8	34.4	33.2	34.4
Worst Pair	36	36	36	36
PS NEXT (dB)	9.9	8.1	12.6	8.8
Freq. (MHz)	9.6	165.0	243.0	239.0
Limit (dB)	54.3	33.3	30.4	30.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	15.2	15.3	16.4	16.4
Freq. (MHz)	186.0	186.0	234.5	234.5
Limit (dB)	17.9	17.9	15.9	15.9
Worst Pair	45	45	36	36
PS ACR-F (dB)	16.5	16.1	17.4	18.7
Freq. (MHz)	1.0	167.0	234.5	237.0
Limit (dB)	60.3	15.8	12.9	12.8
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-36	12-36	36-45
ACR-N (dB)	14.0	11.8	36.4	33.6
Freq. (MHz)	9.5	3.0	247.0	250.0
Limit (dB)	50.8	61.5	-2.5	-2.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	14.2	13.9	37.5	34.2
Freq. (MHz)	9.6	5.8	247.0	250.0
Limit (dB)	48.1	53.2	-5.4	-5.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	12	45	45
RL (dB)	6.9	7.9	6.9	9.7
Freq. (MHz)	57.5	31.5	57.5	235.0
Limit (dB)	14.4	16.5	14.4	8.3

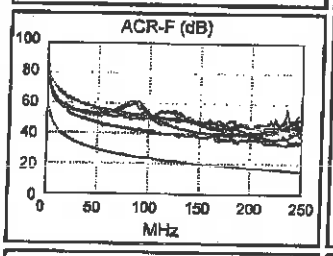
Compliant Network Standards:

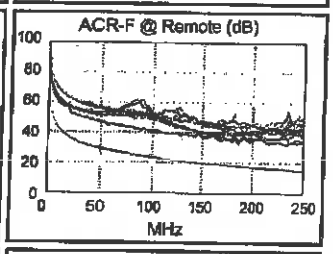
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

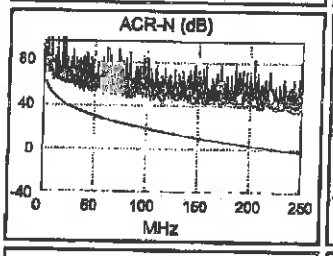


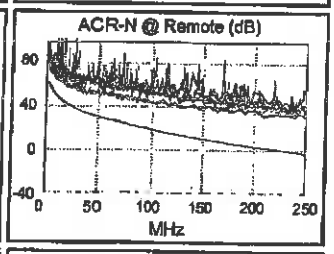


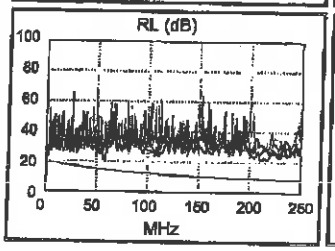


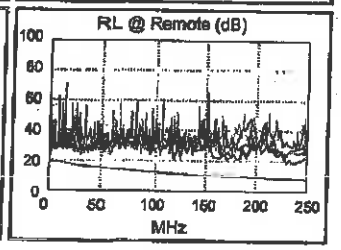












LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A12

Test Summary: PASS

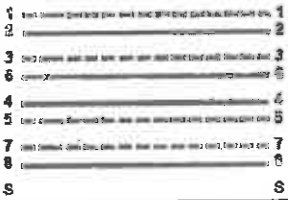
Date / Time: 09/16/2014 05:33:18 PM
Headroom: 7.5 dB (NEXT 12-36)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

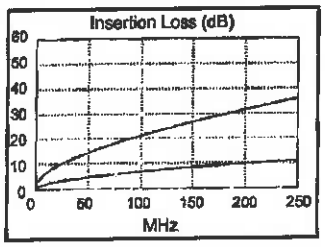
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9900
NVP: 74.0%

Model: DTX-1600
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

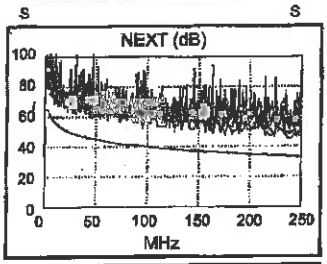
Length (ft), Limit 328	[Pair 45]	110
Prop. Delay (ns), Limit 555	[Pair 12]	157
Delay Skew (ns), Limit 50	[Pair 12]	6
Resistance (ohms)	[Pair 12]	5.6
Insertion Loss Margin (dB)	[Pair 12]	24.9
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

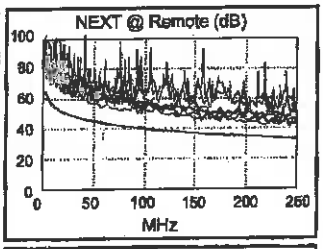
Wire Map (T568B)
PASS

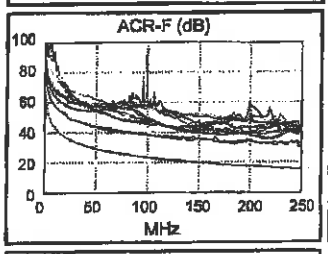


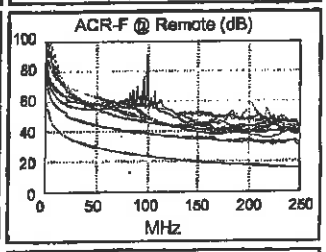


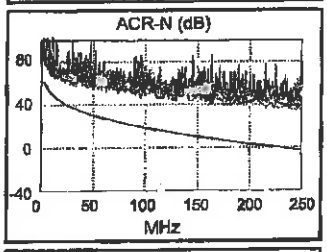
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
NEXT (dB)	11.6	7.5	11.6	7.5
Freq. (MHz)	237.5	219.0	241.0	243.0
Limit (dB)	33.5	34.1	33.4	33.3
Worst Pair	36	36	36	36
PS NEXT (dB)	11.8	7.6	12.9	7.6
Freq. (MHz)	9.3	242.0	238.0	242.0
Limit (dB)	54.6	30.4	30.5	30.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	13.8	13.8	15.1	15.2
Freq. (MHz)	139.5	139.5	248.0	248.0
Limit (dB)	20.4	20.4	15.4	15.4
Worst Pair	45	45	36	36
PS ACR-F (dB)	15.4	15.6	16.3	17.2
Freq. (MHz)	139.5	1.0	223.5	247.5
Limit (dB)	17.4	60.3	13.3	12.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-78	12-36	36-45
ACR-N (dB)	17.0	14.2	36.0	31.9
Freq. (MHz)	9.0	3.5	241.0	243.0
Limit (dB)	51.3	60.2	-1.8	-2.0
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.0	14.4	37.1	32.1
Freq. (MHz)	9.3	4.3	238.0	242.0
Limit (dB)	48.5	56.0	-4.4	-4.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	45	45
RL (dB)	8.7	8.3	13.2	10.7
Freq. (MHz)	27.4	27.6	214.5	244.5
Limit (dB)	16.8	16.8	8.7	8.1

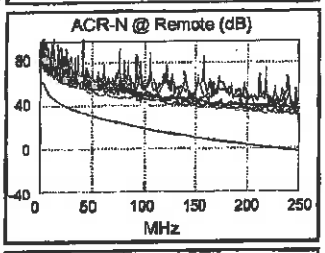


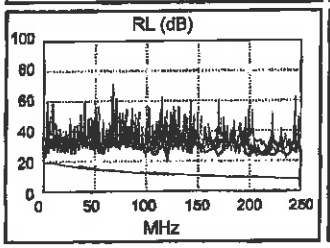


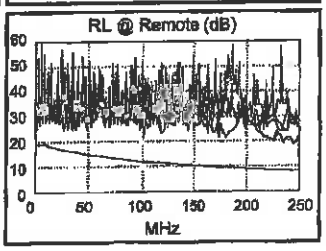












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A13

Date / Time: 09/16/2014 05:33:55 PM
Headroom 8.0 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7564
Calibration Date: 12/06/2013

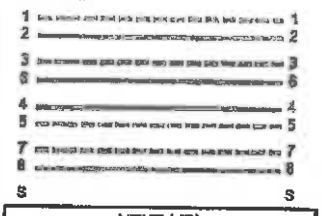
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

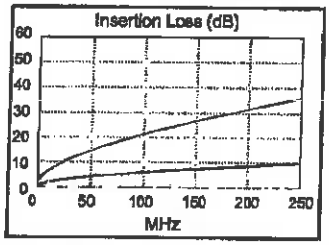
Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	97
Prop. Delay (ns), Limit 555	[Pair 12]	137
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	5.1
Insertion Loss Margin (dB)	[Pair 36]	26.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

Wire Map (T568B)
PASS



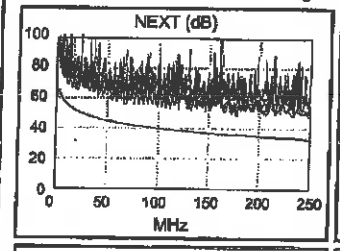


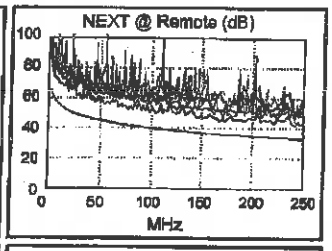
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	12.5	8.0	14.5	8.4
Freq. (MHz)	67.5	168.0	232.5	241.5
Limit (dB)	42.8	36.1	33.7	33.4
Worst Pair	45	36	36	36
PS NEXT (dB)	13.7	9.9	15.7	9.9
Freq. (MHz)	67.5	241.5	247.5	241.5
Limit (dB)	40.0	30.4	30.2	30.4

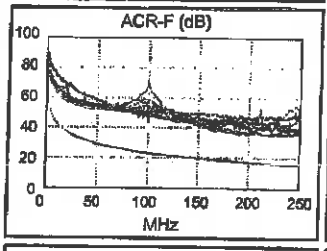
PASS	MAIN	SR	MAIN	SR
Worst Pair	78-45	45-78	78-36	36-78
ACR-F (dB)	17.8	17.8	18.7	18.9
Freq. (MHz)	188.0	188.0	222.5	222.0
Limit (dB)	17.8	17.8	16.3	16.3
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.5	18.4	17.5	18.5
Freq. (MHz)	204.5	214.0	204.5	221.5
Limit (dB)	14.0	13.6	14.0	13.3

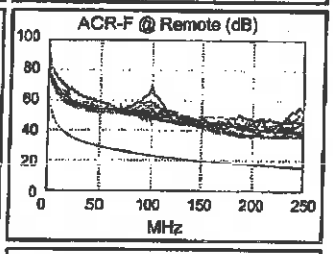
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-36	12-36	36-45
ACR-N (dB)	18.5	16.7	41.3	34.0
Freq. (MHz)	10.9	3.5	248.0	241.5
Limit (dB)	49.4	60.2	-2.6	-1.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.5	17.7	41.7	35.5
Freq. (MHz)	7.0	3.5	247.5	241.5
Limit (dB)	51.3	57.7	-5.5	-4.8

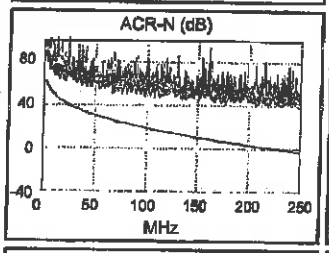
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	12	45	45
RL (dB)	8.3	9.3	8.3	10.6
Freq. (MHz)	77.5	32.5	77.5	227.5
Limit (dB)	13.1	16.4	13.1	8.4

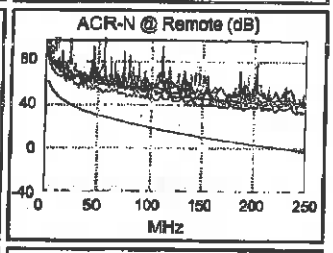


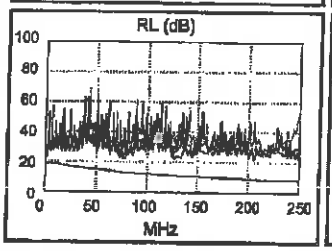


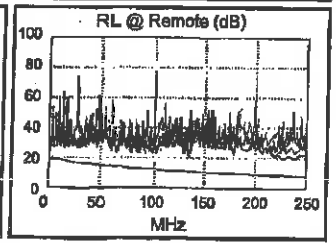












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A14

Test Summary: PASS

Date / Time: 09/16/2014 06:34:11 PM
Headroom: 5.5 dB (NEXT 12-36)
Test Limit: TIA Cat 5 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248048
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	97
Prop. Delay (ns), Limit 555	[Pair 12]	138
Delay Skew (ns), Limit 50	[Pair 12]	5
Resistance (ohms)	[Pair 12]	5.1
Insertion Loss Margin (dB)	[Pair 36]	26.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

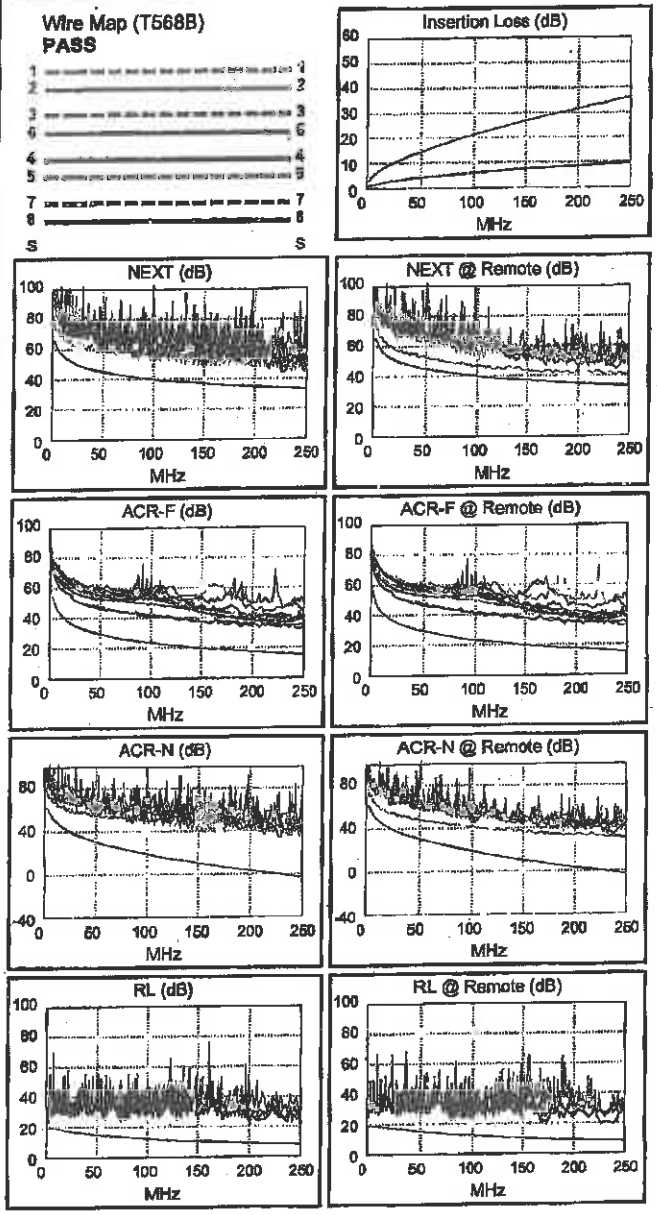
97 ft

Wire Map (T568B)
PASS

	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-36	36-45	12-36
NEXT (dB)	9.0	5.5	9.0	6.7
Freq. (MHz)	228.0	175.5	228.0	235.0
Limit (dB)	33.8	35.8	33.8	33.6
Worst Pair	45	36	45	36
PS NEXT (dB)	11.3	7.5	11.3	7.7
Freq. (MHz)	228.0	175.0	228.0	233.5
Limit (dB)	30.9	32.9	30.9	30.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.7	15.8	16.8	16.7
Freq. (MHz)	188.0	188.0	243.0	243.5
Limit (dB)	17.8	17.8	15.5	15.5
Worst Pair	45	45	45	45
PS ACR-F (dB)	16.9	17.3	17.9	17.3
Freq. (MHz)	188.0	206.0	243.0	206.0
Limit (dB)	14.8	14.0	12.5	14.0
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-45	12-36
ACR-N (dB)	13.1	10.2	33.7	33.2
Freq. (MHz)	3.0	3.3	228.0	247.0
Limit (dB)	61.5	60.9	-0.2	-2.5
Worst Pair	36	36	45	36
PS ACR-N (dB)	14.7	12.4	36.1	32.8
Freq. (MHz)	3.3	3.3	228.0	233.5
Limit (dB)	58.4	58.4	-3.2	-3.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	12	45	45
RL (dB)	10.2	9.2	13.2	10.6
Freq. (MHz)	27.5	79.0	200.5	227.5
Limit (dB)	16.8	13.0	9.0	8.4

Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	



LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A15

Date / Time: 09/16/2014 05:34:46 PM
Headroom 8.2 dB (NEXT 36-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

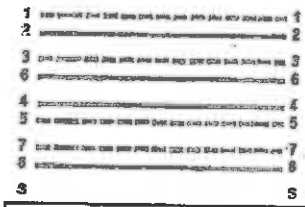
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

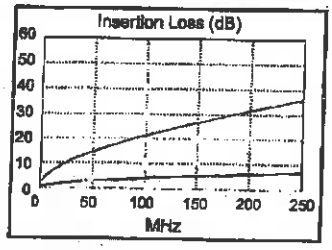
Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

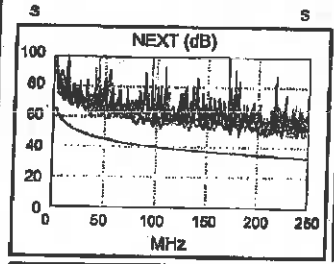
Length (ft), Limit 328	[Pair 45]	65
Prop. Delay (ns), Limit 555	[Pair 12]	92
Delay Skew (ns), Limit 50	[Pair 12]	3
Resistance (ohms)	[Pair 12]	3.6
Insertion Loss Margin (dB)	[Pair 36]	29.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

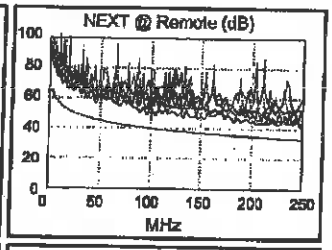
Wire Map (T568B)
PASS

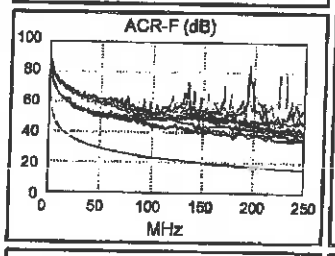


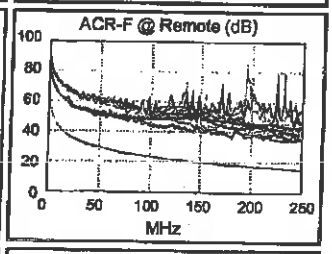


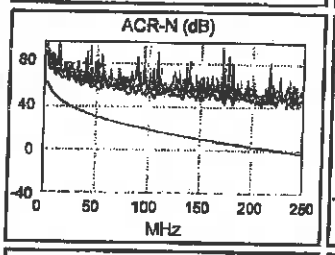
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-78	36-45	12-36
NEXT (dB)	12.3	8.2	13.8	8.3
Freq. (MHz)	181.0	226.0	237.5	248.5
Limit (dB)	35.5	33.9	33.5	33.2
Worst Pair	36	36	36	36
PS NEXT (dB)	12.8	8.5	13.6	8.5
Freq. (MHz)	95.5	182.0	231.5	248.0
Limit (dB)	37.4	32.6	30.7	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	17.2	17.2	18.6	18.2
Freq. (MHz)	180.0	180.0	239.0	225.5
Limit (dB)	18.2	18.2	15.7	16.2
Worst Pair	45	45	45	45
PS ACR-F (dB)	19.0	19.2	20.0	19.5
Freq. (MHz)	1.0	1.0	249.5	246.0
Limit (dB)	60.3	60.3	12.3	12.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	12-36	36-45	12-36
ACR-N (dB)	17.6	18.7	42.1	37.4
Freq. (MHz)	5.1	2.9	237.5	248.5
Limit (dB)	56.8	61.6	-1.4	-2.7
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.1	18.7	41.4	37.5
Freq. (MHz)	4.6	2.9	231.5	248.0
Limit (dB)	55.2	58.6	-3.6	-5.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	78	45	45
RL (dB)	8.7	8.8	13.4	9.7
Freq. (MHz)	76.3	153.0	238.0	233.0
Limit (dB)	13.2	10.2	8.2	8.3

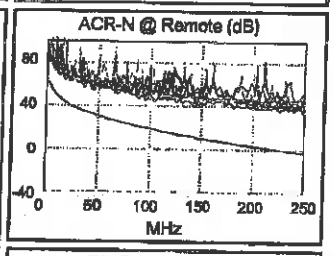


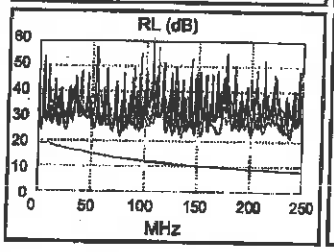


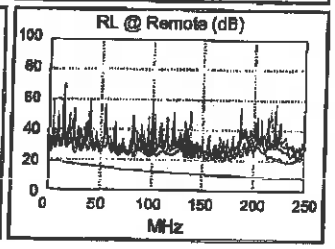












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A18

Date / Time: 09/16/2014 05:35:01 PM
Headroom: 5.5 dB (NEXT 39-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

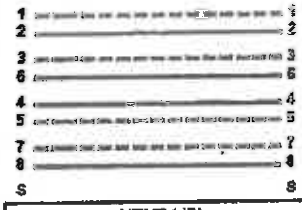
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

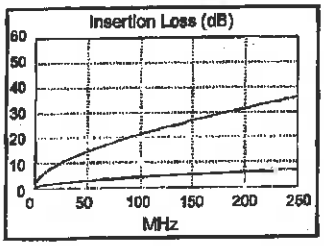
Test Summary: PASS

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

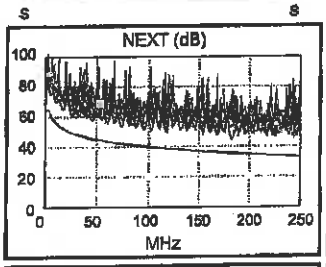
Length (ft), Limit 328	[Pair 45]	65
Prop. Delay (ns), Limit 555	[Pair 12]	91
Delay Skew (ns), Limit 50	[Pair 12]	2
Resistance (ohms)	[Pair 12]	3.6
Insertion Loss Margin (dB)	[Pair 36]	29.1
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

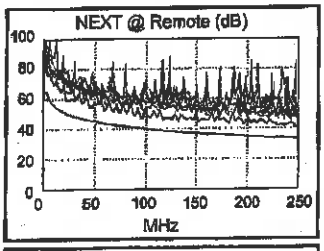
Wire Map (T568B)
PASS

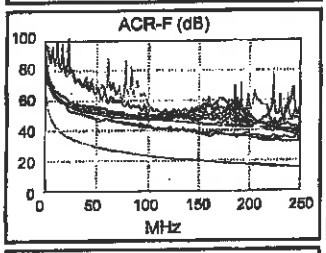


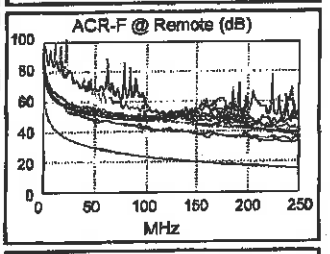


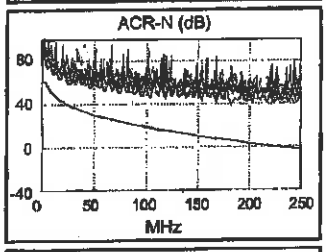
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	9.0	6.5	9.0	7.2
Freq. (MHz)	182.0	95.5	182.0	238.0
Limit (dB)	35.5	40.3	35.5	33.5
Worst Pair	36	36	36	36
PS NEXT (dB)	11.0	8.4	12.5	8.9
Freq. (MHz)	182.0	96.0	224.5	249.5
Limit (dB)	32.6	37.4	31.0	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	16.3	16.3	16.9	17.1
Freq. (MHz)	160.0	160.0	243.0	243.0
Limit (dB)	19.2	19.2	15.5	15.5
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.8	17.8	18.9	18.4
Freq. (MHz)	1.0	1.0	242.5	243.0
Limit (dB)	60.3	60.3	12.6	12.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
ACR-N (dB)	17.2	16.0	33.3	36.5
Freq. (MHz)	3.9	3.0	182.0	247.5
Limit (dB)	59.3	61.5	5.6	-2.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.2	16.1	39.9	38.0
Freq. (MHz)	3.3	4.1	224.5	249.5
Limit (dB)	58.4	56.2	-2.8	-5.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	36	36	36
RL (dB)	8.5	7.6	11.4	10.0
Freq. (MHz)	59.3	88.8	183.0	167.5
Limit (dB)	14.3	12.5	9.4	9.8

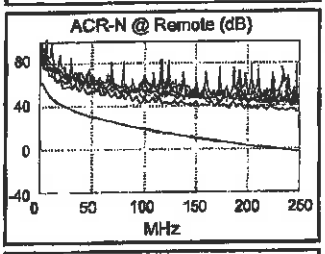


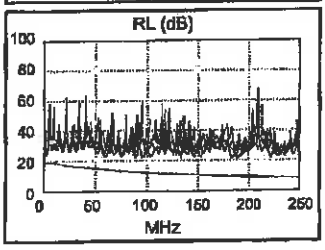


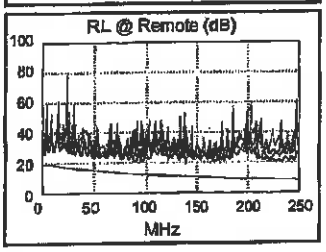












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A17

Date / Time 09/18/2014 05:38:08 PM
Headroom 6.2 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type UltraMedia 7504
Calibration Date 12/06/2013

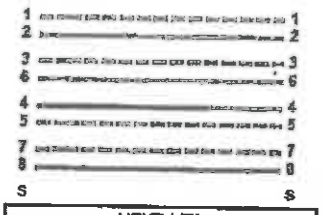
Operator: JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

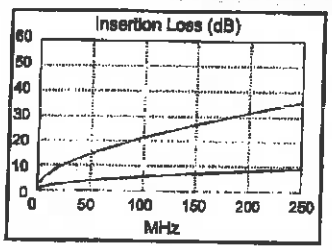
Test Summary: PASS

Model DTX-1800
Main S/N 9248049
Remote S/N 9248050
Main Adapter DTX-CHA001
Remote Adapter DTX-CHA001

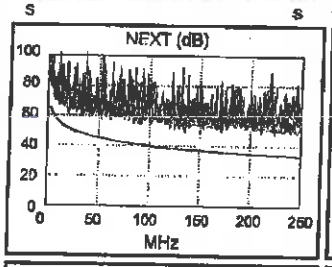
Length (ft), Limit 328	[Pair 36]	93
Prop. Delay (ns), Limit 555	[Pair 12]	131
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	4.9
Insertion Loss Margin (dB)	[Pair 36]	26.6
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

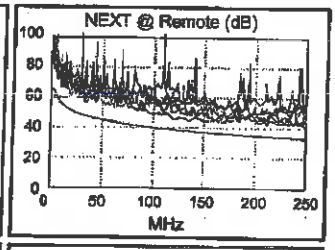
Wire Map (T568B)
PASS

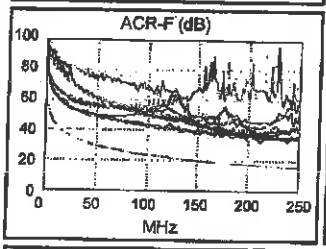


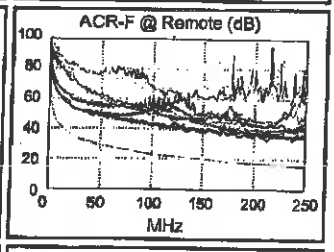


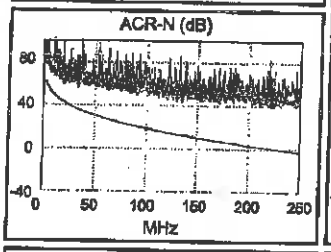
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	12-36	45-78
NEXT (dB)	10.0	6.2	13.8	6.5
Freq. (MHz)	20.1	121.0	223.5	250.0
Limit (dB)	51.6	38.5	34.0	33.1
Worst Pair	45	78	36	45
PS NEXT (dB)	11.8	7.9	12.9	8.0
Freq. (MHz)	6.9	121.5	224.0	250.0
Limit (dB)	56.7	35.6	31.0	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	36-45	45-36
ACR-F (dB)	15.8	15.8	16.8	16.7
Freq. (MHz)	211.5	211.5	237.0	237.0
Limit (dB)	16.8	16.8	15.8	15.8
Worst Pair	36	45	45	45
PS ACR-F (dB)	17.3	16.7	17.3	16.7
Freq. (MHz)	211.5	211.5	237.5	211.5
Limit (dB)	13.8	13.8	12.7	13.8
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	45-78
ACR-N (dB)	15.8	16.0	38.7	33.2
Freq. (MHz)	6.9	6.5	223.5	250.0
Limit (dB)	54.0	54.5	0.3	-2.8
Worst Pair	45	45	36	45
PS ACR-N (dB)	15.7	15.3	37.8	34.7
Freq. (MHz)	6.9	6.4	224.0	250.0
Limit (dB)	51.4	52.2	-2.7	-5.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	10.8	9.4	10.8	9.4
Freq. (MHz)	127.5	218.5	127.5	218.5
Limit (dB)	10.9	8.6	10.9	8.6

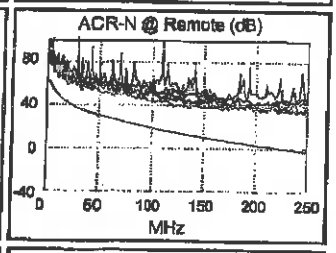


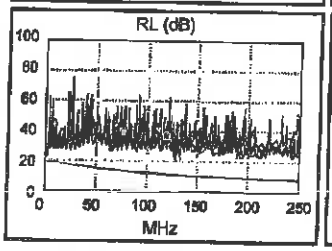


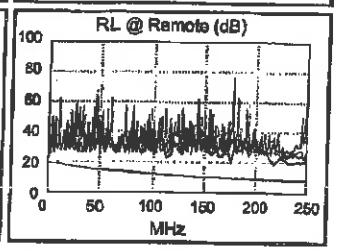












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A18

Test Summary: PASS

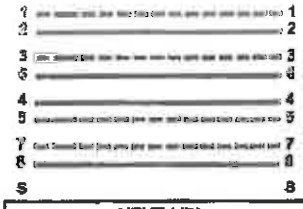
Date / Time: 09/16/2014 05:36:18 PM
Headroom: 9.3 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7594
Calibration Date: 12/05/2013

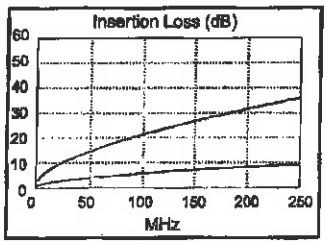
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

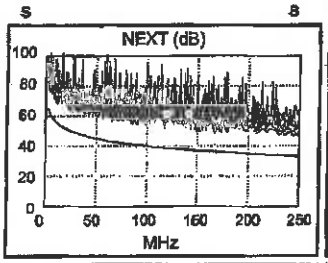
Length (ft), Limit 328	[Pair 45]	93
Prop. Delay (ns), Limit 555	[Pair 12]	131
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	4.9
Insertion Loss Margin (dB)	[Pair 36]	26.6
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

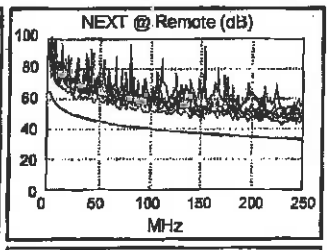
Wire Map (T568B)
PASS

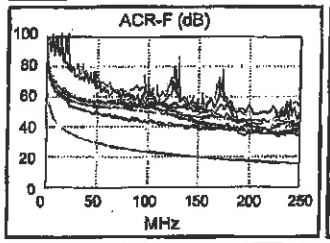


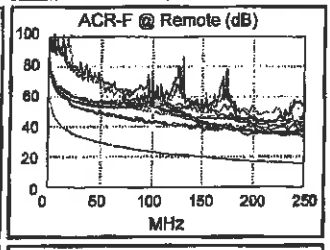


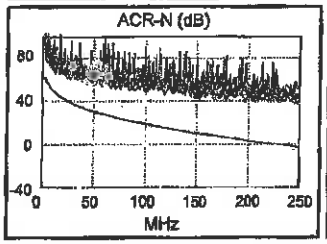
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	12.1	9.3	13.2	9.3
Freq. (MHz)	166.5	228.5	248.5	233.5
Limit (dB)	36.1	33.8	33.2	33.6
Worst Pair	36	36	36	36
PS NEXT (dB)	13.0	10.1	13.6	10.1
Freq. (MHz)	166.5	235.0	248.5	235.0
Limit (dB)	33.2	30.6	30.2	30.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	16.5	16.5	17.8	17.9
Freq. (MHz)	191.0	191.0	231.0	231.0
Limit (dB)	17.6	17.6	16.0	16.0
Worst Pair	45	45	45	45
PS ACR-F (dB)	16.8	16.9	17.6	16.9
Freq. (MHz)	190.5	231.0	233.5	231.0
Limit (dB)	14.7	13.0	12.9	13.0
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
ACR-N (dB)	17.2	14.8	39.8	34.8
Freq. (MHz)	4.3	3.6	248.5	233.5
Limit (dB)	58.5	59.9	-2.7	-0.9
Worst Pair	12	36	36	36
PS ACR-N (dB)	18.8	16.6	40.1	35.6
Freq. (MHz)	4.3	3.6	248.5	235.0
Limit (dB)	56.0	57.4	-5.6	-4.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	78	78	45	45
RL (dB)	9.1	7.9	13.6	9.0
Freq. (MHz)	29.6	29.6	250.0	234.0
Limit (dB)	16.6	16.6	8.0	8.3

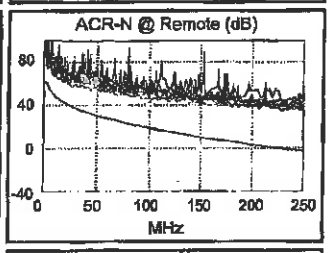


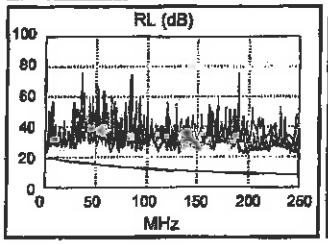


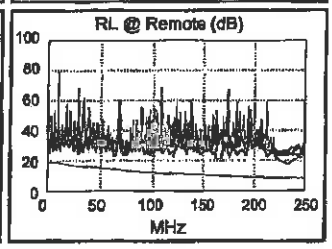












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A19

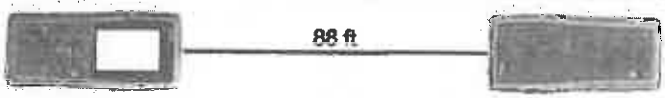
Date / Time 09/16/2014 05 40 17 PM
Headroom 8.5 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type UltraMedia 7504
Calibration Date 12/06/2013

Operator: JOHN
Software Version 2 7400
Limits Version: 1 9000
NVP 74.0%

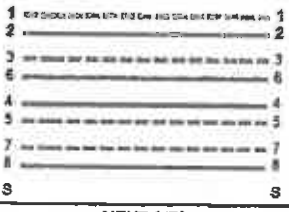
Test Summary: PASS

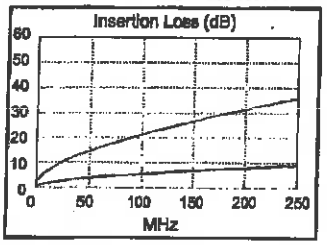
Model DTX-1800
Main S/N 9248949
Remote S/N 9248950
Main Adapter: DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 45]	88
Prop. Delay (ns), Limit 555	**[Pair 12]**	125
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	4.6
Insertion Loss Margin (dB)	[Pair 36]	26.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9



Wire Map (T568B)
PASS



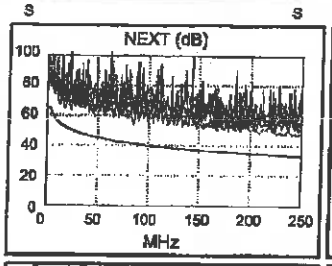


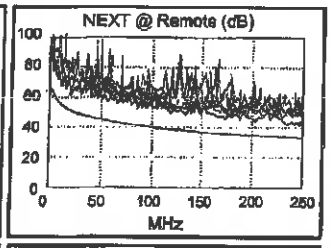
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	12.1	8.5	13.3	8.5
Freq. (MHz)	17.0	236.5	245.0	236.5
Limit (dB)	52.8	33.5	33.3	33.5
Worst Pair	36	36	36	36
PS NEXT (dB)	12.7	10.1	14.8	10.1
Freq. (MHz)	22.8	235.0	246.0	235.0
Limit (dB)	48.0	30.6	30.3	30.6

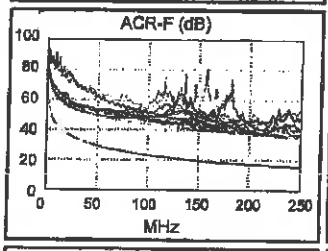
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-45	12-45	45-78	78-45
ACR-F (dB)	18.7	18.7	19.2	19.0
Freq. (MHz)	5.6	4.6	235.0	234.0
Limit (dB)	48.3	50.0	15.8	15.9
Worst Pair	78	45	45	45
PS ACR-F (dB)	17.9	17.5	18.1	17.5
Freq. (MHz)	1.0	234.0	242.0	234.0
Limit (dB)	60.3	12.9	12.6	12.9

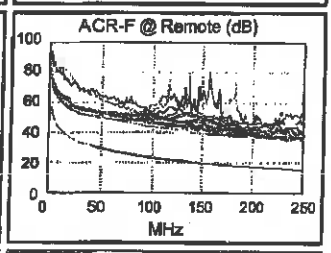
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	12-36	12-36	36-45
ACR-N (dB)	17.9	16.4	40.0	34.6
Freq. (MHz)	11.6	3.6	245.0	236.5
Limit (dB)	48.7	59.9	-2.3	-1.3
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.8	17.0	41.9	37.6
Freq. (MHz)	11.8	12.1	250.0	249.5
Limit (dB)	46.0	45.6	-5.8	-5.7

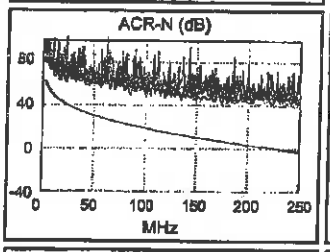
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	9.9	8.2	10.1	9.8
Freq. (MHz)	130.0	109.5	139.5	166.5
Limit (dB)	10.9	11.6	10.6	9.8

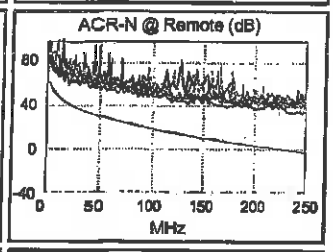


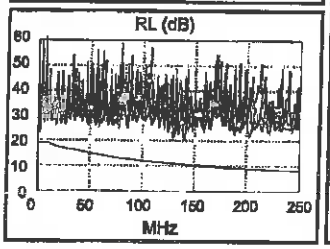


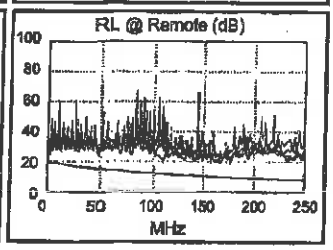












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A20

Test Summary: PASS

Date / Time: 09/16/2014 05:40:44 PM
Headroom: 7.1 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

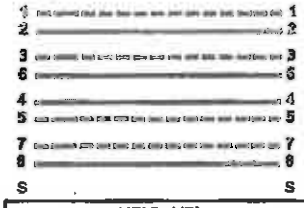
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

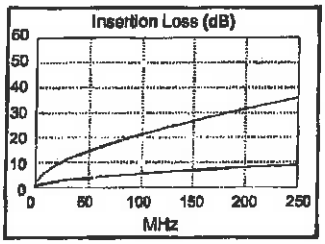
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 36]	88
Prop. Delay (ns), Limit 555	[Pair 12]	125
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	4.6
Insertion Loss Margin (dB)	[Pair 45]	26.9
Frequency (MHz)	[Pair 45]	250.0
Limit (dB)	[Pair 45]	35.9

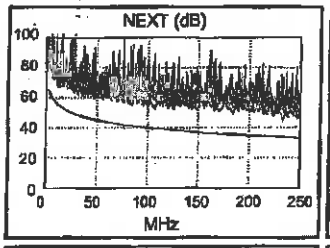
88 ft

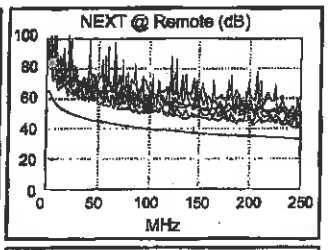
Wire Map (T568B)
PASS

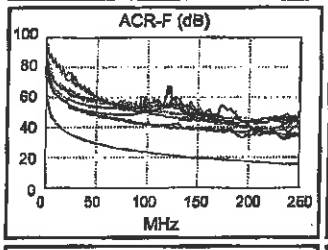


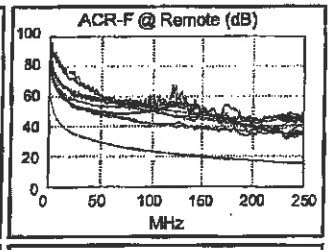


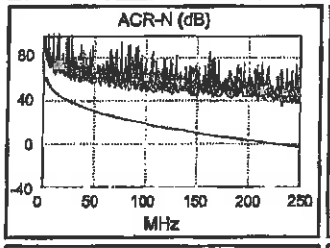
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	11.2	7.1	11.2	7.1
Freq. (MHz)	232.5	248.0	232.5	248.0
Limit (dB)	33.7	33.2	33.7	33.2
Worst Pair	45	45	36	45
PS NEXT (dB)	11.9	7.0	13.4	7.0
Freq. (MHz)	12.0	242.5	247.5	242.5
Limit (dB)	52.7	30.4	30.2	30.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.6	15.5	15.9	15.9
Freq. (MHz)	192.0	192.0	233.0	233.0
Limit (dB)	17.6	17.6	15.9	15.9
Worst Pair	45	45	45	45
PS ACR-F (dB)	16.8	17.0	16.8	17.1
Freq. (MHz)	232.5	1.0	232.5	237.5
Limit (dB)	12.9	60.3	12.9	12.7
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	12-36	36-45
ACR-N (dB)	16.6	16.2	37.1	34.0
Freq. (MHz)	11.6	6.1	232.5	248.0
Limit (dB)	48.7	55.1	-0.8	-2.6
Worst Pair	45	45	36	45
PS ACR-N (dB)	17.1	16.4	40.2	33.5
Freq. (MHz)	12.1	6.5	247.5	242.5
Limit (dB)	45.6	52.0	-5.5	-4.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	10.0	9.1	11.7	9.5
Freq. (MHz)	72.8	48.5	210.0	237.5
Limit (dB)	13.4	15.1	8.8	8.2

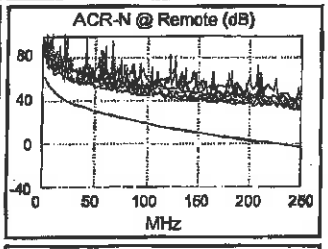


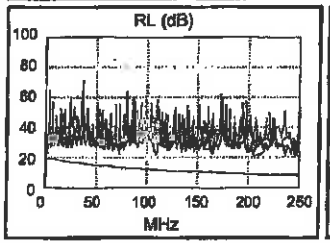


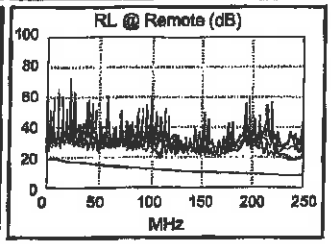












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A21

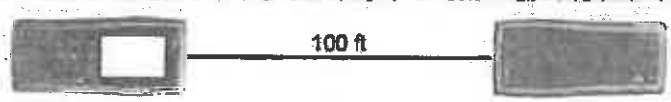
Test Summary: PASS

Date / Time 09/16/2014 05:42:17 PM
Headroom 5.8 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type UltraMedia 7504
Calibration Date 12/06/2013

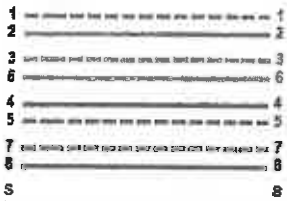
Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

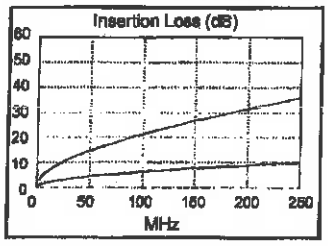
Model DTX-1800
Main S/N 9248048
Remote S/N 9248050
Main Adapter DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 36]	100
Prop. Delay (ns), Limit 555	[Pair 12]	141
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	5.2
Insertion Loss Margin (dB)	[Pair 36]	25.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

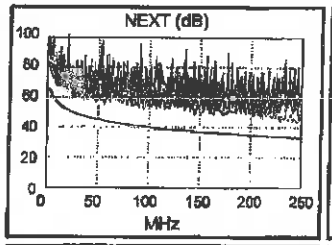


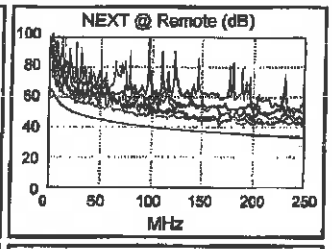
Wire Map (T568B)
PASS

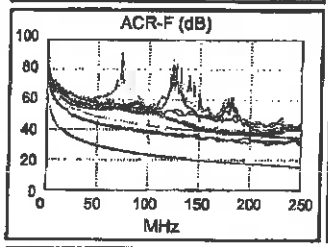


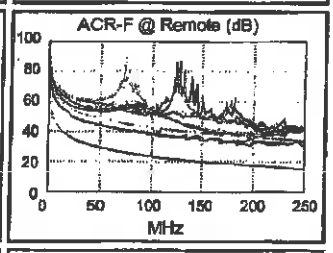


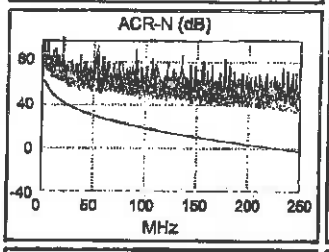
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	9.9	5.8	9.9	7.4
Freq. (MHz)	245.5	168.0	245.5	248.5
Limit (dB)	33.3	36.1	33.3	33.2
Worst Pair	36	36	36	36
PS NEXT (dB)	11.0	5.5	12.3	5.5
Freq. (MHz)	27.0	216.0	249.5	216.0
Limit (dB)	46.8	31.3	30.2	31.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	13.2	13.2	13.9	13.9
Freq. (MHz)	184.5	184.5	216.5	216.5
Limit (dB)	17.9	17.9	16.5	16.5
Worst Pair	45	45	36	45
PS ACR-F (dB)	14.9	14.7	15.7	15.4
Freq. (MHz)	184.5	168.0	216.5	216.5
Limit (dB)	14.9	15.8	13.5	13.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
ACR-N (dB)	14.9	11.8	35.7	33.4
Freq. (MHz)	3.8	3.1	245.5	248.5
Limit (dB)	59.6	61.2	-2.3	-2.7
Worst Pair	36	36	36	36
PS ACR-N (dB)	15.6	13.7	38.2	32.6
Freq. (MHz)	10.0	10.4	249.5	250.0
Limit (dB)	47.7	47.3	-5.7	-5.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	36	36	45
RL (dB)	9.7	7.8	12.6	9.1
Freq. (MHz)	65.3	65.3	201.5	237.0
Limit (dB)	13.9	13.9	9.0	8.3

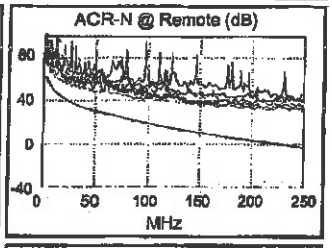


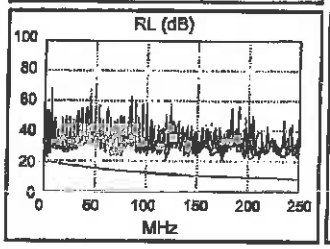


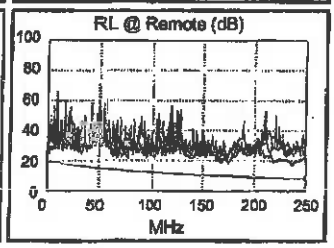












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 8.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A22

Date / Time: 09/18/2014 05:42:34 PM
Headroom: 7.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

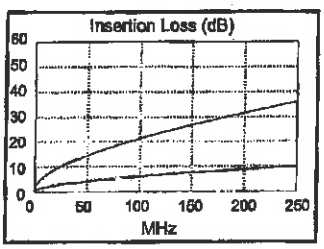
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.8300
NVP: 74.0%

Test Summary: PASS

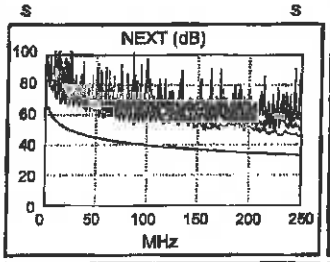
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

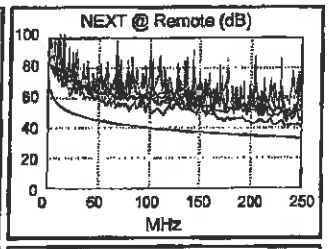
Length (ft), Limit 328	[Pair 45]	99
Prop. Delay (ns), Limit 555	[Pair 12]	141
Delay Skew (ns), Limit 50	[Pair 12]	5
Resistance (ohms)	[Pair 12]	5.1
Insertion Loss Margin (dB)	[Pair 45]	25.9
Frequency (MHz)	[Pair 45]	250.0
Limit (dB)	[Pair 45]	35.9

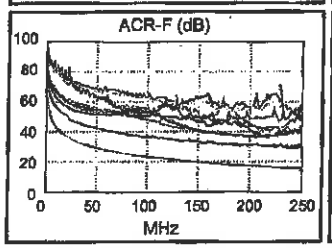
Wire Map (T568B)
PASS

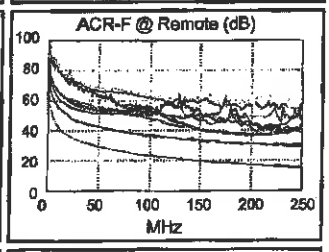


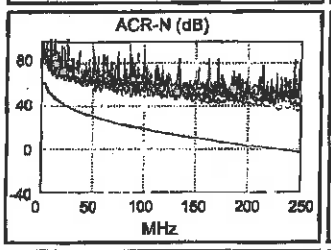
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	12.2	7.6	12.3	7.9
Freq. (MHz)	229.0	234.5	248.0	249.5
Limit (dB)	33.8	33.6	33.2	33.1
Worst Pair	36	36	36	36
PS NEXT (dB)	13.2	8.9	14.1	8.9
Freq. (MHz)	155.0	235.5	248.0	235.5
Limit (dB)	33.8	30.6	30.2	30.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	12.3	12.3	13.2	13.1
Freq. (MHz)	2.5	2.5	238.0	238.0
Limit (dB)	55.3	55.3	15.7	15.7
Worst Pair	45	45	45	45
PS ACR-F (dB)	14.1	14.1	15.4	15.3
Freq. (MHz)	1.0	1.0	238.0	234.5
Limit (dB)	60.3	60.3	12.7	12.9
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
ACR-N (dB)	19.7	18.0	38.2	33.8
Freq. (MHz)	10.5	22.4	248.0	249.5
Limit (dB)	49.7	41.3	-2.6	-2.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	18.8	18.6	40.0	34.3
Freq. (MHz)	3.3	22.0	248.0	240.0
Limit (dB)	58.4	38.8	-5.6	-4.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	36	45	36
RL (dB)	9.7	6.5	11.8	8.1
Freq. (MHz)	65.3	34.3	249.5	164.0
Limit (dB)	13.9	16.3	8.0	9.9

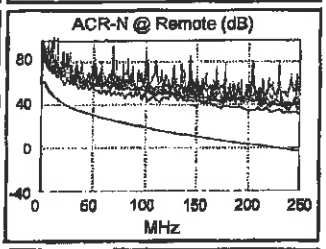


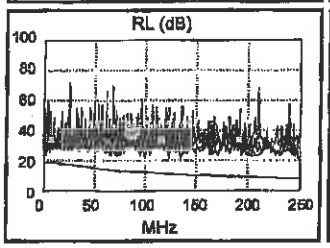


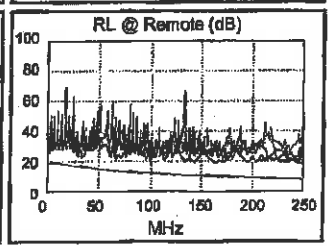












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A23

Test Summary: PASS

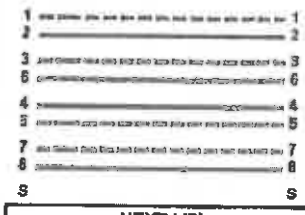
Date / Time 09/16/2014 05:43:06 PM
Headroom 6.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

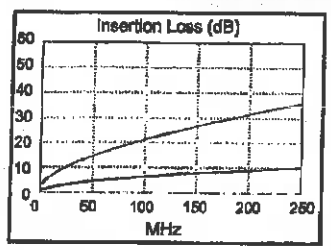
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	103
Prop. Delay (ns), Limit 555	[Pair 12]	146
Delay Skew (ns), Limit 50	[Pair 12]	5
Resistance (ohms)	[Pair 12]	5.3
Insertion Loss Margin (dB)	[Pair 36]	25.7
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

Wire Map (T568B)
PASS



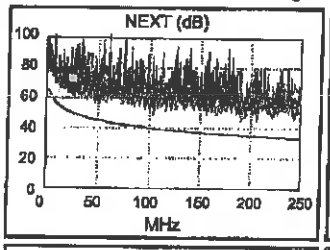


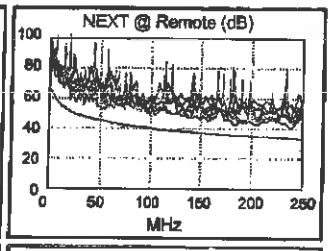
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	10.4	6.6	10.4	6.6
Freq. (MHz)	190.0	238.5	190.0	238.5
Limit (dB)	35.2	33.5	35.2	33.5
Worst Pair	45	36	36	36
PS NEXT (dB)	12.3	7.9	13.0	7.9
Freq. (MHz)	25.9	238.0	222.0	238.0
Limit (dB)	47.1	30.5	31.1	30.5

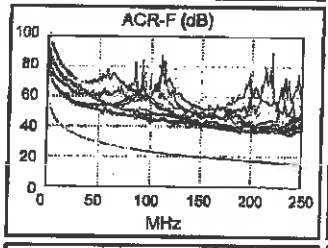
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-36	36-45
ACR-F (dB)	18.2	18.2	18.5	18.6
Freq. (MHz)	188.5	188.5	237.0	240.5
Limit (dB)	17.8	17.8	15.8	15.6
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.9	18.1	19.8	18.1
Freq. (MHz)	186.0	206.0	240.5	206.0
Limit (dB)	14.9	14.0	12.6	14.0

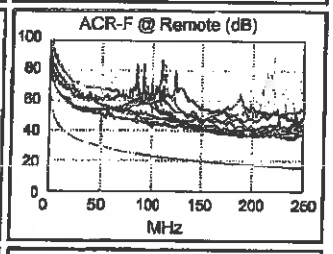
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	45-78	36-45
ACR-N (dB)	16.2	14.8	38.2	31.6
Freq. (MHz)	3.4	21.4	243.5	238.5
Limit (dB)	60.5	41.8	-2.1	-1.5
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.0	16.3	37.1	32.8
Freq. (MHz)	3.3	21.5	222.0	238.0
Limit (dB)	58.4	39.1	-2.5	-4.4

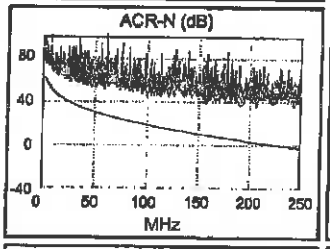
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	45	45
RL (dB)	8.4	7.2	12.0	7.6
Freq. (MHz)	29.5	29.9	205.0	239.5
Limit (dB)	16.7	16.6	8.9	8.2

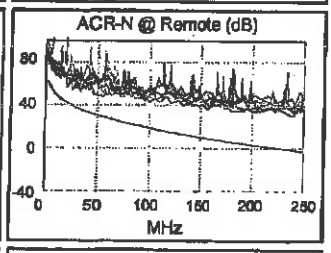


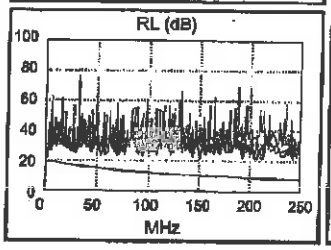


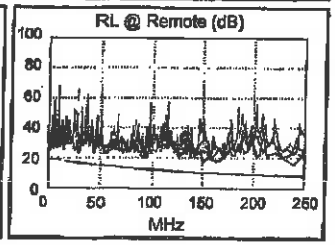












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A21

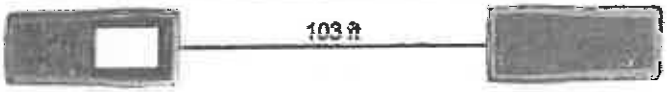
Test Summary: PASS

Date / Time: 09/16/2014 05:43:23 PM
Headroom: 5.8 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

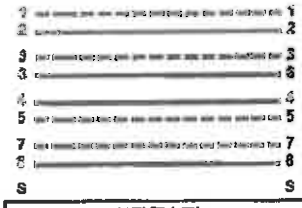
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

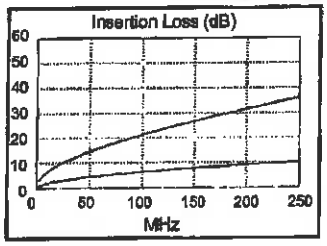
Model: DTX-1800
Main S/N: 9246049
Remote S/N: 9246090
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	103
Prop. Delay (ns), Limit 555	[Pair 12]	146
Delay Skew (ns), Limit 50	[Pair 12]	5
Resistance (ohms)	[Pair 12]	5.4
Insertion Loss Margin (dB)	[Pair 36]	25.6
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9



Wire Map (T568B)
PASS



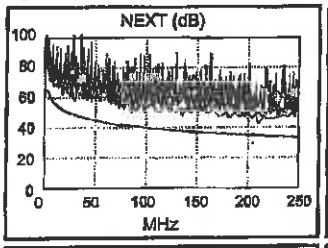


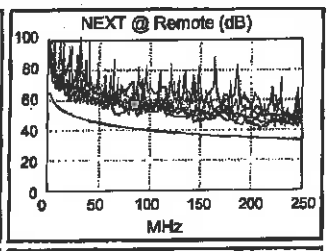
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	8.1	5.8	8.1	5.8
Freq. (MHz)	210.0	209.5	210.0	209.5
Limit (dB)	34.4	34.4	34.4	34.4
Worst Pair	36	36	36	36
PS NEXT (dB)	9.8	7.0	9.8	7.0
Freq. (MHz)	210.0	210.0	210.0	210.0
Limit (dB)	31.5	31.5	31.5	31.5

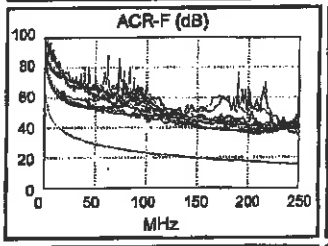
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-12	12-45	36-45	12-45
ACR-F (dB)	18.3	18.2	19.9	18.2
Freq. (MHz)	208.5	208.5	249.5	208.5
Limit (dB)	16.9	16.9	15.3	16.9
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.9	18.3	17.9	18.4
Freq. (MHz)	192.5	209.5	192.5	214.5
Limit (dB)	14.6	13.8	14.6	13.6

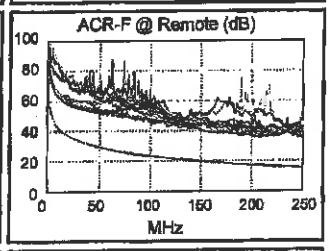
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-78	36-45	36-45
ACR-N (dB)	14.3	14.3	31.2	28.9
Freq. (MHz)	5.9	8.4	210.0	209.5
Limit (dB)	55.5	52.0	2.0	2.0
Worst Pair	78	78	36	36
PS ACR-N (dB)	15.2	15.0	33.0	30.2
Freq. (MHz)	10.0	4.9	210.0	210.0
Limit (dB)	47.7	54.7	-1.0	-1.0

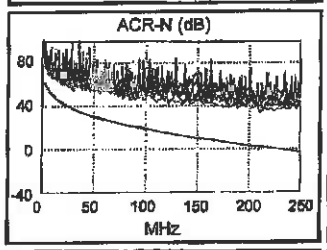
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	36	45	45
RL (dB)	4.7	3.4	4.7	7.1
Freq. (MHz)	72.3	72.0	72.3	214.0
Limit (dB)	13.4	13.4	13.4	8.7

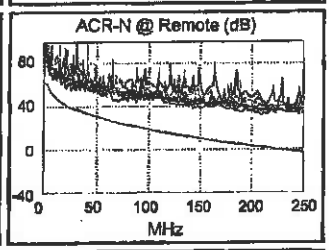


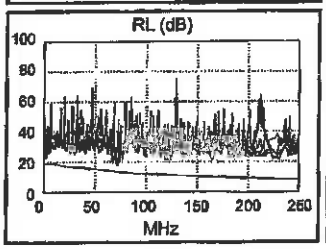


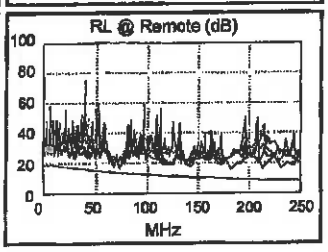












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 8.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A25

Date / Time 09/16/2014 06 08 59 PM
Headroom 8.0 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date 12/08/2013

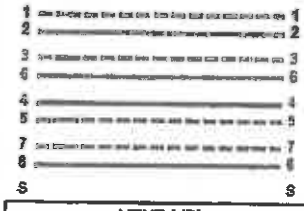
Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

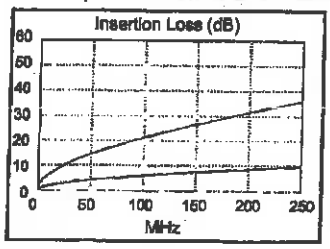
Test Summary: PASS

Model DTX-1800
Main S/N 9248049
Remote S/N 9248050
Main Adapter: DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 45]	97
Prop. Delay (ns), Limit 555	[Pair 78]	139
Delay Skew (ns), Limit 50	[Pair 78]	5
Resistance (ohms)	[Pair 12]	5.1
Insertion Loss Margin (dB)	[Pair 36]	26.0
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

Wire Map (T568B)
PASS



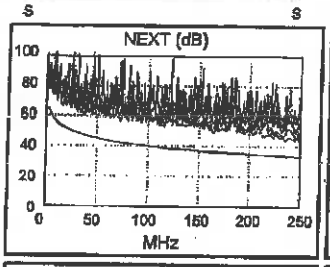


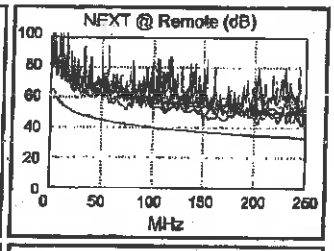
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	45-78
NEXT (dB)	10.5	8.0	10.5	8.0
Freq. (MHz)	249.0	247.0	249.0	247.0
Limit (dB)	33.1	33.2	33.1	33.2
Worst Pair	36	45	36	45
PS NEXT (dB)	11.2	7.7	11.2	7.7
Freq. (MHz)	231.5	246.5	231.5	246.5
Limit (dB)	30.7	30.3	30.7	30.3

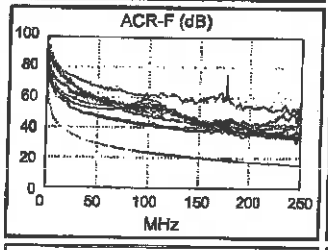
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.1	15.2	15.1	15.2
Freq. (MHz)	246.0	246.0	246.0	246.0
Limit (dB)	15.4	15.4	15.4	15.4
Worst Pair	45	45	45	36
PS ACR-F (dB)	16.2	16.5	16.2	17.4
Freq. (MHz)	192.5	217.0	246.0	246.0
Limit (dB)	14.6	13.5	12.4	12.4

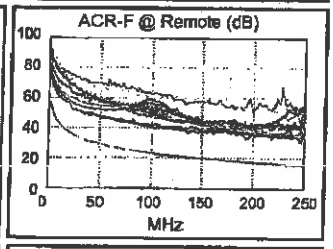
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	45-78	12-36	45-78
ACR-N (dB)	16.3	18.6	36.5	34.0
Freq. (MHz)	3.1	5.9	249.5	247.0
Limit (dB)	61.2	55.5	-2.8	-2.5
Worst Pair	36	36	36	45
PS ACR-N (dB)	16.7	18.9	37.8	33.6
Freq. (MHz)	3.3	2.9	250.0	246.5
Limit (dB)	58.4	58.6	-5.8	-5.4

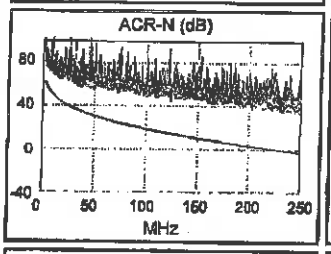
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	45	45
RL (dB)	10.6	9.1	14.2	10.2
Freq. (MHz)	27.6	47.0	229.0	230.0
Limit (dB)	16.8	15.3	8.4	8.4

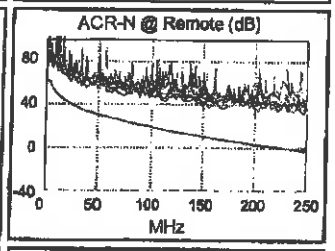


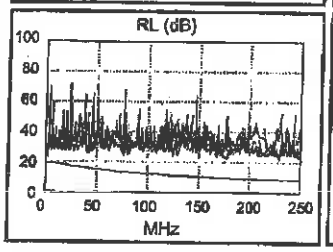


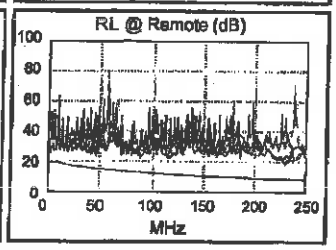












Compliant Network Standards:-

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A26

Test Summary: PASS

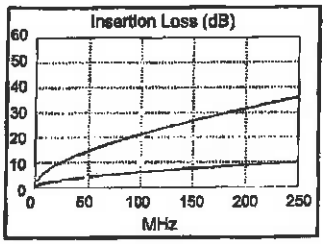
Date / Time: 09/16/2014 06:09:56 PM
Headroom: 10.1 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

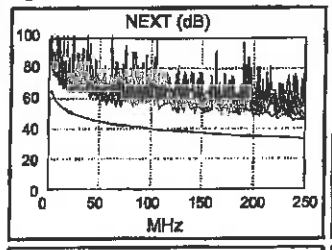
Model: DTX-1600
Main S/N: 9248049
Remote S/N: 9248950
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

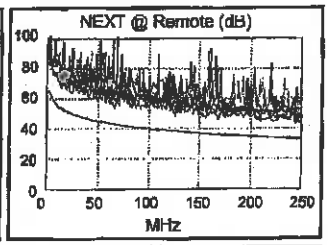
Length (ft), Limit 328	[Pair 36]	98
Prop. Delay (ns), Limit 555	[Pair 12]	139
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	5.0
Insertion Loss Margin (dB)	[Pair 36]	26.0
Frequency (MHz)	[Pair 36]	249.5
Limit (dB)	[Pair 36]	35.9

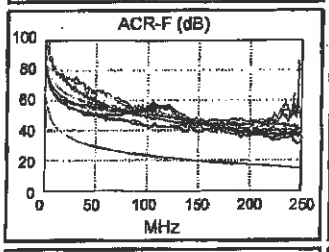
Wire Map (T568B)
PASS

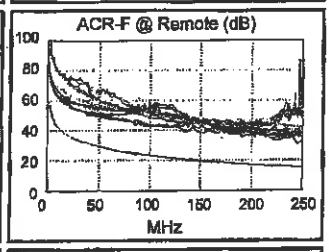


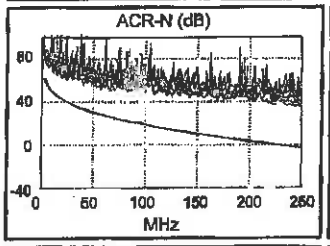
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	45-78
NEXT (dB)	11.6	10.1	11.6	10.1
Freq. (MHz)	239.0	250.0	239.0	250.0
Limit (dB)	33.5	33.1	33.5	33.1
Worst Pair	45	45	36	45
PS NEXT (dB)	12.7	10.3	12.8	10.3
Freq. (MHz)	70.5	250.0	249.0	250.0
Limit (dB)	39.7	30.2	30.2	30.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	15.3	15.2	15.3	15.2
Freq. (MHz)	245.5	245.5	245.5	245.5
Limit (dB)	15.5	15.5	15.5	15.5
Worst Pair	45	36	45	36
PS ACR-F (dB)	17.4	17.4	17.4	17.4
Freq. (MHz)	245.0	245.0	245.0	245.0
Limit (dB)	12.5	12.5	12.5	12.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	45-78
ACR-N (dB)	17.8	19.9	37.0	36.2
Freq. (MHz)	4.4	6.0	239.0	250.0
Limit (dB)	58.2	55.3	-1.5	-2.8
Worst Pair	36	36	36	45
PS ACR-N (dB)	17.8	18.8	38.8	36.5
Freq. (MHz)	4.0	6.4	249.0	250.0
Limit (dB)	56.5	52.2	-5.7	-5.8
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	9.6	10.3	11.8	10.3
Freq. (MHz)	76.5	233.0	199.0	233.0
Limit (dB)	13.2	8.3	9.0	8.3

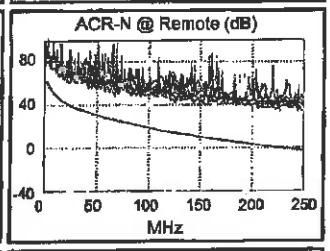


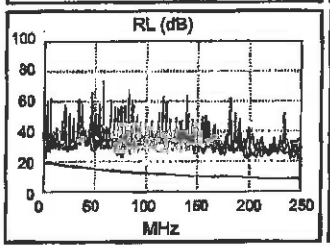


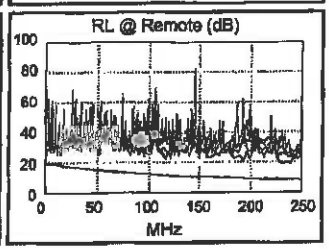












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.9

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A27

Test Summary: PASS

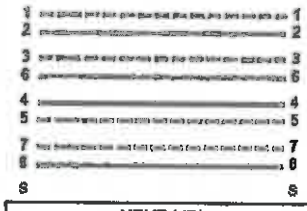
Date / Time: 09/16/2014 06:13:53 PM
Headroom 7.7 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	113
Prop. Delay (ns), Limit 555	[Pair 12]	161
Delay Skew (ns), Limit 50	[Pair 12]	6
Resistance (ohms)	[Pair 36]	5.7
Insertion Loss Margin (dB)	[Pair 36]	24.7
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

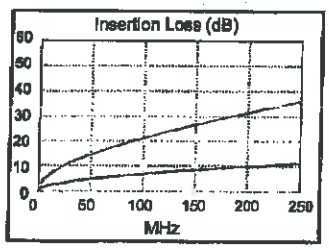
Wire Map (T568B)
PASS

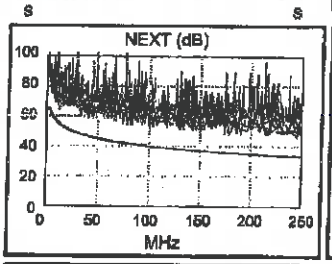


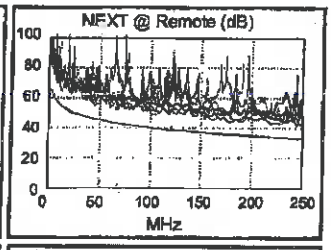
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	45-78	45-78
NEXT (dB)	10.1	7.7	12.4	7.7
Freq. (MHz)	12.4	219.5	245.0	219.5
Limit (dB)	55.1	34.1	33.3	34.1
Worst Pair	45	45	45	36
PS NEXT (dB)	11.6	8.6	14.0	9.0
Freq. (MHz)	12.5	186.5	244.5	232.0
Limit (dB)	52.4	32.4	30.3	30.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	78-36	36-78
ACR-F (dB)	18.7	18.6	19.4	19.4
Freq. (MHz)	184.0	184.5	211.5	211.5
Limit (dB)	18.0	17.9	16.8	16.8
Worst Pair	45	45	36	45
PS ACR-F (dB)	17.7	17.8	20.1	18.7
Freq. (MHz)	1.0	1.0	219.5	179.5
Limit (dB)	60.3	60.3	13.4	15.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	45-78	36-45
ACR-N (dB)	14.9	14.9	37.0	33.1
Freq. (MHz)	12.4	12.5	245.0	244.0
Limit (dB)	48.0	47.9	-2.3	-2.1
Worst Pair	45	45	45	36
PS ACR-N (dB)	16.4	16.3	38.5	32.6
Freq. (MHz)	12.5	12.5	244.5	232.0
Limit (dB)	45.3	45.3	-5.2	-3.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	12	36	45	36
RL (dB)	9.2	6.8	10.0	7.6
Freq. (MHz)	20.4	29.8	124.5	124.0
Limit (dB)	17.5	16.6	11.0	11.1

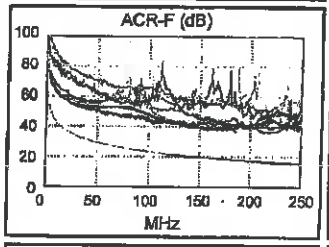
Compliant Network Standards:

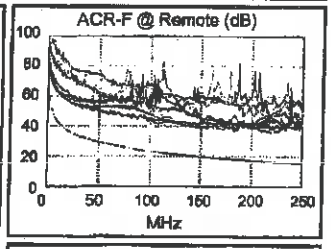
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

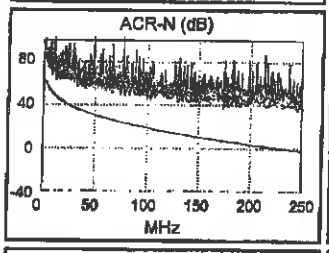


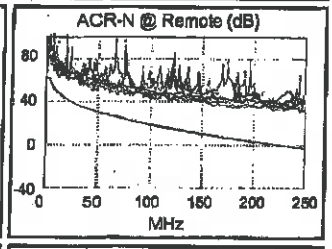


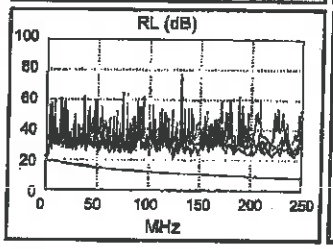


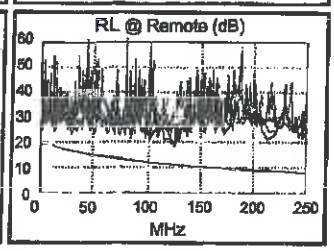












LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A28

Test Summary: PASS

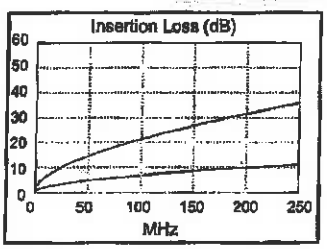
Date / Time: 09/18/2014 06:14:19 PM
Headroom 8.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

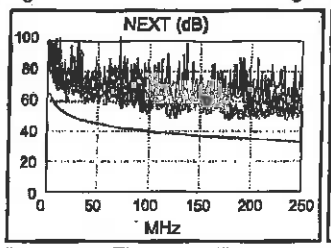
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

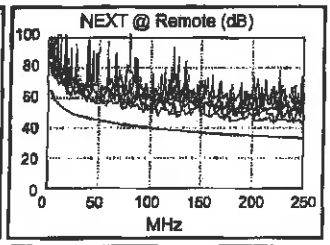
Length (ft), Limit 328	[Pair 45]	113
Prop. Delay (ns), Limit 555	[Pair 12]	161
Delay Skew (ns), Limit 50	[Pair 12]	6
Resistance (ohms)	[Pair 45]	5.8
Insertion Loss Margin (dB)	[Pair 78]	24.7
Frequency (MHz)	[Pair 78]	250.0
Limit (dB)	[Pair 78]	35.9

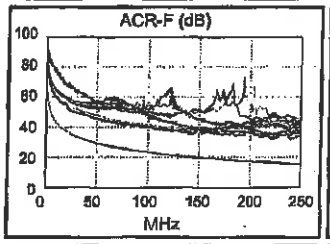
Wire Map (T568B)
PASS

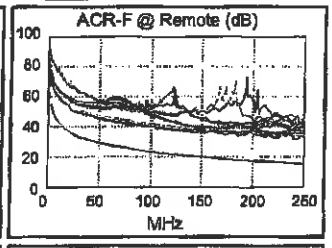


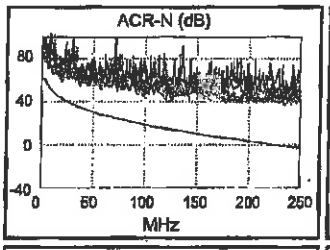
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	36-45	12-36	36-45
NEXT (dB)	9.5	8.6	13.9	9.2
Freq. (MHz)	119.0	184.0	235.5	220.5
Limit (dB)	38.6	35.4	33.6	34.1
Worst Pair	36	36	36	36
PS NEXT (dB)	11.5	8.8	12.6	10.0
Freq. (MHz)	19.5	184.0	189.0	236.0
Limit (dB)	49.2	32.5	32.3	30.6
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	14.9	14.9	15.3	15.2
Freq. (MHz)	140.5	140.5	242.0	242.0
Limit (dB)	20.3	20.3	15.6	15.6
Worst Pair	45	45	36	36
PS ACR-F (dB)	15.9	15.9	16.9	16.9
Freq. (MHz)	140.5	143.0	221.0	242.0
Limit (dB)	17.3	17.2	13.4	12.6
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
ACR-N (dB)	15.8	15.1	37.8	35.2
Freq. (MHz)	19.4	3.8	235.5	250.0
Limit (dB)	43.0	59.6	-1.1	-2.8
Worst Pair	45	36	36	36
PS ACR-N (dB)	17.1	16.1	39.5	33.9
Freq. (MHz)	6.1	4.3	240.5	236.0
Limit (dB)	52.6	56.0	-4.7	-4.1
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	7.4	5.0	7.4	6.2
Freq. (MHz)	128.5	128.5	128.5	184.0
Limit (dB)	10.9	10.9	10.9	9.4

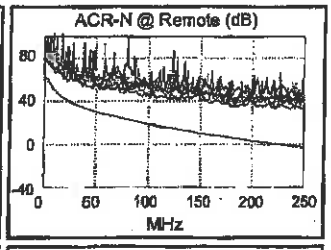


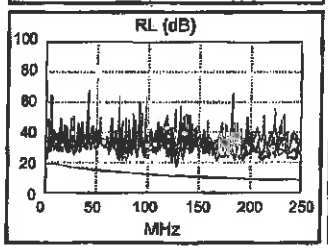


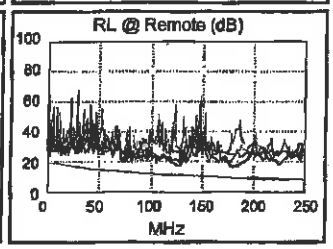












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A29

Test Summary: PASS

Date / Time 09/16/2014 06 15 14 PM
Headroom 8.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date 12/06/2013

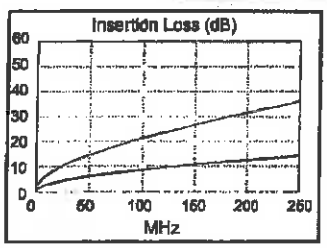
Operator JOHN
Software Version 2.7400
Limits Version 1 9300
NVP 74 0%

Model DTX-1800
Main S/N 9248049
Remote S/N 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

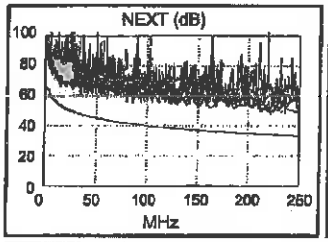
Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	203
Delay Skew (ns), Limit 50	[Pair 12]	7
Resistance (ohms)	[Pair 36]	7.1
Insertion Loss Margin (dB)	[Pair 12]	21.8
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

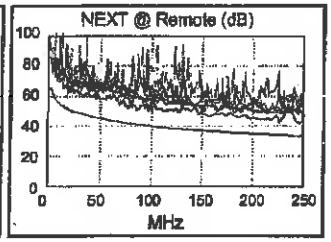
143 ft

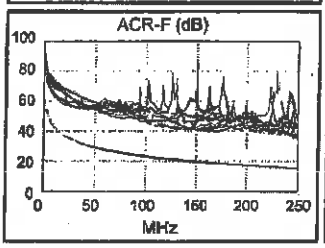
Wire Map (T568B)
PASS

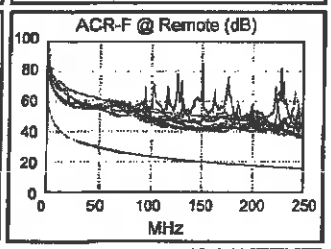


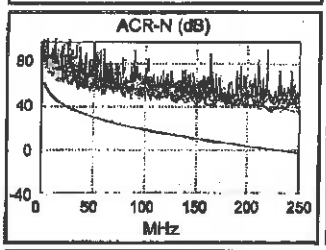
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	13.1	8.2	13.7	8.6
Freq. (MHz)	15.3	227.0	250.0	246.5
Limit (dB)	53.6	33.8	33.1	33.2
Worst Pair	45	36	36	36
PS NEXT (dB)	13.9	10.1	14.9	10.5
Freq. (MHz)	15.3	227.0	250.0	244.5
Limit (dB)	50.9	30.9	30.2	30.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-12	12-45	12-36	12-45
ACR-F (dB)	20.1	20.0	20.2	20.0
Freq. (MHz)	245.0	245.5	249.5	245.5
Limit (dB)	15.5	15.5	15.3	15.5
Worst Pair	45	45	12	12
PS ACR-F (dB)	19.4	19.3	20.4	20.2
Freq. (MHz)	1.4	1.0	245.5	249.5
Limit (dB)	57.5	60.3	12.5	12.3
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
ACR-N (dB)	17.6	15.9	35.5	30.2
Freq. (MHz)	4.4	6.6	250.0	246.5
Limit (dB)	58.2	54.3	-2.8	-2.4
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.1	15.8	36.8	32.1
Freq. (MHz)	4.1	3.8	250.0	244.5
Limit (dB)	56.2	57.1	-5.8	-5.2
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	45	36	45
RL (dB)	8.0	5.0	11.5	8.2
Freq. (MHz)	49.5	50.5	197.5	226.0
Limit (dB)	15.1	15.0	9.0	8.5

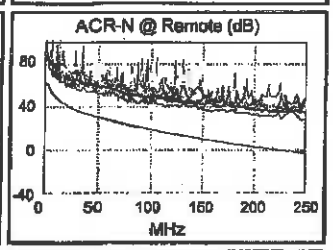


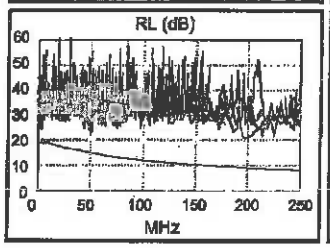


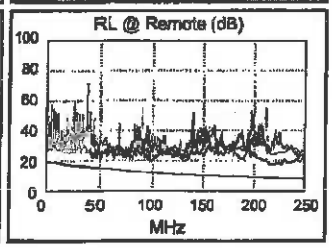












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9 0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A30
Date / Time 09/16/2014 06:16:32 PM
Headroom 8.2 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date 12/03/2013

Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

Test Summary: PASS
Model DTX-1800
Main S/N 9248040
Remote S/N 9248050
Main Adapter DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	203
Delay Skew (ns), Limit 50	[Pair 12]	7
Resistance (ohms)	[Pair 45]	7.3
Insertion Loss Margin (dB)	[Pair 12]	21.8
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

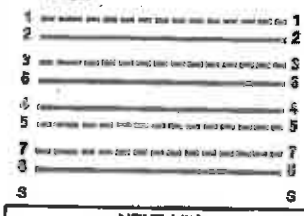
143 ft

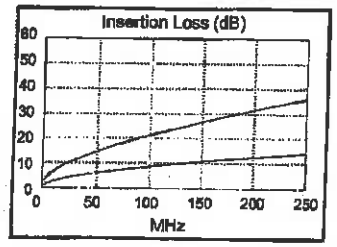
Wire Map (T568B)
PASS

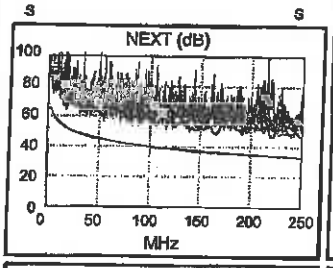
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	12.0	8.2	12.0	8.2
Freq. (MHz)	219.0	245.5	219.0	245.5
Limit (dB)	34.1	33.3	34.1	33.3
Worst Pair	36	45	36	45
PS NEXT (dB)	13.4	9.6	13.9	9.6
Freq. (MHz)	4.6	245.5	241.5	245.5
Limit (dB)	59.7	30.3	30.4	30.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	78-45	45-78
ACR-F (dB)	18.8	18.9	20.1	20.2
Freq. (MHz)	186.0	186.0	228.0	227.5
Limit (dB)	17.9	17.9	16.1	16.1
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.9	19.0	20.9	21.7
Freq. (MHz)	1.9	1.5	240.5	245.5
Limit (dB)	54.8	56.7	12.6	12.5
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-78	12-36	36-45
ACR-N (dB)	16.6	14.8	34.5	29.9
Freq. (MHz)	4.5	3.4	240.0	245.5
Limit (dB)	58.0	60.5	-1.7	-2.3
Worst Pair	36	36	36	45
PS ACR-N (dB)	16.1	15.3	35.3	31.3
Freq. (MHz)	4.5	3.8	241.5	245.5
Limit (dB)	55.4	57.1	-4.8	-5.3
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	8.2	5.6	8.2	10.5
Freq. (MHz)	78.3	53.0	78.3	226.0
Limit (dB)	13.1	14.8	13.1	8.5

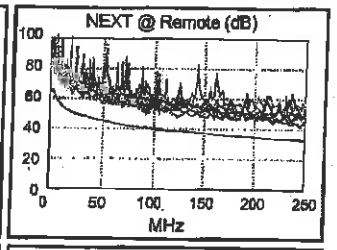
Compliant Network Standards:

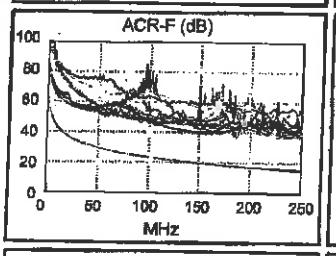
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

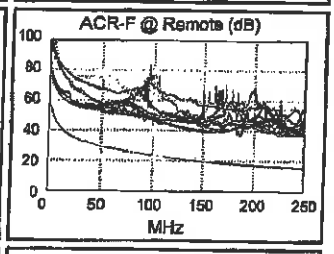


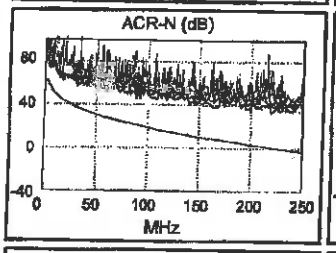


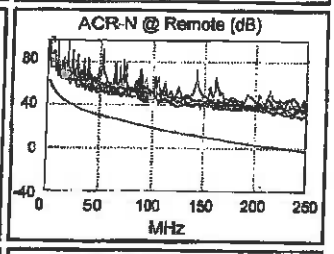


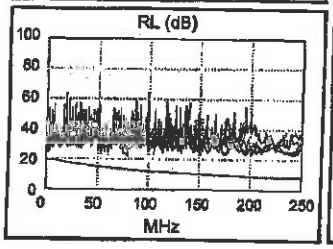


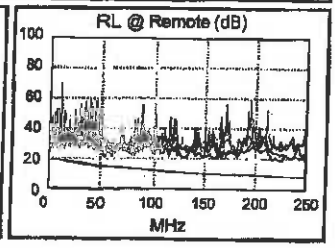












LinkWare Version 9.9

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A31

Test Summary: PASS

Date / Time 09/16/2014 06:15 47 PM
Headroom 8.6 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

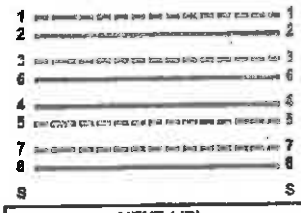
Operator JOHN
Software Version 2.7400
Limits Version 1.9300
NVP 74.0%

Model DTX-1800
Main S/N 9248049
Remote S/N 9248050
Main Adapter DTX-CHA001
Remote Adapter DTX-CHA001

Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	203
Delay Skew (ns), Limit 50	[Pair 12]	7
Resistance (ohms)	[Pair 45]	7.3
Insertion Loss Margin (dB)	[Pair 36]	21.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

143 ft

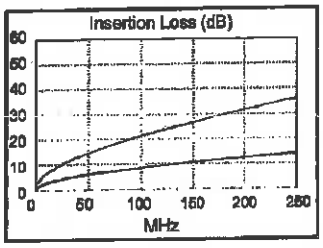
Wire Map (T568B)
PASS

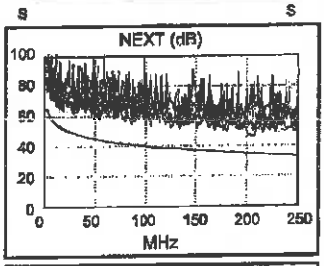


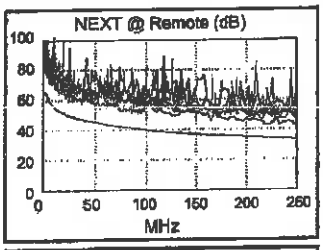
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	11.7	8.5	11.7	8.9
Freq. (MHz)	202.5	216.5	202.5	233.5
Limit (dB)	34.7	34.2	34.7	33.6
Worst Pair	36	45	36	45
PS NEXT (dB)	13.1	10.0	13.2	10.5
Freq. (MHz)	202.5	216.0	207.5	233.5
Limit (dB)	31.8	31.3	31.6	30.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	17.8	17.9	17.8	17.9
Freq. (MHz)	203.5	203.5	203.5	203.5
Limit (dB)	17.1	17.1	17.1	17.1
Worst Pair	45	45	12	12
PS ACR-F (dB)	17.2	17.5	20.3	19.8
Freq. (MHz)	1.4	1.4	248.5	246.5
Limit (dB)	57.5	57.5	12.4	12.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	36-45	36-45
ACR-N (dB)	15.0	15.4	31.2	31.4
Freq. (MHz)	2.8	6.8	204.5	247.5
Limit (dB)	61.6	54.2	2.7	-2.5
Worst Pair	36	36	36	45
PS ACR-N (dB)	16.4	16.6	32.8	33.3
Freq. (MHz)	2.6	7.0	207.5	249.5
Limit (dB)	58.7	51.3	-0.6	-5.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	45	45	45
RL (dB)	6.2	3.2	9.9	5.4
Freq. (MHz)	72.3	60.3	213.5	130.0
Limit (dB)	13.4	14.2	8.7	10.9

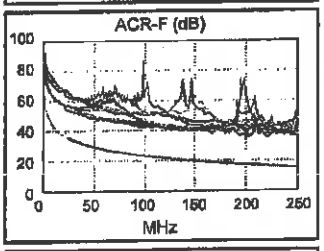
Compliant Network Standards:

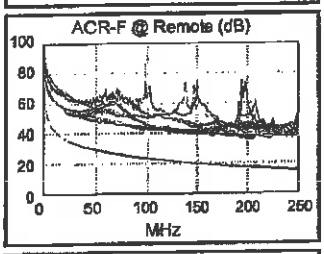
10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

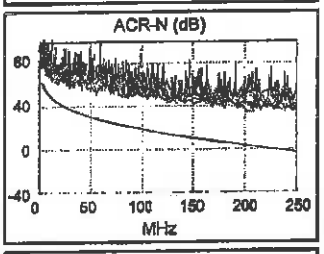


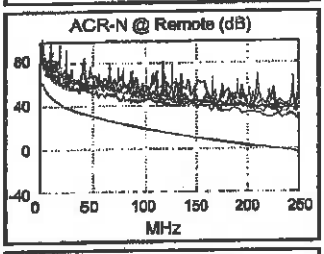


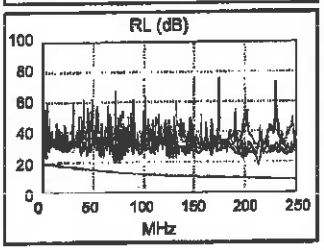


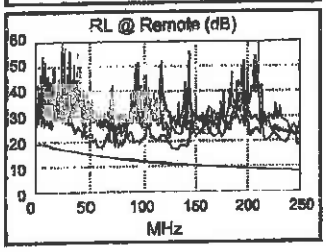












LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A32

Test Summary: PASS

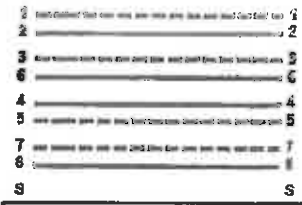
Date / Time: 09/16/2014 06:16:08 PM
Headroom 5.2 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type: Ultraflexible 7504
Calibration Date: 12/06/2013

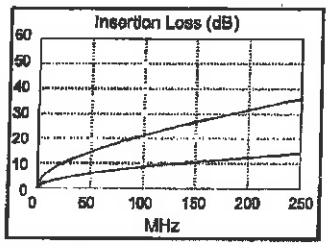
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 45]	143
Prop. Delay (ns), Limit 555	[Pair 12]	203
Delay Skew (ns), Limit 50	[Pair 12]	7
Resistance (ohms)	[Pair 45]	7.3
Insertion Loss Margin (dB)	[Pair 36]	21.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

Wire Map (T568B)
PASS



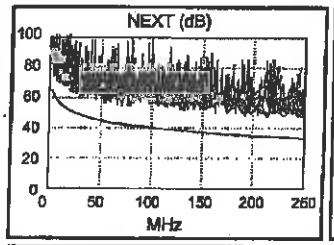


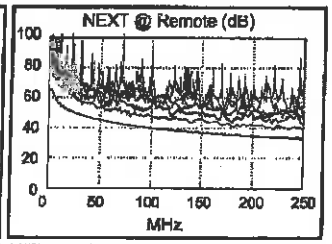
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	12-36	45-78
NEXT (dB)	11.6	5.2	13.4	6.0
Freq. (MHz)	4.1	220.0	214.0	250.0
Limit (dB)	62.8	34.1	34.3	33.1
Worst Pair	45	45	36	45
PS NEXT (dB)	12.8	6.8	14.0	6.9
Freq. (MHz)	9.8	179.5	244.0	250.0
Limit (dB)	54.2	32.7	30.3	30.2

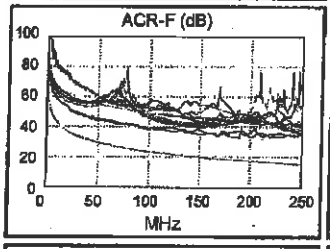
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	36-45	45-36
ACR-F (dB)	14.1	14.1	14.7	14.7
Freq. (MHz)	47.8	47.8	188.5	188.5
Limit (dB)	29.7	29.7	17.8	17.8
Worst Pair	45	45	45	45
PS ACR-F (dB)	15.2	15.3	18.2	18.4
Freq. (MHz)	1.0	1.8	242.0	245.5
Limit (dB)	60.3	55.4	12.6	12.5

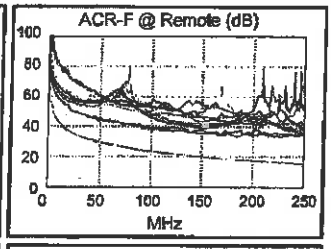
N/A	MAIN	SR	MAIN	SR
Worst Pair	45-78	45-78	12-36	45-78
ACR-N (dB)	14.1	12.6	36.1	27.9
Freq. (MHz)	4.1	3.6	243.5	250.0
Limit (dB)	58.7	59.9	-2.1	-2.8
Worst Pair	45	45	36	45
PS ACR-N (dB)	15.5	13.8	35.6	28.9
Freq. (MHz)	4.1	3.8	244.0	250.0
Limit (dB)	56.2	57.1	-5.1	-5.8

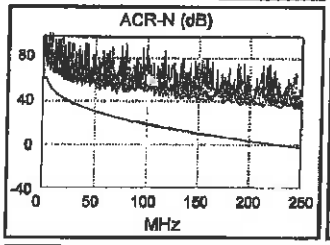
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	36	45	36
RL (dB)	5.7	4.9	5.7	9.1
Freq. (MHz)	78.5	78.0	78.5	221.0
Limit (dB)	13.1	13.1	13.1	8.6

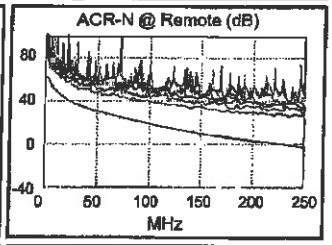


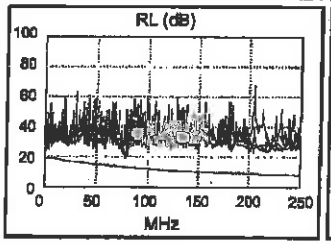


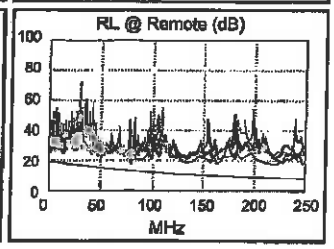












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 8.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A33

Test Summary: PASS

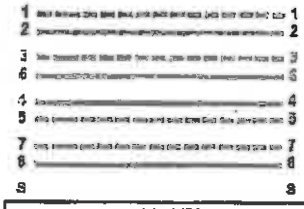
Date / Time: 09/16/2014 06:17:24 PM
Headroom 9.4 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

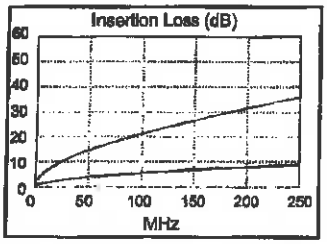
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

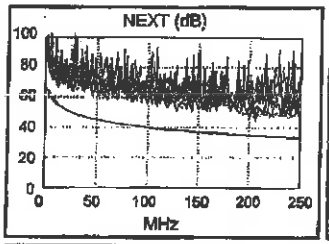
Length (ft), Limit 328	[Pair 45]	89
Prop. Delay (ns), Limit 555	[Pair 12]	126
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	4.7
Insertion Loss Margin (dB)	[Pair 36]	26.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

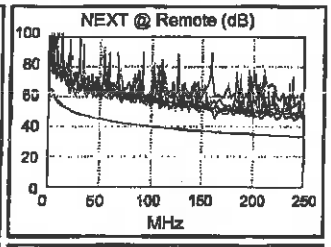
Wire Map (T568B)
PASS

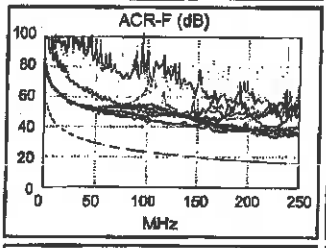


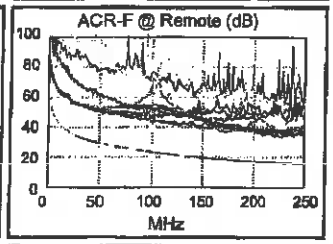


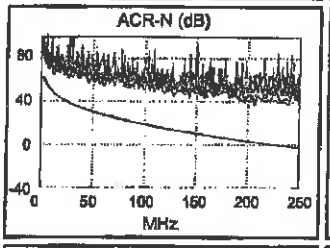
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	36-45	36-45
NEXT (dB)	10.5	9.4	10.5	9.8
Freq. (MHz)	206.0	163.0	206.5	240.0
Limit (dB)	34.6	36.3	34.5	33.4
Worst Pair	36	36	36	36
PS NEXT (dB)	11.1	11.1	11.1	11.1
Freq. (MHz)	206.5	243.0	206.5	243.0
Limit (dB)	31.6	30.4	31.6	30.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	16.8	16.9	16.8	16.9
Freq. (MHz)	226.5	227.0	227.0	227.0
Limit (dB)	16.2	16.1	16.1	16.1
Worst Pair	45	45	45	45
PS ACR-F (dB)	18.3	16.9	18.3	16.9
Freq. (MHz)	240.0	226.5	240.0	226.5
Limit (dB)	12.7	13.2	12.7	13.2
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	36-45	36-45
ACR-N (dB)	16.8	15.4	34.6	36.1
Freq. (MHz)	4.3	4.0	206.5	240.0
Limit (dB)	58.5	59.0	2.4	-1.7
Worst Pair	36	36	36	36
PS ACR-N (dB)	16.3	15.8	35.1	37.7
Freq. (MHz)	3.5	3.5	206.5	243.0
Limit (dB)	57.7	57.7	-0.5	-5.0
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	36	36	45
RL (dB)	10.1	8.5	10.1	10.5
Freq. (MHz)	97.8	98.0	97.8	228.5
Limit (dB)	12.1	12.1	12.1	8.4

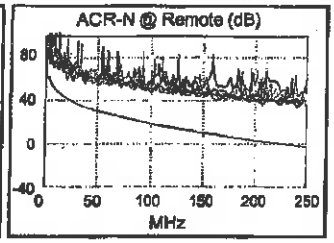


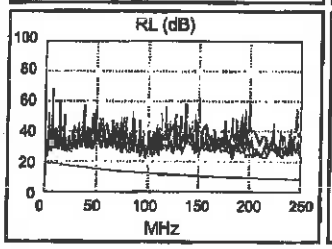


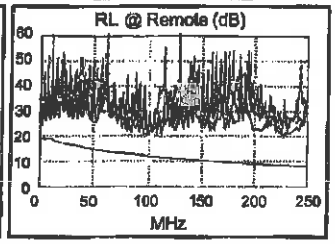












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A34

Test Summary: PASS

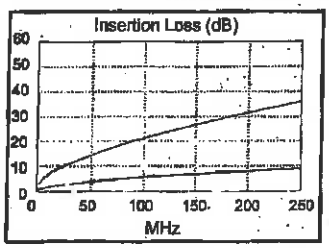
Date / Time: 09/15/2014 06:17:41 PM
Headroom 5.9 dB (NEXT 36-45)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9500
NVP: 74.0%

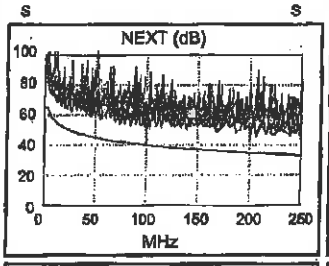
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

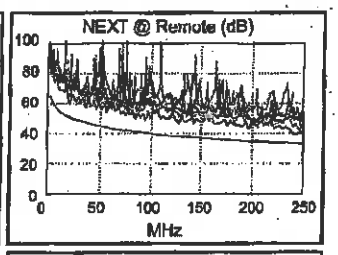
Length (ft), Limit 328	[Pair 45]	89
Prop. Delay (ns), Limit 555	[Pair 12]	126
Delay Skew (ns), Limit 50	[Pair 12]	4
Resistance (ohms)	[Pair 12]	4.6
Insertion Loss Margin (dB)	[Pair 36]	26.9
Frequency (MHz)	[Pair 36]	250.0
Limit (dB)	[Pair 36]	35.9

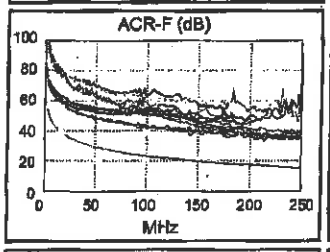
Wire Map (T568B)
PASS

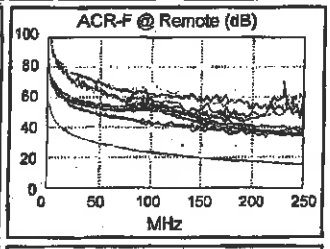


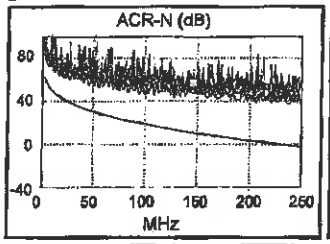
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	36-45	12-36	36-45
NEXT (dB)	11.6	5.9	11.9	5.9
Freq. (MHz)	99.5	241.5	239.0	241.5
Limit (dB)	40.0	33.4	33.5	33.4
Worst Pair	36	36	36	36
PS NEXT (dB)	12.3	7.3	13.0	7.3
Freq. (MHz)	206.0	241.0	239.5	241.0
Limit (dB)	31.6	30.4	30.5	30.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	16.3	16.3	16.3	16.3
Freq. (MHz)	213.0	213.0	213.0	213.0
Limit (dB)	16.7	16.7	16.7	16.7
Worst Pair	45	45	45	45
PS ACR-F (dB)	17.2	17.0	18.2	17.4
Freq. (MHz)	207.5	212.5	238.5	241.0
Limit (dB)	13.9	13.7	12.7	12.6
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-45	12-36	36-45
ACR-N (dB)	17.6	15.8	38.1	32.2
Freq. (MHz)	4.5	21.1	239.0	241.5
Limit (dB)	58.0	42.0	-1.5	-1.8
Worst Pair	36	36	36	36
PS ACR-N (dB)	17.8	17.1	39.3	33.5
Freq. (MHz)	3.3	21.0	239.5	241.0
Limit (dB)	58.4	39.4	-4.6	-4.7
PASS	MAIN	SR	MAIN	SR
Worst Pair	45	78	45	45
RL (dB)	10.9	7.7	11.9	8.5
Freq. (MHz)	80.8	98.8	212.0	227.5
Limit (dB)	12.9	12.1	8.7	8.4

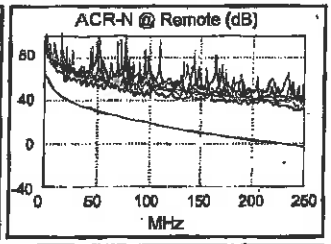


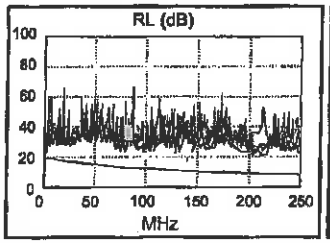


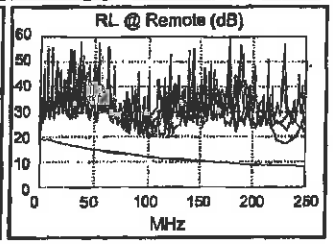












Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

X

Cable ID: DOT-D4-TAYLOR HQ-A35

Test Summary: FAIL

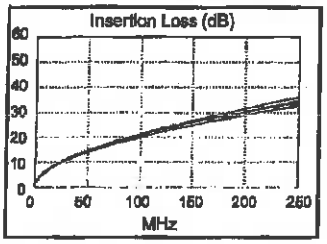
Date / Time: 09/16/2014 06:20:28 PM
Headroom 8.2 dB (NEXT 12-36)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

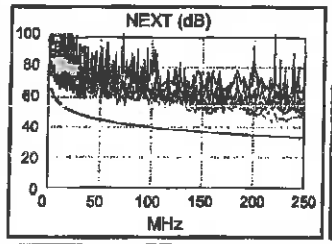
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

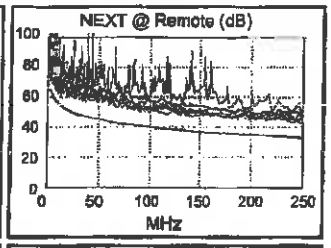
Length (ft), Limit 328	[Pair 12]	424 F
Prop. Delay (ns), Limit 555	[Pair 36]	601 F
Delay Skew (ns), Limit 50	[Pair 36]	19
Resistance (ohms)	[Pair 12]	20.3
Insertion Loss Margin (dB)	[Pair 12]	-0.3*F
Frequency (MHz)	[Pair 12]	60.3
Limit (dB)	[Pair 12]	16.1

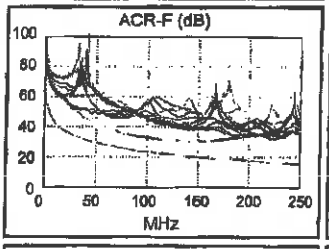
Wire Map (T568B)
PASS

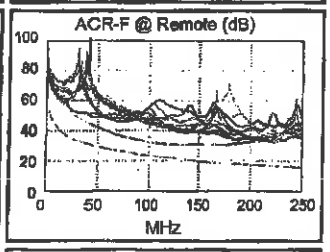


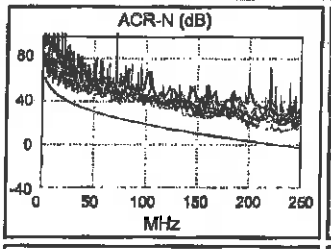
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
NEXT (dB)	9.6	8.2	9.6	9.7
Freq. (MHz)	231.5	11.9	231.5	248.0
Limit (dB)	33.7	55.4	33.7	33.2
Worst Pair	36	36	36	36
PS NEXT (dB)	11.4	8.8	11.7	8.8
Freq. (MHz)	198.5	242.0	231.5	242.0
Limit (dB)	31.9	30.4	30.7	30.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	78-12	78-12	78-12	78-12
ACR-F (dB)	8.7	8.8	9.3	9.3
Freq. (MHz)	101.0	117.5	136.0	138.0
Limit (dB)	23.2	21.9	20.6	20.5
Worst Pair	12	78	12	45
PS ACR-F (dB)	11.4	11.5	11.6	15.9
Freq. (MHz)	110.5	102.0	136.0	220.0
Limit (dB)	19.4	20.1	17.6	13.4
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-78
ACR-N (dB)	10.8	8.4	12.4	11.9
Freq. (MHz)	2.6	11.0	231.5	242.0
Limit (dB)	61.7	49.3	-0.7	-1.9
Worst Pair	36	36	12	36
PS ACR-N (dB)	11.6	9.3	13.6	11.9
Freq. (MHz)	5.8	23.1	231.5	242.0
Limit (dB)	53.2	38.2	-3.6	-4.9
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	36	45
RL (dB)	6.7	7.3	13.2	10.7
Freq. (MHz)	3.6	2.1	193.5	232.0
Limit (dB)	19.0	19.0	9.1	8.3

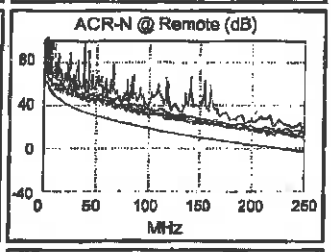


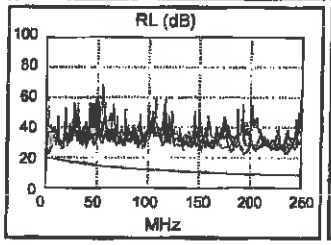


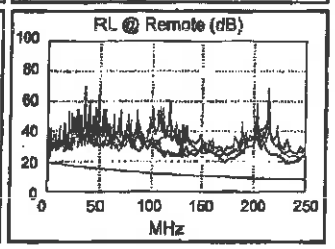












* Measurement is within the accuracy limits of the instrument.

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

X

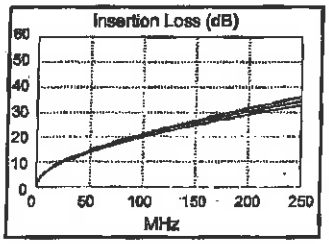
Cable ID: DOT-D4-TAYLOR HQ-A36
Date / Time: 09/19/2014 06:21:16 PM
Headroom: 10.0 dB (NEXT 45-78)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

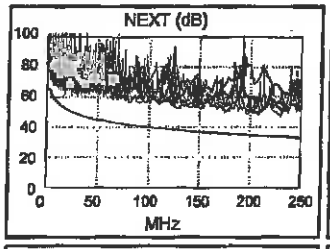
Test Summary: FAIL
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9246950
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

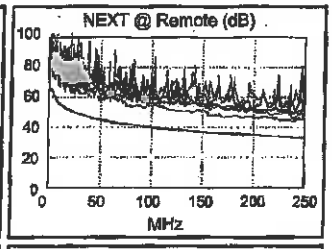
Length (ft), Limit 328	[Pair 12]	424 F
Prop. Delay (ns), Limit 555	[Pair 36]	601 F
Delay Skew (ns), Limit 50	[Pair 36]	18
Resistance (ohms)	[Pair 78]	20.5
Insertion Loss Margin (dB)	[Pair 12]	-0.3*F
Frequency (MHz)	[Pair 12]	57.5
Limit (dB)	[Pair 12]	15.7

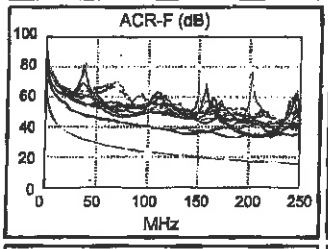
Wire Map (T568B)
PASS

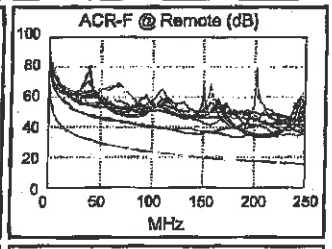


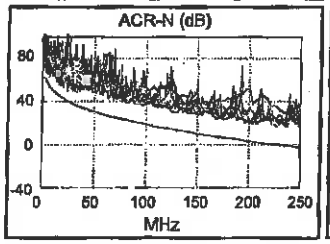
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	45-78
NEXT (dB)	10.9	10.0	14.2	10.3
Freq. (MHz)	13.6	170.0	228.5	237.5
Limit (dB)	54.4	36.0	33.8	33.5
Worst Pair	36	78	36	78
PS NEXT (dB)	11.5	11.5	13.3	11.5
Freq. (MHz)	5.9	238.0	203.0	238.0
Limit (dB)	57.8	30.5	31.7	30.5
PASS	MAIN	SR	MAIN	SR
Worst Pair	45-36	36-45	45-36	36-45
ACR-F (dB)	15.0	15.0	15.3	15.0
Freq. (MHz)	135.0	179.5	187.0	179.5
Limit (dB)	20.7	18.2	17.8	18.2
Worst Pair	36	45	36	45
PS ACR-F (dB)	17.2	16.7	18.1	16.9
Freq. (MHz)	179.5	187.0	222.5	209.5
Limit (dB)	15.2	14.8	13.3	13.8
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	36-78	45-78
ACR-N (dB)	11.1	11.0	19.3	12.1
Freq. (MHz)	13.6	170.0	249.5	237.5
Limit (dB)	47.0	7.3	-2.8	-1.4
Worst Pair	36	78	12	78
PS ACR-N (dB)	11.6	12.7	17.4	13.3
Freq. (MHz)	5.9	170.0	228.5	238.0
Limit (dB)	53.0	4.4	-3.2	-4.4
PASS	MAIN	SR	MAIN	SR
Worst Pair	36	78	12	45
RL (dB)	6.0	7.3	13.7	11.9
Freq. (MHz)	3.6	2.1	223.5	244.0
Limit (dB)	19.0	19.0	8.5	8.1

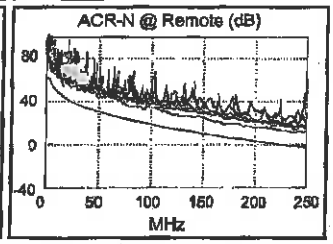


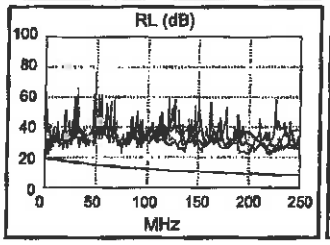


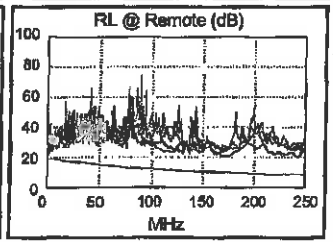












* Measurement is within the accuracy limits of the instrument.

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks.

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR HQ-A37

Test Summary: PASS

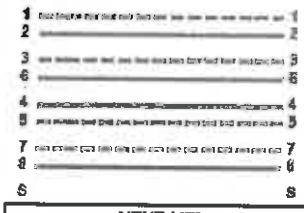
Date / Time: 09/16/2014 06 24 23 PM
Headroom 7.8 dB (NEXT 12-36)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

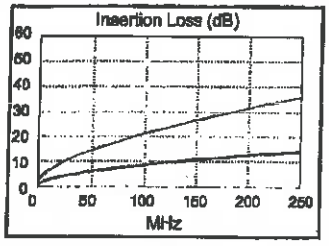
Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

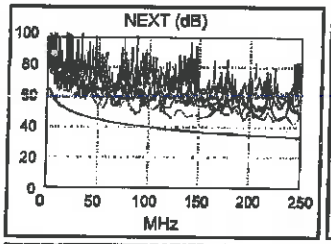
Length (ft), Limit 328	[Pair 12]	170
Prop. Delay (ns), Limit 555	[Pair 36]	240
Delay Skew (ns), Limit 50	[Pair 36]	7
Resistance (ohms)	[Pair 12]	8.4
Insertion Loss Margin (dB)	[Pair 12]	21.4
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

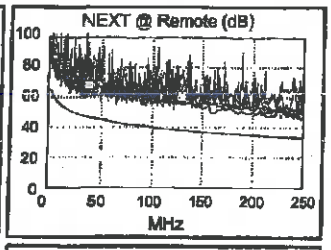
Wire Map (T568B)
PASS



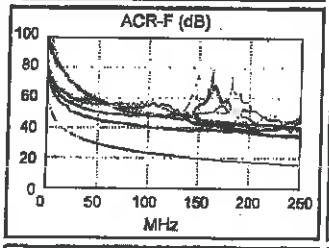


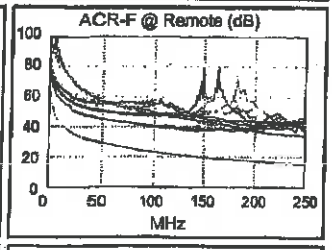
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	36-45	12-36	36-45
NEXT (dB)	7.8	12.1	8.9	12.1
Freq. (MHz)	87.8	250.0	244.0	250.0
Limit (dB)	40.9	33.1	33.3	33.1
Worst Pair	12	36	12	36
PS NEXT (dB)	9.7	12.3	10.5	12.3
Freq. (MHz)	121.0	244.0	227.5	244.0
Limit (dB)	35.6	30.3	30.9	30.3



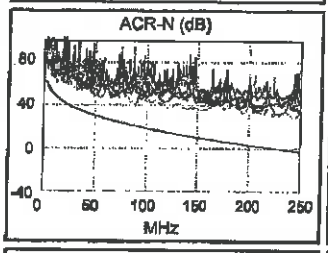


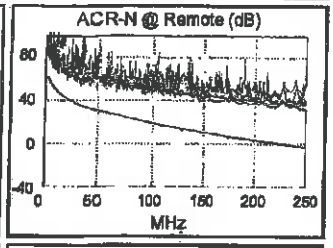
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-12	45-12
ACR-F (dB)	14.8	14.7	18.5	18.6
Freq. (MHz)	23.1	23.6	246.0	239.5
Limit (dB)	36.0	35.8	15.4	15.7
Worst Pair	45	45	12	12
PS ACR-F (dB)	15.6	15.7	20.2	20.3
Freq. (MHz)	1.1	1.0	246.5	248.5
Limit (dB)	59.2	60.3	12.4	12.4



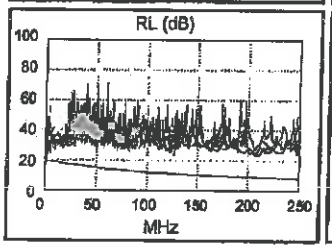


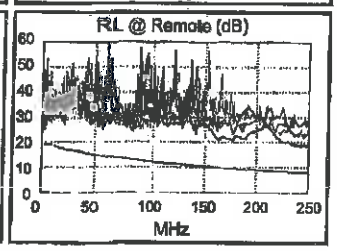
N/A	MAIN	SR	MAIN	SR
Worst Pair	12-36	12-36	12-36	36-45
ACR-N (dB)	13.6	16.8	30.3	34.0
Freq. (MHz)	12.4	12.4	244.0	250.0
Limit (dB)	48.0	48.0	-2.1	-2.8
Worst Pair	36	36	12	36
PS ACR-N (dB)	15.0	17.4	32.6	33.7
Freq. (MHz)	12.4	12.4	244.0	244.0
Limit (dB)	45.4	45.4	-5.1	-5.1





PASS	MAIN	SR	MAIN	SR
Worst Pair	12	45	12	45
RL (dB)	10.4	9.5	14.0	9.5
Freq. (MHz)	17.8	244.0	207.5	244.0
Limit (dB)	17.8	8.1	8.8	8.1





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

LINKWARE
CABLE TEST MANAGEMENT SOFTWARE

Cable ID: DOT-D4-TAYLOR-HQ-A33

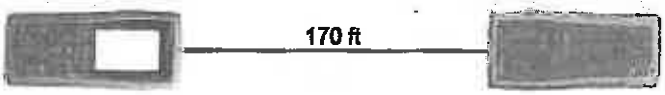
Date / Time 09/16/2014 06:25:09 PM
Headroom 16.5 dB (NEXT 12-36)
Test Limit: TIA Cat 6 Channel
Cable Type: UltraMedia 7504
Calibration Date: 12/06/2013

Operator: JOHN
Software Version: 2.7400
Limits Version: 1.9300
NVP: 74.0%

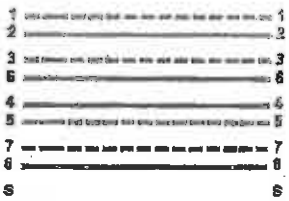
Test Summary: PASS

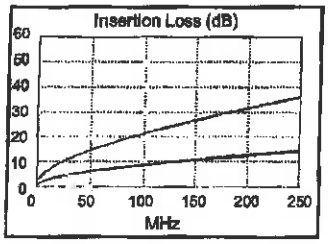
Model: DTX-1800
Main S/N: 9248049
Remote S/N: 9248050
Main Adapter: DTX-CHA001
Remote Adapter: DTX-CHA001

Length (ft), Limit 328	[Pair 12]	170
Prop. Delay (ns), Limit 555	[Pair 36]	240
Delay Skew (ns), Limit 50	[Pair 36]	7
Resistance (ohms)	[Pair 12]	8.5
Insertion Loss Margin (dB)	[Pair 12]	21.4
Frequency (MHz)	[Pair 12]	250.0
Limit (dB)	[Pair 12]	35.9

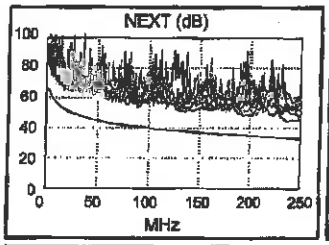


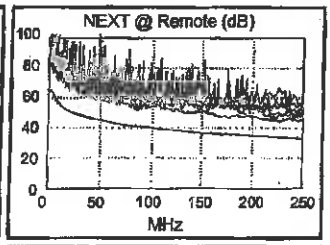
Wire Map (T568B)
PASS



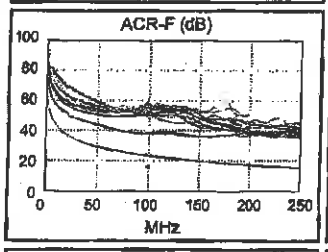


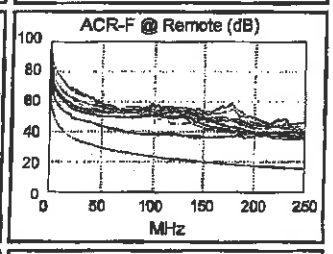
	Worst Case Margin		Worst Case Value	
PASS	MAIN	SR	MAIN	SR
Worst Pair	12-36	45-78	12-36	45-78
NEXT (dB)	10.5	10.5	10.5	10.5
Freq. (MHz)	238.0	227.5	238.0	227.5
Limit (dB)	33.5	33.8	33.5	33.8
Worst Pair	36	78	36	78
PS NEXT (dB)	12.1	11.1	12.1	11.1
Freq. (MHz)	238.0	223.0	238.0	223.0
Limit (dB)	30.5	31.0	30.5	31.0



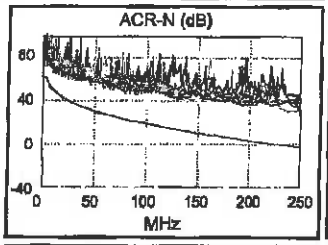


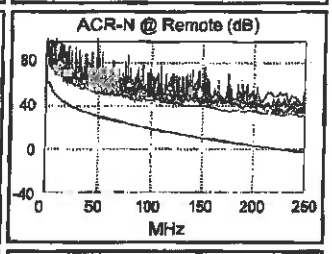
PASS	MAIN	SR	MAIN	SR
Worst Pair	36-45	45-36	45-12	45-12
ACR-F (dB)	12.1	12.2	19.9	19.0
Freq. (MHz)	2.1	2.1	245.5	224.5
Limit (dB)	56.7	56.7	15.5	16.2
Worst Pair	45	36	45	45
PS ACR-F (dB)	13.8	14.0	20.4	20.7
Freq. (MHz)	1.0	1.0	240.5	248.5
Limit (dB)	60.3	60.3	12.6	12.4



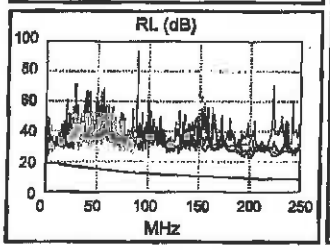


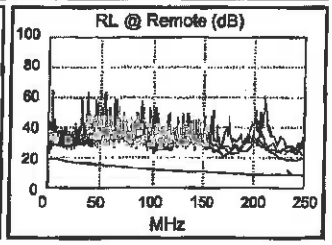
N/A	MAIN	SR	MAIN	SR
Worst Pair	36-78	36-78	12-36	45-78
ACR-N (dB)	15.2	17.2	31.6	33.1
Freq. (MHz)	3.9	3.0	238.0	249.5
Limit (dB)	59.3	61.5	-1.4	-2.8
Worst Pair	36	78	36	78
PS ACR-N (dB)	15.9	17.2	33.2	33.4
Freq. (MHz)	3.9	3.3	238.0	242.0
Limit (dB)	56.8	58.4	-4.4	-4.9





PASS	MAIN	SR	MAIN	SR
Worst Pair	78	36	45	45
RL (dB)	11.3	9.0	13.7	9.6
Freq. (MHz)	14.8	15.0	201.0	237.5
Limit (dB)	18.2	18.1	9.0	8.2





Compliant Network Standards:

10BASE-T	100BASE-TX	100BASE-T4
1000BASE-T	ATM-25	ATM-51
ATM-155	100VG-AnyLan	TR-4
TR-16 Active	TR-16 Passive	

LinkWare Version 9.0

Project: WV DOH
D_4 DOH TAYLOR-MARION.flw

Site: TAYLOR HQ

FLUKE networks

DOT1900000034

PART 3

DOT Statewide Infrastructure Upgrade
Cabling Project - Cable Install Specifications
Attachment D1-A (Headquarters)

1. DOH DISTRICT 1 (One) HEADQUARTERS - CHARLESTON

1334 Smith Street, Charleston

1.1. Engineering Building

1.1.1. Work Area Scope of Work

1.1.1.1. Installation of the designated amount of Cat 6 Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.1.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.1.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.1.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.1.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.1.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6 blue outlet unless designated otherwise.

1.1.1.7. One Cat 6 Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 15 Cat 6 patch cables ten-foot-long shall be provided for spares.

1.1.2. Telecommunications Equipment Room (TER) Build Requirements

1.1.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.1.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.1.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.1.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.1.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.1.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.1.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.1.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

1.1.2.9. Each drop of Cat 6 cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.1.2.10. Each 24-port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48-port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

1.1.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.1.2.12. Cat 6 Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6 Patch cables five foot in length shall be provided for spares.

1.1.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

1.2. Headquarters Building

1.2.1. Work Area Scope of Work

1.2.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.2.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.2.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.2.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.2.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.2.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6A blue outlet unless designated otherwise.

1.2.1.7. One Cat 6A Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6A patch cables ten-foot-long shall be provided for spares.

1.2.2. Telecommunications Equipment Room (TER) Build Requirements

1.2.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.2.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.2.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.2.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.2.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.2.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.2.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.2.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

1.2.2.9. Each drop of Cat 6A cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.2.2.10. Each 24-port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48-port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

1.2.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.2.2.12. Cat 6A Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6A Patch cables five foot in length shall be provided for spares.

1.2.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

1.3. SRC Building

1.3.1. Work Area Scope of Work

1.3.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.3.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.3.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.3.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.3.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.3.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6A blue outlet unless designated otherwise.

1.3.1.7. One Cat 6A Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6A patch cables ten-foot-long shall be provided for spares.

1.3.2. Telecommunications Equipment Room (TER) Build Requirements

1.3.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.3.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.3.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.3.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.3.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.3.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.3.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.3.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

1.3.2.9. Each drop of Cat 6A cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.3.2.10. Each 24-port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48-port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

1.3.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.3.2.12. Cat 6A Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6A Patch cables five foot in length shall be provided for spares.

1.3.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

1.4. Equipment Shop Building

1.4.1. Work Area Scope of Work

1.4.1.1. Installation of the designated amount of Cat 6 Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.4.1.2. Installation of one (1) core/sleeve for a WAP located on the exterior wall of the HQ building within three (3) feet of the current antenna. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

1.4.1.3. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.4.1.4. Each drop must be terminated in a flush faceplate or surface mount box.

1.4.1.5. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.4.1.6. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.4.1.7. Each cable drop must be terminated 568B wiring configuration on a Cat.6 blue outlet unless designated otherwise.

1.4.1.8. One Cat 6 Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6 patch cables ten-foot-long shall be provided for spares.

1.4.2. Telecommunications Equipment Room (TER) Build Requirements

1.4.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.4.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.4.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.4.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.4.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.4.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.4.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.4.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

1.4.2.9. Each drop of Cat 6 cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.4.2.10. Each 24-port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48-port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

1.4.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.4.2.12. Cat 6 Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6 Patch cables five foot in length shall be provided for spares.

1.4.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

1.5. Ruffner Building: *Bldg. & Grds. – Materials – Sign Shop*

1.5.1. Work Area Scope of Work

1.5.1.1. Installation of the designated amount of Cat 6 Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.5.1.2. Installation of one (1) core/sleeve for a WAP located on the exterior wall of the HQ building within three (3) feet of the current antenna. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

1.5.1.3. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.5.1.4. Each drop must be terminated in a flush faceplate or surface mount box.

1.5.1.5. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.5.1.6. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.5.1.7. Each cable drop must be terminated 568B wiring configuration on a Cat.6 blue outlet unless designated otherwise.

1.5.1.8. One Cat 6 Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6 patch cables ten-foot-long shall be provided for spares.

1.5.2. Telecommunications Equipment Room (TER) Build Requirements

1.5.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.5.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.5.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.5.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.5.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.5.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.5.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.5.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

1.5.2.9. Each drop of Cat 6 cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.5.2.10. Each 24-port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48-port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

1.5.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

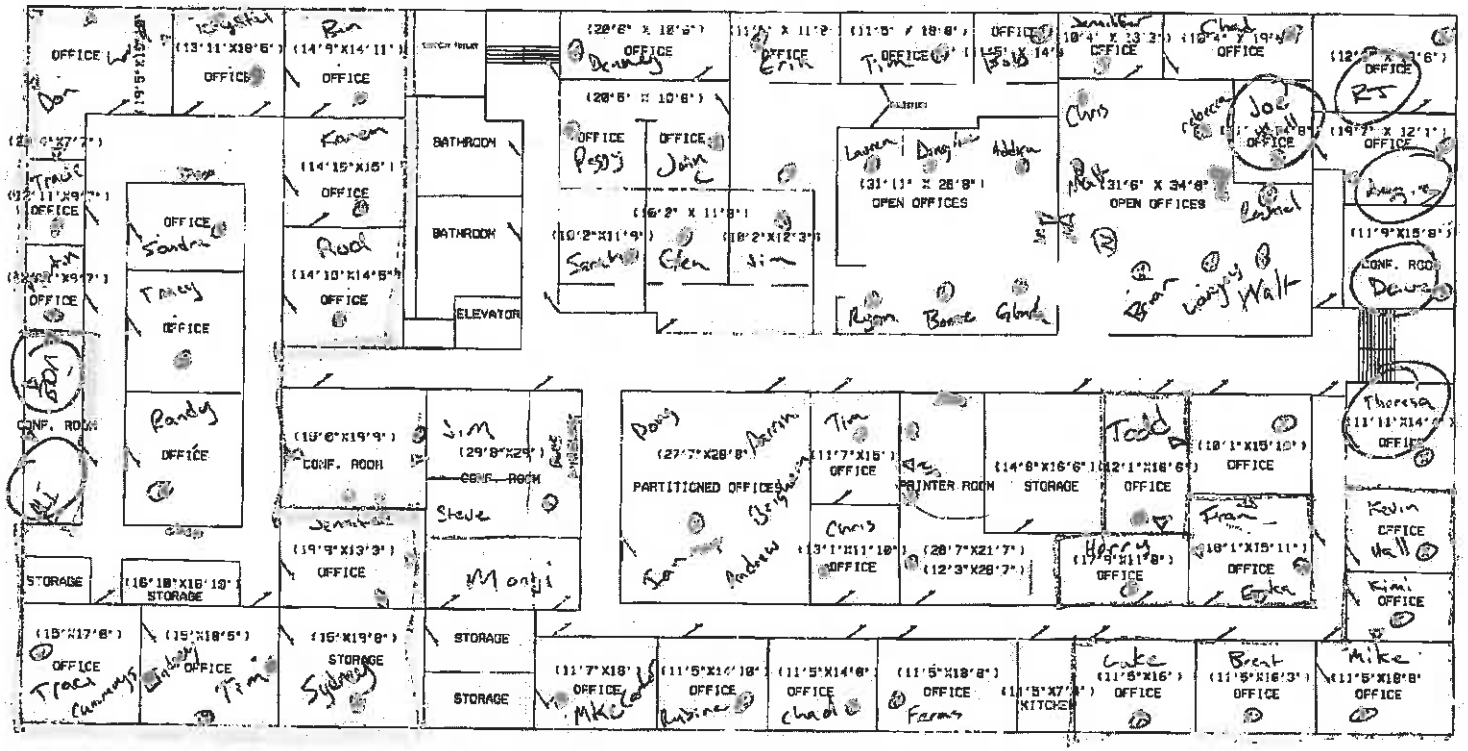
1.5.2.12. Cat 6 Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6 Patch cables five foot in length shall be provided for spares.

1.5.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

Attachment D1-B

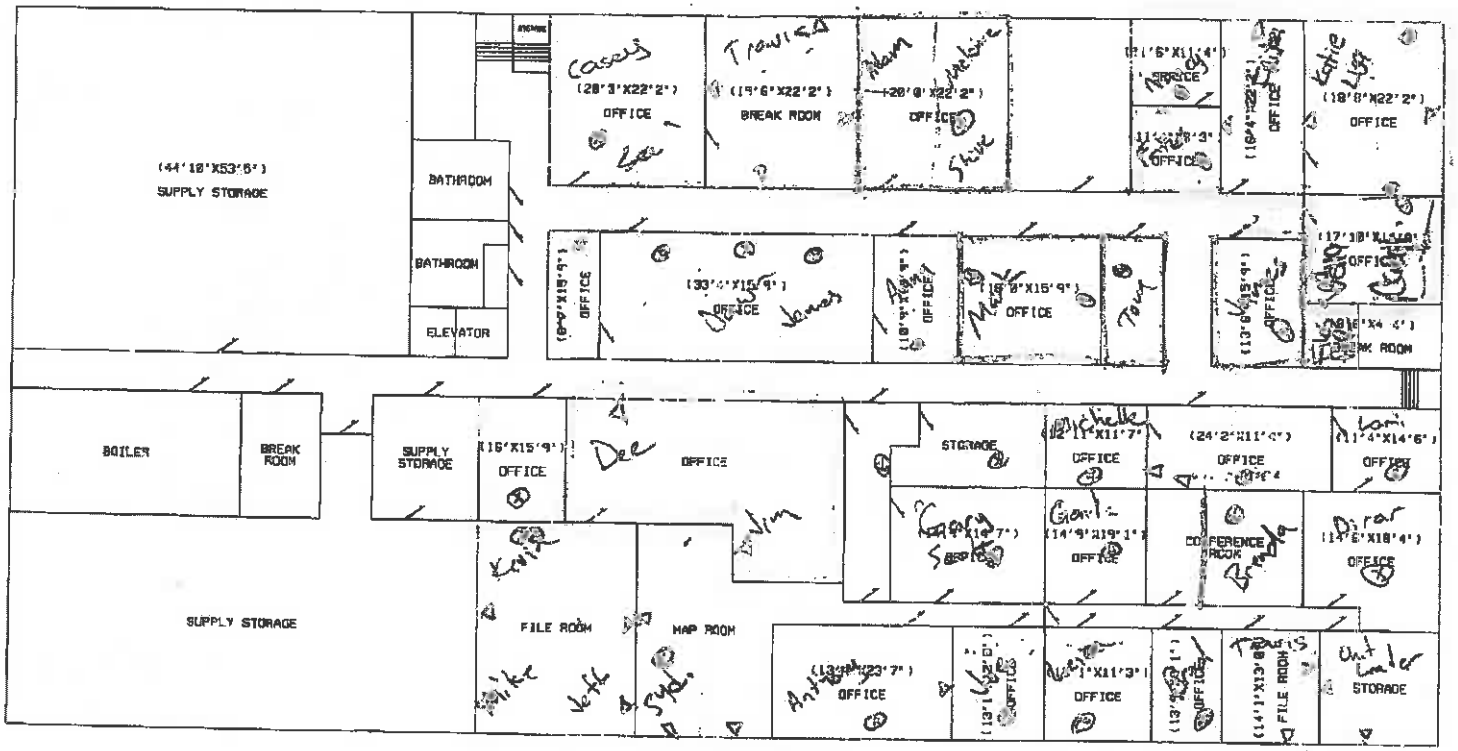
WIRELESS IN BUILDING & WORKING.

ALL PORTS TO BE TONED & TESTED.



THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

FIRST FLOOR PLAN



THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

BASEMENT FLOOR PLAN

SCALE 1" = 15'

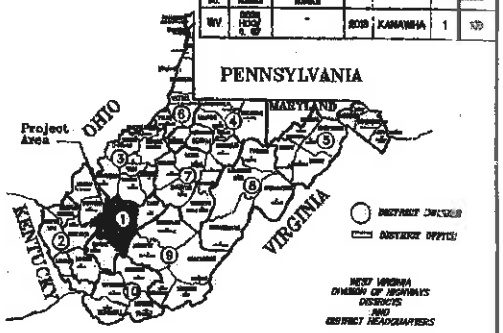
SCHEDULED SITE ▲

WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR RENOVATION
OF THE
SRC BUILDING
FOR THE
DISTRICT ONE CAMPUS PROJECT

STATE PROJECT G020-HDQ/6. 07
FEDERAL PROJECT N/A

KANAWHA COUNTY, WEST VIRGINIA

STATE ROUTE NO.	FEDERAL AID PROJECT NUMBER	PROJECT NUMBER	PROJECT YEAR	COUNTY	TOTAL NO.	TOTAL NO.
WV	G020 HDQ/6. 07	-	2012	KANAWHA	1	109



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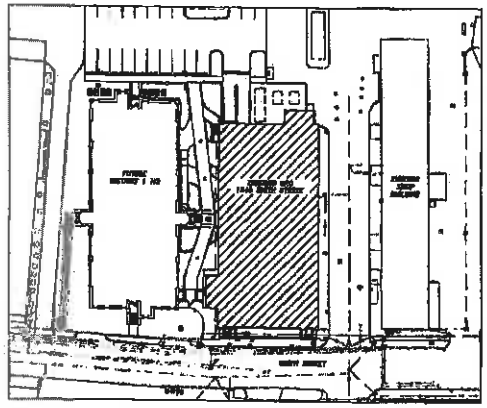


KEY PLAN

UTILITIES ENCOUNTERED

AMERICAN ELECTRIC POWER (ELECTRIC) (CLIFF NICHOLSON OR WALLACE BROWN)	(304)-721-2374
CITY OF SHARLESTON SANITARY BOARD (SEWER AND STORM WATER) (MARK JUSTICE)	(304) 348-1064
WEST VIRGINIA AMERICAN WATER CO. (WATER) (DAVID SOREWELLING)	(304) 340-2018
MOUNTAINEER GAS COMPANY (GAS) (MIKE PUGNALE)	(304) 347-0577
FRONTIER (PHONE)	(800) 921-8101
SUMMIT/LINK (CABLE) (KEITH BURDETTE)	KEITH.BURDETTE@SUDDENLINK.COM

DATE	BY	REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT

Charles H. Craig
EXECUTIVE SECRETARY

4th DAY OF October, 20 12

TYPE OF CONSTRUCTION
BUILDING ADDITION AND RENOVATION

PLANS PREPARED BY:
Chapman Technical Group
ENGINEERS • ARCHITECTS • INTERIOR DESIGNERS • LANDSCAPE ARCHITECTS

Phillip A. Warnock
PHILLIP A. WARNOCK, AIA, NCARB
REGISTERED ARCHITECT
9/25/2012
DATE

DALE E. HOY, P.E.
9/25/2012
DATE

JASON HARPER, P.E.
9/25/2012
DATE

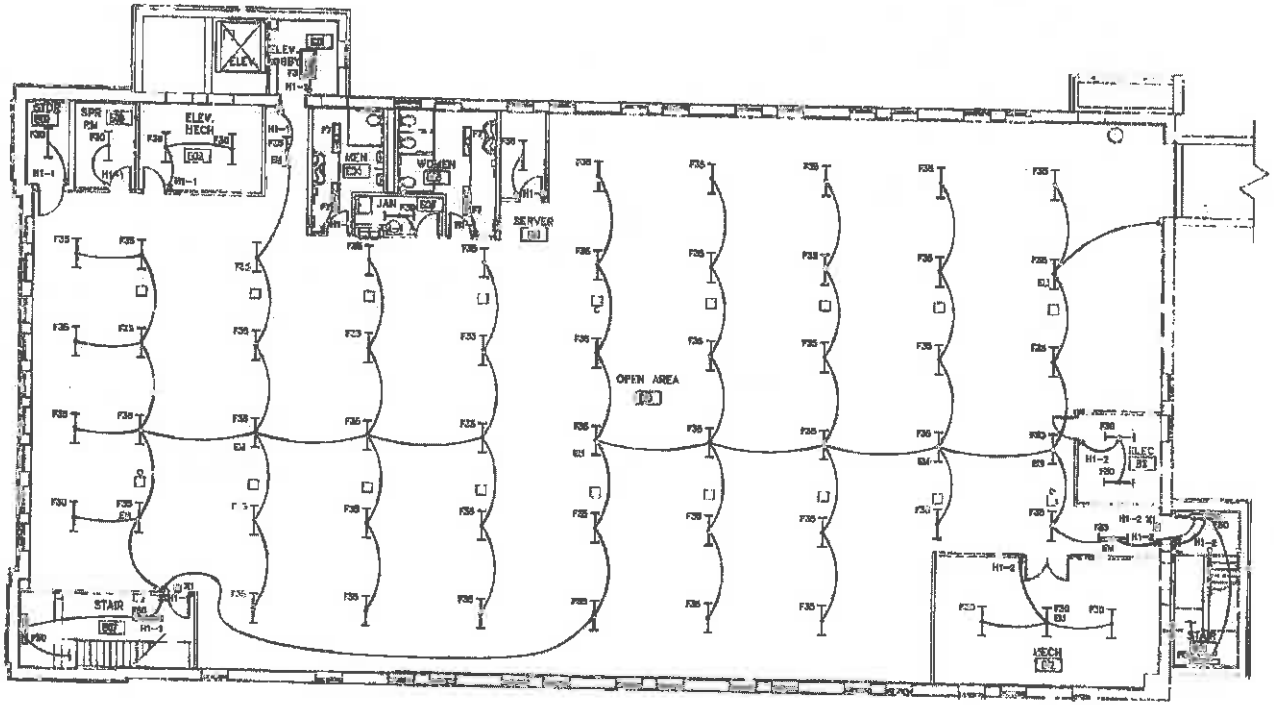
Harper Engineering

STANDARD DETAIL BOOK VOL. I DATED JANUARY 1, 2000 & VOLUME II DATED JANUARY 1, 1994, SHALL APPLY TO THIS PROJECT.

RECOMMENDED: PROJECT MANAGER
RECOMMENDED FOR APPROVAL: STATE HIGHWAY ENGINEER
APPROVED: Paul A. Mattox Jr. COMMISSIONER OF HIGHWAYS

STATE PROJECT G020-HDQ/6. 07

WV		-	2013	KANAWHA	33	105



BASEMENT LIGHTING PLAN

SCALE:1/8"=1'-0"

Designed By: JEH	Checked By: JEH	Chapman Technical Group	
Drawn By: STAFF	Job No. 13007		
Scale: AS NOTED	Date: SEPTEMBER 2012		

MARK	REVISIONS	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

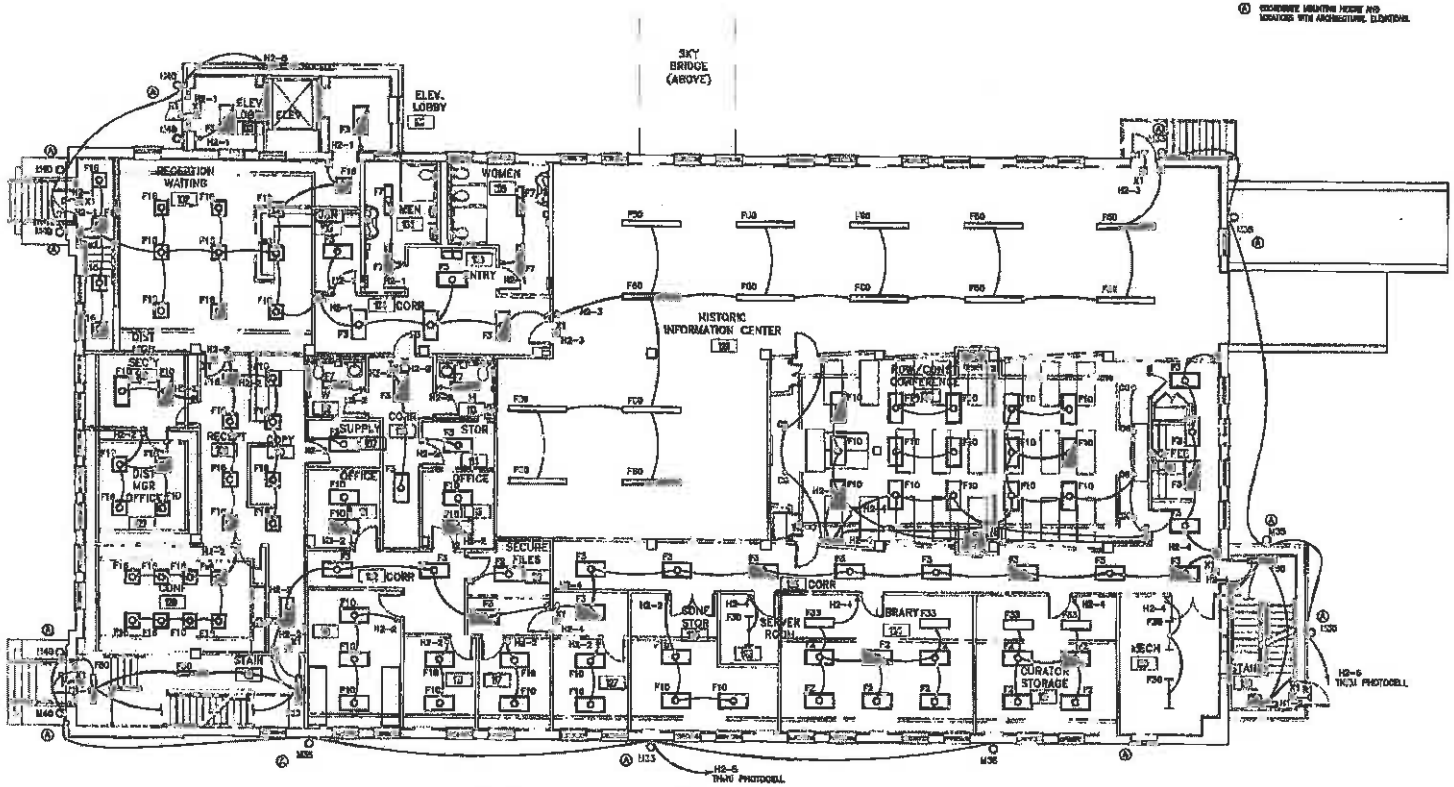
BASEMENT LIGHTING PLAN

E1

1RV		-	2013	KANAWHA	84	108

PLAN NOTES:

(A) COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL ELEVATIONS.

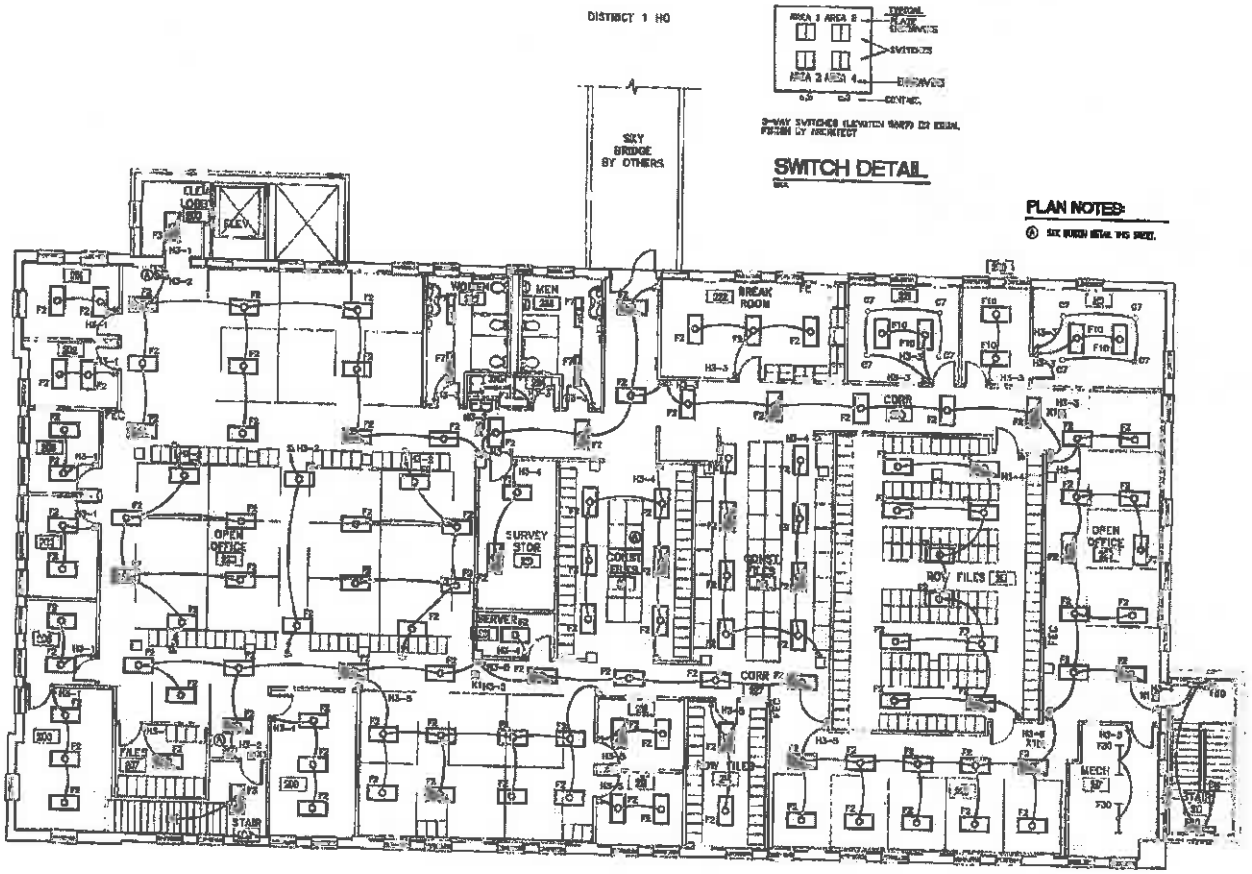


FIRST FLOOR LIGHTING PLAN

SCALE: 1/8"=1'-0"

Designed By: JEH	Checked By: JEH	Chapman Technical Group			WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS SRC BUILDING RENOVATIONS STATE PROJECT TBD	FIRST FLOOR LIGHTING PLAN	
Drawn By: JK/FF	Job No. 12007						
Scale: AS NOTED	Date: SEPTEMBER 2013		REVISIONS	DATE BY			2E

WV		-	2012	KANAWHA	E3	100



3-WAY SWITCHES (SWITCH 1&2) TO BEGIN, PERFORM BY ARCHITECT

SWITCH DETAIL

PLAN NOTES:

(A) SEE BORON DETAIL THIS SHEET.

SECOND FLOOR LIGHTING PLAN

SCALE: 1/8" = 1'-0"

Designed By: JEH	Checked By: JEH	Chapman Technical Group	
Drawn By: STAFF	Job No.: 12007		
Scale: AS NOTED	Date: SEPTEMBER 2012		

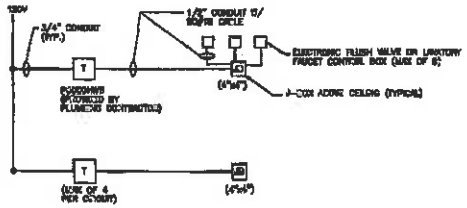
MARK	REVISIONS	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

SECOND FLOOR LIGHTING PLAN

SHEET NO. E3

12V		-	2013	KANAWHA	65	108



ELECTRONIC FAUCET AND FLUSH VALVE RISER

SCALE: N/A

PLAN NOTES

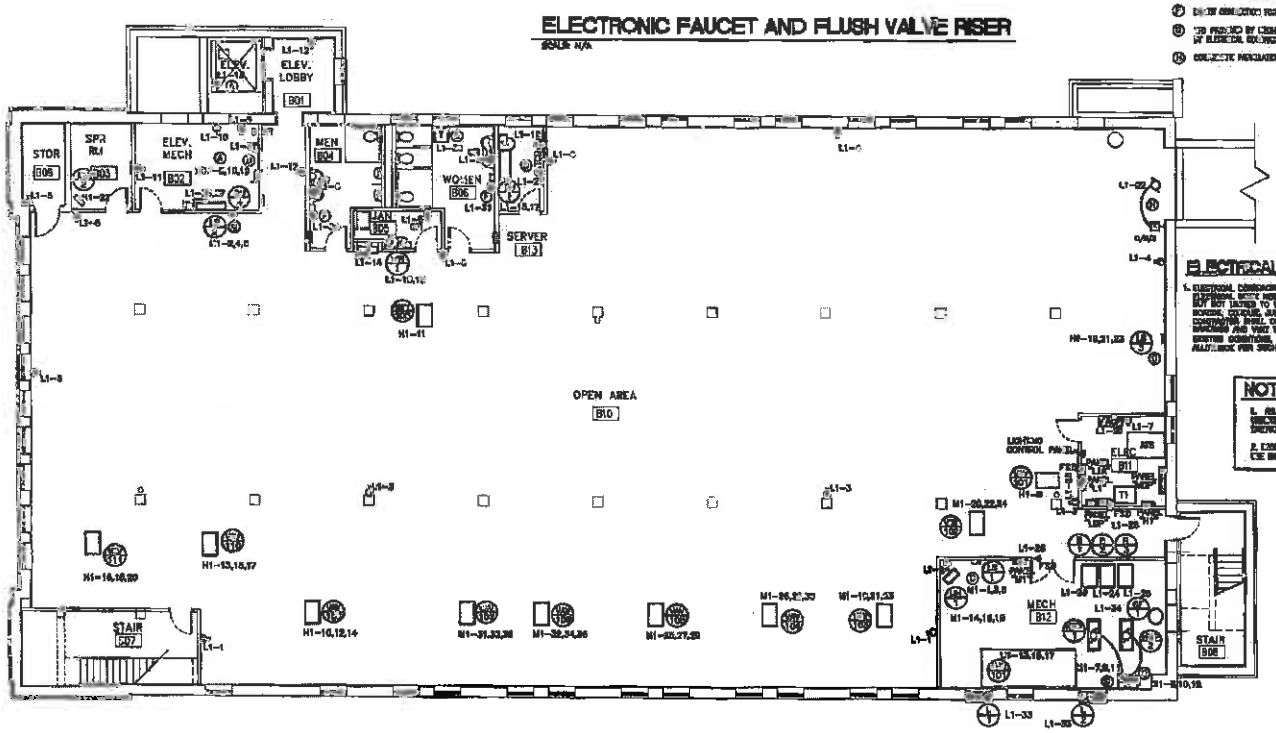
- (A) SEE TYP. ALARM/ANNUNCIATOR/CONTROL ROOM DETAIL ON SHEET E4.
- (B) SEE TELEPHONE/DATA RISER DIAGRAM ON SHEET E6.
- (C) 1PT SECOND LEVEL PANEL. SEE SHEET P5 FOR DETAIL.
- (D) PROVIDE 3/4" THRU FIRST STORY OF SOUTH WALL BELOW TO CONNECTS FUEL MAIN TO ALARMING MONITORING EQUIPMENT.
- (E) THERMOSTAT ABOVE SERVER FOR FLUSH VALVES AND FAUCETS. ELECTRICAL CONTRACTOR TO CONNECT ALL COILS AND WIRE TO ALARMING EQUIPMENT. FOR ELECTRONIC FAUCET AND FLUSH VALVE RISER DIAGRAM SHEET. PLUMBING CONTRACTOR TO SUPPLY THERMOSTAT.
- (F) DAMPER CONNECTION FOR EXISTING AHU DAMPER.
- (G) TVS PROVIDED BY COMMUNICATIONS CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
- (H) CONNECTION PROVIDED FROM EXISTING PANELBOARD.

ELECTRICAL DEMO NOTES

1. ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL EQUIPMENT, WITH NOT PROVIDED TO REMAIN. THIS INCLUDES, BUT NOT LIMITED TO LIGHTING FIXTURES, RECEPTACLES, PANEL BOARDS, CONDUIT, JUNCTION BOXES AND WIRING. CONTRACTOR SHALL CONFIRM THE QUANTITIES, LOCATIONS AND VISIT THE SITE PRIOR TO COMPLETE DEMOLITION WITH ADDITIONAL COST OF FEDERAL MEETS ACB MORE ALLOWANCE FOR SUCH WORK.

NOTES

1. ALL CONDUIT CROSSING EXISTING FIRE SEPARATION WALLS SHALL BE SEALED AT THE SURFACE OF THE WALL TO ENSURE ACCESS.
2. CONTROLLER IN CONTROL ROOM SHALL BE BUILDING OWNER'S.



BASEMENT POWER PLAN

SCALE: 1/8"=1'-0"

Designed By: JEH	Checked By: JEH	Chapman Technical Group	
Drawn By: STAFF	Job No.: 12807		
Scale: AS NOTED	Date: SEPTEMBER 2012		

REVISIONS		

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

BASEMENT POWER PLAN

E4

ELECTRICAL DEMO NOTES

1. [illegible]

NOTES

1. [illegible]
2. [illegible]

PLAN NOTES

(A) [illegible]
(B) [illegible]
(C) [illegible]
(D) [illegible]
(E) [illegible]
(F) [illegible]
(G) [illegible]
(H) [illegible]
(I) [illegible]
(J) [illegible]
(K) [illegible]
(L) [illegible]
(M) [illegible]
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(O) [illegible]
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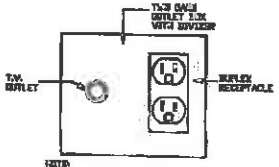
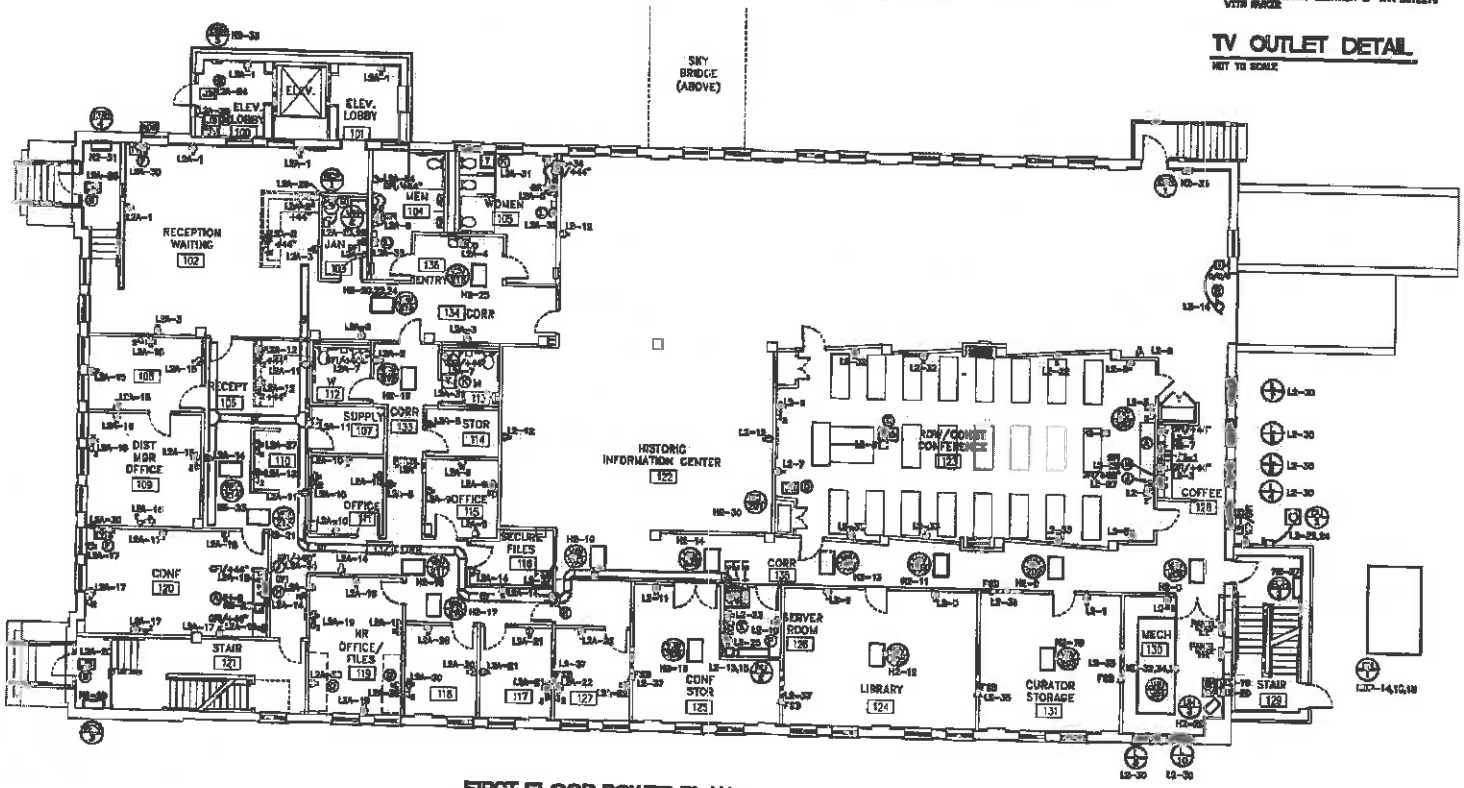
(Q) [illegible]
(R) [illegible]
(S) [illegible]
(T) [illegible]
(U) [illegible]
(V) [illegible]
(W) [illegible]
(X) [illegible]
(Y) [illegible]
(Z) [illegible]



TV OUTLET DETAIL

NOT TO SCALE



FIRST FLOOR POWER PLAN

SCALE:1/8"=1'-0"

Designed By: JSH	Checked By: JSH	Chapman Technical Group	
Drawn By: STAFF	Job No. 12007		
Scale: AS NOTED	Date: SEPTEMBER 2012		

NO.	REVISIONS	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

FIRST FLOOR POWER PLAN

SHEET NO. E3

WV	[illegible]	–	2013	KANAWHA	66	108

ELECTRICAL DEMO NOTES

1. ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL WORK NOT INDICATED TO REMAIN. THIS INCLUDES BUT NOT LIMITED TO LIGHTING FIXTURES, RECEPTACLES, PANEL BOARDS, CONDUIT, JUNCTION BOXES AND WIRING. CONTRACTOR SHALL COORDINATE WITH ARCHITECTURAL DRAWINGS AND VISIT THE SITE PRIOR TO BIDDING. DEMOLISH EXISTING CONDITIONS, EXTENT OF REMOVAL WORK AND MAKE ALLOWANCE FOR SUCH WORK.

NOTES:

1. CABLE TRAY SHALL BE MINIMUM OF 12"W.
2. RECEPTACLES TO DENOTE TRIAS SHALL USE SINGLEN OUTLET BOXES.

PLAN NOTES:

(A) PROVIDE 1200-POUND POLE SYSTEM (MINIMUM NOTP-4V OR EQUAL) FROM RECEIVE WALL TO CEILING.

(B) USE TELEPHONE/DATA RISER ON TELE SHEET.

(C) FUSE HOOD.

(D) RECEPTACLE FOR RANGE.

(E) RECEPTACLE FOR MICROWAVE.

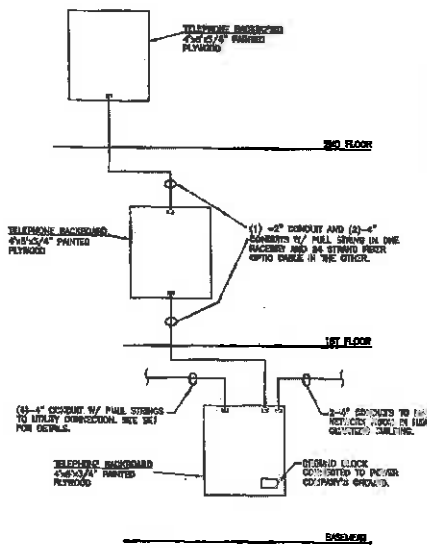
(F) TIMESTRIPS, ALONE CHECK FOR FUSED VISORS AND FAILURES. ELECTRICAL CONTRACTOR TO REPAIR ALL LIGHTS AND CLEAN ALL CONDITIONS. SEE ELECTRICAL PLANS FOR FUSED WORK. REFER TO ELI SHEET E4. ELECTRICAL CONTRACTOR TO CONFIRM TIMESTRIPS.

(G) EXISTING CONDITIONS FOR ELECTRIC FIRED OVEN.

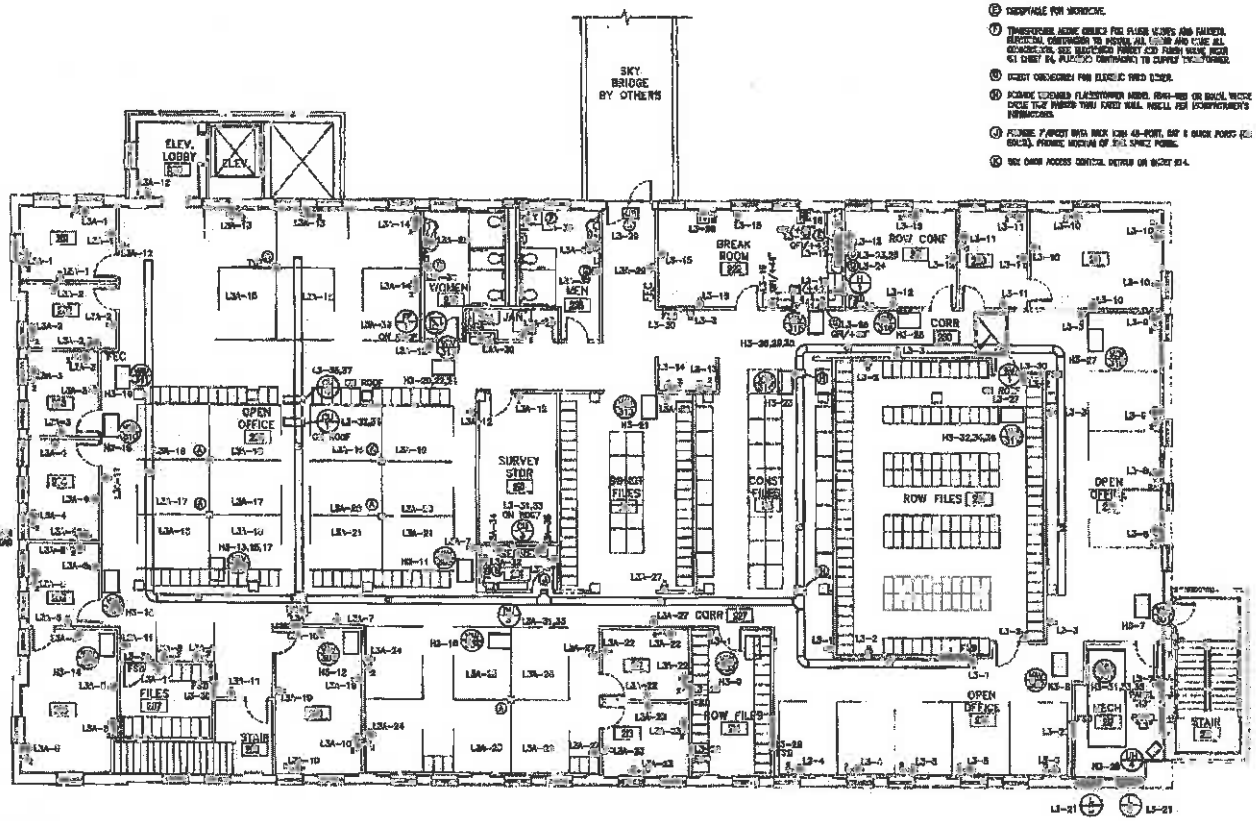
(H) REMOVE EXISTING FLUORESCENT HOOD. [illegible] OR BACK, MAKE CIRCUIT TO PREVENT THRU FIRED WALL. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

(J) REMOVE FLAMPORT DATA RACK (24-48-PORT, 24" X 6 RACK PORTS [illegible] RACK). PROVIDE MINIMUM OF [illegible] SPARE PORTS.

(K) SEE DOOR ACCESS CONTROL DETAIL ON SHEET E14.



TELEPHONE/DATA RISER
NTS



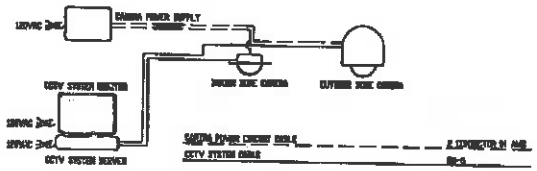
SECOND FLOOR POWER PLAN
SCALE:1/8"=1'-0"

Designed By: JEH	Checked By: JEH	Chapman Technical Group	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS SRC BUILDING RENOVATIONS STATE PROJECT TBD
Drawn By: STAFF	Job No. 12097		
Scale: AS NOTED	Date: SEPTEMBER 2012		

REVISIONS

SECOND FLOOR POWER PLAN

E6



CCTV SYSTEM RISER

NOTE: CCTV SYSTEM RISER DOES NOT REFLECT ACTUAL DEVICE QUANTITIES OR LOCATIONS. PLEASE SEE THE BUILDING SYSTEM PLAN DRAWING.

SCALE: N/A

GENERAL FIRE ALARM NOTES

1. THIS BUILDING WILL BE FULLY SPRINKLED PER NFPA 13.
2. SUPPLY A 120 VOLT CONNECTION AS REQUIRED AT ALL SYSTEM EQUIPMENT.
3. [illegible] COORDINATE EXACT LOCATIONS WITH EXISTING CONDITIONS AND ELECTRICAL SPECIALISTS.
4. DO NOT SUPPORT FIXTURES FROM PIPES USED BY CEILING SUSPENSION SYSTEM.
5. EXPOSED RACEWAY AND BLANK COVERS SHALL BE PAINTED TO MATCH EXISTING SURROUNDINGS.
6. DAMAGES CAUSED BY THIS CONTRACTOR SHALL BE REPAIRED.
7. WHERE SURFACES ARE DESIGNED TO BE PAINTED OR REPAINTED, SURFACE SHALL BE PAINTED TO MATCH EXISTING ADJACENT SURFACE.
8. ALL ADDITIVE BOX COVERS IN FIRE ALARM RACEWAY SHALL BE PAINTED RED.

FIRE ALARM SYSTEM NOTES

1. REFER TO DEVICE RISER PLAN AND PANEL PLANS FOR COORDINATION OF BELOW SYSTEM DEVICES.
2. SUPPLY 120 VOLT CONNECTION AS REQUIRED AT ALL SYSTEM EQUIP.

GENERAL NOTES

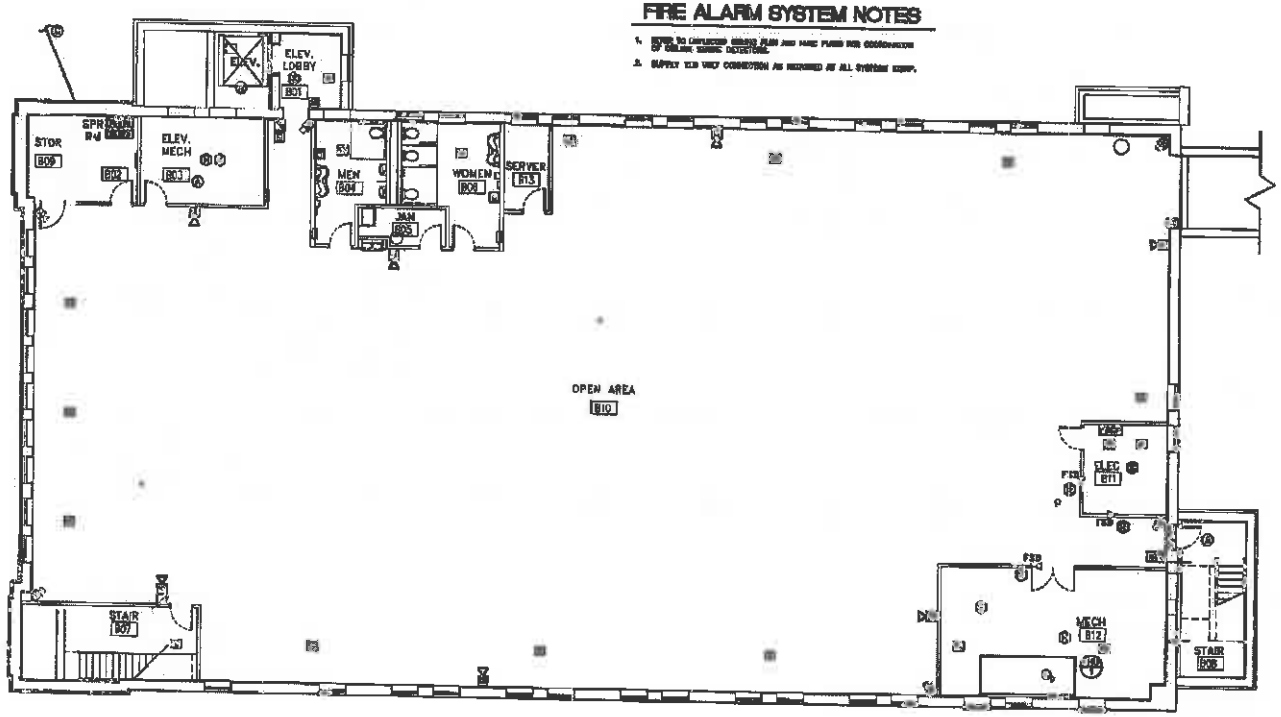
1. ALL CEILING ACOUSTIC CEILING SHALL BE PLENUM RATED.

PLAN NOTES

(A) SEE FIRE ALARM/EVACUATION/ANNUNCIATOR DEVICE REQUIREMENTS FOR SMOKE OR HEAT ETC.

(B) DOOR CONTACT, DOOR LOCK AND DOOR SENSOR ARE SHOWN. SEE DOOR CONTROL DETAILS ON SHEET E14.

(C) PROVIDE 1" CONDUIT WITH PULL STRING FOR FUTURE USE. TO BE USED AT NO WORK, SEE ONE PLAN SET FOR EXTENSIONS.



BASEMENT SYSTEM PLAN

SCALE: 1/8"=1'-0"

WV	[illegible]	-	2013	KANAWHA		105

Designed By: JEH
Drawn By: STAFF
Scale: AS NOTED
Checked By: JEH
Job No. 12007
Date: SEPTEMBER 2013

Chapman Technical Group

REVISIONS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

BASEMENT SYSTEM PLAN

E7

BY		~	2013			10D

GENERAL NOTES:

1. ALL CABLES ABOVE CEILING SHALL BE PLENUM RATED.
2. CABLING SHALL BE 1 MEDIA PORT, UNLESS NOTED OTHERWISE.

PLAN NOTES:

(A) DOOR CONTACT, 120VAC LOCK AND CARD READER AND WIRING. SEE DETAILS ON SHEET E1.6.

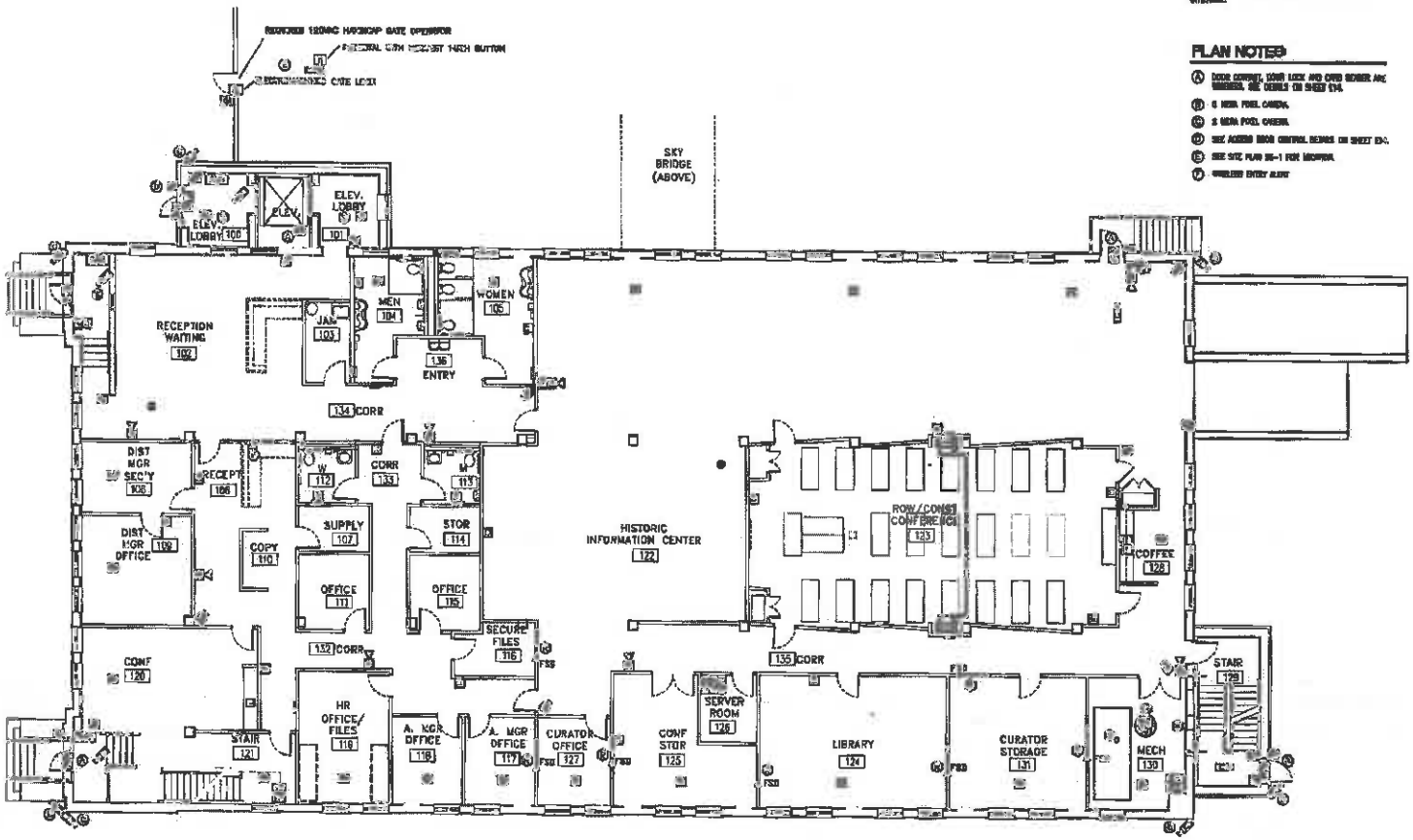
(B) 6 MEDIA PORT CAMERA.

(C) 2 MEDIA PORT CAMERA.

(D) SEE ACCESS DOOR CONTROL DETAILS ON SHEET E3.0.

(E) SEE SITE PLAN SK-1 FOR DETAIL.

(F) WIRELESS ENTRY ALERT



FIRST FLOOR SYSTEM PLAN

SCALE: 1/8"=1'-0"

Designed By: JGH	Checked By: JEH	Chapman Technical Group	
Drawn By: STAFF	Job No.: 12007		
Scale: AS NOTED	Date: SEPTEMBER 2012		

NO.	REVISIONS	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

FIRST FLOOR SYSTEM PLAN

DRAWING NO. 05

WV	[illegible]	[illegible]	[illegible]	2012	[illegible]	100

GENERAL NOTES

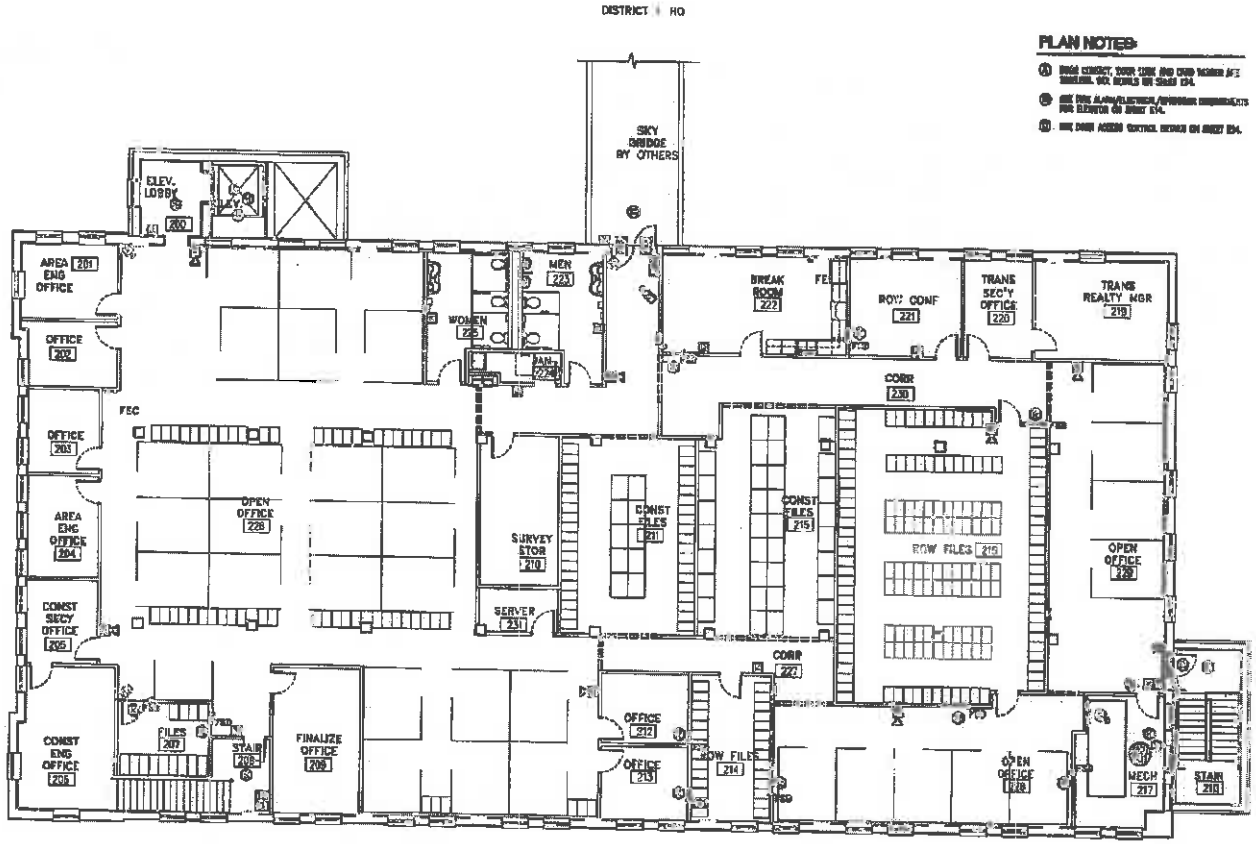
1. [illegible]
2. [illegible]

PLAN NOTES

(A) [illegible]

(B) [illegible]

(C) [illegible]



SECOND FLOOR SYSTEM PLAN

SCALE: 1/8"=1'-0"

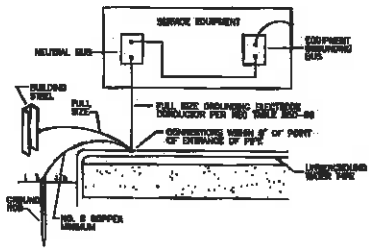
Designed By: JEH	Checked By: JEH	Chapman Technical Group	
Drawn By: STAFF	Job No. 12807		
Scale: AS NOTED	Date: SEPTEMBER 2012		

NO.	REVISIONS	BY	DT

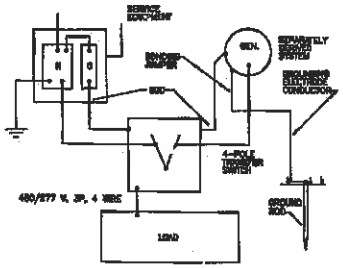
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

SECOND FLOOR SYSTEM PLAN

SHEET NO. E3



SERVICE ENTRANCE GROUNDING
SCHEMATIC



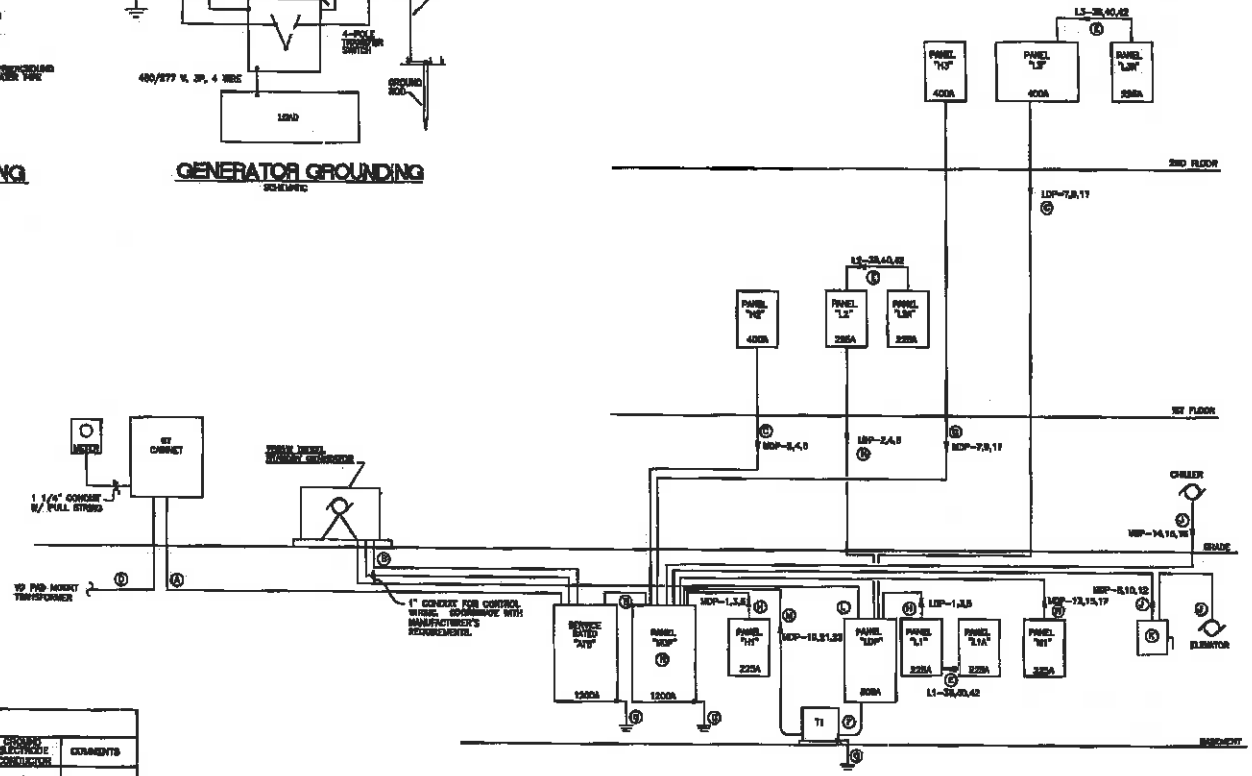
GENERATOR GROUNDING
SCHEMATIC

RISER NOTES:

(A) (4) – 4" CONDUITS WITH 4-350MCM.
(B) (4) – 4" CONDUITS WITH 4-350MCM + 3/0 GND.
(C) (1) – 4" CONDUIT WITH 4-500 MCM + #3 GND.
(D) (4) – 4" CONDUITS WITH PULL STRING.
(E) (1) – 2" CONDUIT WITH 4-#1 + #8 GND.
(F) SEE TRANSFORMER SCHEDULE FOR SECONDARY FEEDERS.
(G) GROUND PER NEC.
(H) (1)-2 1/2" CONDUIT WITH (4)-4/0+#4 GND.
(J) SEE PANEL "MDP" SCHEDULE FOR CONDUIT AND CONDUCTOR SIZES.
(K) 3P/100A FUSED 3-RAIL TRIP ELEVATOR DISCONNECT SWITCH. COORDINATE FUSE SIZE WITH ELEVATOR MANUFACTURER.
(L) (1) – 1" CONDUIT FOR GENERATOR HEATER AND BATTERY CHARGER. USE EWCUD L1-27,29 FOR GENERATOR HEATER AND L3-25 FOR BATTERY CHARGER.
(M) (1) – 3" CONDUIT WITH 3-500 MCM + #3 GND.
(N) 100A RATED MAIN BREAKER.
(P) (1) – 2" CONDUIT WITH 4-#1/0 + #6 GND.

TRANSFORMER SCHEDULE

TRANS	KVA	#	PRIMARY VOLTS	SECONDARY VOLTS	FEEDER	GROUND ELECTRODE CONDUCTOR	COMMENTS
T1	225	3	480	120/208	(3)-4" CONDUITS WITH 4-350MCM	1-1/0	



ELECTRICAL RISER
NOT TO SCALE

Designed By: JEH	Checked By: JEH
Drawn By: STAFF	Job No. 12007
Scale: AS NOTED	Date: SEPTEMBER 2012

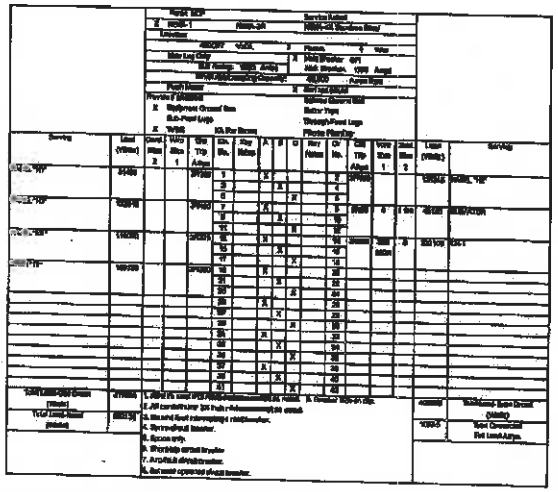
Chapman Technical Group

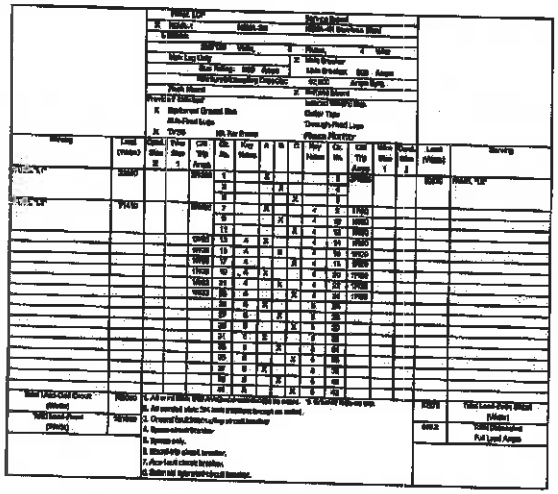
REVISION	DATE	BY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

ELECTRICAL RISER AND DETAILS

E10





STATE	[illegible]	[illegible]	[illegible]	COUNTY	[illegible]	[illegible]
WV	[illegible]	-	2013	KANAWHA	105	109

Serving	Load (Watts)	Cond. Size	Wire Size	CB Trip Amps	Ckt. No.	Key Notes	A	B	C	Key Notes	Ckt No.	CB Trip Amps	Wire Size	Cond. Size	Load (Watts)	Serving
[illegible]	[illegible]			[illegible]	1		X				2	[illegible]			[illegible]	[illegible]
					3			X			4					
					5				X		6					
[illegible]	[illegible]			[illegible]	7		X				8	[illegible]	[illegible]	[illegible]	[illegible]	ELEVATOR
					9			X			10					
					11				X		12					
[illegible]	[illegible]			[illegible]	[illegible]		X				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

MARK	LAMPS/TYPE	MOUNTING	MANUFACTURER	CATALOG	DESCRIPTION	NOTES
[illegible]	[illegible] HORIZONTAL	RECESSED	COOPER LITHONIA [illegible]	[illegible]	CLEAR [illegible] LOUVER WHITE TRIM [illegible] APERTURE ELECTRONIC BALLAST	277 VOLT
F2	3-32W T8	RECESSED	COOPER LITHONIA H E WILLIAMS	[illegible]	2x4 STATIC TROFFER WHITE ALUMINUM [illegible] DOOR MIN. .125 ACRYL. LENS 1 - ELECTRONIC BALLAST	277 VOLT
F3	2-32W T8	RECESSED	COOPER LITHONIA H E WILLIAMS	[illegible]	2x4 [illegible] TROFFER WHITE ALUMINUM [illegible] DOOR MIN. .125 ACRYL. LENS 1 - ELECTRONIC BALLAST	277 VOLT
F7	4-32W T8	RECESSED	COOPER LITHONIA WILLIAMS	[illegible]	2x4 STATIC TROFFER WHITE ALUMINUM [illegible] DOOR MIN. .125 ACRYL. LENS 1 - ELECTRONIC BALLAST	277 VOLT
[illegible]	2-32W T8	RECESSED	COOPER LITHONIA	[illegible]	2x4 VOLUMETRIC TROFFER ACRYLIC SHIELDING 1 - ELECTRONIC BALLAST	277 VOLT
[illegible]	2-17W T8	RECESSED	COOPER LITHONIA	[illegible]-217 [illegible]-217	2x2 VOLUMETRIC TROFFER ACRYLIC SHIELDING 1 - ELECTRONIC BALLAST	277 VOLT
[illegible]	2-32W T8	SURFACE	COOPER LITHONIA H E WILLIAMS	[illegible]	STRIP WITH WIRE GUARD 1 - ELECTRONIC BALLAST	277 VOLT
[illegible]	2-32W T8	SURFACE	COOPER LITHONIA	[illegible]	WRAP AROUND LENS SHALLOW 1-[illegible] BALLAST	277 VOLT
[illegible]	2-54W T5 HO	SURFACE	COOPER LITHONIA	[illegible]	WRAP AROUND LENS BASEMENT 1-ELECTRONIC BALLAST	277 VOLT
[illegible]	2-32W T8	SURFACE	COOPER LITHONIA	[illegible]	WRAP AROUND LENS [illegible] 1-ELECTRONIC BALLAST	277 VOLT
[illegible]	2-32W T8	PENDANT	COOPER PEERLESS	[illegible]	PENDANT [illegible] [illegible] ELECTRONIC BALLAST	277 VOLT
[illegible]	[illegible]	WALL PAK	COOPER LITHONIA [illegible]	[illegible]	OUTDOOR GLASS LENS WET LOCATION ALUMINUM HOUSING/COLOR BY ARCHITECT [illegible]	
[illegible]	2 PLC [illegible]	WALL PAK	COOPER [illegible] KIM [illegible]	[illegible]	OUTDOOR POLYCARBONATE LENS WET LOCATION ALUMINUM HOUSING, SHELL/COLOR BY ARCHITECT	
[illegible]	LED	UNIVERSAL	COOPER LITHONIA [illegible] LIGHTING	[illegible]	EXIT LIGHT WITH SEALED LEAD BATTERY RED LETTER WITH WHITE HOUSING	277 VOLT
[illegible]	PAR 36	UNIVERSAL	COOPER LITHONIA WILLIAMS	[illegible]	EXIT LIGHT REMOTE [illegible] LIGHT THERMOPLASTIC HOUSING WET LOCATION RATED	

GENERAL NOTES PERTAINING TO ALL FIXTURES:

1. VERIFY CEILING CONSTRUCTION TYPE WITH ARCHITECTURAL DRAWINGS TO DETERMINE WHETHER RECESSED LIGHTING FIXTURES SHALL BE [illegible]
2. DIRECTIONAL INDICATORS ON EXIT SIGNS SHALL COMPLY WITH NFPA 101 SECTION [illegible]
3. VERIFY VOLTAGE TO OPERATE FIXTURES WITH ELECTRICAL DRAWINGS.
4. LIGHTING FIXTURES SHALL COME COMPLETE WITH NECESSARY MOUNTING HARDWARE.
5. ALL RECESSED FLUORESCENT LIGHTING FIXTURES SHALL BE [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]

Designed By:	JEH	Checked By:	JEH
Drawn By:	STAFF	Job No.	12007
Scale:	AS NOTED	Date:	SEPTEMBER 2012

Chapman Technical Group

REVISIONS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

PANEL BOARD AND LIGHTING SCHEDULE

E11

WV				-	2013	KANAWHA	100	100	

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Date: SEPTEMBER 2012

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Mark	Date	Description	By
		REVISIONS	

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
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SRC BUILDING RENOVATIONS
STATE PROJECT TBD

PANEL BOARD SCHEDULES

E12

WV		-	2012	KANAWHA	100	104

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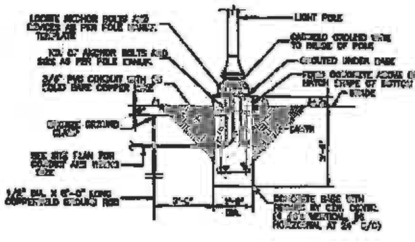
WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

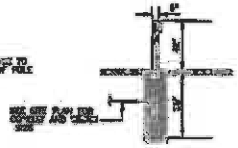
PANEL BOARD SCHEDULES, GENERAL NOTES

615



POLE BASE DETAIL

NO SCALE



EXIT BOLLARD DETAIL

NOT TO SCALE

① ADA COMPATIBLE EGRESS POLE.

② COORDINATE ANCHOR BOLTS WITH MANUFACTURER.

LIGHTING FIXTURE SCHEDULE

MARK	LAMP/TYPE	MOUNTING	MANUFACTURER	CATALOG	DESCRIPTION	VOLTS
[illegible]	1-[illegible] MH [illegible]	POLE	[illegible]	[illegible]	[illegible] ON 16' OCTAGONAL POLE TYPE 5 DIST. COLD WEATHER BALLAST	277V
[illegible]	1-[illegible] CFL	LOW BOLLARD	[illegible]	[illegible]	WALKWAY LIGHT COLD WEATHER BALLAST	120V
[illegible]	1-[illegible]-TRT CFL	BOLLARD	[illegible]	[illegible]	WALKWAY LIGHT COLD WEATHER BALLAST	277V
[illegible]	70-LED	SURFACE	[illegible]	[illegible]	[illegible] LIGHT, WET LOCATION SURFACE MOUNT/ALUM HOUSING, POLYCARB. LENS [illegible] SURFACE MOUNTED CONCEALED ABOVE CEILING	120V

PLAN NOTES

Ⓐ CONNECT TO IN-GROUND JUNCTION BOX BY H.O. CONTRACTOR.

Ⓑ REFER TO EXIT BOLLARD DETAIL ON THIS SHEET.

Ⓒ TRAFFIC RATED 12"X12" GASKETED JUNCTION BOX WITH COVER.

Ⓓ TRAFFIC RATED 24"X24" GASKETED JUNCTION BOX WITH COVER.

Ⓔ 1" CONDUIT TO PIV VALVE. SEE SHEET [illegible] FOR LOCATION.

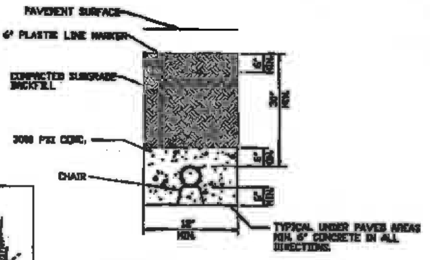
Ⓕ CONTROL PARKING LOT AND WALKWAY LIGHTING THRU [illegible] "BLUE BOX" CONTROL PANEL OR EQUAL. PROVIDE PANEL WITH 16 R.O. RELAYS FOR FUTURE PARKING EXPANSION. PANEL SHALL INTERFACE WITH [illegible] SWITCH AND BUILDING MOUNTED PHOTOCELL.

② 12"x12" GASKETED JUNCTION BOX WITH COVER.

③ 24"x24" GASKETED JUNCTION BOX WITH COVER.

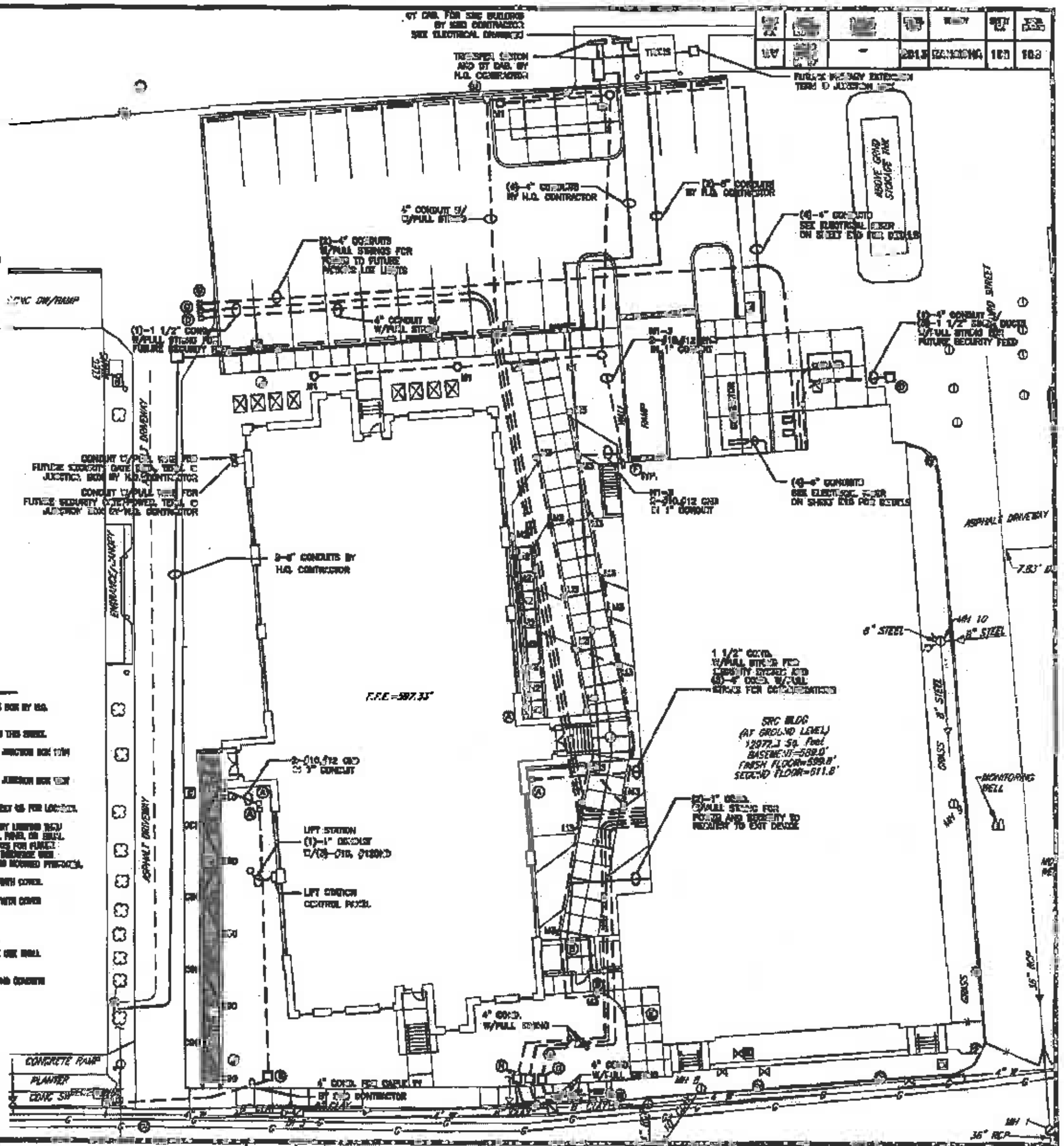
GENERAL NOTES

1. CONDUITS STUBBED OUT FOR FUTURE USE SHALL BE CAPPED.
2. COORDINATE ROUTING OF UNDERGROUND CONDUITS WITH MECHANICAL AND PLUMBING PIPING.



TRENCH DETAIL

NO SCALE



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Checked By: JEH
Drawn By: STAFF
Job No.: 12007
Scale: AS NOTED
Date: SEPTEMBER 2012

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REVISIONS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SRC BUILDING RENOVATIONS
STATE PROJECT TBD

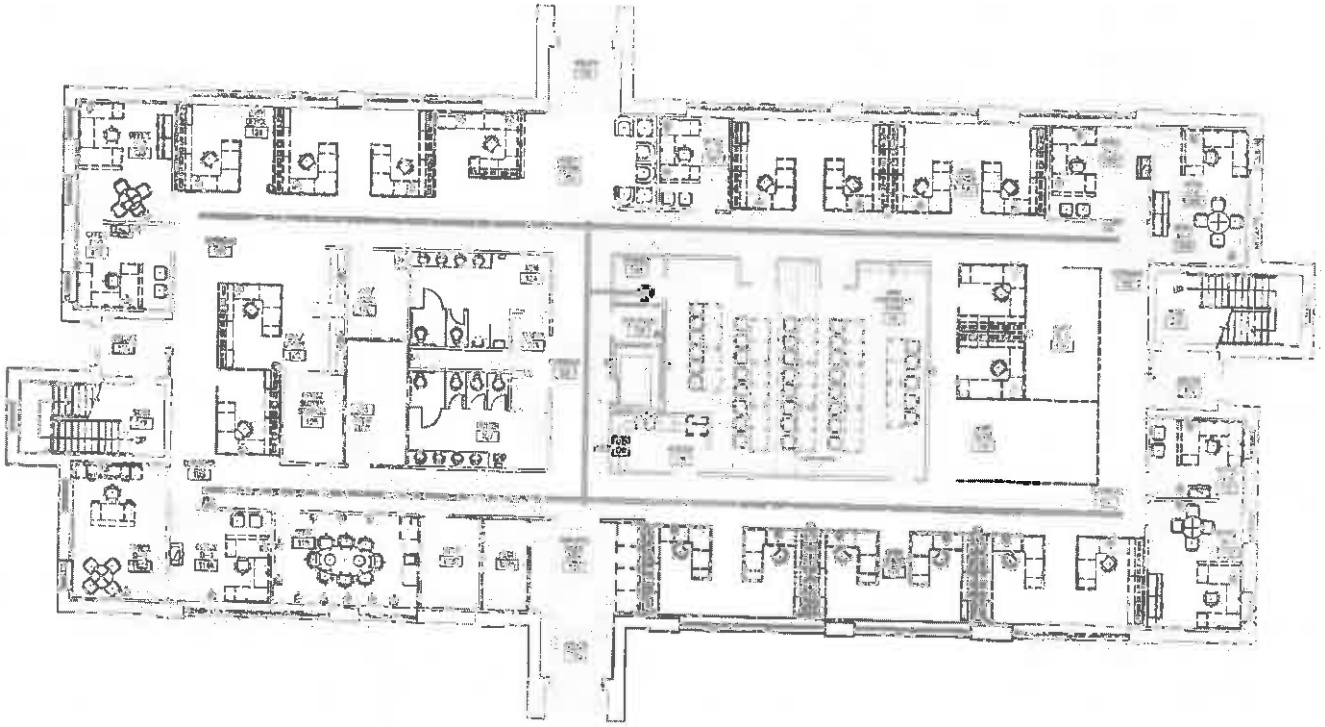
SRC ELECTRICAL PLAN

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
WV	1	————			[illegible]	XX	XX

PLAN NOTES

Ⓐ

Ⓑ
Ⓒ



FIRST FLOOR

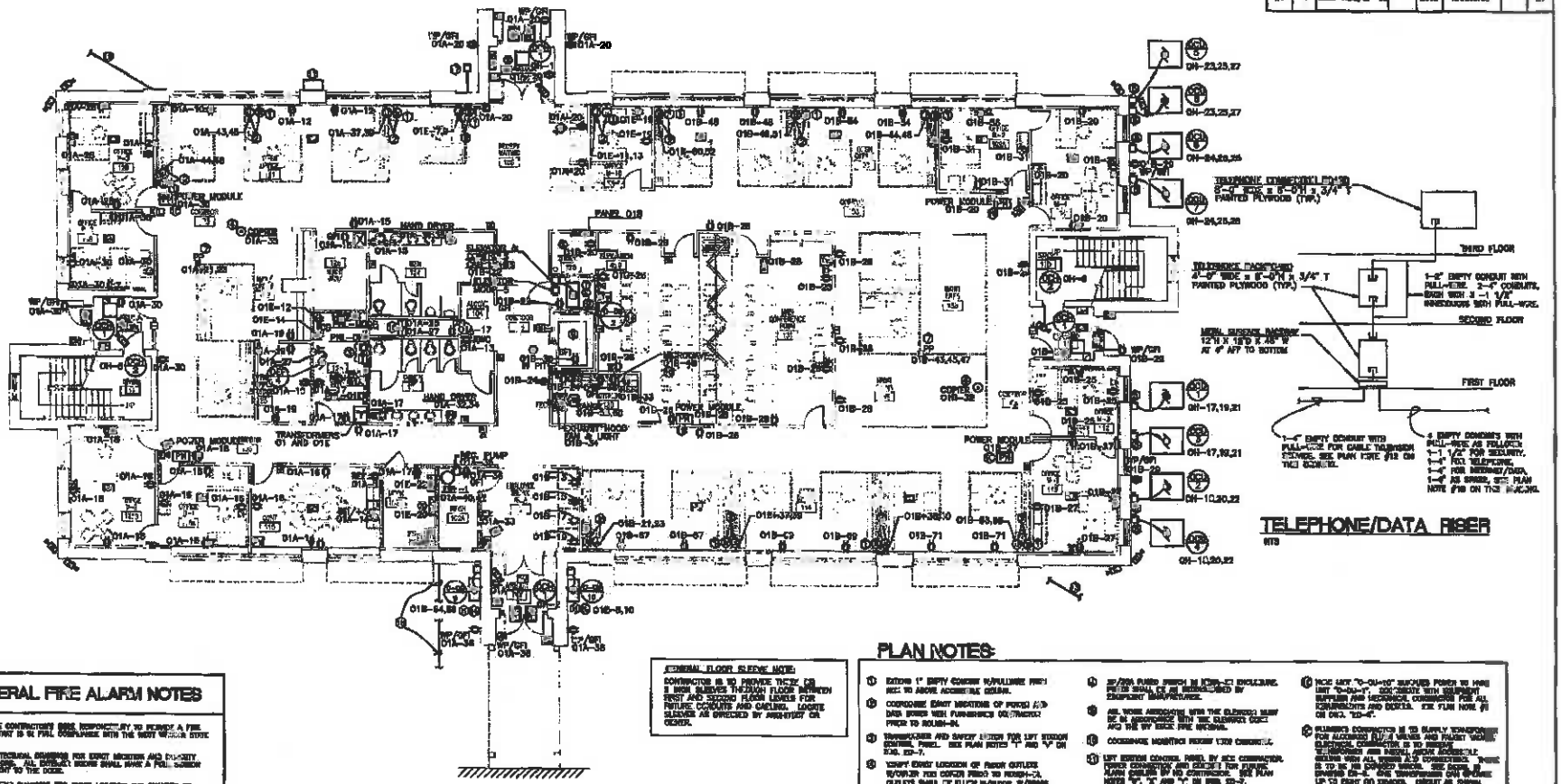
SCALE: 1/8" = 1'-0"

SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION

90% PROGRESS SET
NOT FOR CONSTRUCTION

⚠				
[illegible]	[illegible]	REVISIONS	[illegible]	BY

DISTRICT 1 HEADQUARTERS COMPLEX
CHARLESTON
WEST VIRGINIA
FIRST FLOOR
SCALE
1/8"=1'-0"
WEST VIRGINIA
DATE
PROJECT NO
CADD FILE
SHEET NO.



GENERAL FIRE ALARM NOTES

1. IT SHALL BE THE CONTRACTORS SOLE RESPONSIBILITY TO PROVIDE A FIRE ALARM SYSTEM THAT IS IN FULL COMPLIANCE WITH THE WEST VIRGINIA STATE FIRE CODE.
2. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND QUANTITY OF EXTERIOR DOORS. ALL EXTERIOR DOORS SHALL HAVE A FULL SCREEN MOUNTED ADJACENT TO THE DOOR.
3. REFER TO PLUMBING DRAWINGS FOR EXACT LOCATION AND QUANTITY OF EXTERIOR FIRE LANDING AND WALL HOSE ESTATES. EACH HOSE ESTATE SHALL BE DIRECTLY INTERCONNECTED AT THE FIRE ALARM PANEL AND THE ANNUNCIATOR.
4. REFER TO HVAC DRAWINGS FOR EXACT LOCATION AND QUANTITY OF ALL SMOKE DUCT & FIRE DAMPERS < 1,000 CFM. PROVIDE A DUCT SMOKE DETECTOR AT THE SUCTION AND OUTLET OF EACH UNIT > 2000 CFM AND A SMOKE D.D. DUCT AND AHU SMOKE DETECTOR SHALL BE DIRECTLY INTERCONNECTED BY THE FIRE ALARM PANEL AND THE ANNUNCIATOR. PROVIDE HVAC DAMPERS AT SMOKE DETECTOR WITH DIVERTER.
5. REFER TO ELEVATOR DRAWINGS FOR EXACT LOCATION AND QUANTITY OF ELEVATOR PANELS. PROVIDE A SMOKE DETECTOR AT EACH LOCATION.
6. REFER TO ELECTRICAL CONDUIT PLAN AND WIRE PLANS FOR INTERCONNECTION OF FIRE ALARM DEVICES.
7. CONNECT EACH INTERIOR HOSE EXTINGUISHER SWITCH TO EXTERIOR FIRE ALARM BELL. INTERCONNECT CONTROL SWITCHES AND SOLENOIDS AND SHUNT TRIP BREAKERS TO FIRE ALARM SYSTEM.
8. CEILING MOUNTED SMOKE DETECTORS SHALL BE LOCATED A MINIMUM OF 36" FROM POSITION OF SUPPLY DIFFUSERS OR RETURN AIR GRILLES.
9. SUPPLY 120 VOLT CONNECTION AS REQUIRED AT ALL SYSTEMS EQUIPMENT.
10. PROVIDE A FIRE ALARM SYSTEM REPORT SYSTEM IN ACCORDANCE WITH ARCH ARTS AND THE WEST VIRGINIA STATE FIRE CODE.
11. STROBE LOCATIONS SHOWN ON DRAWINGS ARE FOR ILLUSTRATION ONLY. FIELD VERIFY EXACT MOUNTING LOCATION.

GENERAL FLOOR SLEEVE NOTE:

CONTRACTOR IS TO PROVIDE TWO(2) 4" WIDE SLEEVES THROUGH FLOOR BETWEEN FIRST AND SECOND FLOOR LEVELS FOR FUTURE CONDUITS AND CABLING. LOCATE SLEEVES AS DIRECTED BY ARCHITECT OR OWNER.

PLAN NOTES:

1. EXTEND 1" EMPTY CONDUIT W/PULLWIRE FROM BELL TO ABOVE ACCESSIBLE CEILING.
2. COORDINATE EXACT MOUNTING OF FORCES AND DATA BOXES WITH FURNISHINGS CONTRACTOR PRIOR TO ROUGH-IN.
3. TRANSFORMER AND SAFETY RELAY FOR LIFT STATION CONTROL PANEL. SEE PLAN NOTES "T" AND "V" ON DWG. E0-7.
4. VERIFY EXACT LOCATION OF FLOOR OUTLETS W/OWNER. FIELD COPIER PRIOR TO ROUGH-IN. OUTLETS SHALL BE FLUSH W/FLOOR, W/BRASS FACE PLATE.
5. 20/20 AMP FUSED SWITCH IN NEMA-3R ENCLOSURE. FUSES SHALL BE AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
6. 20/20 AMP FUSED SAFETY RELAY IN NEMA-3R ENCLOSURE. FUSES SHALL BE AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
7. POWER POLE SHALL BE TRENCHED (SUPPLY SERVED, POLE SHALL COME W/FRAME AND DATA FEED OPENING. VERIFY EXACT CONFIGURATION OF POLE W/OWNER PRIOR TO ORDERING. POWER POLE SHALL COME WITH REQUIRED MOUNTING MOUNTING HARDWARE.
8. 20/20A FUSED SWITCH IN NEMA-3R ENCLOSURE. FUSES SHALL BE AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
9. ALL WORK ASSOCIATED WITH THE ELEVATOR MUST BE IN ACCORDANCE WITH THE ELEVATOR CODE AND THE WV STATE FIRE MARSHAL.
10. COORDINATE MOUNTING HEIGHT WITH OWNER.
11. LIFT STATION CONTROL PANEL BY ACE CONTRACTOR. POWER CONNECTION AND CONDUIT FOR SURGE, ALARM CIRCUITS BY MD CONTRACTOR. SEE PLAN NOTES "S", "T" AND "V" ON DWG. E0-7.
12. PROVIDE CONDUIT FOR CABLE TELEVISION SERVICE. SEE SITE UTILITY DRAWING "C0-1" FOR DETAILS.
13. ACE ELEVATOR, NEEDS CONDUIT OR CONDUIT ID-7 AND SITE UTILITY PLAN C0-1 DWG. "C0-1". CONDUIT, CABLES AND CONNECTS AS SHOWN FROM CONDUITY STATION/MONITOR SET AND TRANSFER SWITCH TO EQUIPMENT IN ROOM F125 AS SHOWN.
14. HVAC UNIT "D-OU-6" SUPPLIES POWER TO HVAC UNIT "D-OU-7". COORDINATE WITH EQUIPMENT SUPPLIER AND MECHANICAL CONTRACTOR FOR ALL REQUIREMENTS AND DETAILS.
15. HVAC UNIT "D-OU-10" SUPPLIES POWER TO HVAC UNIT "D-OU-11". COORDINATE WITH EQUIPMENT SUPPLIER AND MECHANICAL CONTRACTOR FOR ALL REQUIREMENTS AND DETAILS. SEE PLAN NOTE #9 ON DWG. "E0-6".
16. PLUMBING CONTRACTOR IS TO SUPPLY TEMPERATURE FOR ACCESSORY (U/A) VALVES AND PROVIDE WITH ELECTRICAL CONTACTS IN TO PROVIDE TELEMETRY AND ALARM. SEE SCHEDULE. WORK WITH ALL OTHER ELECTRICAL CONTRACTORS. POWER IS TO BE ON CONDUIT WHICH. SEE NOTE #8 ON DWG. E0-4. ONE TRANSFORMER ON PLANE UP TO EIGHT (8) SENSOR. CIRCUIT AS SHOWN.
17. PROVIDE HARDWIRE AND CIRCUIT FOR EMERGENCY POWER CALLING. COORDINATE WITH THE CONTRACTOR FOR LOCATION AND SENSOR. CONNECT TO CIRCUIT #01A-47.
18. PROVIDE CONDUIT FOR TELECOMMUNICATION SERVICE BETWEEN MD AND BRO BUILDING. SEE SITE UTILITY DWGS. "C0-1" AND TELEPHONE/DATA RISER ON THIS DRAWING FOR DETAILS.
19. PROVIDE ELECTRICAL POWER CONNECTION FOR VENDOR SERVICE AND SPACE AS SHOWN. SEE MECHANICAL DRAWINGS FOR DETAILS.

REVISIONS					

Chenoweth/DeLong & Assoc. Inc.
CMA ENGINEERING
CHARLESTON, WV 25313
PHONE: (304) 343-0851

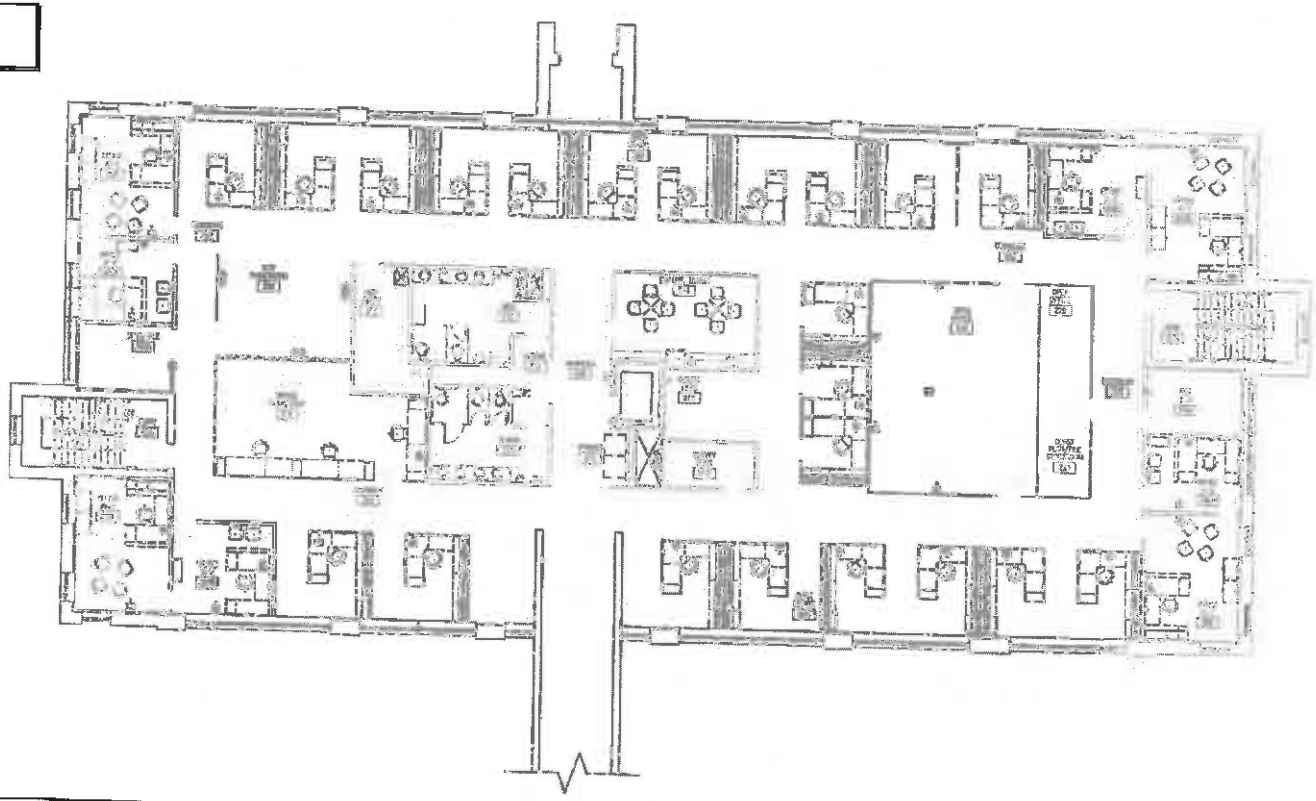
DISTRICT 1 HEADQUARTERS COMPLEX
CHARLESTON, WEST VIRGINIA
FIRST FLOOR POWER PLAN
1/8"=1'-0"
E. T. EGGERS, ARCHITECT, INC.
10/17/12 | 1109 | 1104-APT | EO-4

PLAN NOTES

Ⓐ

Ⓑ

Ⓒ



SECOND FLOOR

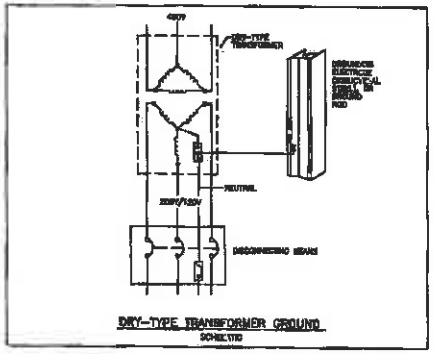
SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION

90% PROGRESS SET
NOT FOR CONSTRUCTION

REVISIONS

DISTRICT 1 HEADQUARTERS COMPLEX
CHARLESTON WEST VIRGINIA

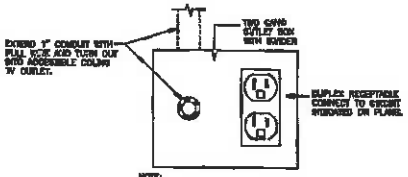
SECOND FLOOR



DRY-TYPE TRANSFORMER GROUND
SCHEMATIC

PLAN NOTES

1. EXTEND 1" EMPTY CONDUIT W/PULLWIRE FROM BOX TO ABOVE ACCESSIBLE CEILING.
2. COORDINATE EXACT LOCATIONS OF POWER AND DATA BOXES WITH FURNISHINGS CONTRACTOR PRIOR TO ROUGH-IN.
3. COORDINATE MOUNTING HEIGHT WITH CASEWORK.
4. VERIFY EXACT LOCATION OF FLOOR OUTLETS W/OWNER FOR CENTER PIECE TO ROUGH-IN. OUTLETS SHALL BE FLUSH W/FLOOR, W/BRASS RECEPTACLE.
5. POWER POLE SHALL BE WIREMOLD (3070PW SERIES). POLE SHALL COME W/POWER AND DATA FEED OPENINGS. VERIFY EXACT CONFIGURATION OF POLE W/OWNER PRIOR TO ORDERING. POWER POLE SHALL COME W/ALL NECESSARY MOUNTING ACCESSORIES.
6. FLOOR SERVICE FITTINGS FOR SYSTEMS FURNITURE COORDINATE EXACT LOCATIONS OF POWER AND DATA BOXES WITH FURNISHINGS CONTRACTOR PRIOR TO ROUGH-IN.
7. COORDINATE LOCATION AND MOUNTING HEIGHT OF RECEPTACLE WITH EQUIPMENT REQUIREMENTS AND AS DIRECTED BY ARCHITECT.
8. PLUMBING CONTRACTOR IS TO SUPPLY TRANSFORMER FOR AUTOMATIC FLUSH VALVES AND FAUCET VALVES. ELECTRICAL CONTRACTOR IS TO RECEIVE TRANSFORMER AND INSTALL ABOVE ACCESSIBLE CEILING WITH ALL WIRING AND CONNECTIONS. THERE IS TO BE NO EXPOSED WIRING. SEE DETAIL ON DRAWING EO-4. ONE TRANSFORMER DRY OPERATE UP TO EIGHT (8) DEVICES. CONFORM AS SHOWN.
9. PROVIDE ELECTRICAL POWER CONNECTION FOR POWER MODULE AND CIRCUIT AS SHOWN. SEE LUMINAIRE DRAWINGS FOR DETAILS.



NOTE:
COORDINATE EXACT LOCATION OF T.V. OUTLETS W/FURNISHINGS AND ARCHITECT PRIOR TO ROUGHING-IN. TYPICAL MOUNTING IS 60" AFF TO TOP OF DEVICE.

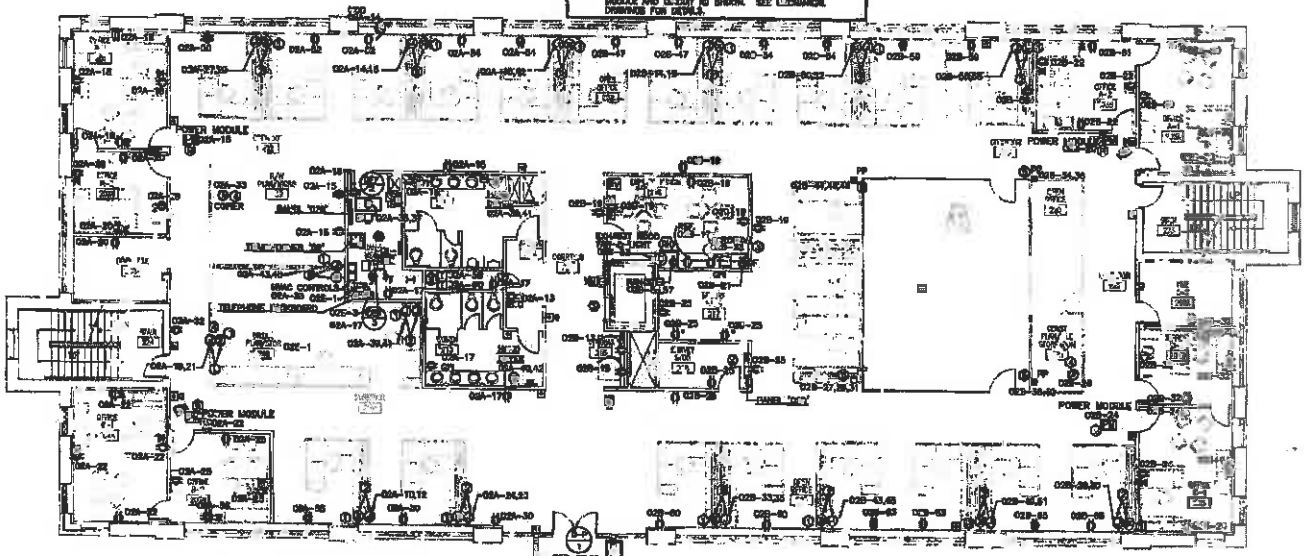
TV OUTLET DETAIL

NOT TO SCALE

CABLE TV SYSTEM EQUIPMENT, WIRING, BOXES, ETC., WILL BE PROVIDED AND INSTALLED BY THE LOCAL CABLE PROVIDER.

SYMBOL LEGEND

SYMBOL	DESCRIPTION
	FLUORESCENT LIGHT FIXTURE, LETTER DENOTES TYPE
	STRIP OR INDUSTRIAL FLUORESCENT LIGHTING FIXTURE
	FLUORESCENT LIGHTING FIXTURE W/EMERG. BATTERY PACK
	WALL MTD. LIGHT FIXTURE
	EXIT LIGHT, SHADED SIDE DENOTES FACE
	WALL MOUNTED EXIT LIGHT
	COMPACT FLUORESCENT OR HID LIGHTING FIXTURE
	EMERGENCY LIGHT SET
	SINGLE POLE SNAP SWITCH
	THREE-WAY SNAP SWITCH
	FOUR-WAY SNAP SWITCH
	MANUAL MOTOR STARTER W/THERMAL OVERLOAD
	MANUAL MOTOR STARTER
	DUAL SWITCHING
	COMBINATION TELEPHONE/DATA OUTLET. SINGLE GANG BOX W/ FLUSH BLANK COVER PLATE. EXTEND 3/4" EMPTY CONDUIT W/PULL WIRE FROM BOX TO ABOVE ACCESSIBLE CEILING.
	SPECIAL PURPOSE OUTLET
	QUADRUPLEX CONVENIENCE OUTLET
	DUPLEX CONVENIENCE OUTLET
	MOTOR CONNECT
	JUNCTION BOX
EWC	ELECTRIC WATER COOLER
GFI	GROUND FAULT CIRCUIT INTERRUPTER
TV	TELEVISION OUTLET FOR CABLE SYSTEM, WALL MOUNTED. SEE DETAIL.
MOD	MOTOR OPERATED DAMPER
WP	WEATHERPROOF
FS / TS	FLOW SWITCH – FIRE ALARM SYSTEM CONNECTION TAMPER SWITCH – FIRE ALARM SYSTEM CONNECTION
	ELECTRICAL PANELBOARD
	COMBINATION STARTER/FUSED DISCONNECT
	MECHANICAL EQUIPMENT DESIGNATION NOTATION
NF	FUSED SAFETY SWITCH (NF = NON-FUSED)
	FIRE ALARM SYSTEM – THERMAL DETECTOR
	FIRE ALARM SYSTEM – CEILING MOUNTED SMOKE DETECTOR
	DUCT MOUNTED SMOKE DETECTOR
	FIRE ALARM SYSTEM – MANUAL PULL STATION
	FIRE ALARM SYSTEM – VISUAL ALARM INDICATING DEVICE
	COMBINATION AUDIBLE/VISUAL (STROBE) FIRE ALARM SIGNAL
	PLAN NOTE
FACP	FIRE ALARM CONTROL PANEL
	SINGLE GANG OUTLET BOX FOR TELEPHONE/DATA WIRING
	RANGE HOOD FIRE SUPPRESSION CONTACT
PM	POWER MODULE FOR VAV DIFFUSERS
DS	INTRUSION DETECTION/ACCESS CONTROL-DOOR CONTACT SWITCH
DL	ACCESS CONTROL ELECTRIC DOOR LOCK
KP	INTRUSION DETECTION ACCESS KEYPAD
CR	ACCESS CONTROL CARD READER
GB	INTRUSION DETECTION GLASS BREAK DETECTOR
MS	INTRUSION DETECTION MOTION SENSOR
SCP	SECURITY CONTROL PANEL
CC	CCTV CAMERA, INTERIOR UNITS ARE CEILING MOUNTED, EXTERIOR UNITS ARE WALL-MOUNTED AT 12'-0" ABOVE FINISH GRADE



DENSIGN. FLOOR BLOCK 7 NOTE:
CONTRACTOR IS TO PROVIDE TWENTY (20) 2 INCH SLEEVES THROUGH FLOOR BETWEEN WESTMAD AND THIRD FLOOR LEVELS FOR FUTURE CONDUITS AND CABLING. LOCATE SLEEVES AS DIRECTED BY ARCHITECT OR OWNER.

SECOND FLOOR POWER PLAN

SCALE 1/8" = 1'-0"

Chevron Engineering

Garwood/Belinger & Assoc. Inc.
604 CHOCO LANTER STREET
CHARLESTON, WV 25302
PHONE (304) 343-4371
8 DUBLIT COURT
MECHANICSBURG, PA 17055
FACSIMILE (717) 697-8118

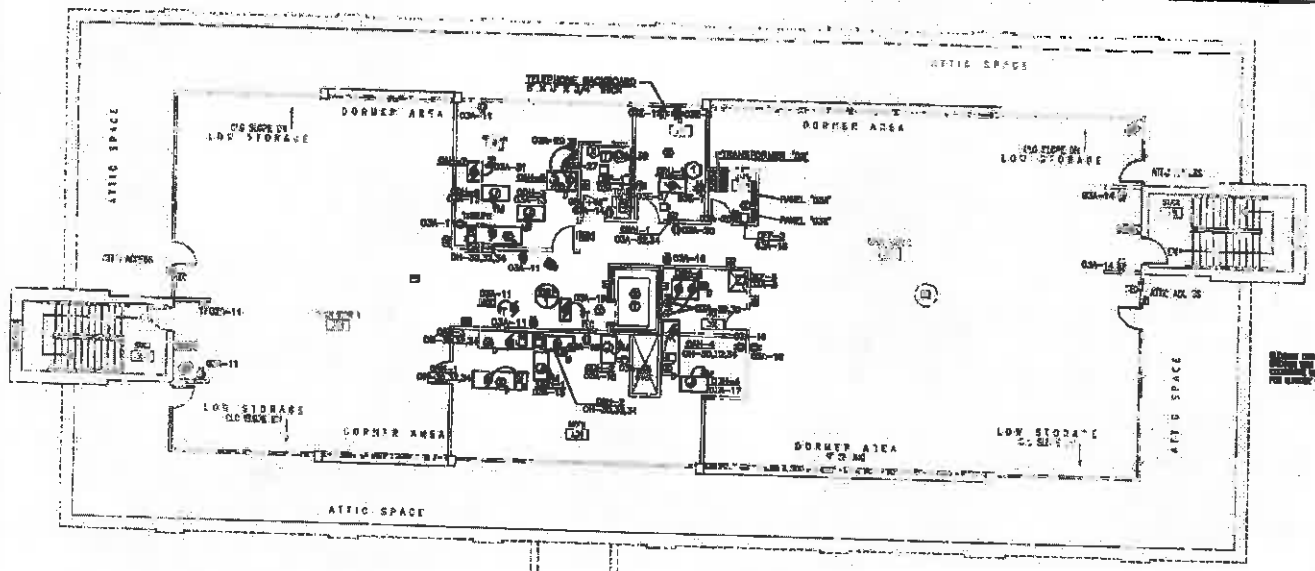
REVISIONS			

DISTRICT 1 HEADQUARTERS COMPLEX
CHARLESTON WEST VIRGINIA

SECOND FLOOR POWER PLAN

E. T. BOGGESS, ARCHITECT, P.C.
CHARLESTON WEST VIRGINIA

DATE 10/17/12 | PROJECT NO. 1185 | 1104-AP1 | SCALE 1/8"=1'-0" | DRAWN BLE | SHEET NO. EO-3



THIRD FLOOR POWER PLAN

SCALE: 1/8" = 1'-0"

NOTE:
COMBINATION DISCONNECT/SERVICE FOR GHA-1 THRU GHA-4 AND GHA-6 SHALL BE 30/30A H/FDR-1 SWITCH.

PLAN NOTES

1. POWER FOR HVAC UNIT "D-20-4" IS SUPPLIED BY HVAC UNIT "D-CD-10". COORDINATE WITH ELECTRICAL, PLUMBER AND MECHANICAL CONTRACTORS FOR ALL REQUIREMENTS AND DETAILS. SEE PLAN NOTE #15 ON DWG. "D0-4".
2. PLUMBING CONTRACTOR IS TO SUPPLY TRANSFORMER FOR AUTOMATIC FLUSH VALVES AND FAUCET VALVES. ELECTRICAL CONTRACTOR IS TO PROVIDE POWER TO TRANSFORMER PER DETAIL ABOVE. COORDINATE WORK WITH ALL TRADES INVOLVED. SEE DETAIL AND DRAWING. ONE TRANSFORMER WILL OPERATE UP TO EIGHT (8) DEVICES. CIRCUIT AS SHOWN.

GENERAL ELECTRICAL NOTES (CONTINUED)

NOTE: COORDINATE LOCATIONS OF GROUND ACTIVATED LIGHTING FIXTURES, WIRING AND OTHER ITEMS THAT MAY BE FOUND PARTIALLY OR COMPLETELY BURIED.

NOTE: SWITCH WILL ACTUATE LIGHTING FIXTURES DIRECTLY OVER AND ADJACENT LOCATION OF THEIR SWITCHES.

NOTE: ALL FLUSH MOUNTED FIXTURES, FLUSH DOORS AND FLUSH CABINETS TO BE FLUSHED PROPERLY AS REQUIRED, WHETHER AS DESCRIBED OR AS CONTRACT TO ACCOMPLISH THE ANTICIPATED FUNCTIONALITY OF EQUIPMENT.

NOTE: LOCATE DUPLEX RECEPTACLES DESIGNATED "DW" TO BE CONNECTED BY THE ASSOCIATED WORK CONTRACTOR.

NOTE: LOCATE SWITCHES APPROXIMATELY 4 TO 6 INCHES FROM THE LATCH SIDE OF THE ADJACENT DOOR FRAME UNLESS POSSIBLE, SUBJECT TO ARCHITECT REVIEW.

NOTE: ALL SWITCHES SHALL BE SPECIFIED AS SPECIFIED, SUBJECT TO ARCHITECT OR ENGINEER, TO ACCOMPLISH THE ANTICIPATED FUNCTIONALITY OF EQUIPMENT AS SHOWN.

NOTE: LOCATE ALL DOWN TO BE ACCESSIBLE.

NOTE: MOUNT FLUSH DOWN WITH THEIR FRONT EDGES FLUSH WITH THE FINISHED SURFACE OF CONCRETE SURROUND, WITH 1/4 INCH OF NON-COMPRESSIBLE MATERIAL.

NOTE: MOUNT SWITCHES AND DOWN WITH THE LARGER DIMENSION VERTICAL EXCEPT AS NOTED OTHERWISE. MOUNT ALL DOWN AND FLUSH PLATES.

NOTE: DO NOT MOUNT DOWN WITH SWITCHES ON BOTH SIDES OF A PARTITION, OTHER THAN A DOUBLE OR A DOUBLE SWITCH AS NOTED OTHERWISE.

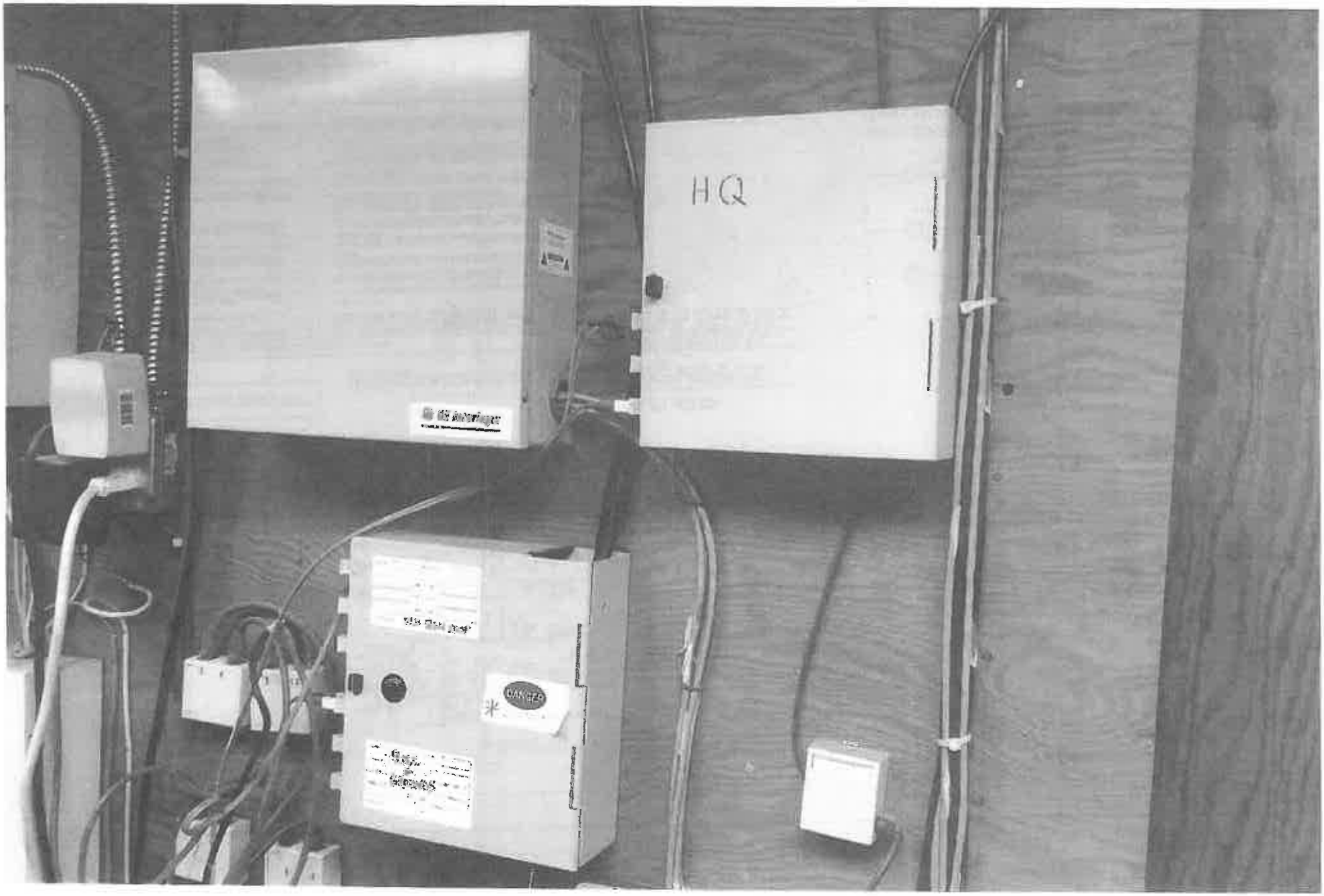
NOTE: LOCATE ALL DOWNS TO AVOID INTERFERENCE WITH DUCTS, PIPES, EQUIPMENT, EQUIPMENT, AND ANCHORS OF EQUIPMENT, ETC. TO THE ADVICE TO ARCHITECT THAT SCHEMATIC PLACEMENT IS UNACCEPTABLE.

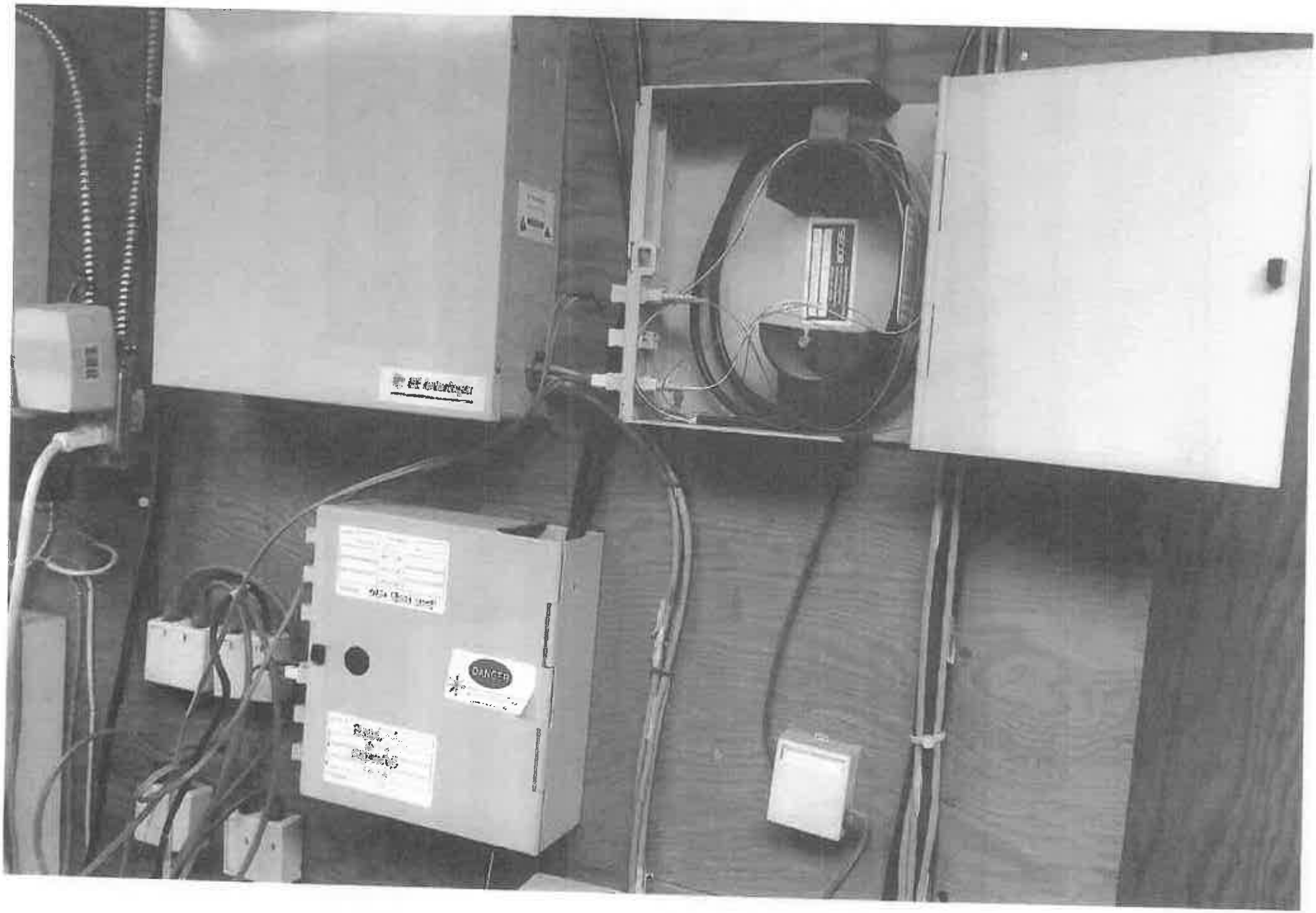
NOTE: DO NOT REMOVE DOWNS OR EQUIPMENT FROM PANEL DOWN, OR A COLUMN DOWN SWITCH.

NOTE: SWITCH, LIGHTS AND FLUSH DOWNS ARE NORMALLY SUPPLIED BY HOUSE EQUIPMENT ONLY.

NOTE: SMALL FIXTURE DOWNS WITH NO NOTE THAT A CURRENT-SENSING CONTACTOR FOR A SOLENOID, CONTACTOR, FOR A GROUND CONNECTOR.

NOTE: GROUND BRANCH GROUP CONNECTORS THAT ARE MADE OF NO WIRE WITH A CURRENT-SENSING CONTACTOR AND A NON-CURRENT-SENSING CONTACTOR, CONTACTOR OR CONTACTOR, THE THE CHANGE OF CONDITIONS DETECTED THAT


HQ
DANGER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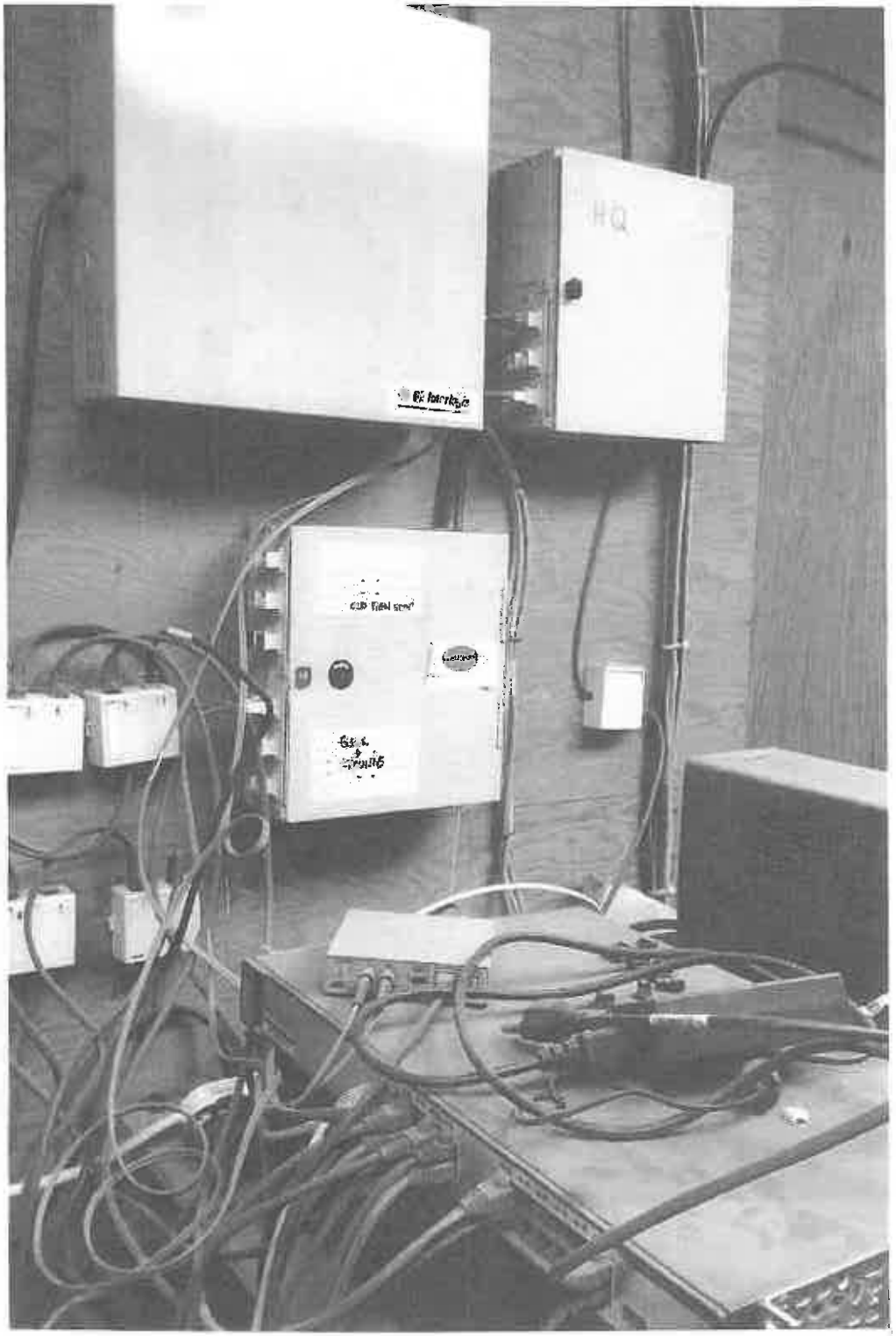
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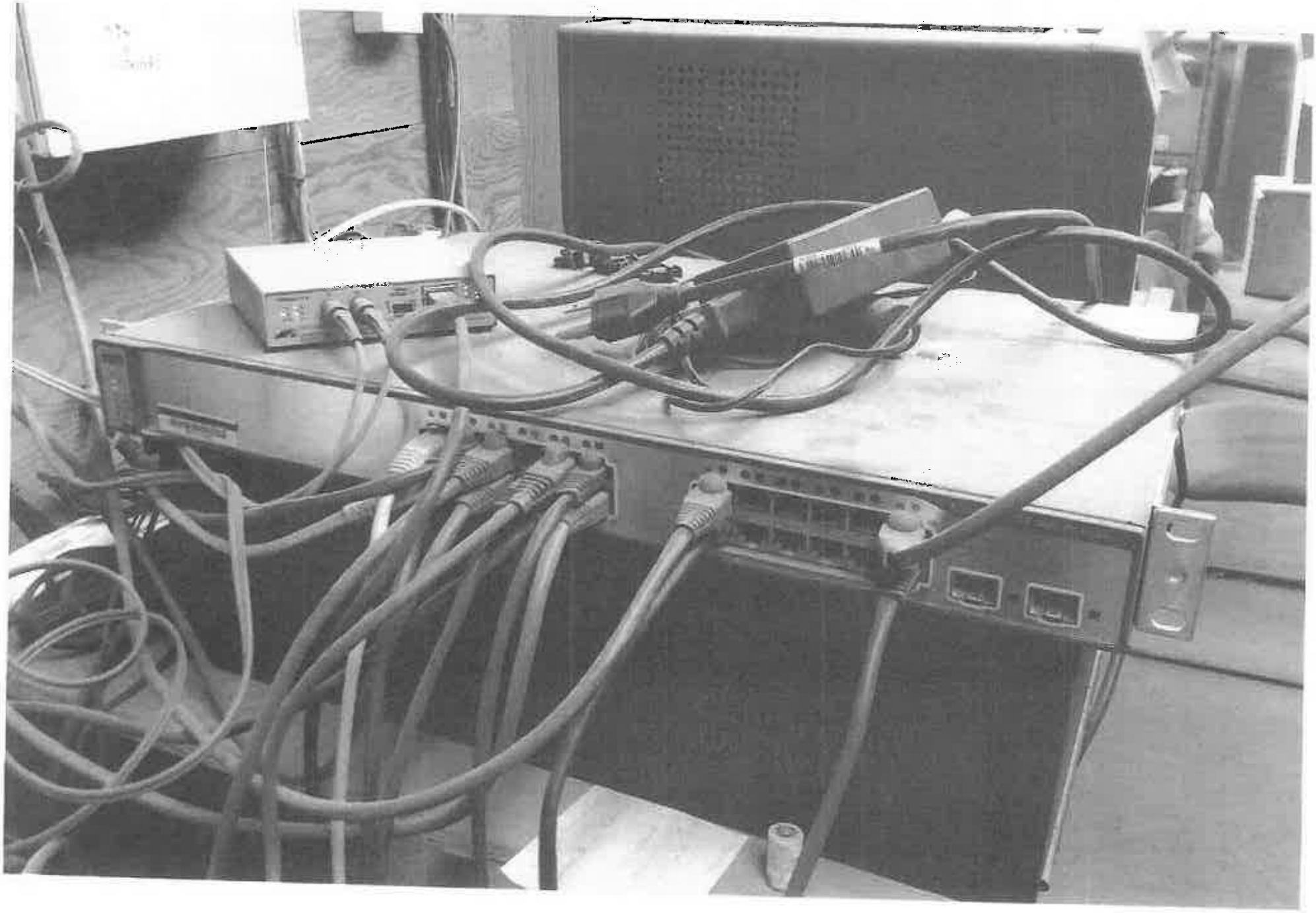
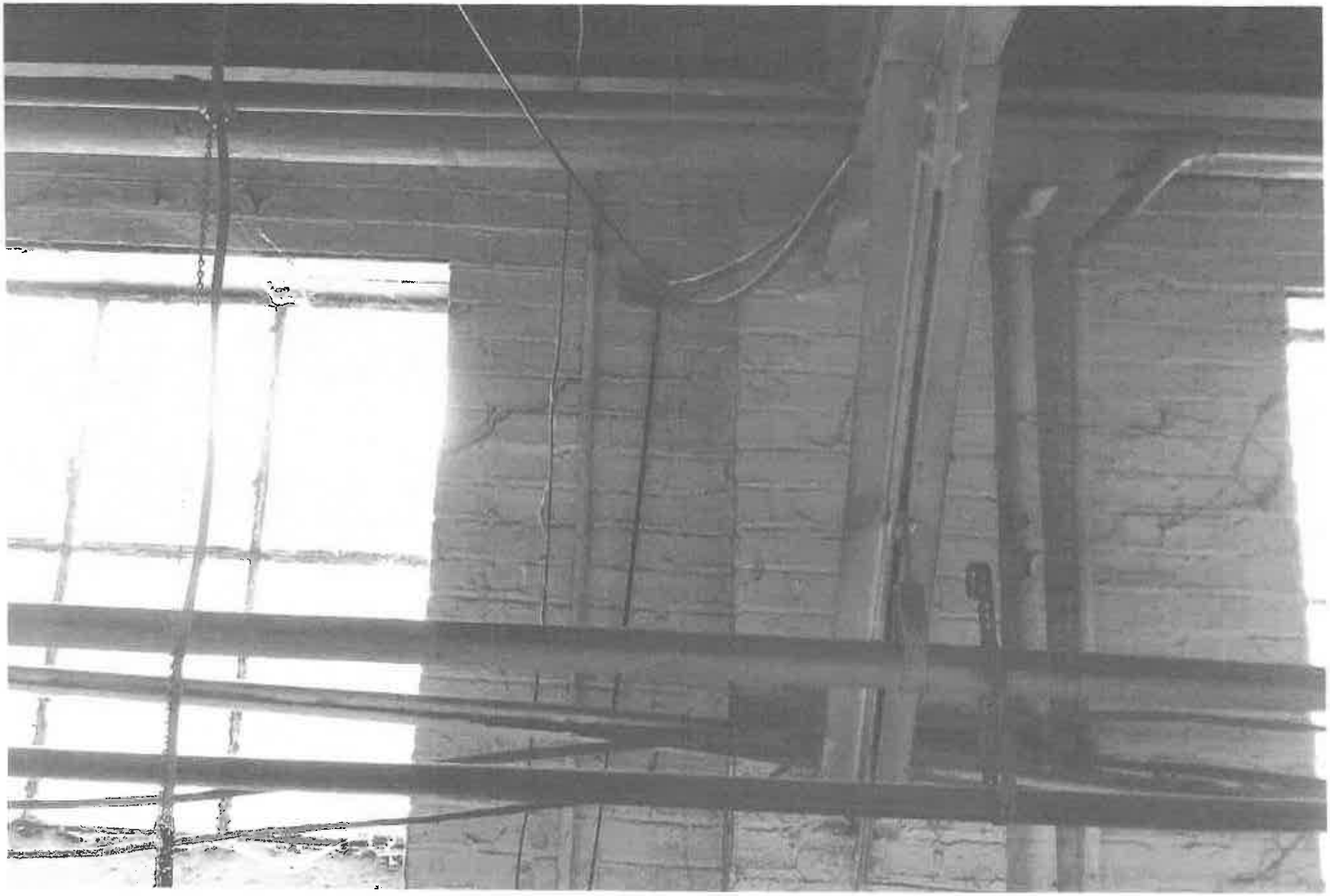
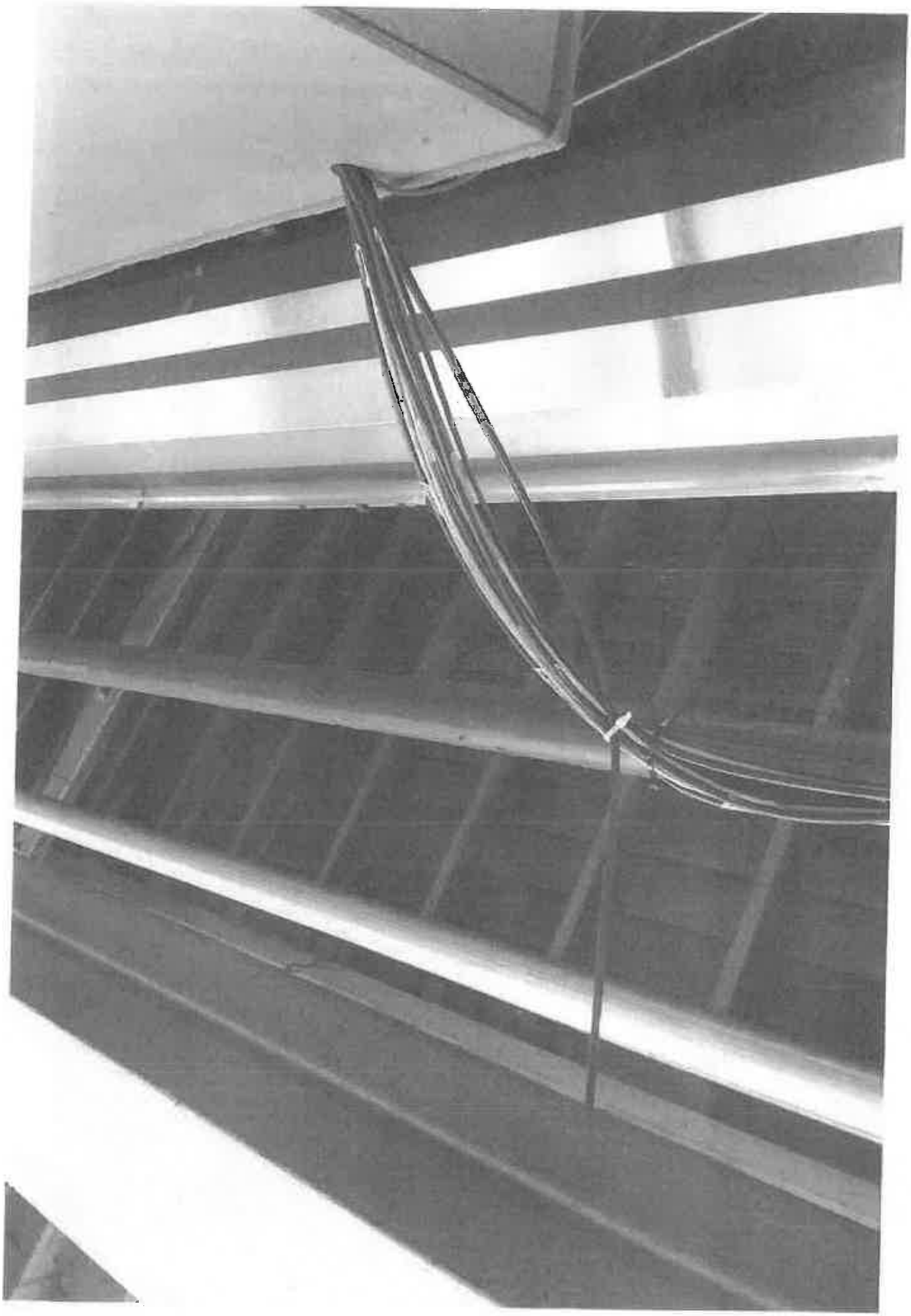
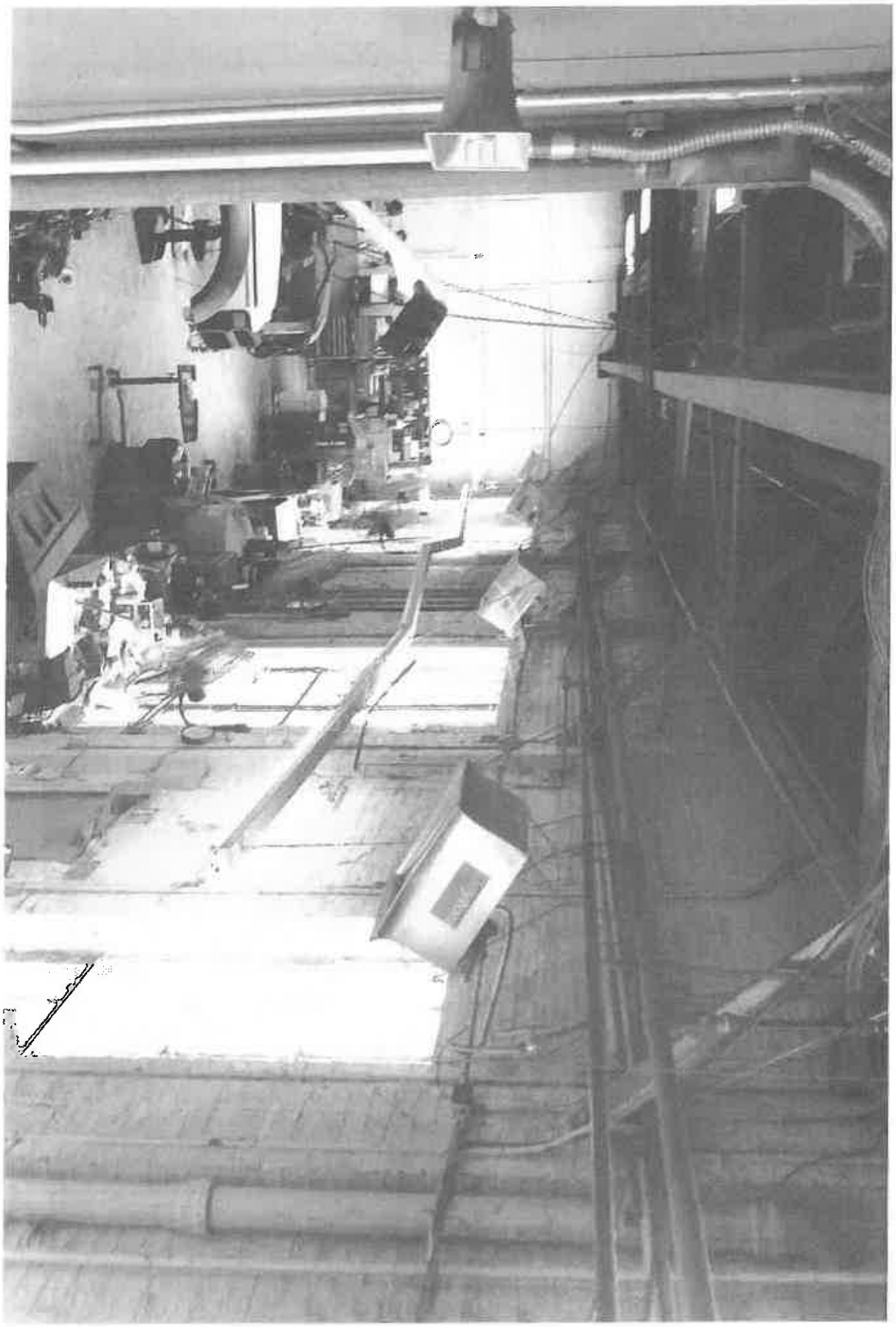
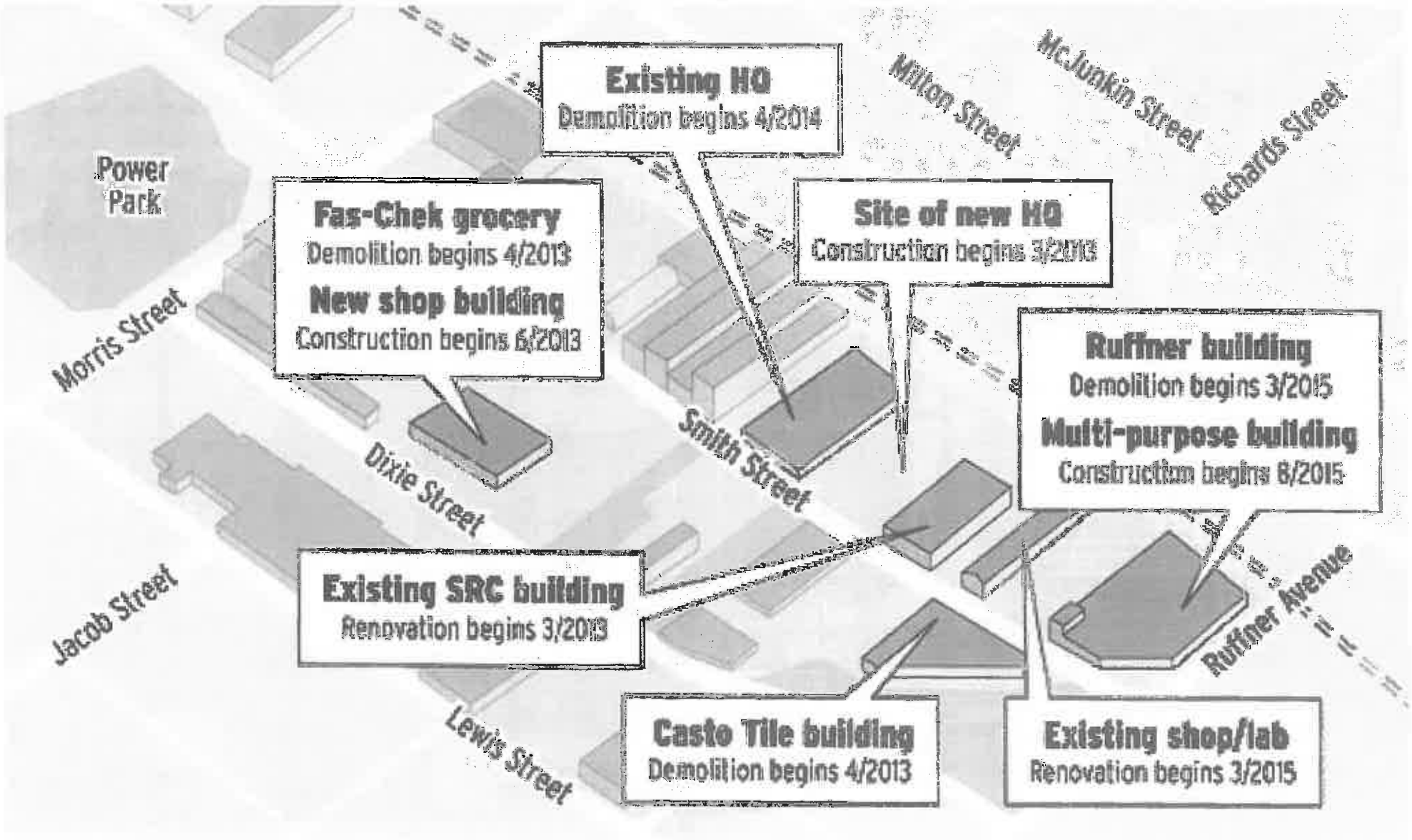




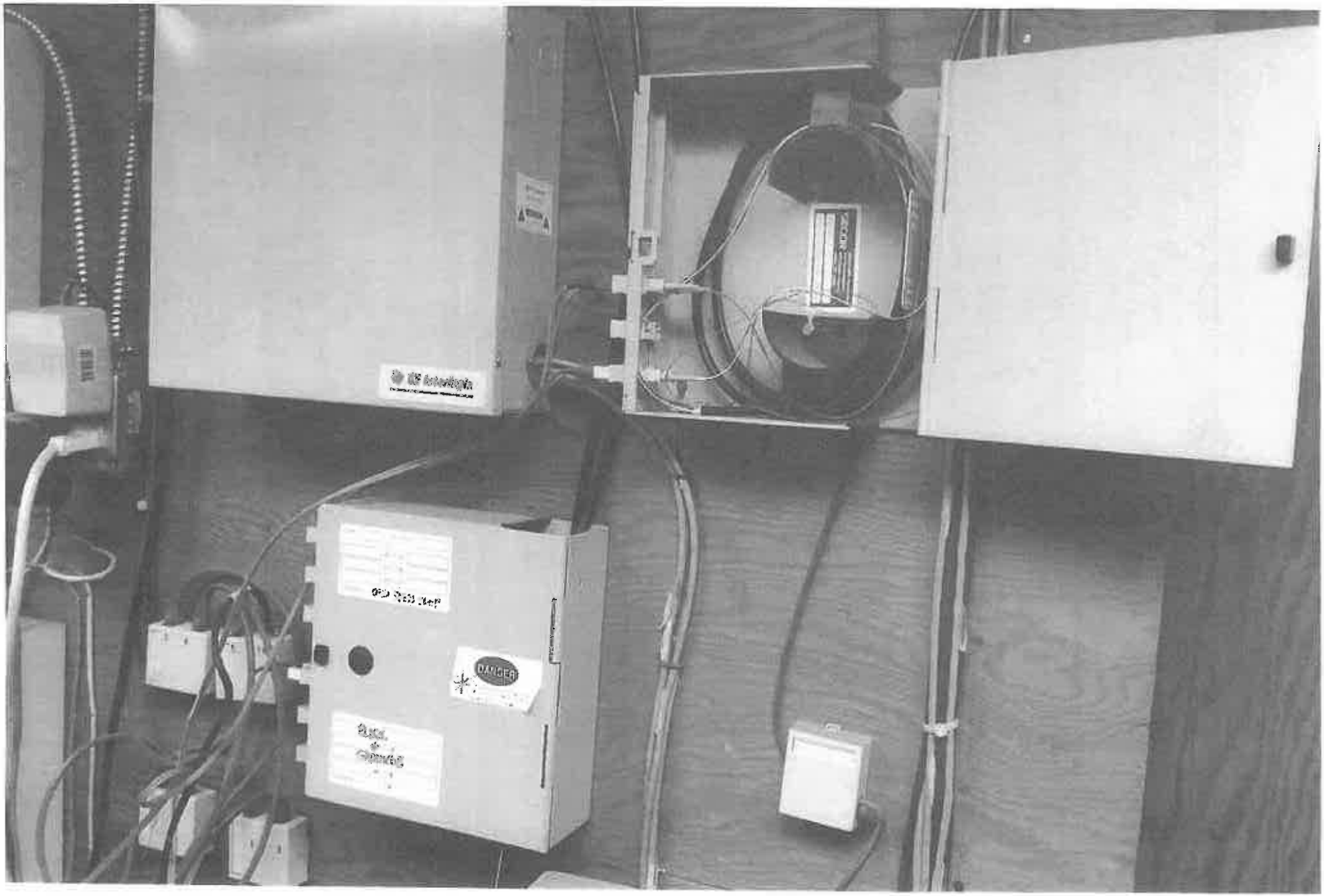





Existing HQ
DEMO 4/2014
New Dist 1
HQ BLDG.
Existing SRO BLDG.
Refiner BLDG.
Multi-purpose BLDG.
Casto Tile BLDG.
(to be demolished)
Fan-Chek Grocery
(to be demolished)
New Shop BLDG.


Existing HQ
Demolition begins 4/2014
Milton Street
McJunkin Street
Richards Street
Power Park
Fas-Chek grocery
Demolition begins 4/2013
New shop building
Construction begins 6/2013
Site of new HQ
Construction begins 3/2013
Morris Street
Ruffner building
Demolition begins 3/2015
Multi-purpose building
Construction begins 8/2015
Smith Street
Dixie Street
Existing SRC building
Renovation begins 3/2013
Jacob Street
Ruffner Avenue
Lewis Street
Casto Tile building
Demolition begins 4/2013
Existing shop/lab
Renovation begins 3/2015


HQ
DANGER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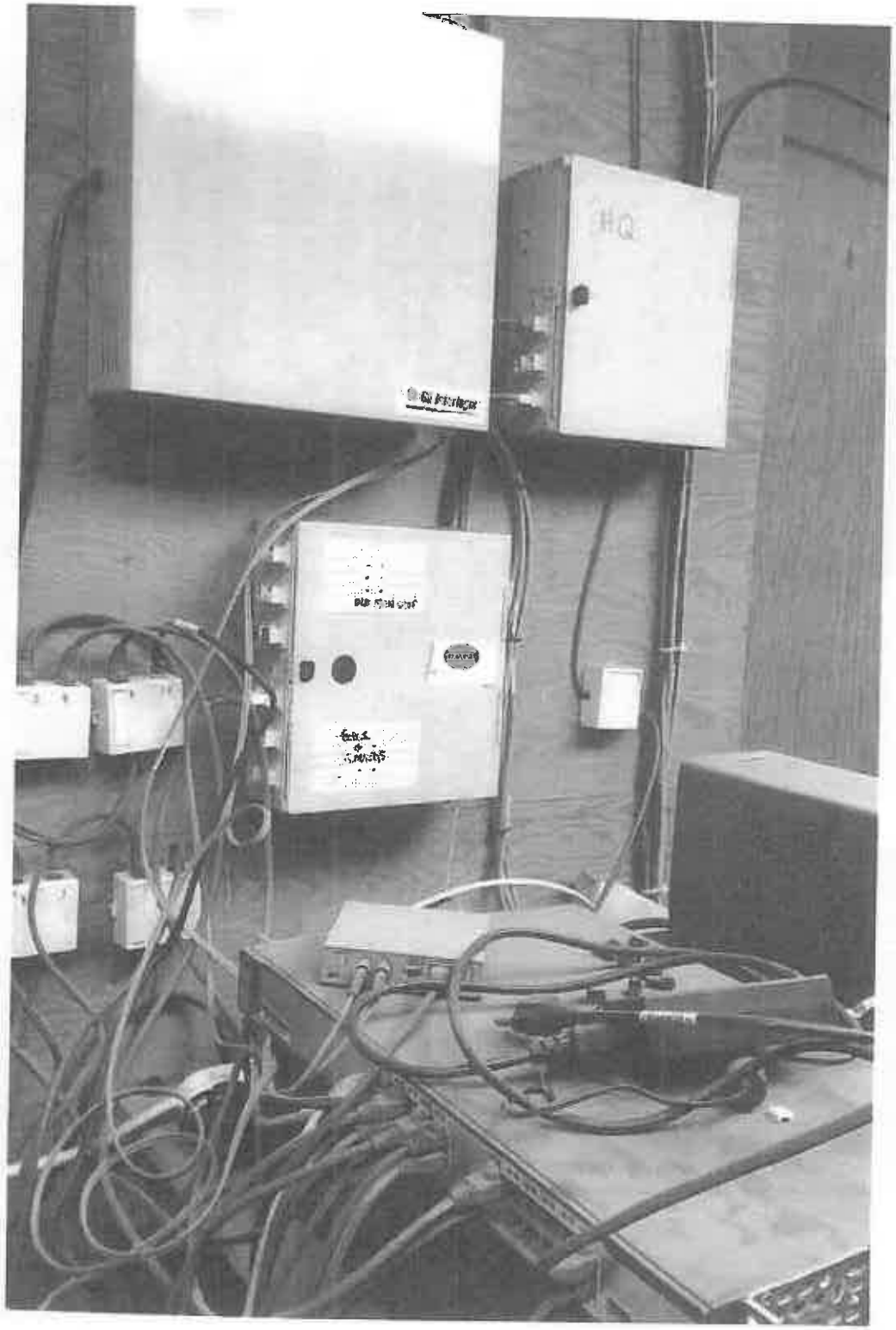
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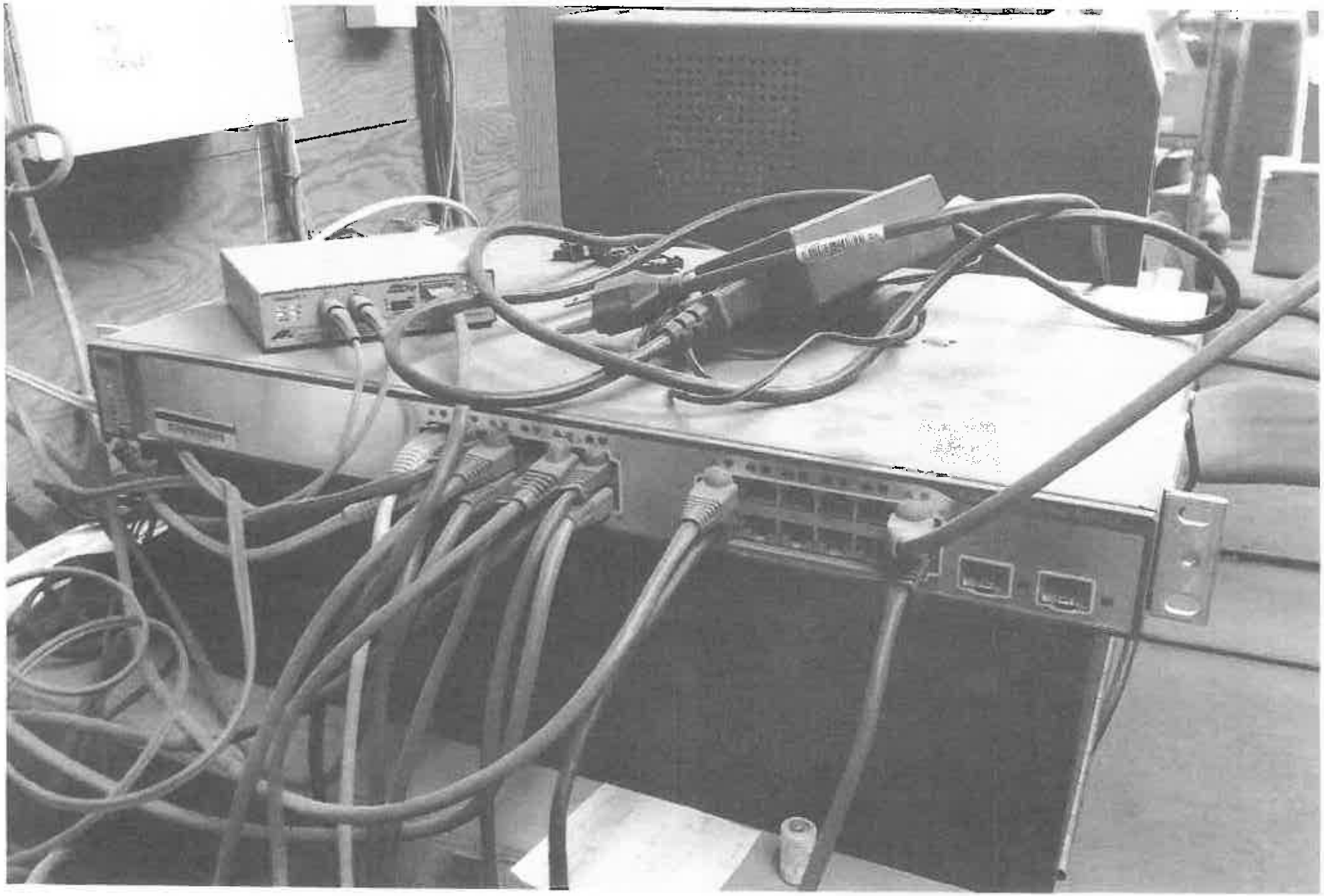
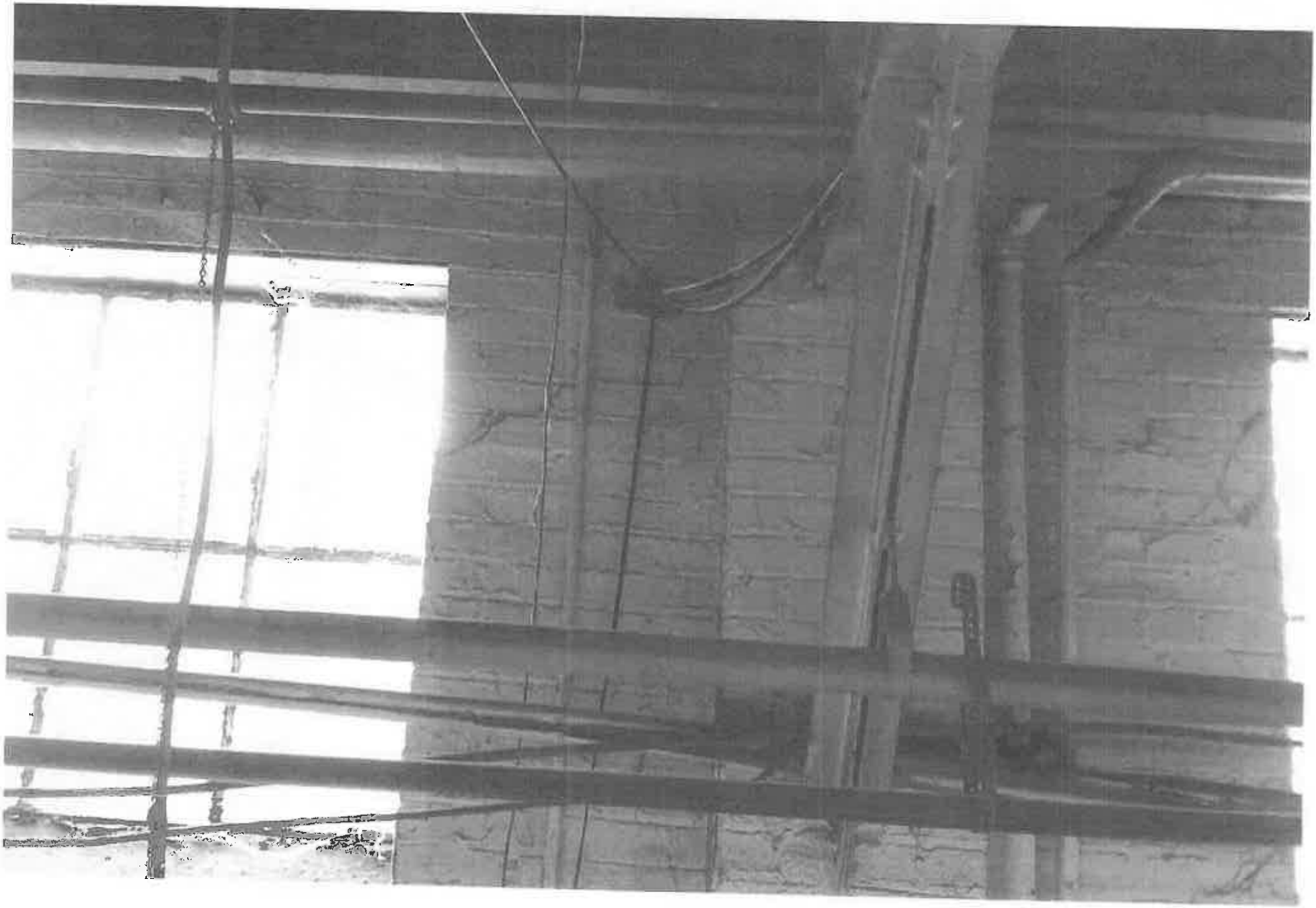
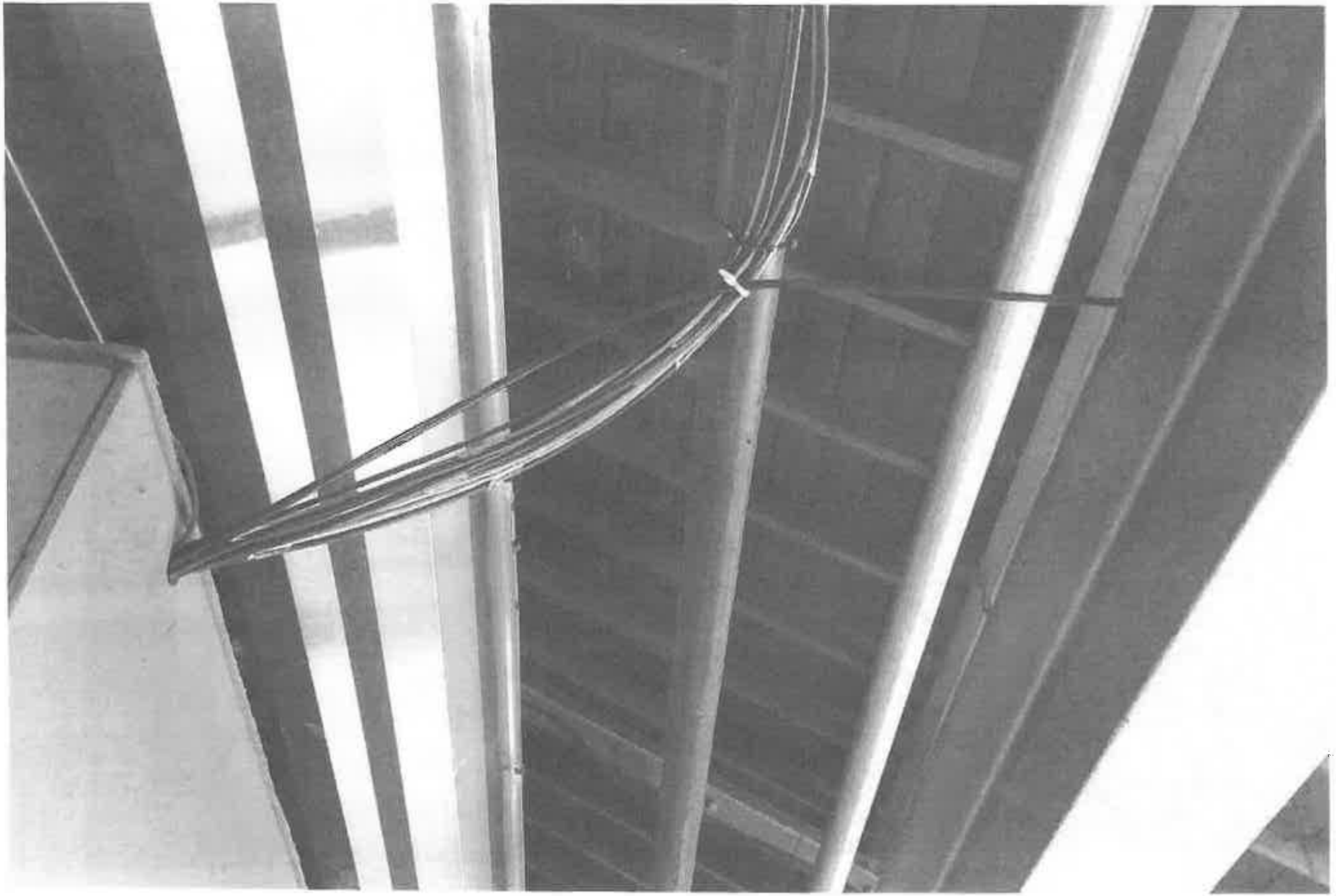
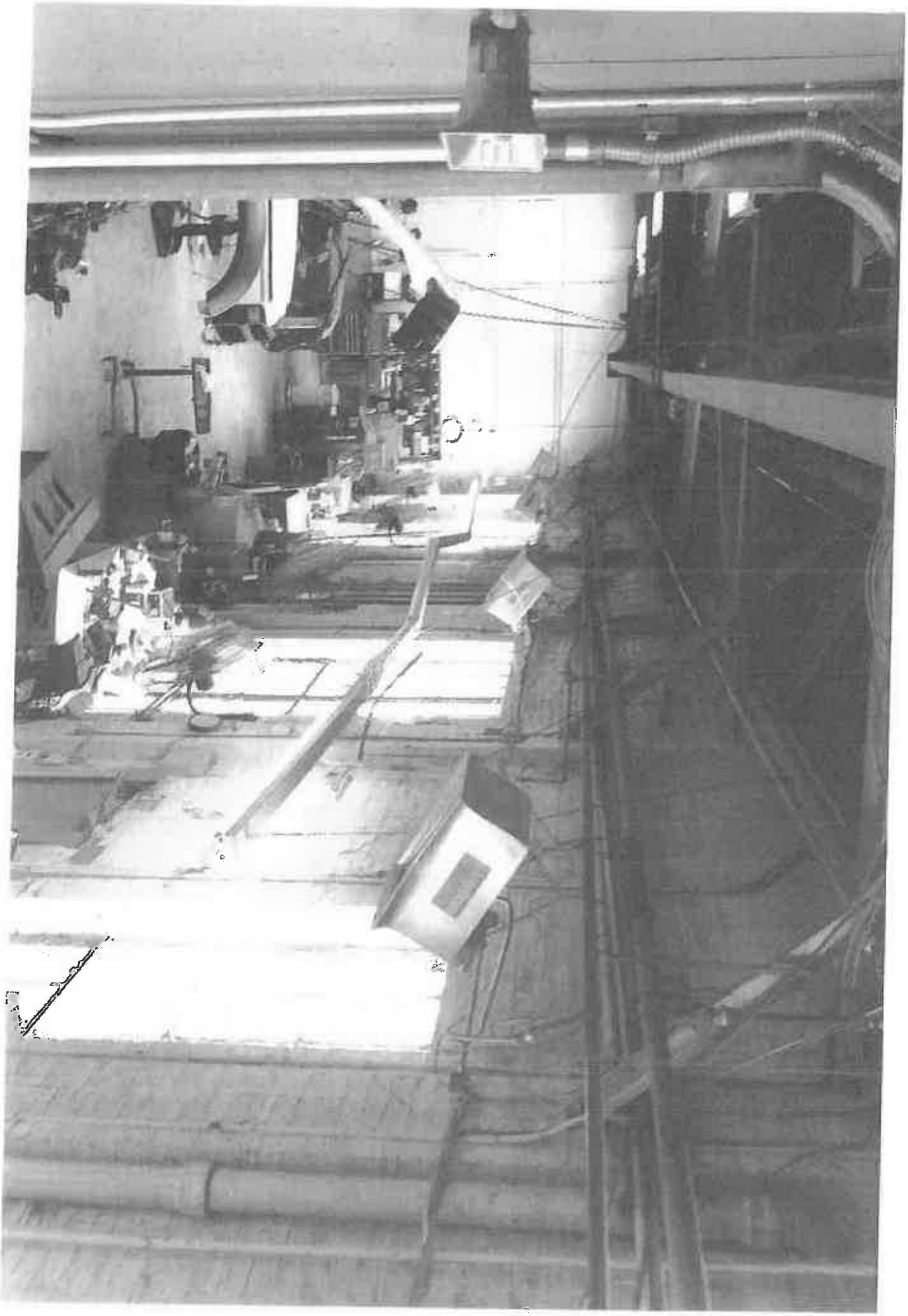
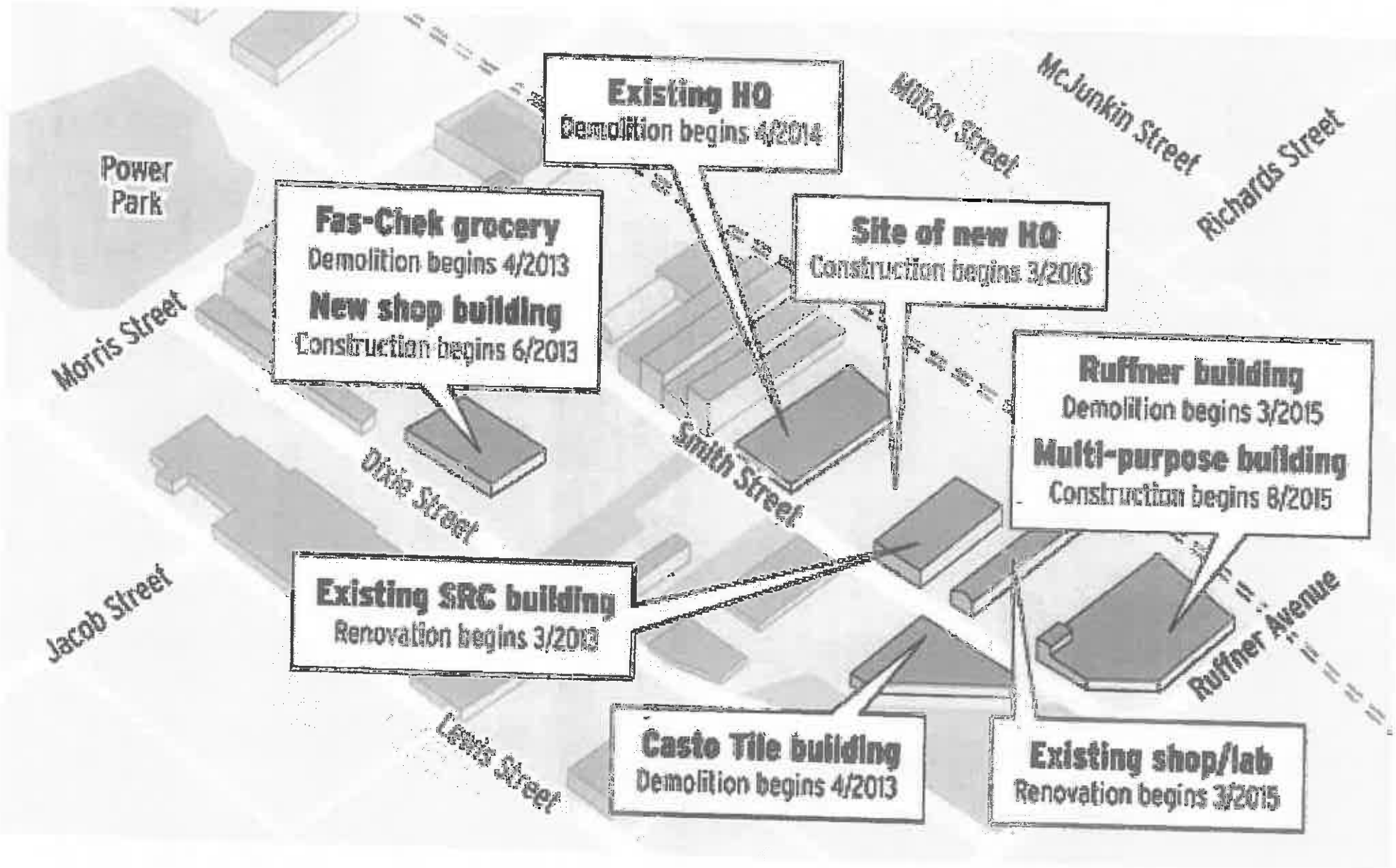








Attachment D1-C


Existing HQ
Demolition begins 4/2014
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New shop building
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Site of new HQ
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Construction begins 8/2015
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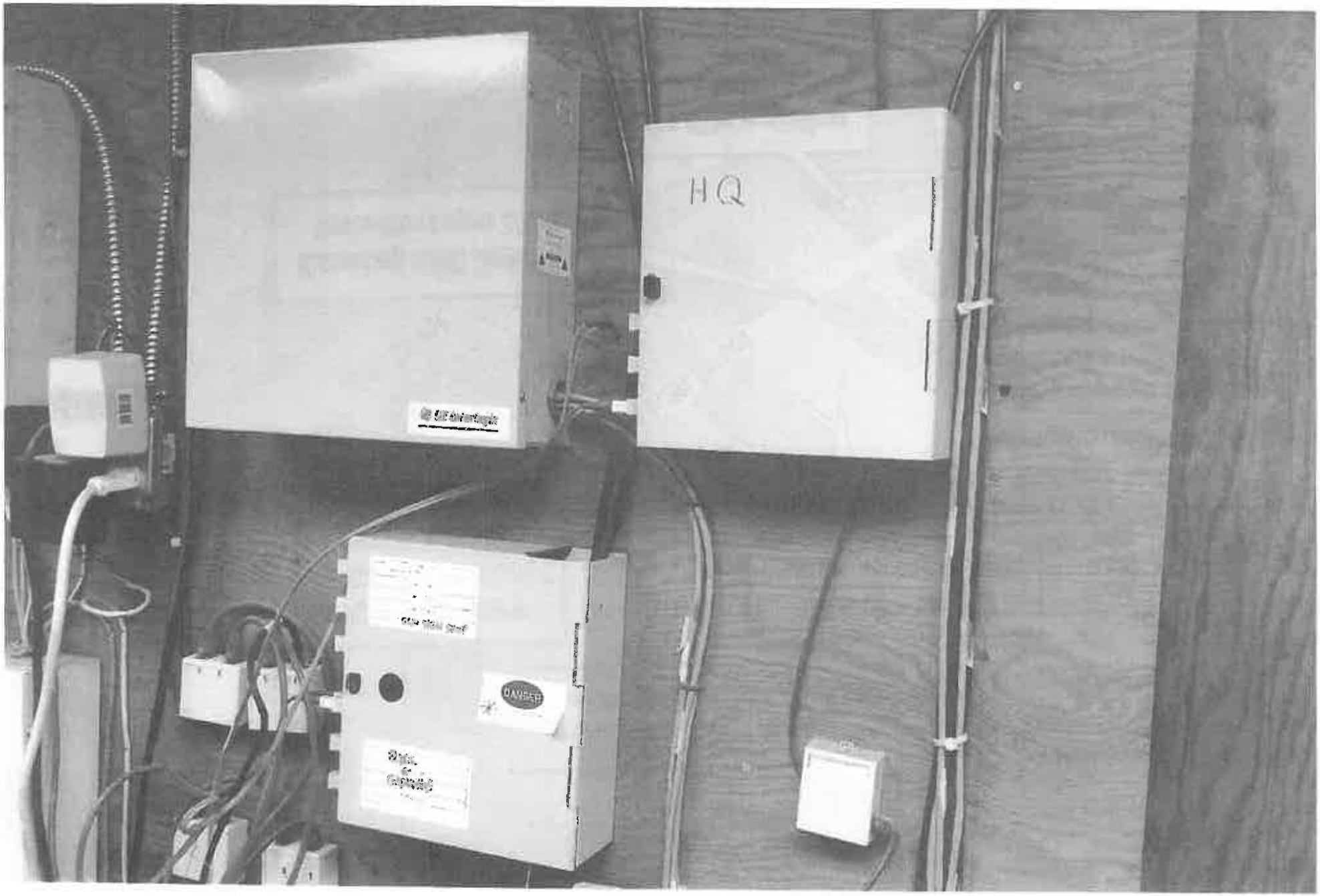
Richards Street
Jacob Street
Lewis Street
Ruffner Avenue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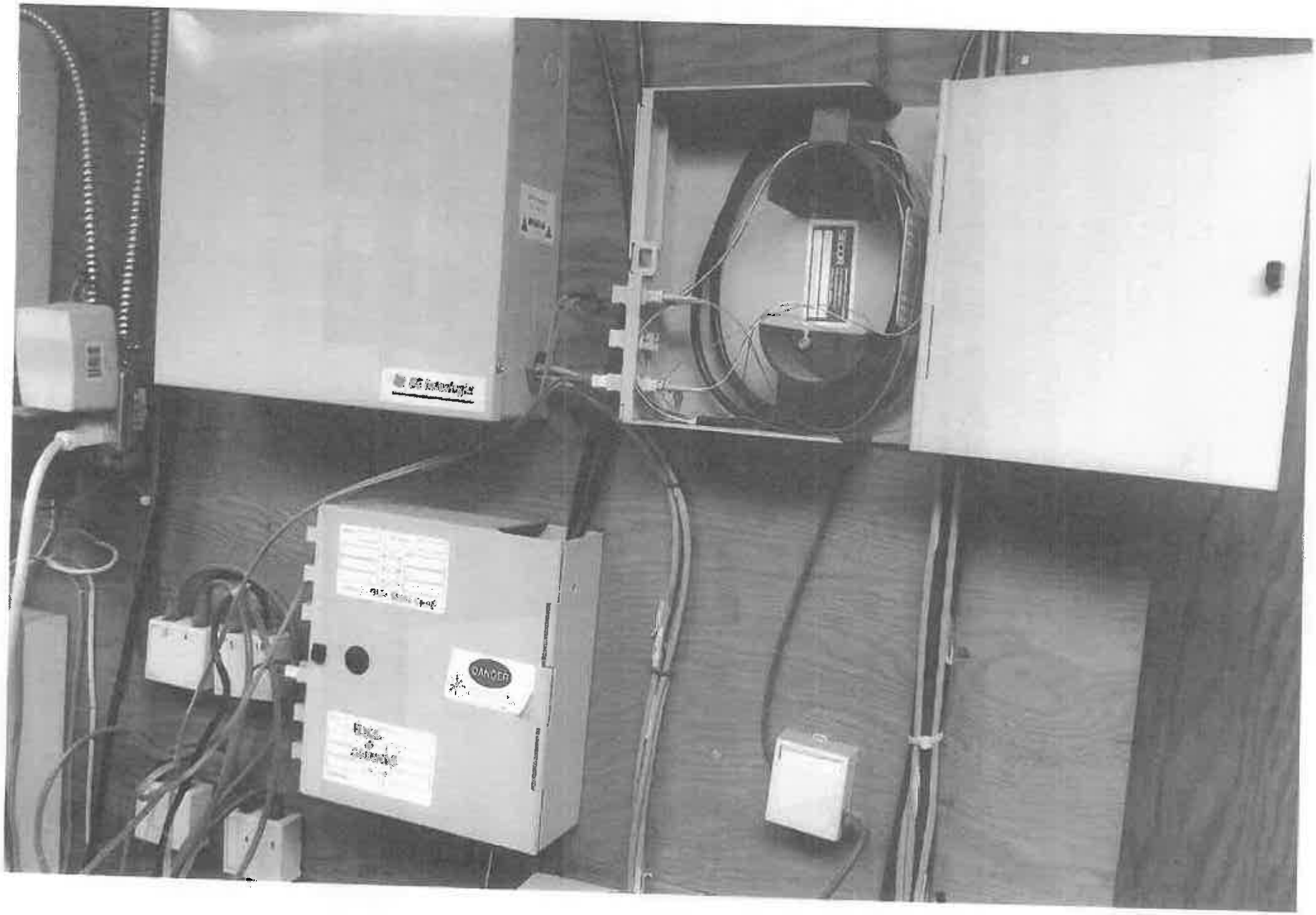
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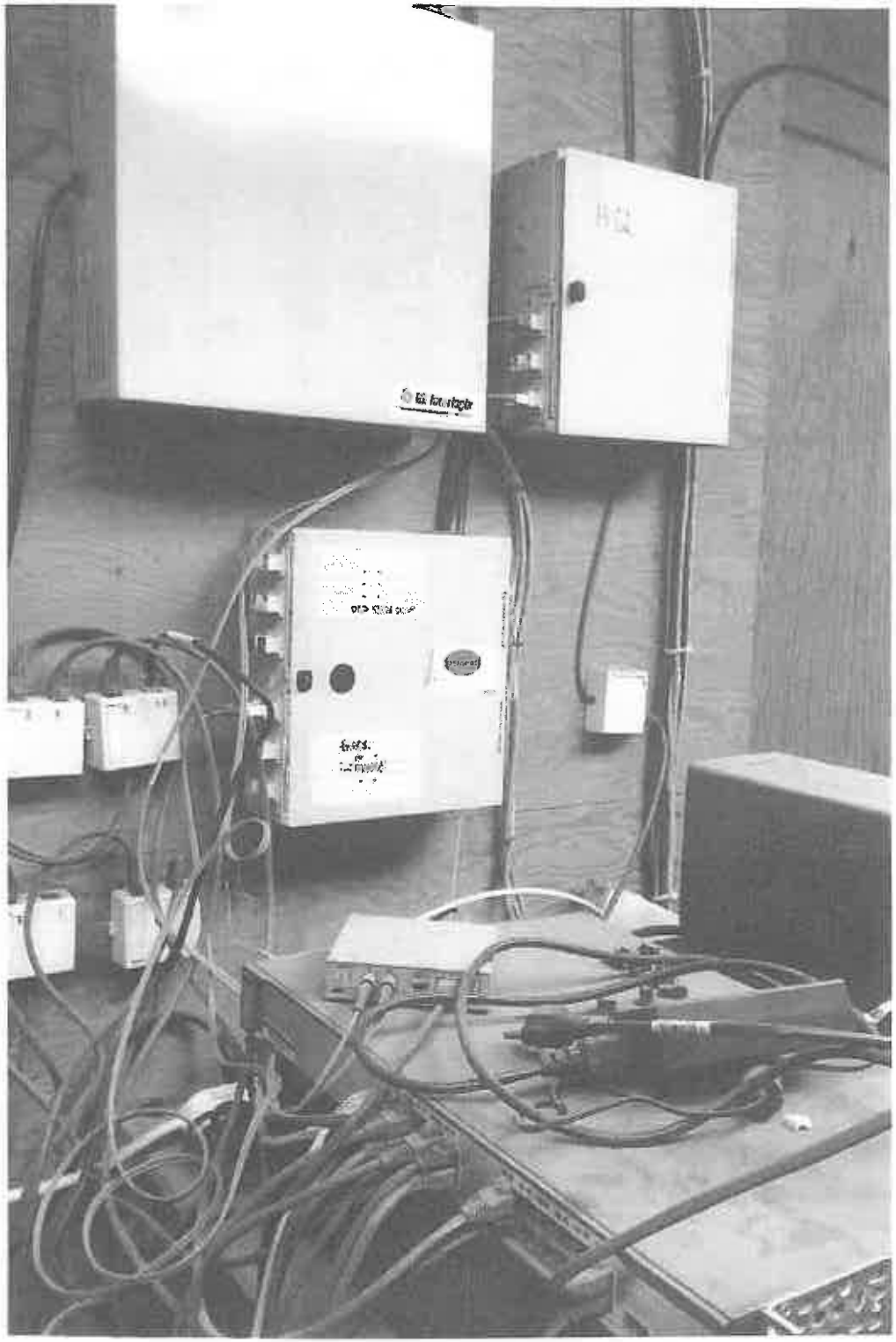
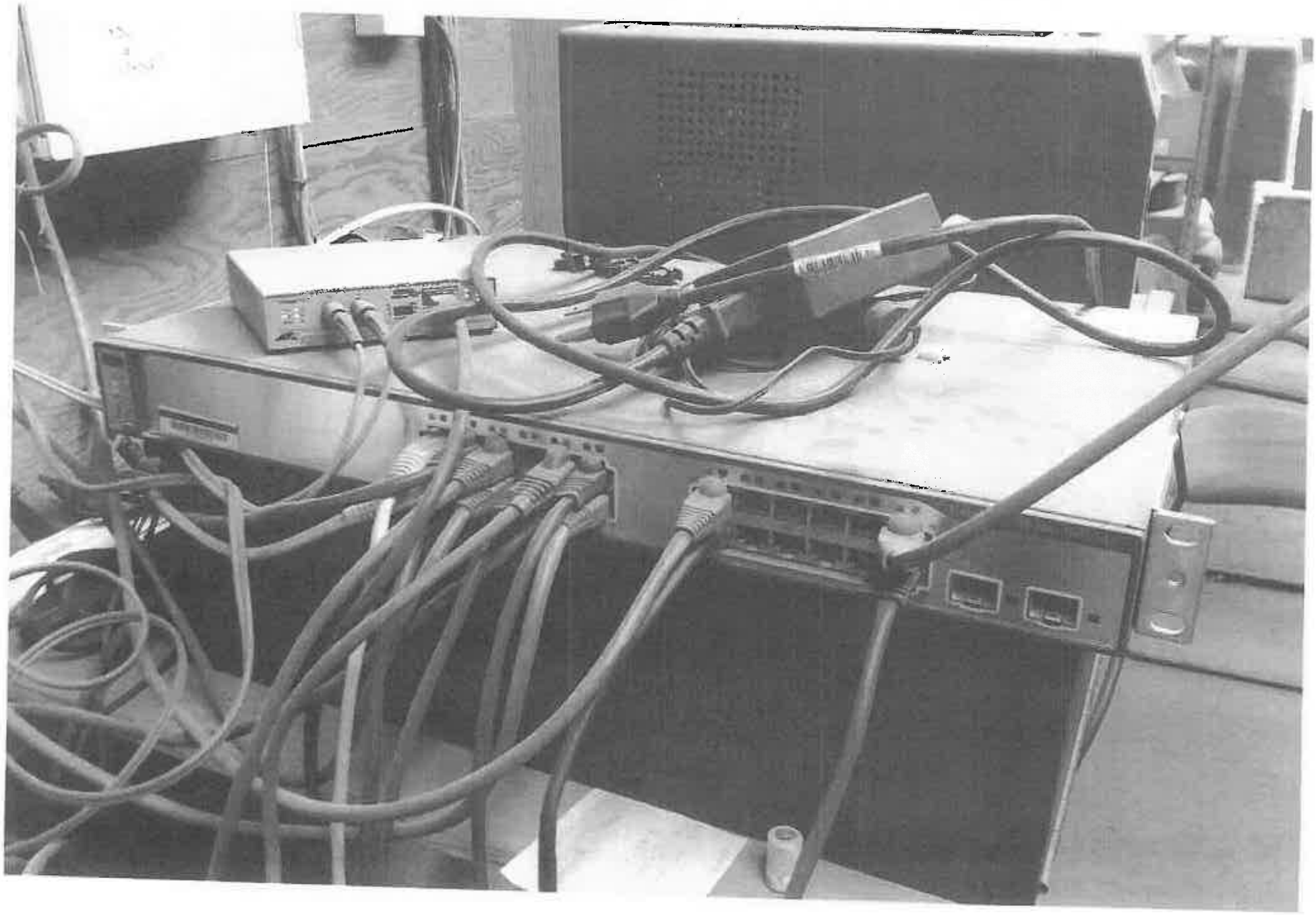
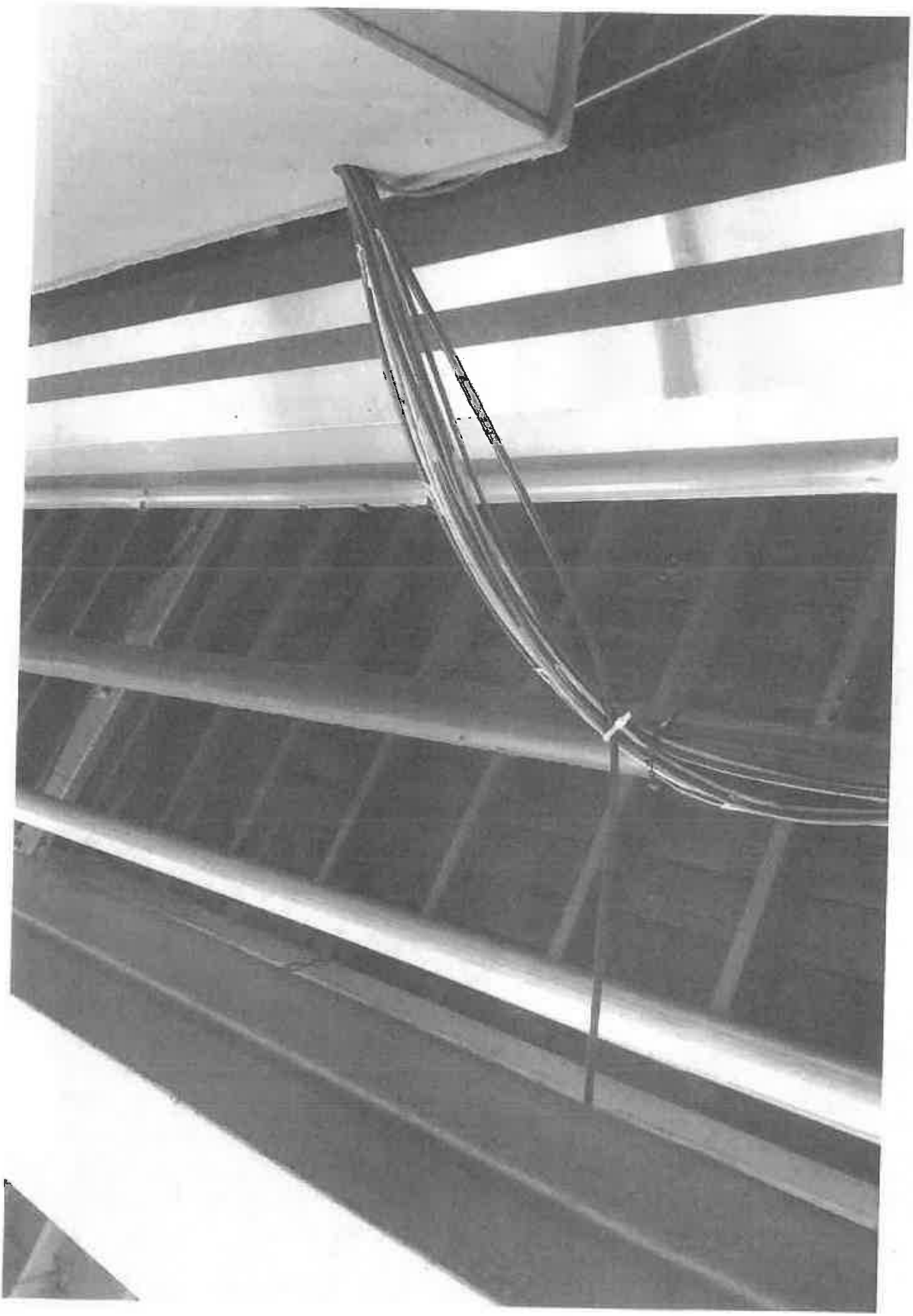
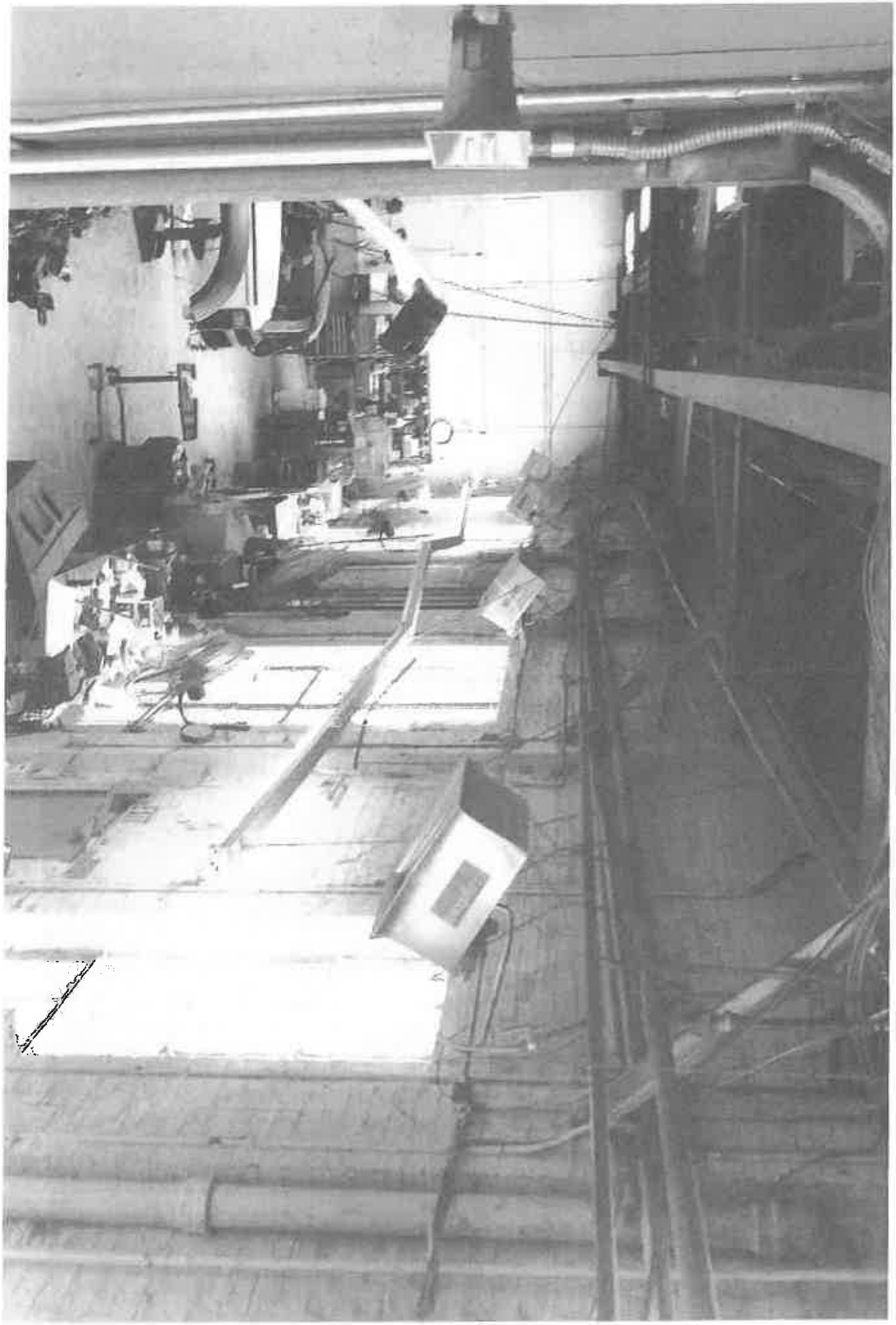








DOT Statewide Infrastructure Upgrade
Cabling Project - Cable Install Specifications
Attachment D2-A (Headquarters)

1. DOH DISTRICT 2 (Two) HEADQUARTERS – HUNTINGTON

801 Madison Ave. Huntington, WV 25712

1.1. Administration Building

1.1.1. Work Area Scope of Work

1.1.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.1.1.2. There are 9 TER locations on the campus and are designated TER 1-9 on provided drawings. Each TER will be connected to TER 1 with separate home run sheaths of 24 Strands of Single Mode Fiber.

1.1.1.3. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.1.1.4. Each drop must be terminated in a flush faceplate or surface mount box.

1.1.1.5. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.1.1.6. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.1.1.7. Each cable drop must be terminated 568B wiring configuration on a Cat.6 blue outlet unless designated otherwise.

1.1.1.8. One Cat 6 Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 15 Cat 6 patch cables ten-foot-long shall be provided for spares.

1.2. Quonset Hut and Jackson Street Building

1.2.1. Work Area Scope of Work

1.2.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.2.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.2.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.2.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.2.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.2.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6A blue outlet unless designated otherwise.

1.2.1.7. One Cat 6A Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition 5 Cat 6A patch cables ten foot long shall be provided for spares.

1.2.2. Telecommunications Equipment Room (TER) Build Requirements Both Locations

1.2.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.2.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.2.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.2.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.2.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.2.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.2.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.2.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

1.2.2.9. Each drop of Cat 6A cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

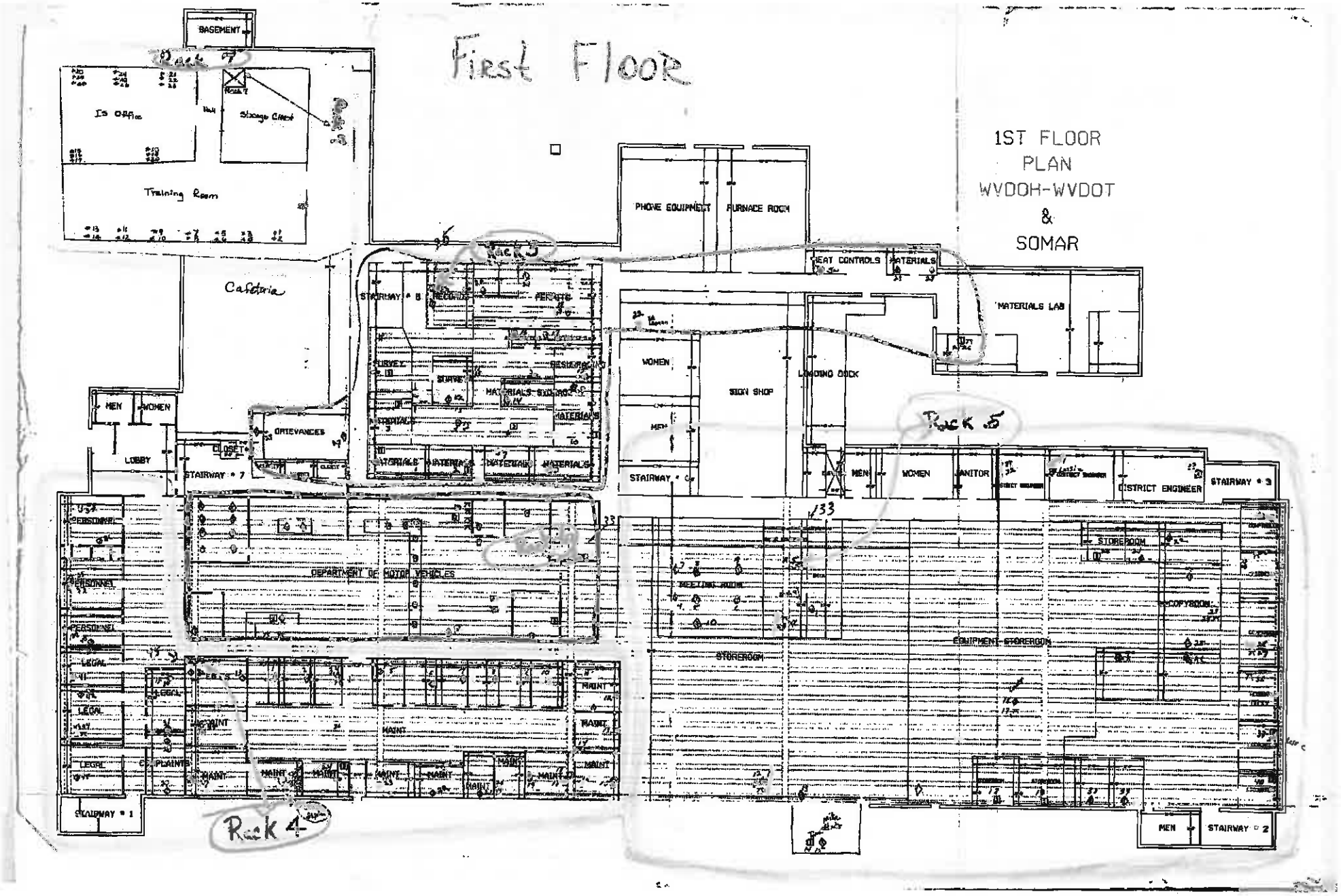
1.2.2.10. Each 24 port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48 port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

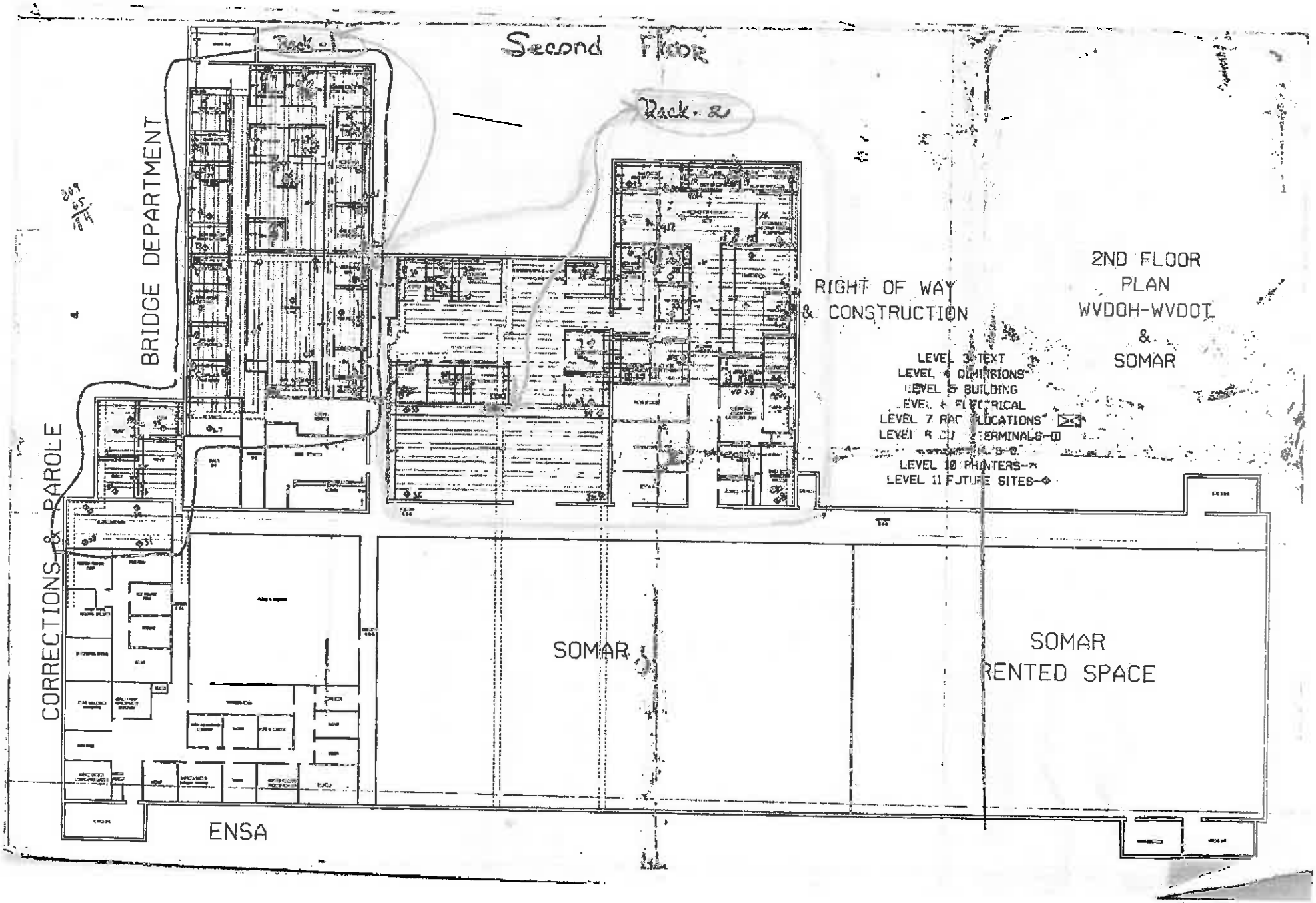
1.2.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.2.2.12. Cat 6A Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6A Patch cables five foot in length shall be provided for spares.

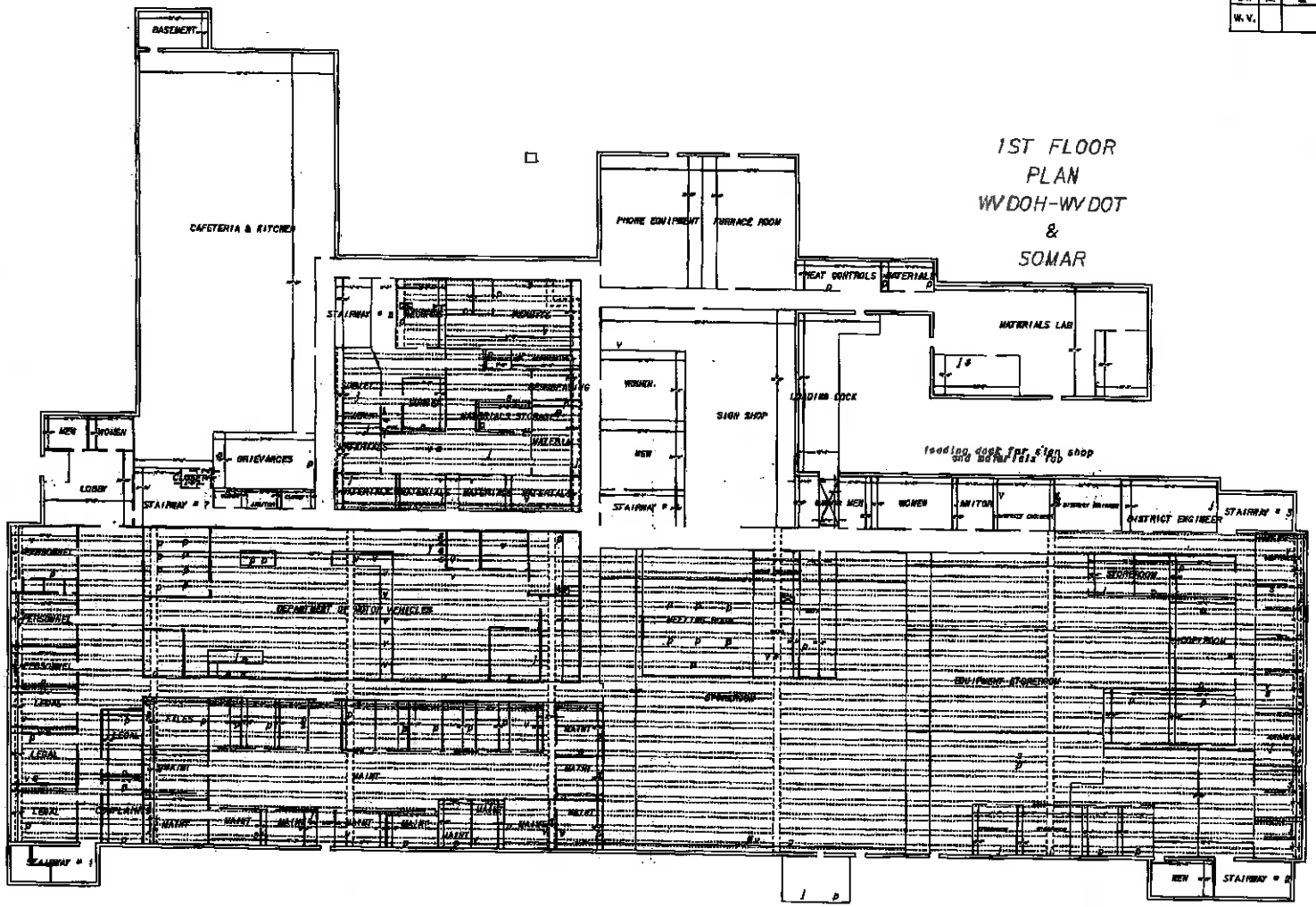
1.2.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

Attachment D2-B




Second Floor
Rack-1
Rack-2
BRIDGE DEPARTMENT
CORRECTIONS & PAROLE
RIGHT OF WAY
& CONSTRUCTION
2ND FLOOR
PLAN
WVDOH-WVDOT
&
SOMAR
LEVEL 3 TEXT
LEVEL 4 DIMENSIONS
LEVEL 5 BUILDING
LEVEL 6 ELECTRICAL
LEVEL 7 RACK LOCATIONS
LEVEL 8 CU TERMINALS
LEVEL 10 PRINTERS
LEVEL 11 FUTURE SITES
SOMAR
SOMAR
RENTED SPACE
ENSA

Public Road Sys.	State Dist. No.	State Project No.	Federal Project No.	Project Year	County	Road No.	Detail Sheets
W. V.				2000			



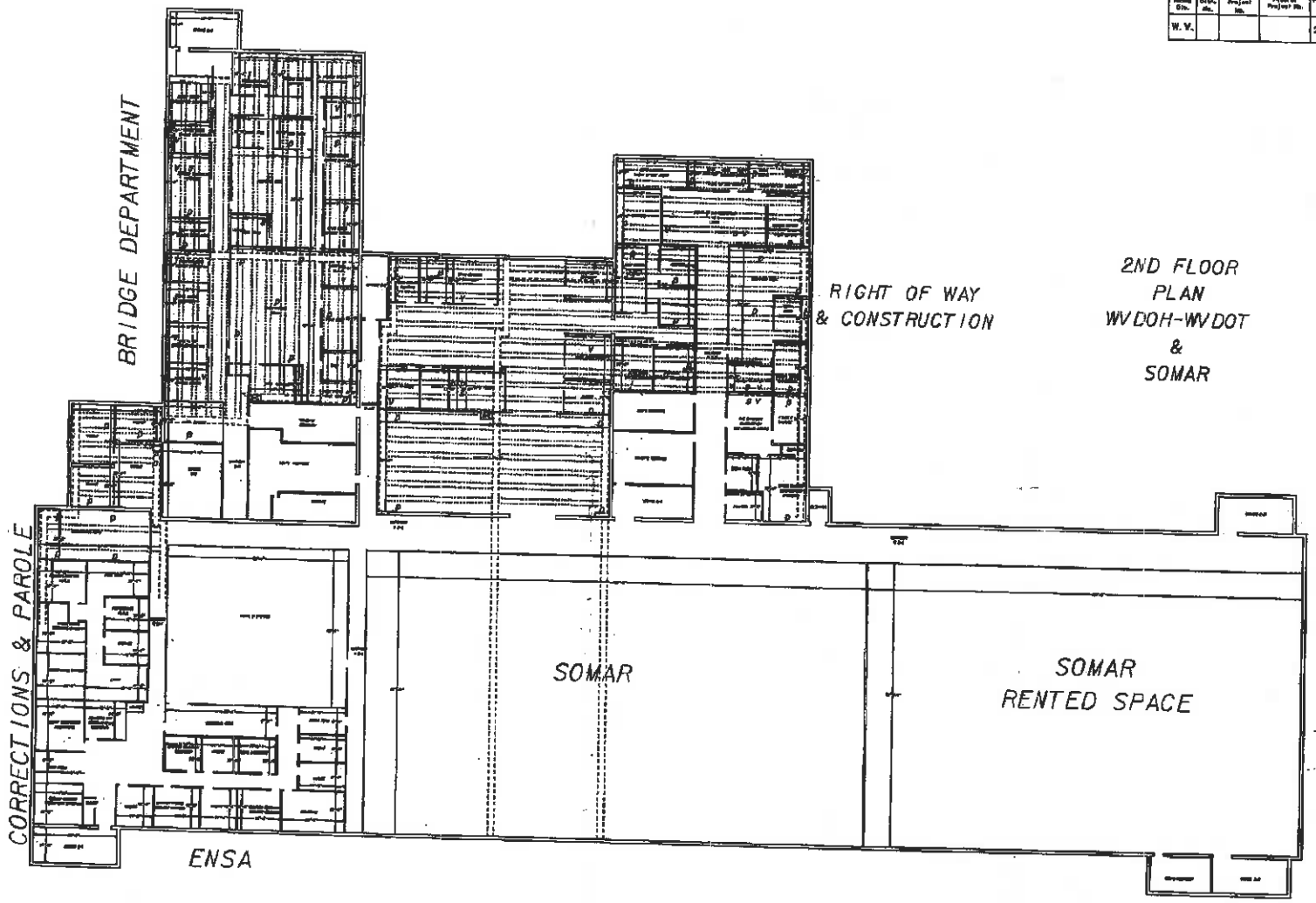
SCALE : 0 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLAN SHEET

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

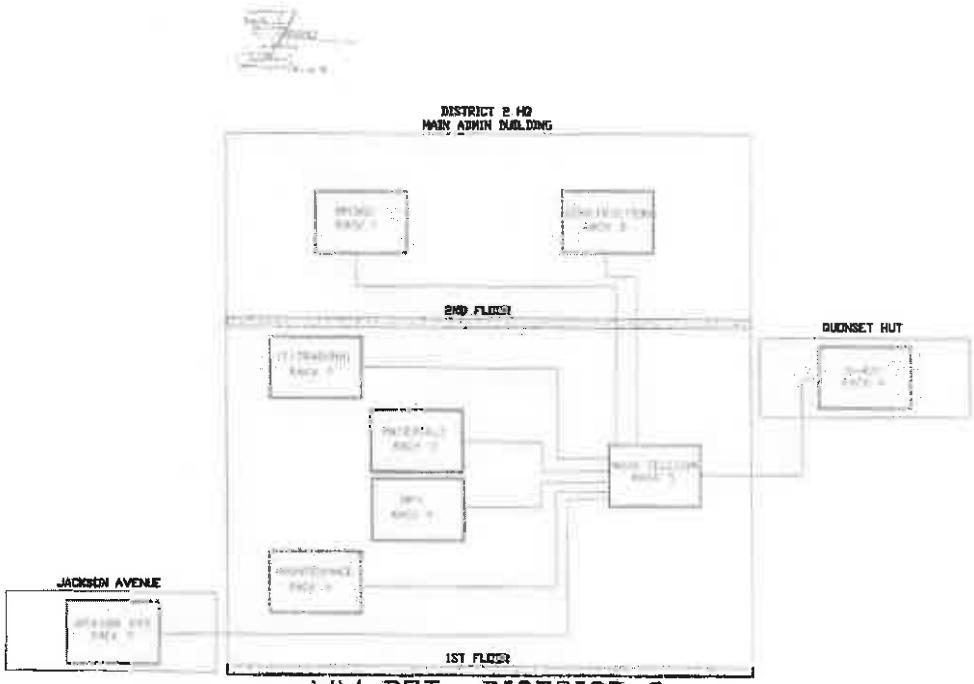


SCALE : 0 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

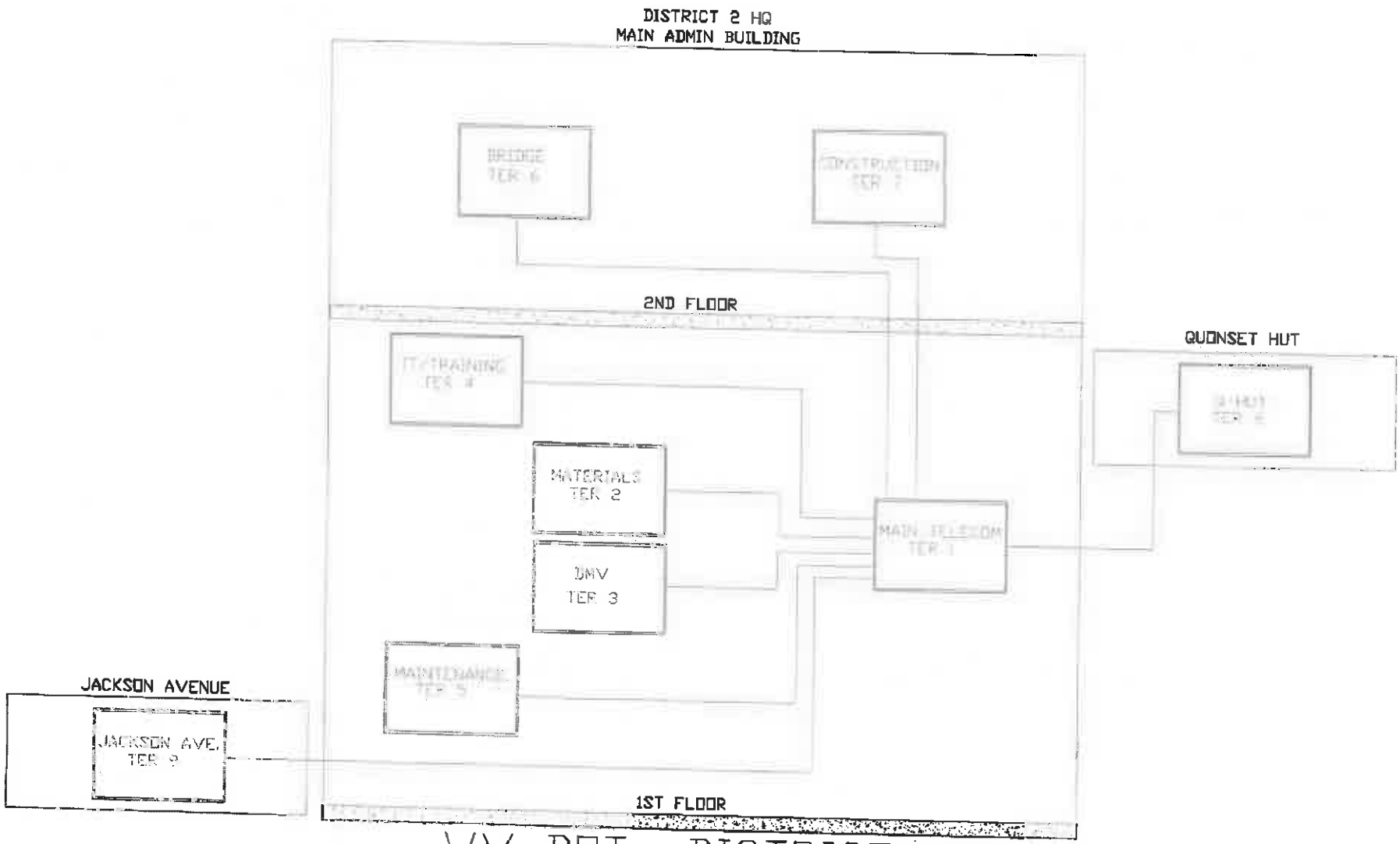
PLAN SHEET



WV DOT DISTRICT 2

CAMPUS AREA NETWORK DIAGRAM

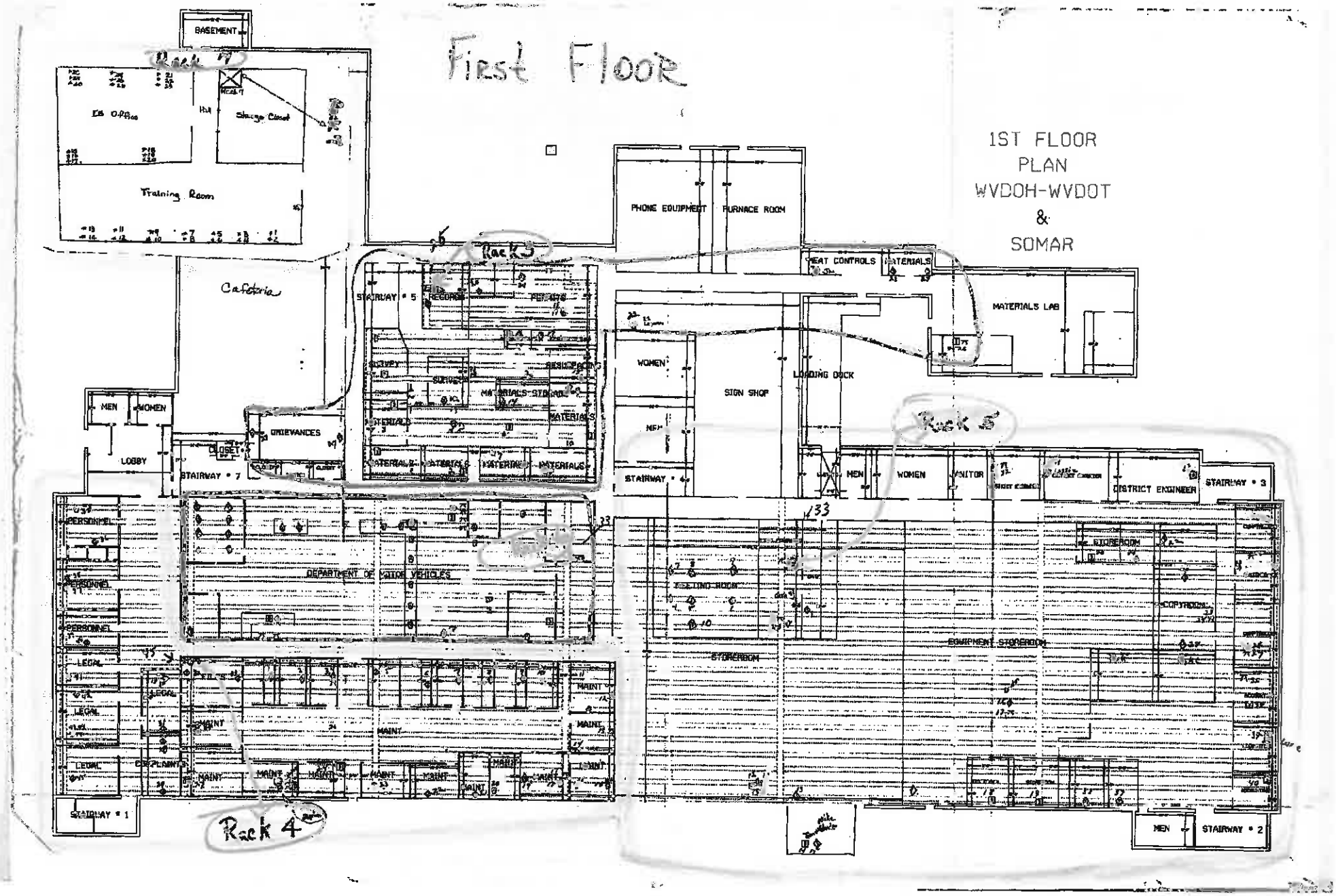
(as of 08/01/12)

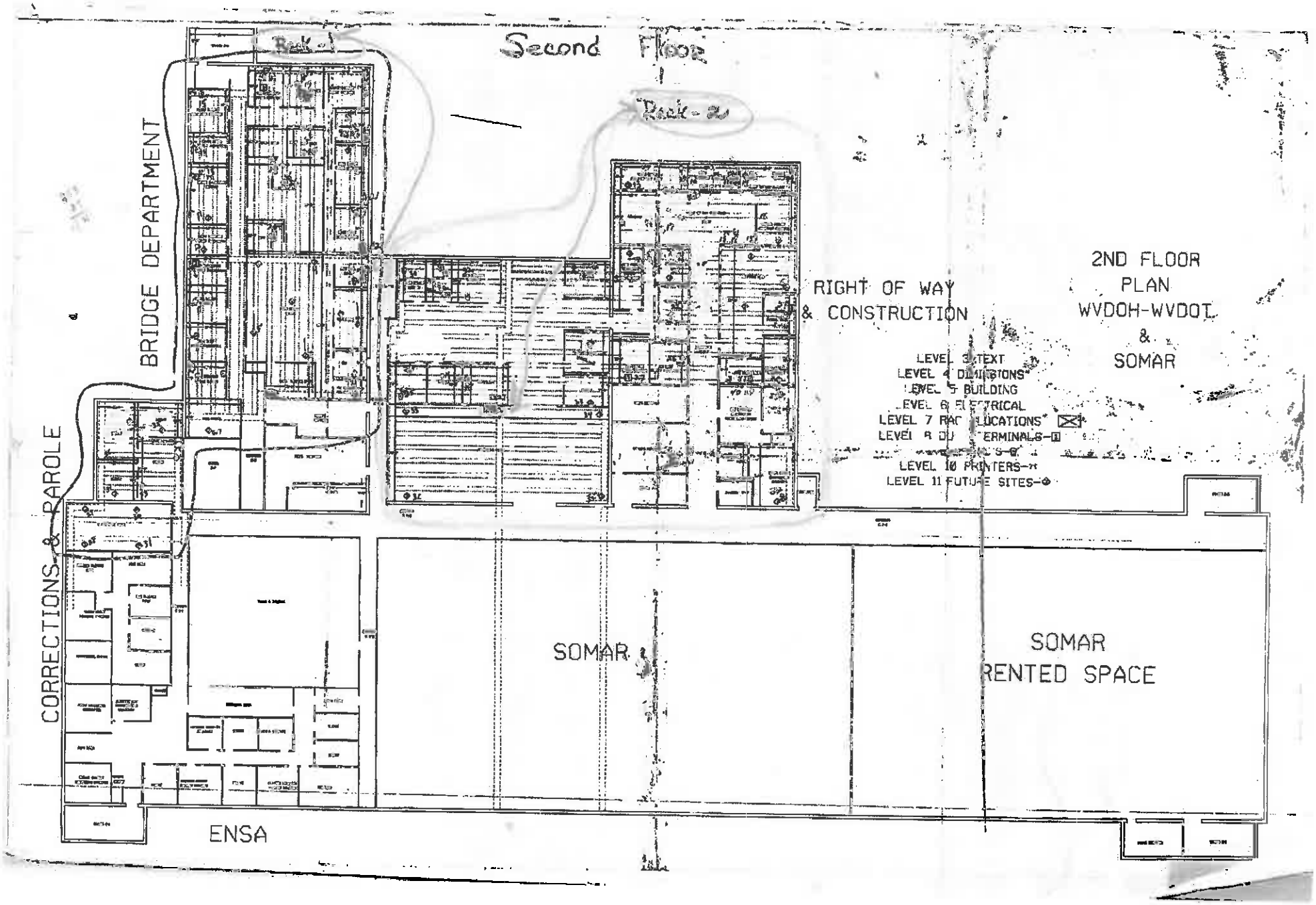


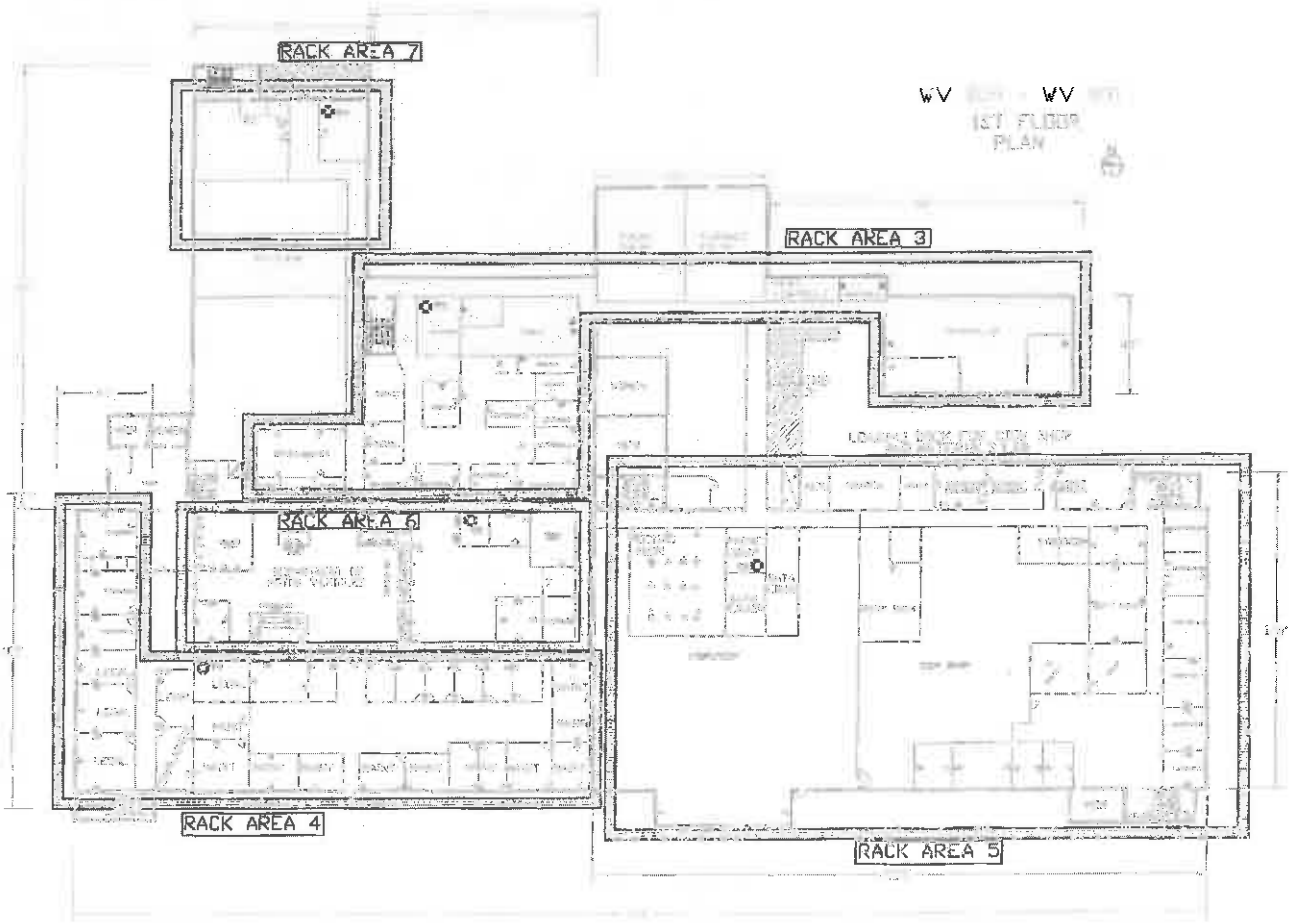
WV DOT DISTRICT 2

CAMPUS AREA NETWORK DIAGRAM

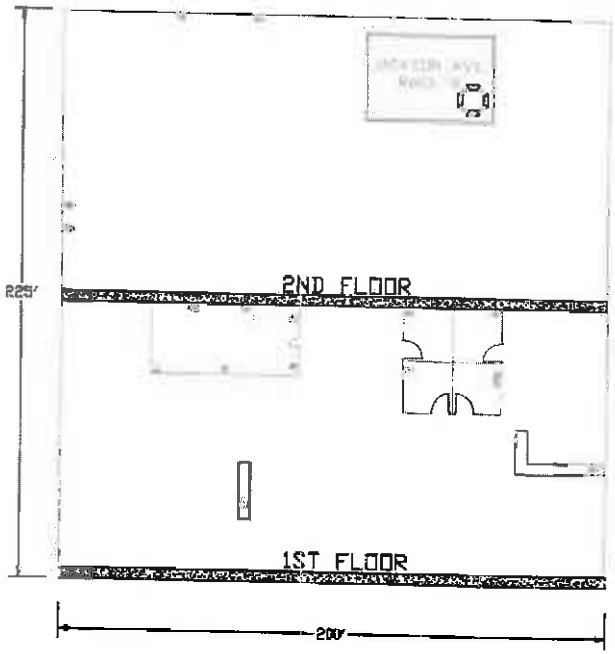
(as of 05/01/13)


First Floor
1ST FLOOR
PLAN
WVDOH-WVDOT
&
SOMAR
BASEMENT
Rack 17
Training Room
Cafeteria
PHONE EQUIPMENT
FURNACE ROOM
HEAT CONTROLS
MATERIALS
MATERIALS LAB
Rack 3
STAIRWAY # 5
RECORDS
REPORTS
SURVEY
SURVEY
RESIDENCE
MATERIALS STORAGE
MATERIALS
MATERIALS
MATERIALS
MATERIALS
WOMEN
MEN
SIGN SHOP
LOADING DOCK
Rack 5
MEN
WOMEN
GRIEVANCES
CLOSET
LOBBY
STAIRWAY # 7
STAIRWAY # 4
MEN
WOMEN
VISITOR
DISTRICT ENGINEER
STAIRWAY # 3
133
PERSONNEL
PERSONNEL
PERSONNEL
LEGAL
LEGAL
LEGAL
LEGAL
COMPLAINTS
DEPARTMENT OF MOTOR VEHICLES
MEETING ROOM
STOREROOM
EQUIPMENT STOREROOM
COPYROOM
MAINT
MAINT
MAINT
MAINT
MAINT
MAINT
MAINT
MAINT
MAINT
MAINT
Rack 4
STAIRWAY # 1
MEN
STAIRWAY # 2


Second Floor
Rack-1
Rack-2
BRIDGE DEPARTMENT
CORRECTIONS & PAROLE
RIGHT OF WAY
& CONSTRUCTION
2ND FLOOR
PLAN
WVDOH-WVDOT
&
SOMAR
LEVEL 3 TEXT
LEVEL 4 DIMENSIONS
LEVEL 5 BUILDING
LEVEL 6 ELECTRICAL
LEVEL 7 RACK LOCATIONS
LEVEL 8 DU TERMINALS
LEVEL 10 PRINTERS
LEVEL 11 FUTURE SITES
SOMAR
SOMAR
RENTED SPACE
ENSA


RACK AREA 7
WV
WV
1ST FLOOR
PLAN
RACK AREA 3
RACK AREA 6
RACK AREA 4
RACK AREA 5

WV DOH - WV DOT
DISTRICT 2
JACKSON AVE BUILDING



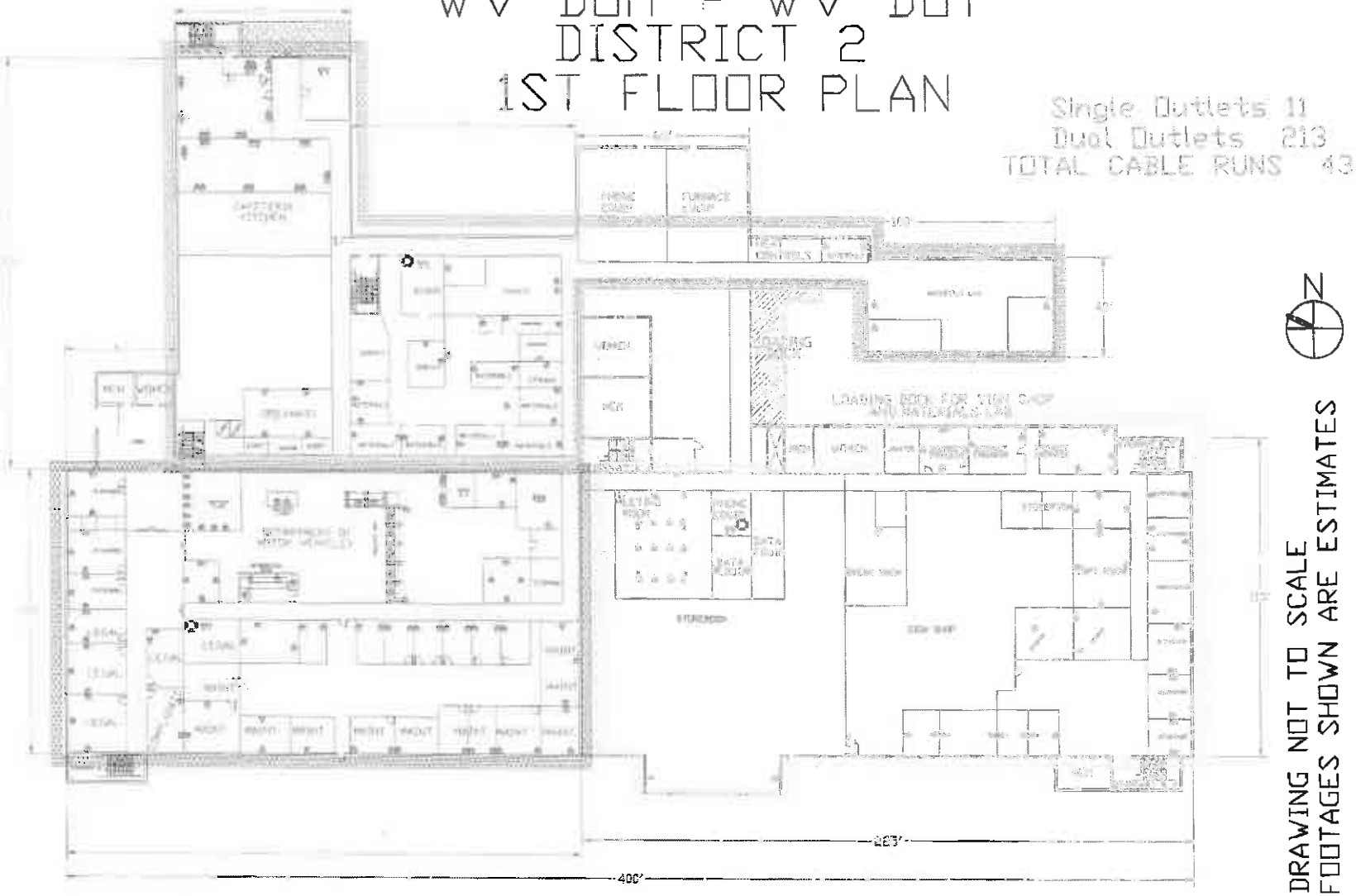
Single Outlets 0
Dual Outlets 15
TOTAL CABLE RUNS 30

N

DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

WV DOH - WV DOT
DISTRICT 2
1ST FLOOR PLAN

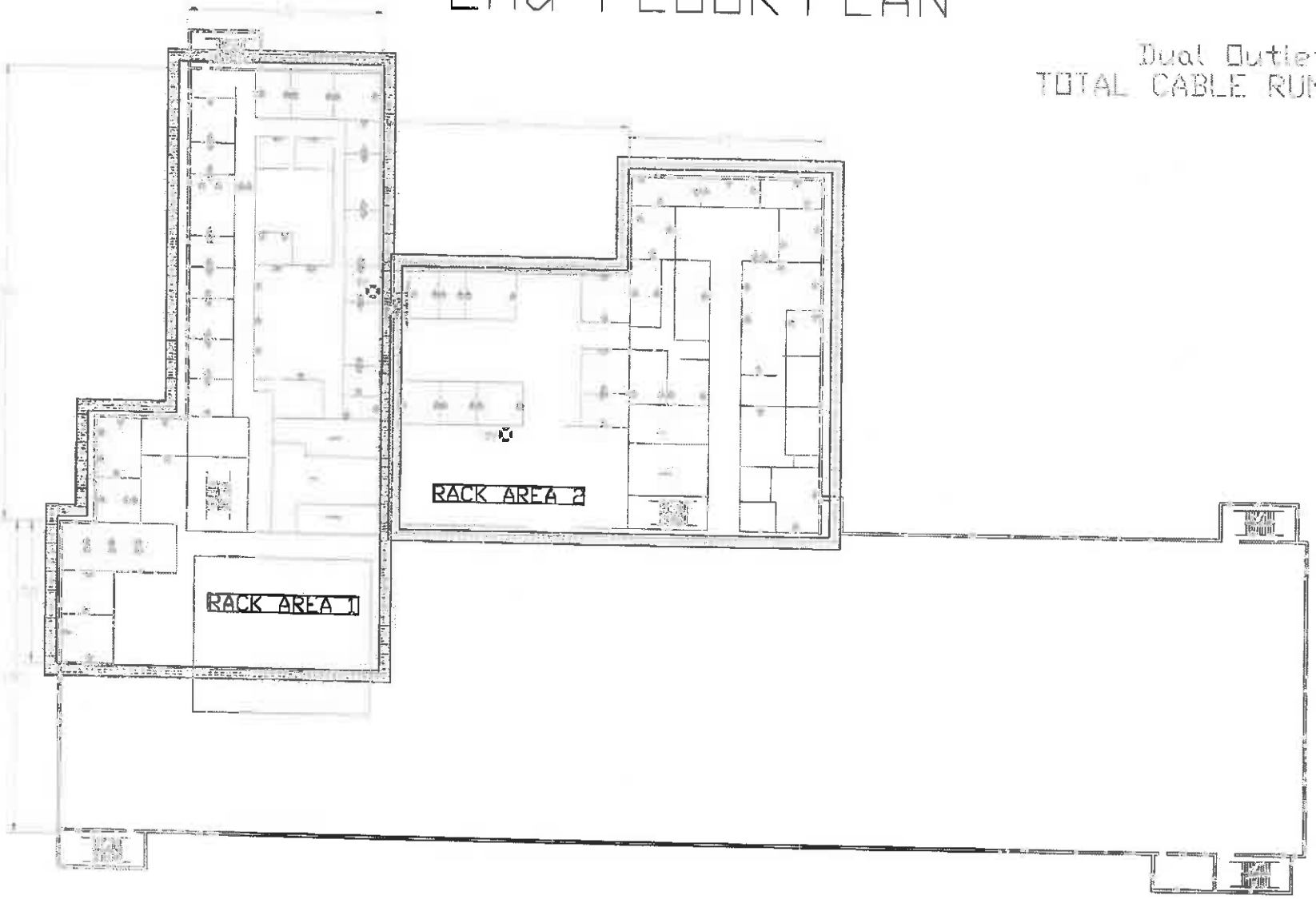
Single Outlets 11
Dual Outlets 213
TOTAL CABLE RUNS 437



DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

WV DOH - WV DOT
DISTRICT 2
2nd FLOOR PLAN

Dual Outlets 119
TOTAL CABLE RUNS 238



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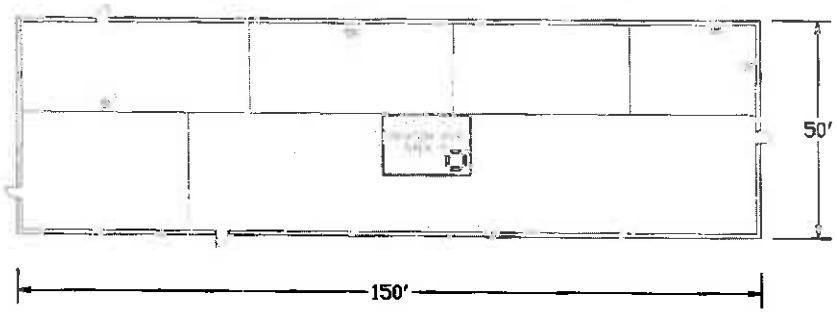
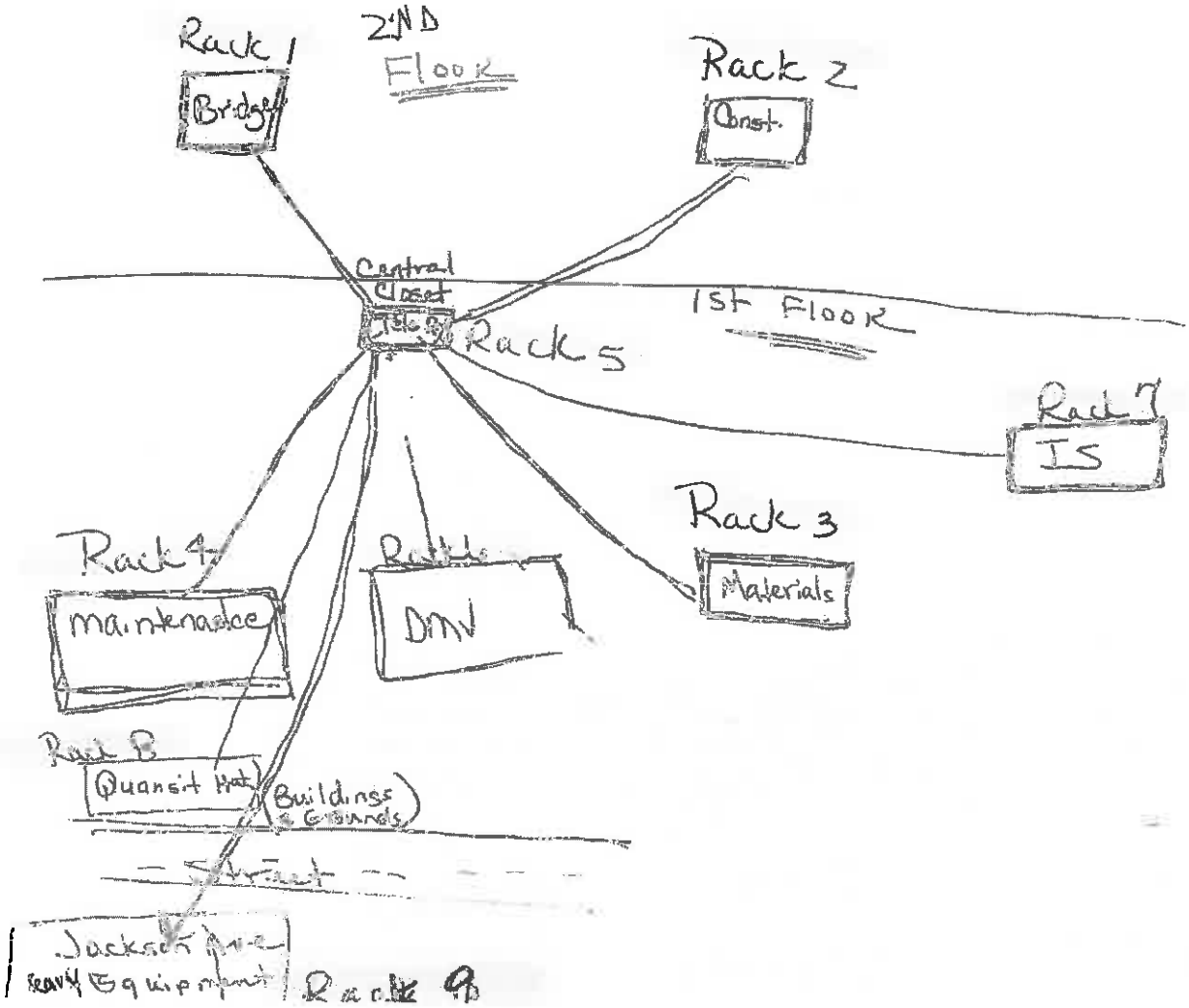
DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

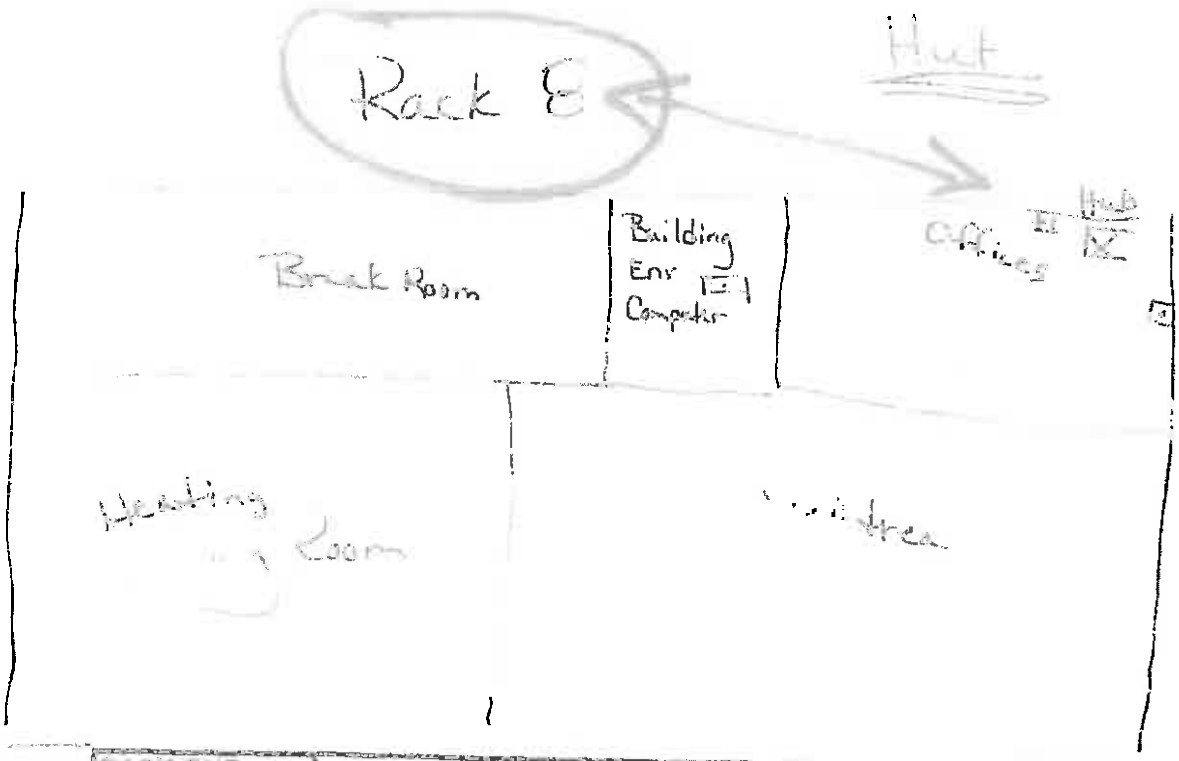
WV DOH - WV DOT
DISTRICT 2
QUONSET HUT



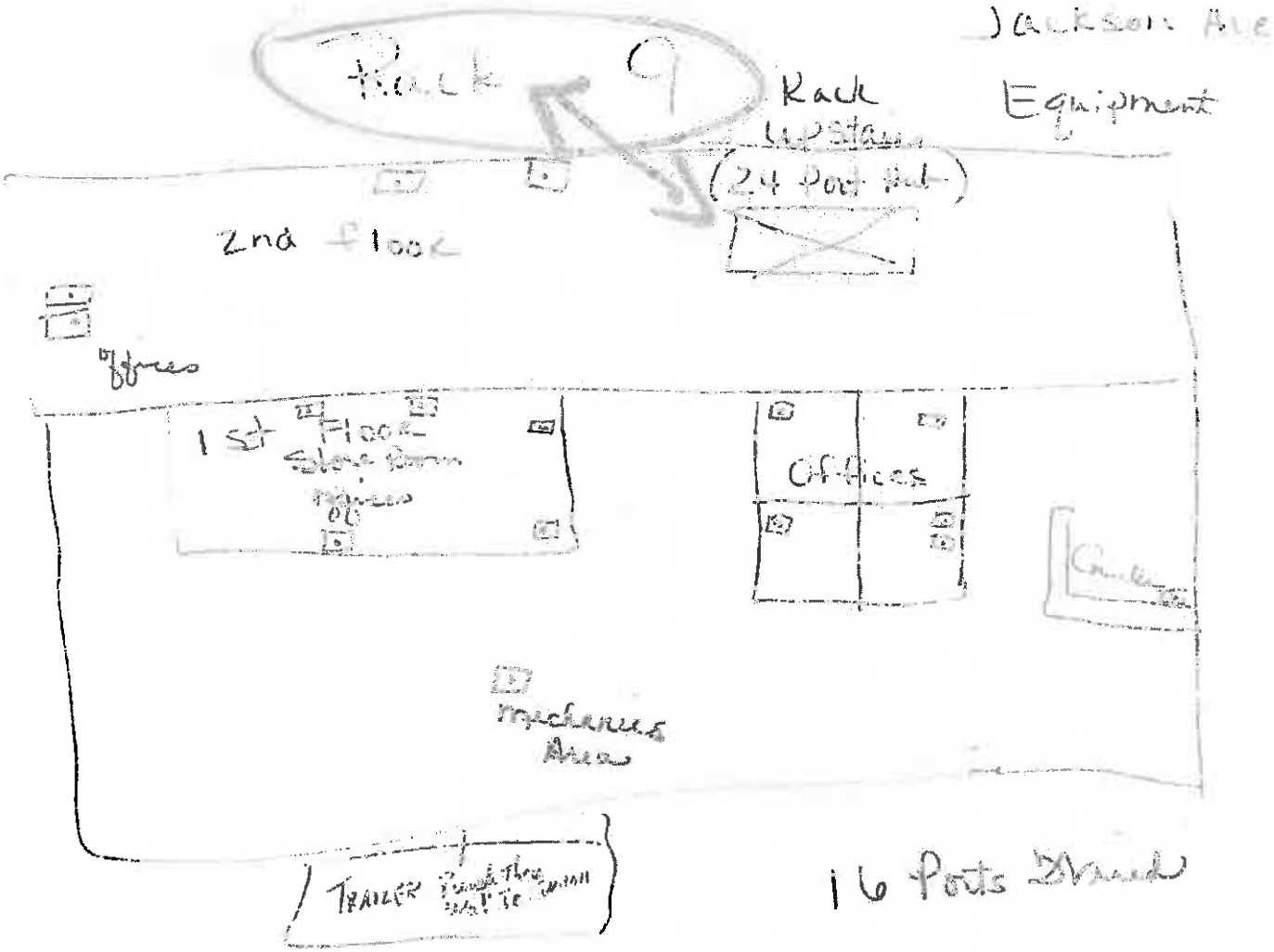
Single Outlets	1
Dual Outlets	3
TOTAL CABLE RUNS	7

DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES


Rack 1
Bridge
2ND
Floor
Rack 2
Const.
Central
Closet
Rack 5
1st Floor
Rack 7
IS
Rack 3
Materials
Rack 4
maintenance
DMV
Rack 8
Quansit Hut
Buildings
& Grounds
Jackson
Heavy Equipment
Rack 9



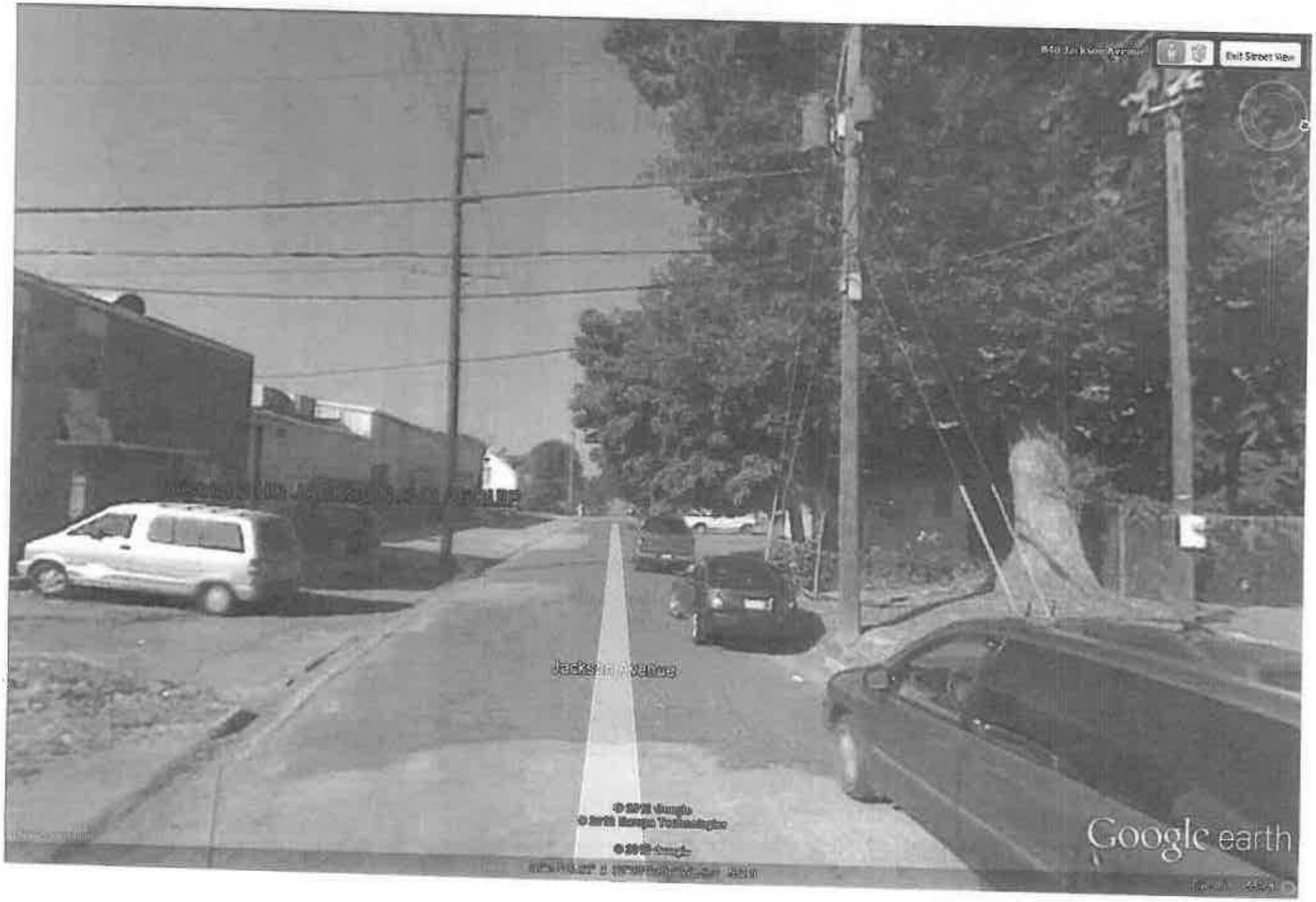
RACK ONE	BRIDGE 2ND FLOOR	BESIDE Jeff Bell's office
RACK TWO	CONSTRUCTION 2ND FLOOR	in file room near ce's offices
RACK SIX	DMV 1ST FLOOR	in dmv office behind counter
RACK FOUR	MAINTENANCE 1ST FLOOR	beside maintenance supervs office
RACK THREE	MATERIALS 1ST FLOOR	in file room in materials
RACK EIGHT	QUANSIT HUT BUILDINGS &G.	in hut second office on wall
RACK SEVEN	TECHNOLOGY 1ST FLOOR	office beside training room
RACK FIVE	TELEPHONE ROOM 1ST FLOOR	adjacent to elevator in hall
RACK NINE	FLETCHER BUILDING	fletcher avenue shop


Jackson Ave
Rack
Rack
Equipment
(24 Pod Rack)
2nd floor
Offices
1st Floor
Offices
Mechanics Area
16 Pods Stored

Attachment D2-C


Google earth


Exit Street View
Jackson Avenue
Google earth


Exit Street View
Google earth


Exit Street View
Google earth

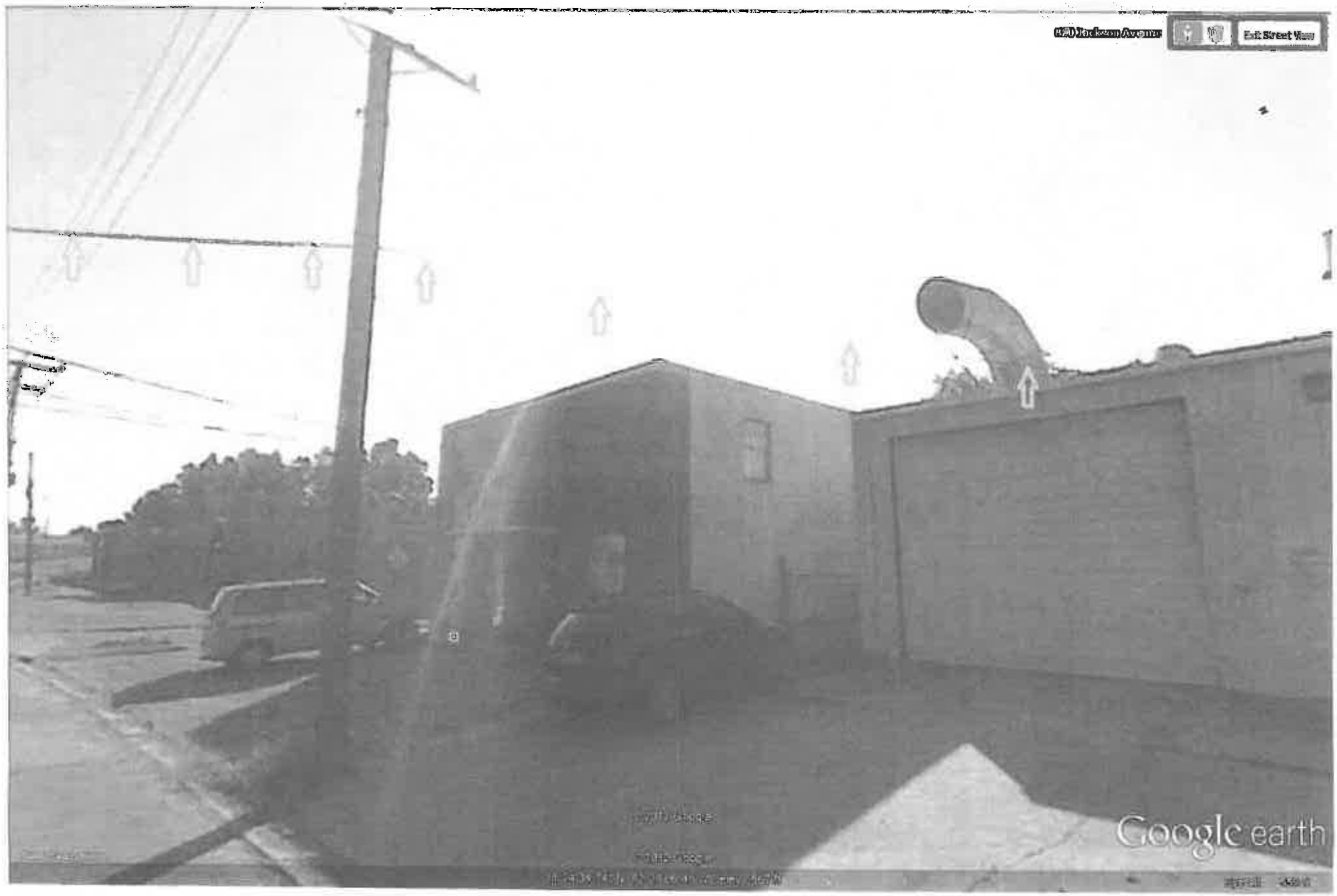

District 2 HQ JACKSON AVE / LOUIS
Google earth


District 2 HQ MAIN BLDG
District 2 HQ JACKSON AVE / BOUR
Google earth


Google earth


Exit Street View
Google earth


Exit Street View
Google earth


Jackson Avenue
Exit Street View
Google earth

DOT Statewide Infrastructure Upgrade
Cabling Project - Cable Install Specifications
Attachment D10-A (Headquarters)

1. DOH DISTRICT 10 (Ten) HEADQUARTERS – PRINCETON

270 Hardwood Lane Princeton, WV

1.1. Administration Building

1.1.1. Work Area Scope of Work

1.1.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.1.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.1.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.1.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.1.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and/or split loom must be used.

1.1.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6 blue outlet unless designated otherwise.

1.1.1.7. One Cat 6 Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 15 Cat 6 patch cables ten-foot-long shall be provided for spares.

1.2. Equipment Shop Building

1.2.1. Work Area Scope of Work

1.2.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.2.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.2.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.2.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.2.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and/or split loom must be used.

1.2.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6A blue outlet unless designated otherwise.

1.2.1.7. One Cat 6A Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6A patch cables ten-foot-long shall be provided for spares.

1.3. Sign Shop, Buildings and Grounds Building, and

1.3.1. Work Area Scope of Work

1.3.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.3.1.2. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.3.1.3. Each drop must be terminated in a flush faceplate or surface mount box.

1.3.1.4. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.3.1.5. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and/or split loom must be used.

1.3.1.6. Each cable drop must be terminated 568B wiring configuration on a Cat.6A blue outlet unless designated otherwise.

1.3.1.7. One Cat 6A Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6A patch cables ten-foot-long shall be provided for spares.

1.4. Materials Building

1.4.1. Work Area Scope of Work

1.4.1.1. Installation of the designated amount of Cat 6A Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.4.1.2. Installation of one (1) core/sleeve for a WAP located on the exterior wall of the HQ building within three (3) feet of the current antenna. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

1.4.1.3. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.4.1.4. Each drop must be terminated in a flush faceplate or surface mount box.

1.4.1.5. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.4.1.6. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and/or split loom must be used.

1.4.1.7. Each cable drop must be terminated 568B wiring configuration on a Cat.6 blue outlet unless designated otherwise.

1.4.1.8. One Cat 6 Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 5 Cat 6 patch cables ten-foot-long shall be provided for spares.

1.4.2. Telecommunications Equipment Room (TER) Build Requirements

1.4.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.4.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity, and airflow.

1.4.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.4.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.4.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.4.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.4.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.4.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

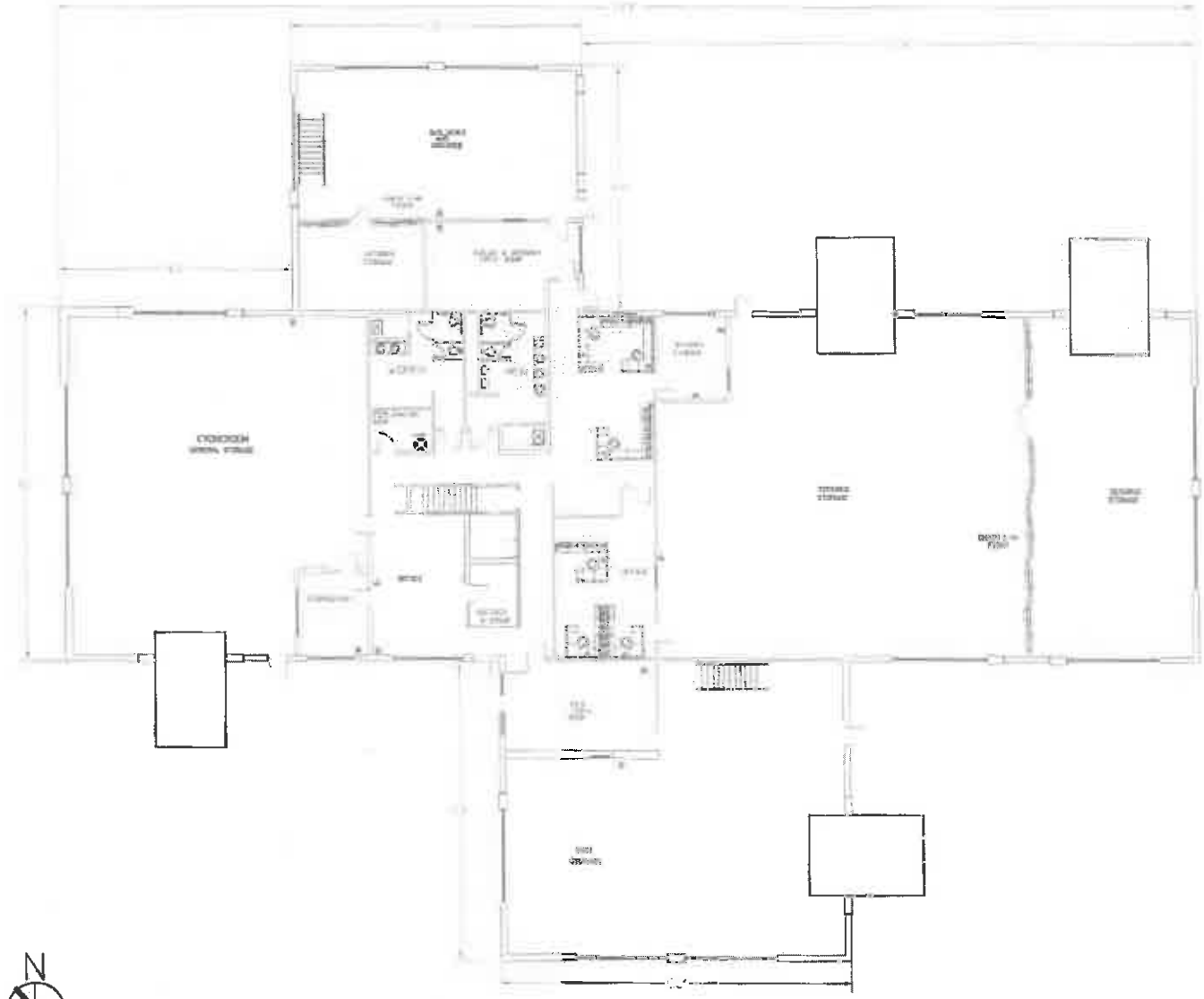
1.4.2.9. Each drop of Cat 6 cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.4.2.10. Each 24 port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48 port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and/or WVOT.

1.4.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.4.2.12. Cat 6 Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6 Patch cables five foot in length shall be provided for spares.

1.4.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.



N

WV DOH - WV DOT

DISTRICT 10 PRINCETON

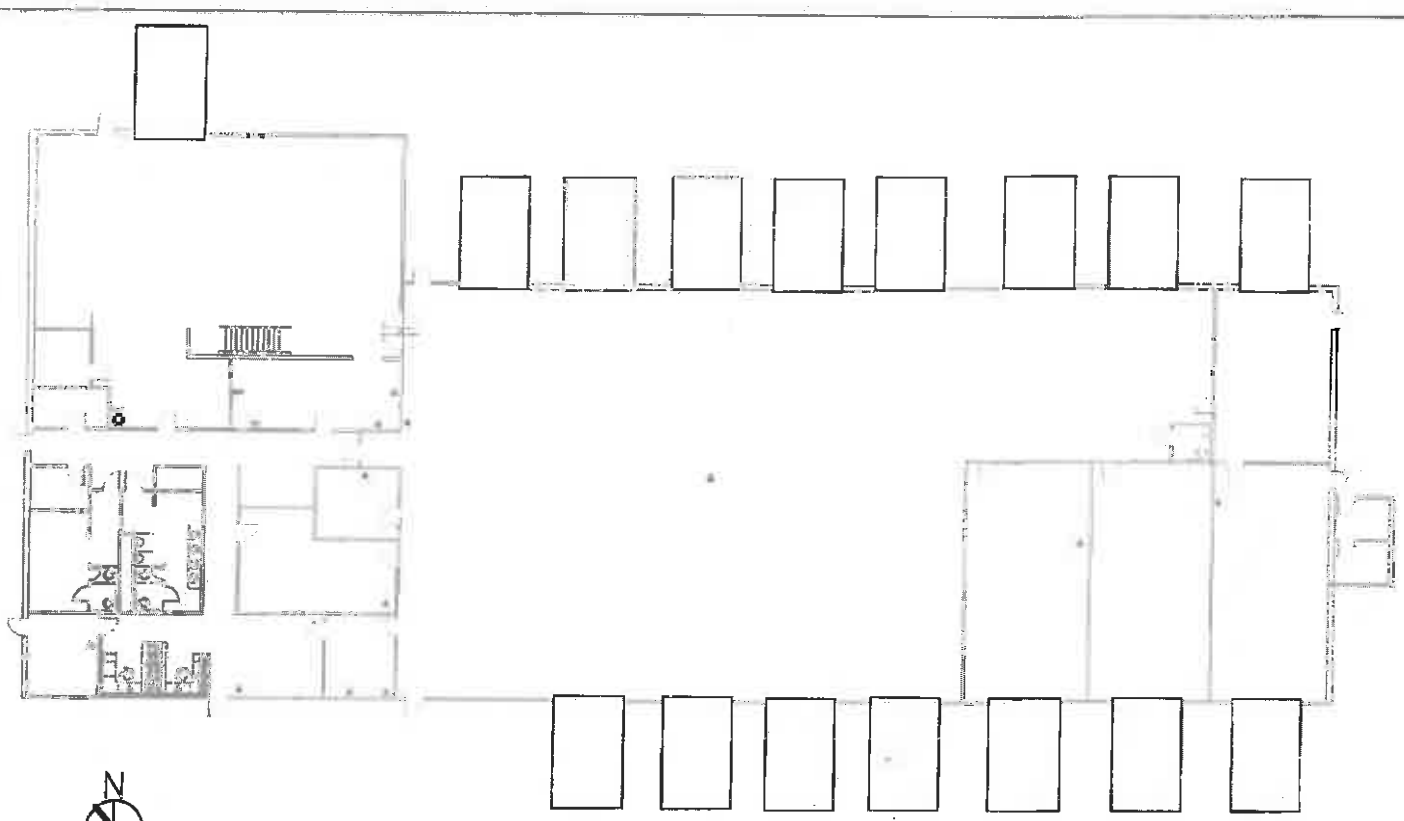
BRIDGE AND SIGN SHOP

DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

Dual Outlets 19
TOTAL CABLE RUNS 38

DISTRICT 10 HEADQUARTERS BUILDING
PRINCETON WEST VIRGINIA
FIRST FLOOR PLAN

Attachment D10-B



N

WV DOH - WV DOT

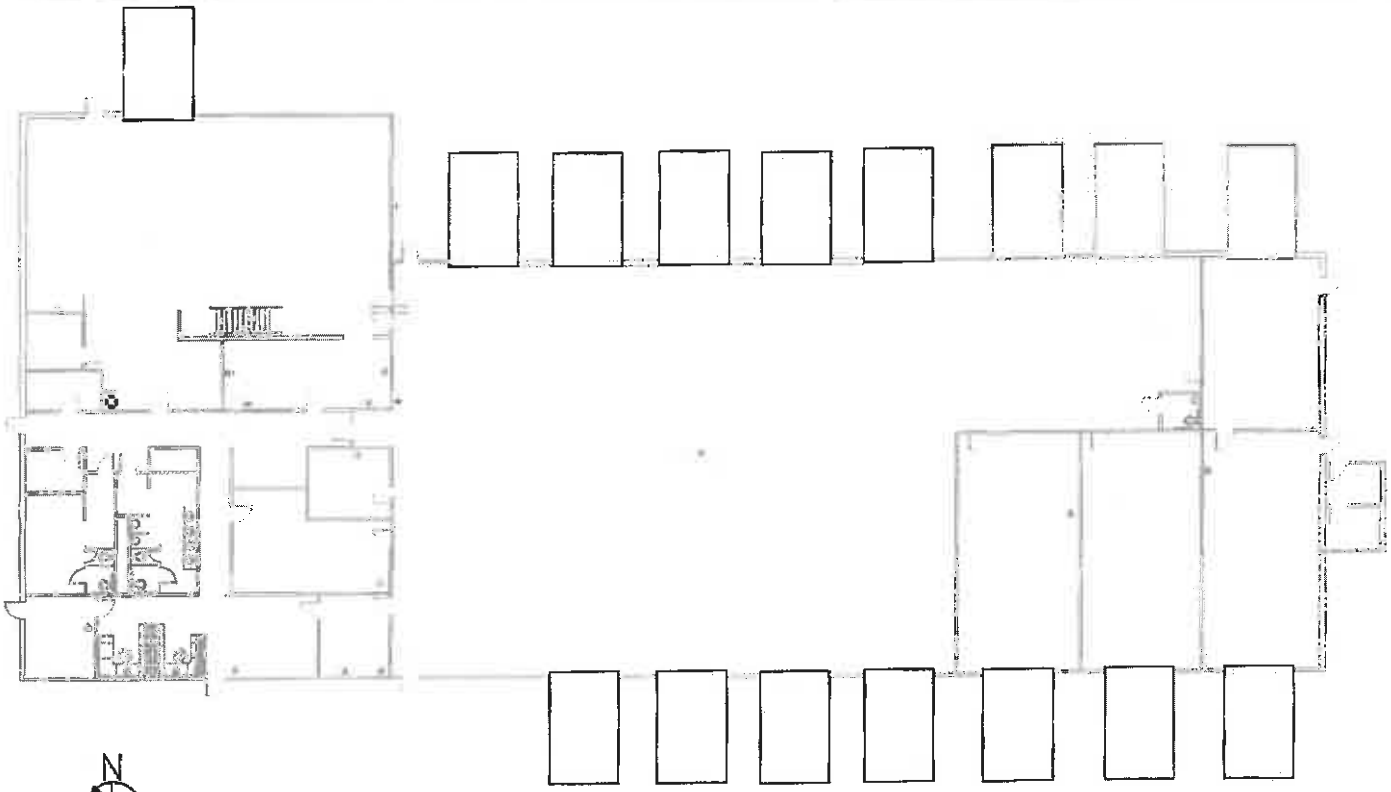
DISTRICT 10 PRINCETON

MAINT SHOP FLOOR PLAN

DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

Dual Outlets 16
TOTAL CABLE RUNS 32

DISTRICT 10 headquarters building
PRINCETON WEST VIRGINIA
FIRST FLOOR PLAN



N

WV DOH - WV DOT

DISTRICT 10 PRINCETON

MAINT SHOP FLOOR PLAN

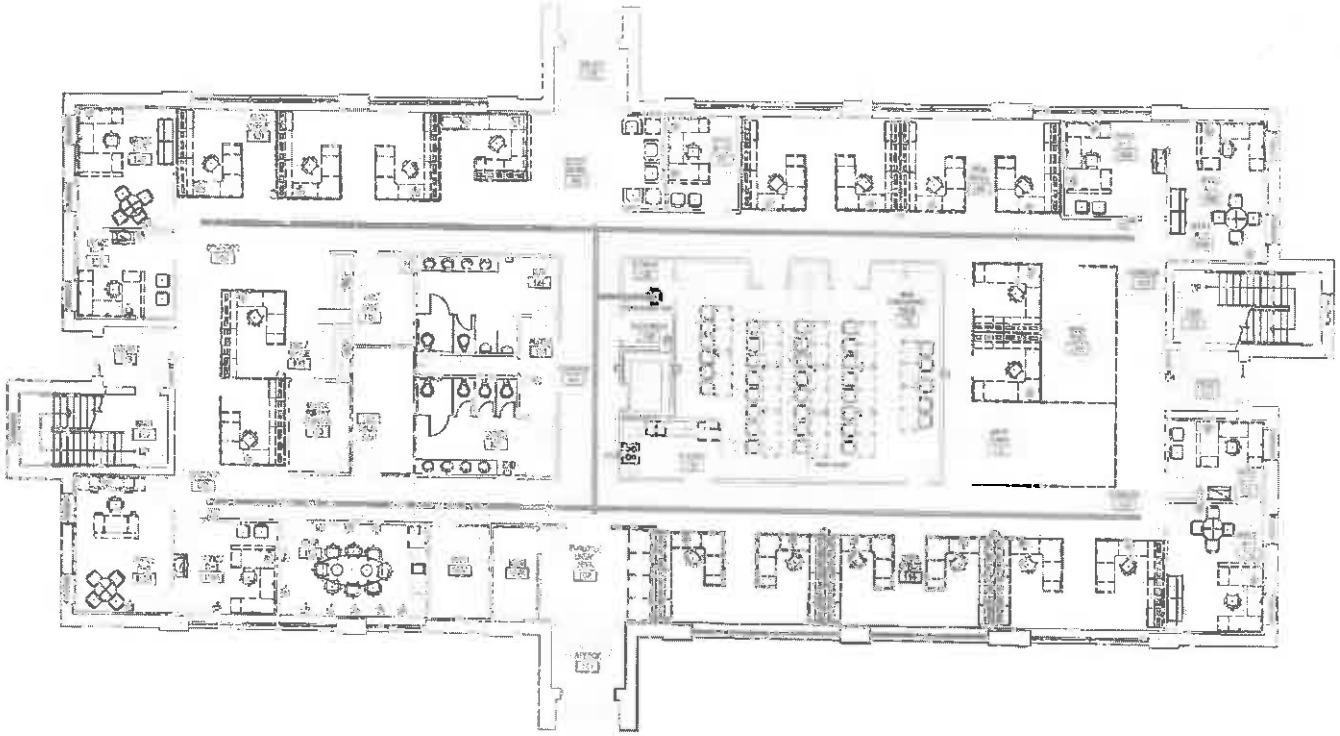
DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

Dual Outlets 16
TOTAL CABLE RUNS 32

DISTRICT 10 MAINTENANCE BUILDING
PRINCETON WEST VIRGINIA
FIRST FLOOR PLAN

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	COUNTY	[illegible]	[illegible]
WV	1	————			KANAWHA	XX	XX

PLAN NOTES



FIRST FLOOR

SCALE 1/8" = 1'-0"

SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION

90% PROGRESS SET
NOT FOR CONSTRUCTION

⚠				
[illegible]	[illegible]	REVISIONS	[illegible]	[illegible]

DISTRICT 10 HEADQUARTERS BUILDING
PRINCETON WEST VIRGINIA
FIRST FLOOR
1/8"=1'-0"

WV	1	———		00/15	[illegible]	XX	XX

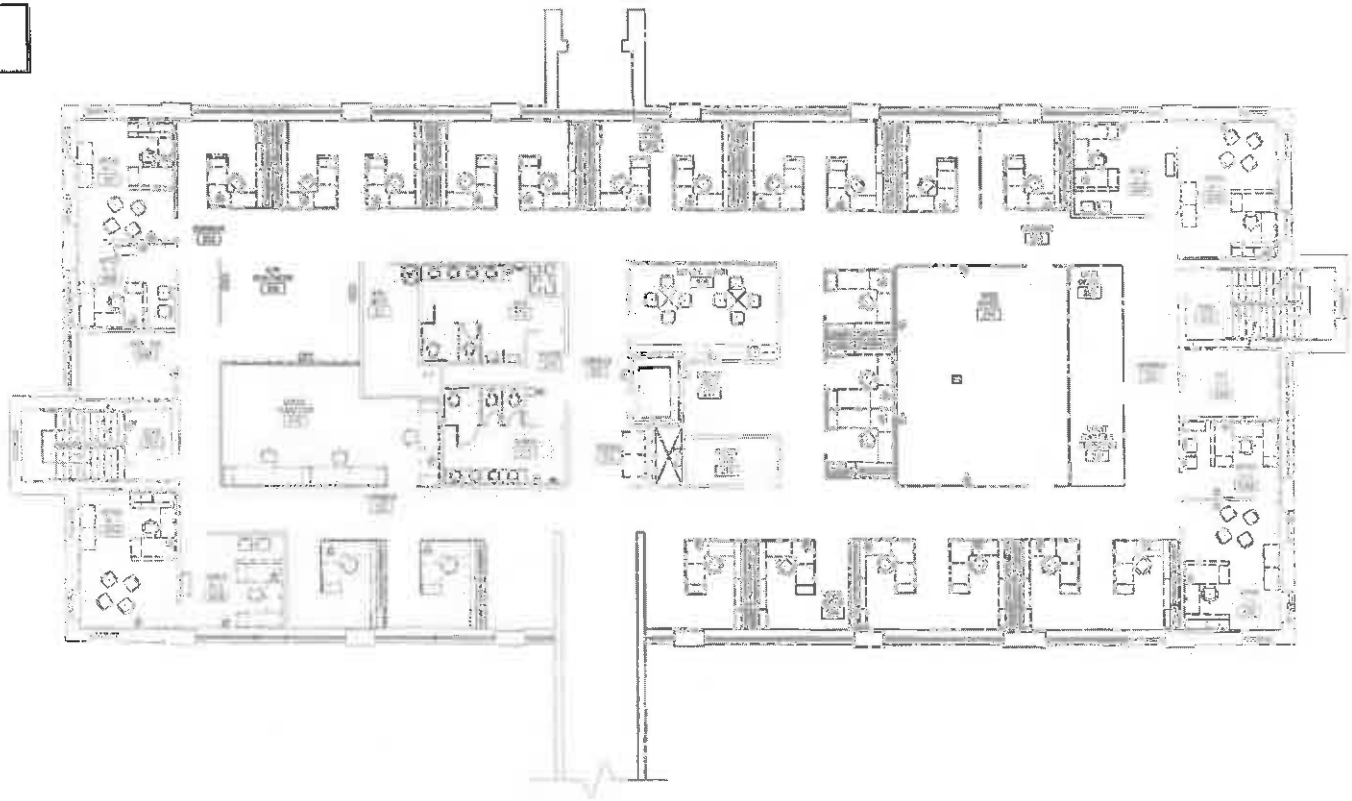
PLAN NOTES

Ⓐ

Ⓑ

Ⓒ

NOTE:
-
-



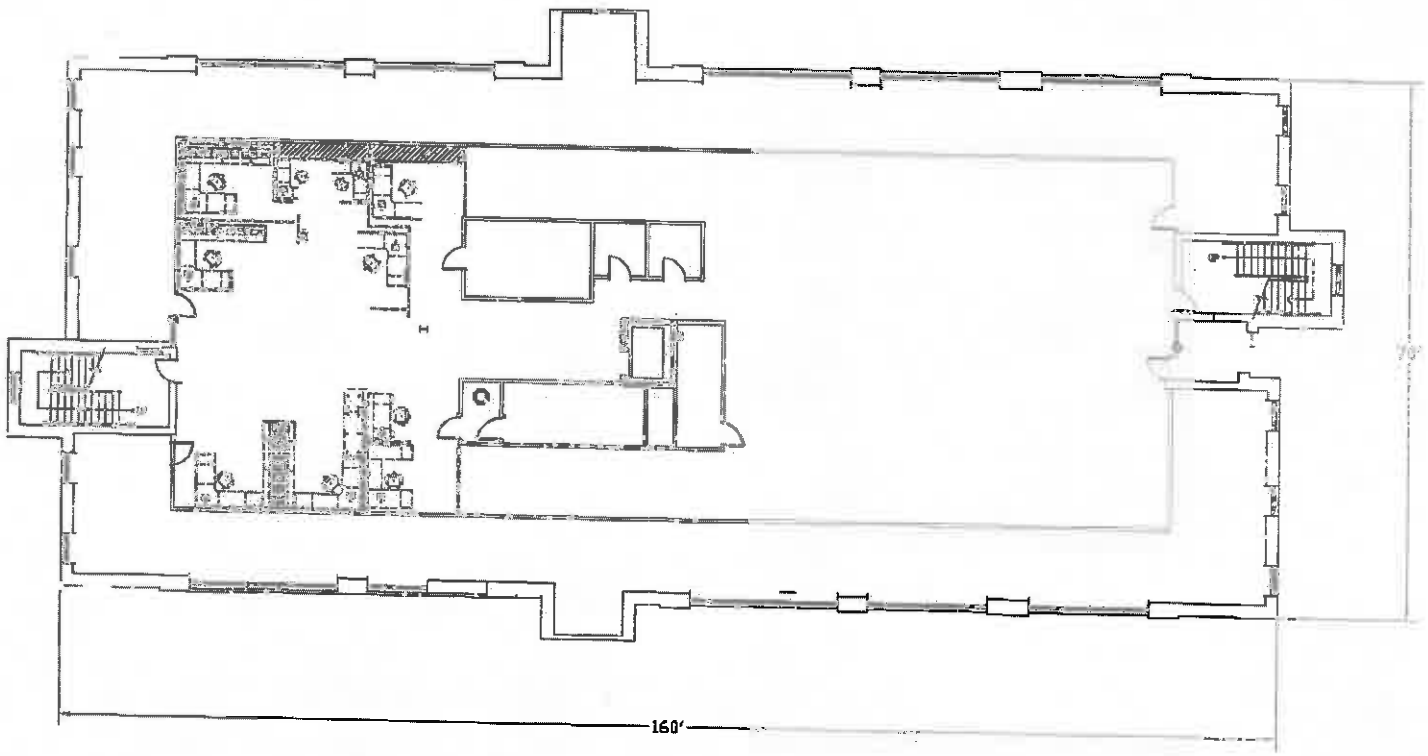
SECOND FLOOR
SCALE 1/8" = 1'-0"

SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION

90% PROGRESS SET
NOT FOR CONSTRUCTION

		REVISIONS		

DISTRICT 10 HEADQUARTERS BUILDING
PRINCETON WEST VIRGINIA
SECOND FLOOR



Back of Building

WV DOH - WV DOT

DISTRICT 10 PRINCETON

3rd FLOOR PLAN

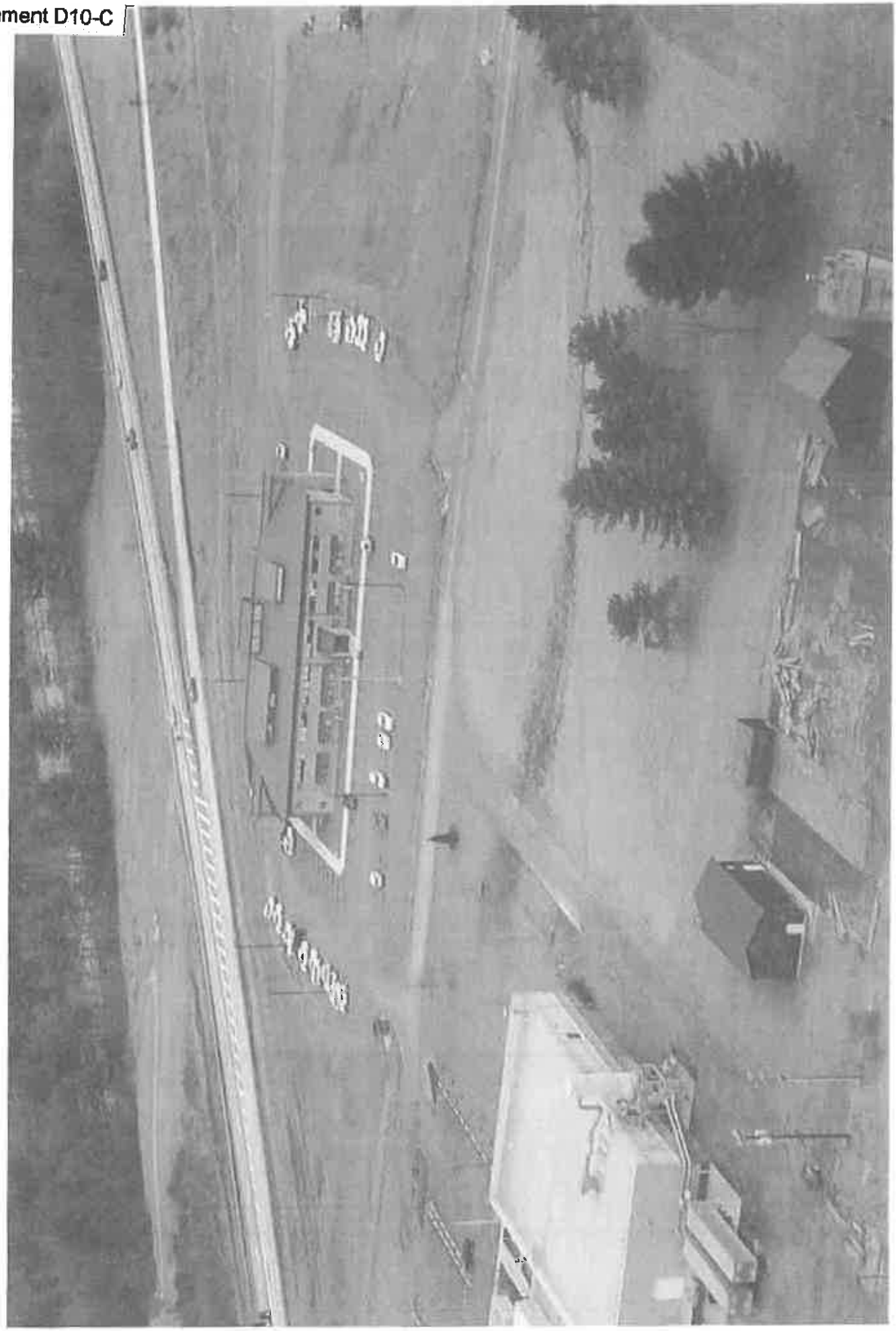
DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

N

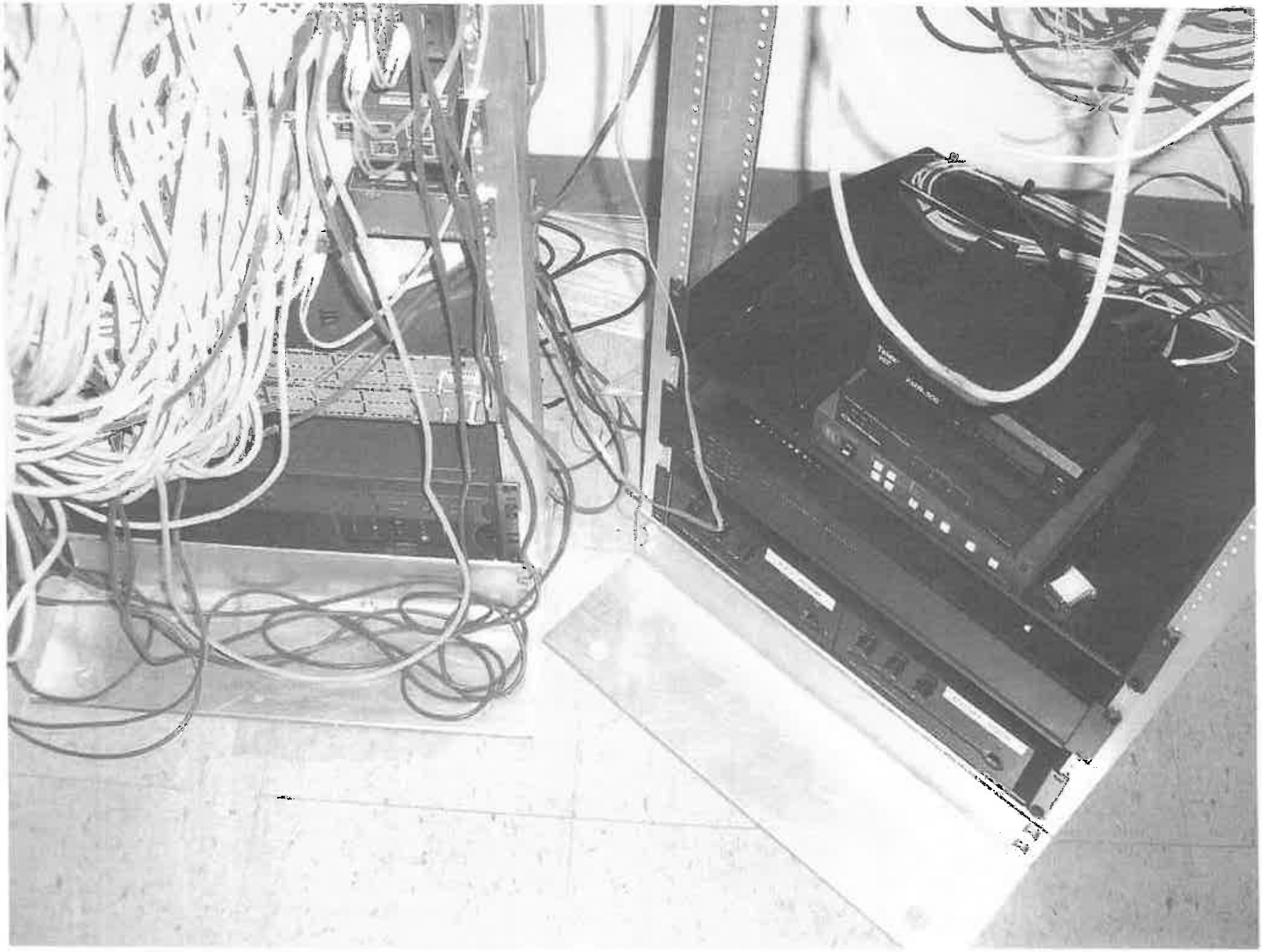
Dual Outlets 11
TOTAL CABLE RUNS 22

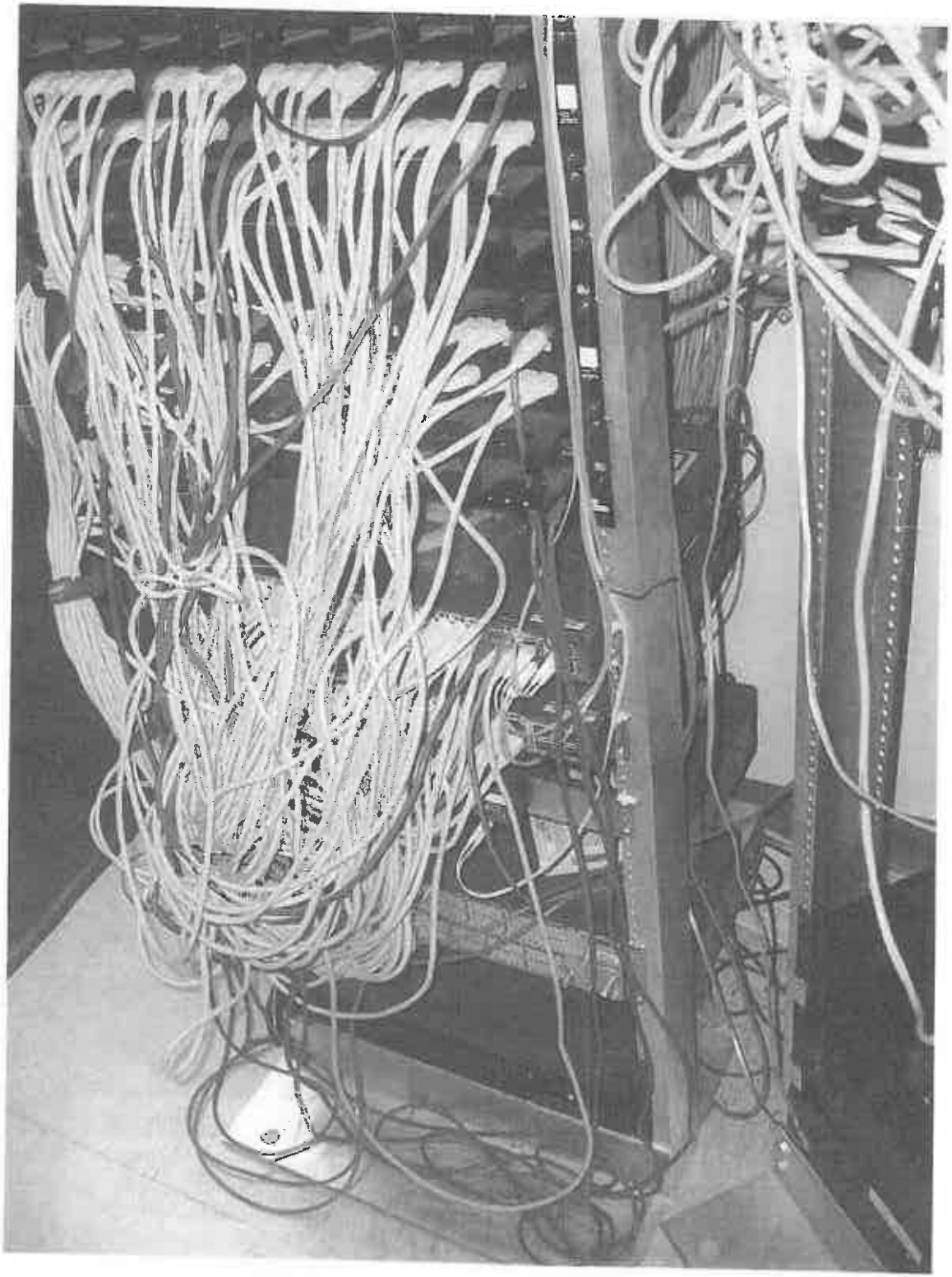
DISTRICT 10 HEADQUARTERS BUILDING
PRINCETON WEST VIRGINIA
THIRD FLOOR PLAN

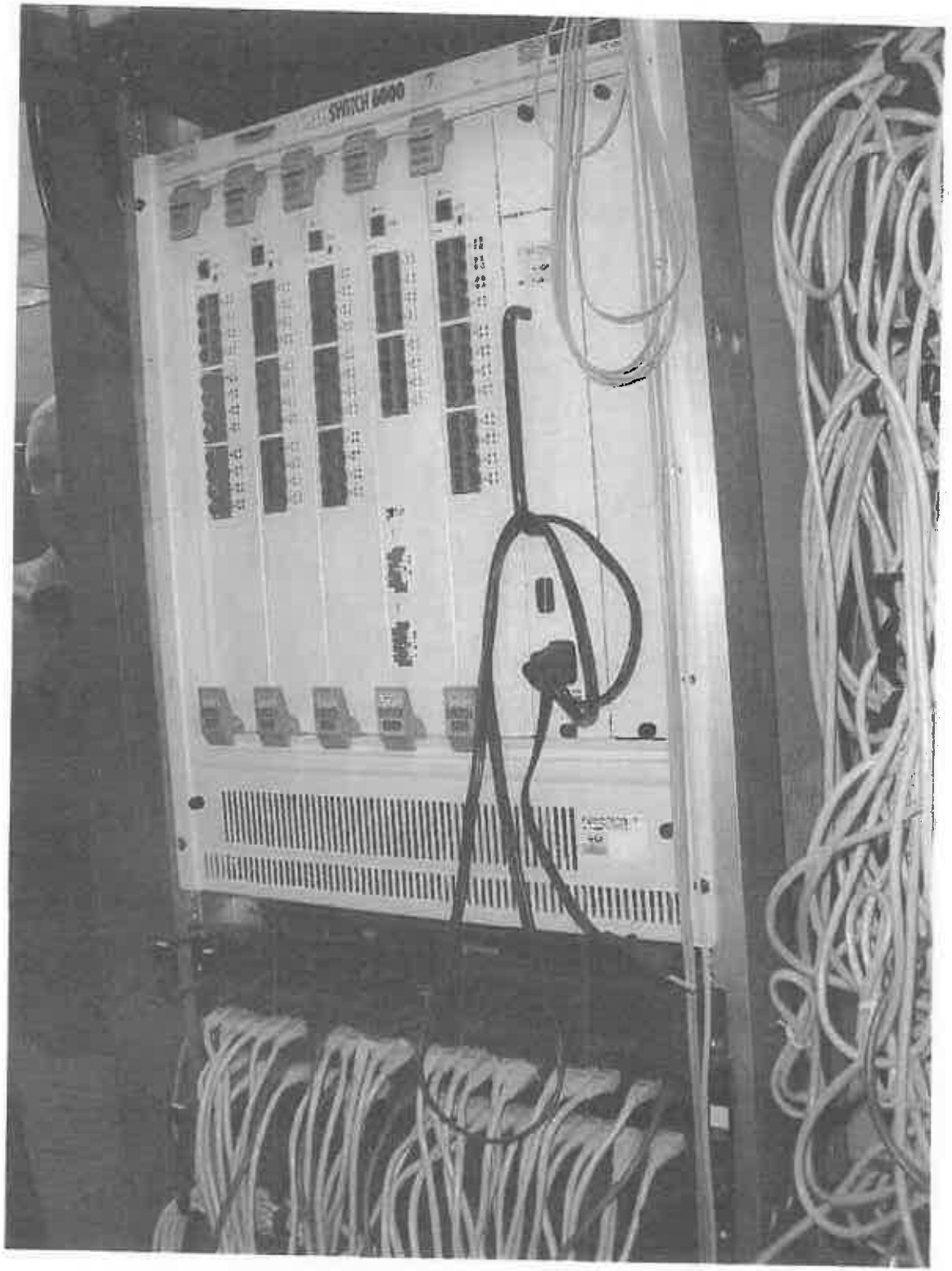
Attachment D10-C

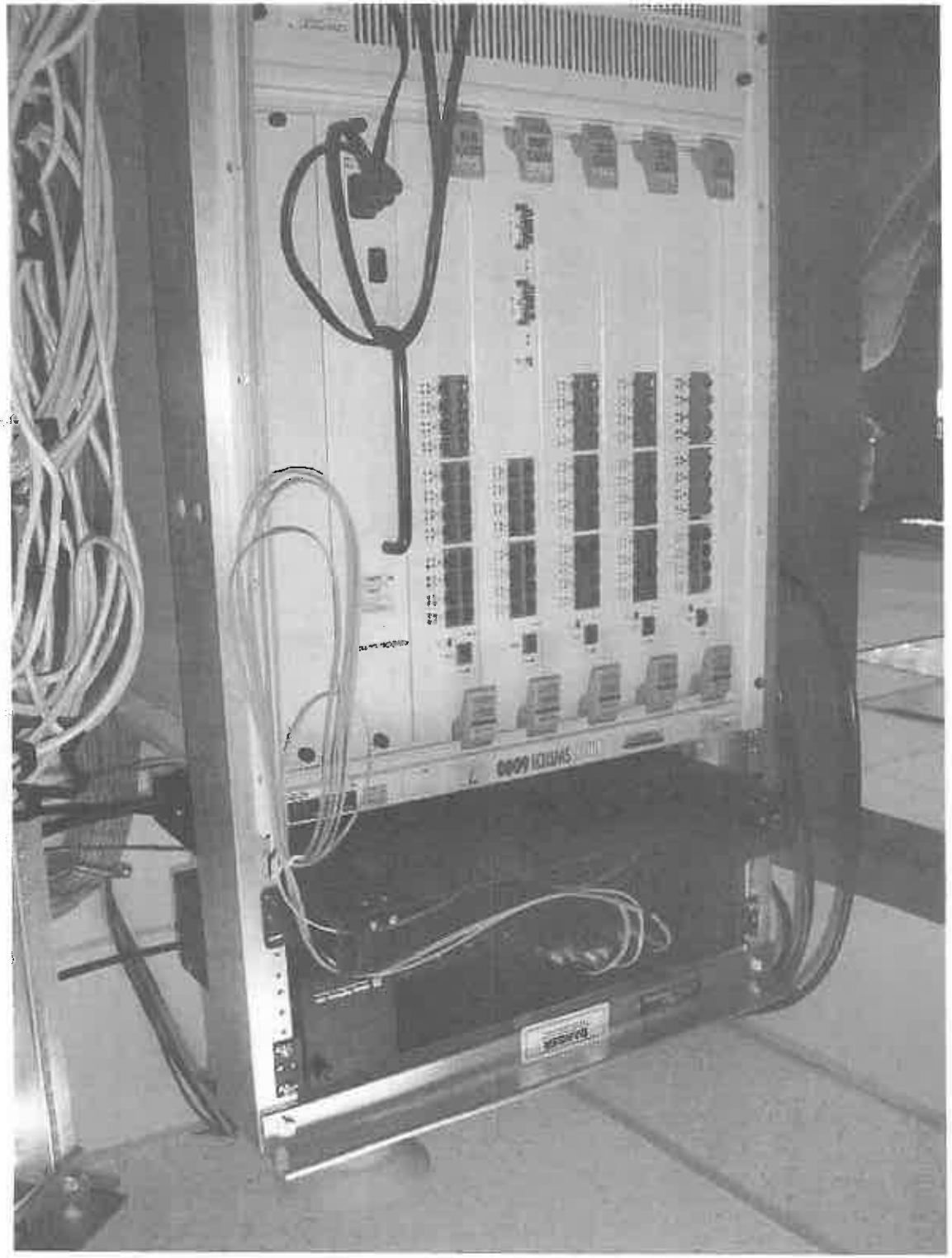


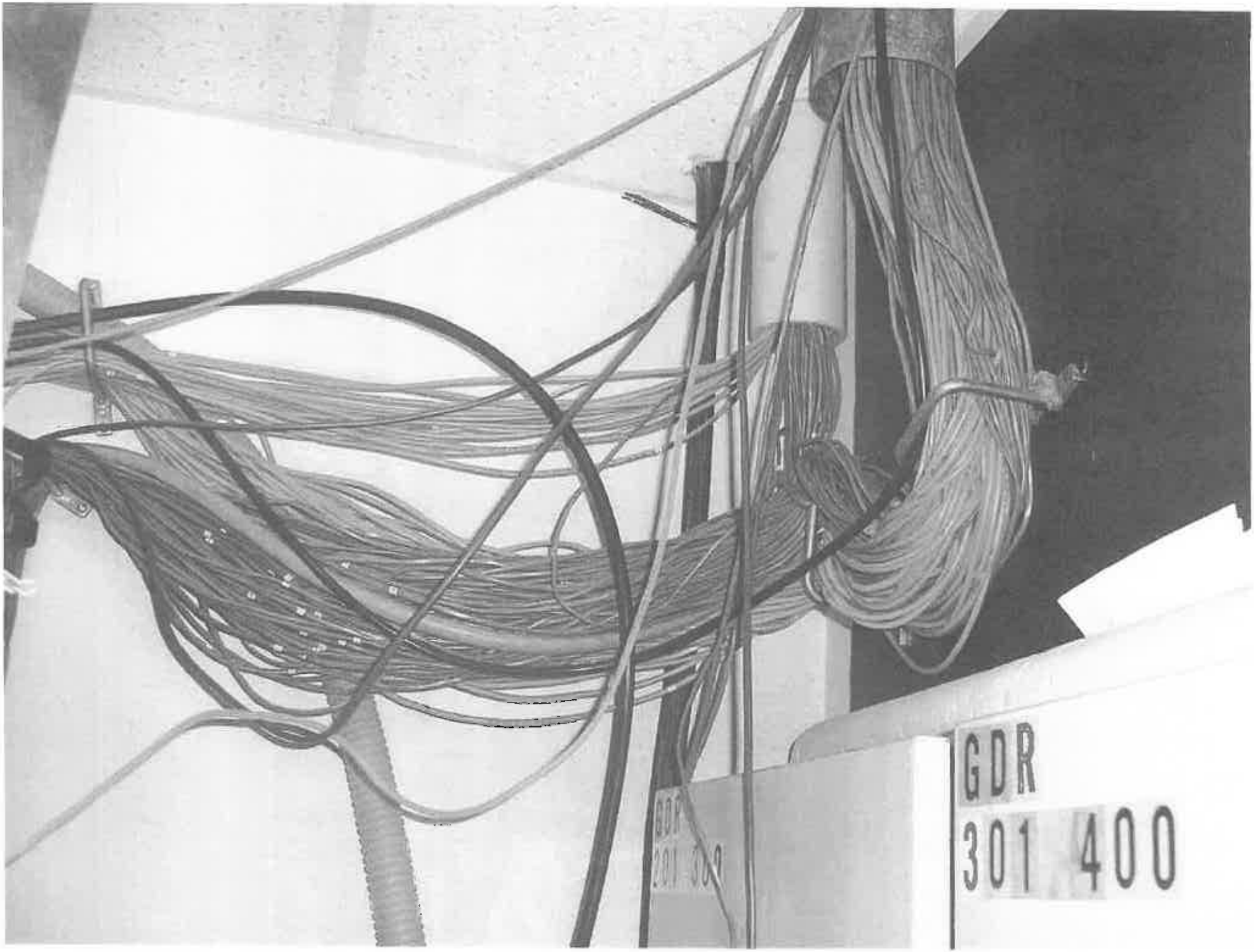

DEX District 10 K9 Complex
District 10 Maintenance Shop
District 10 Main Bldg
District 10 HQ
Legend

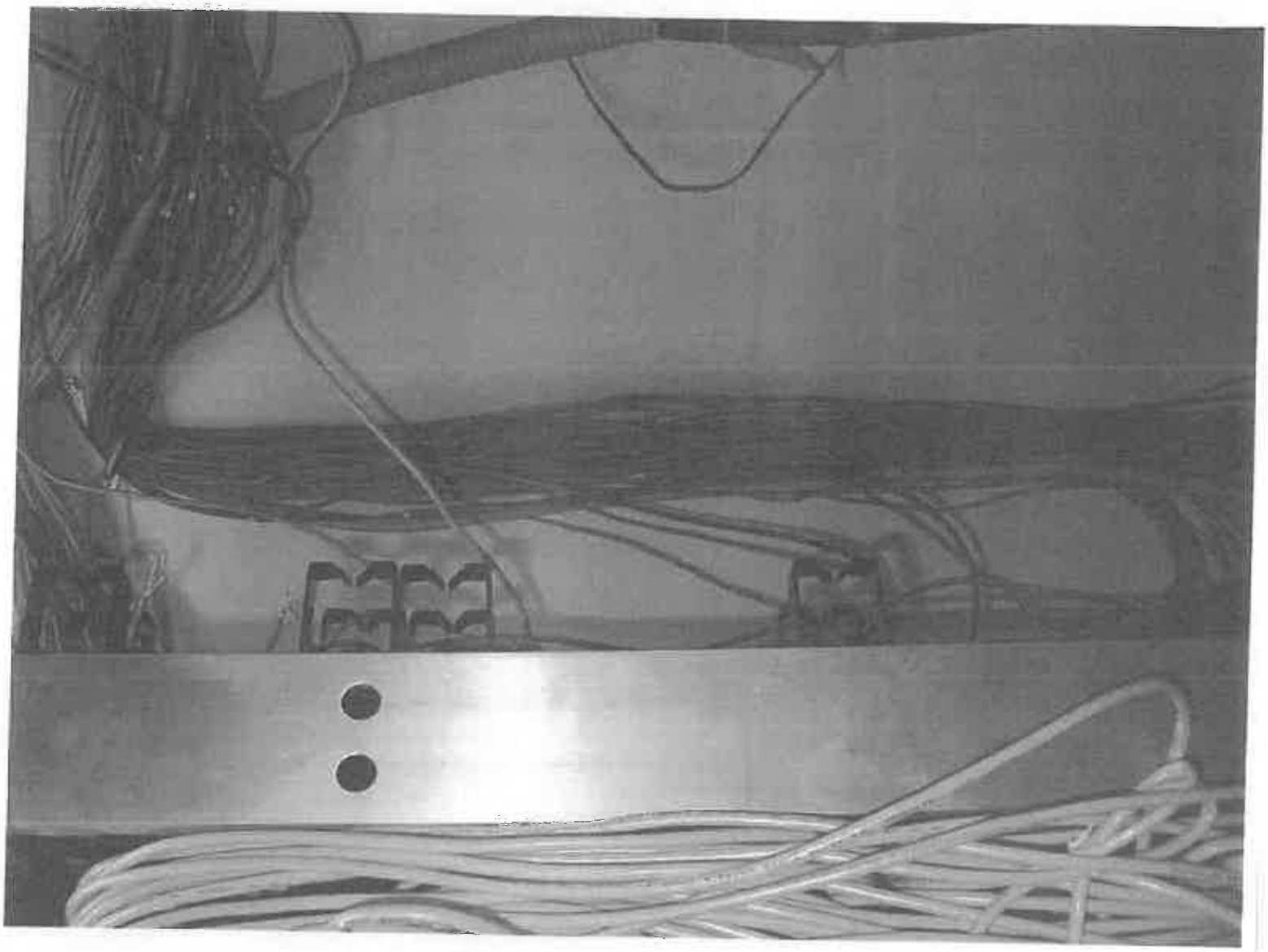


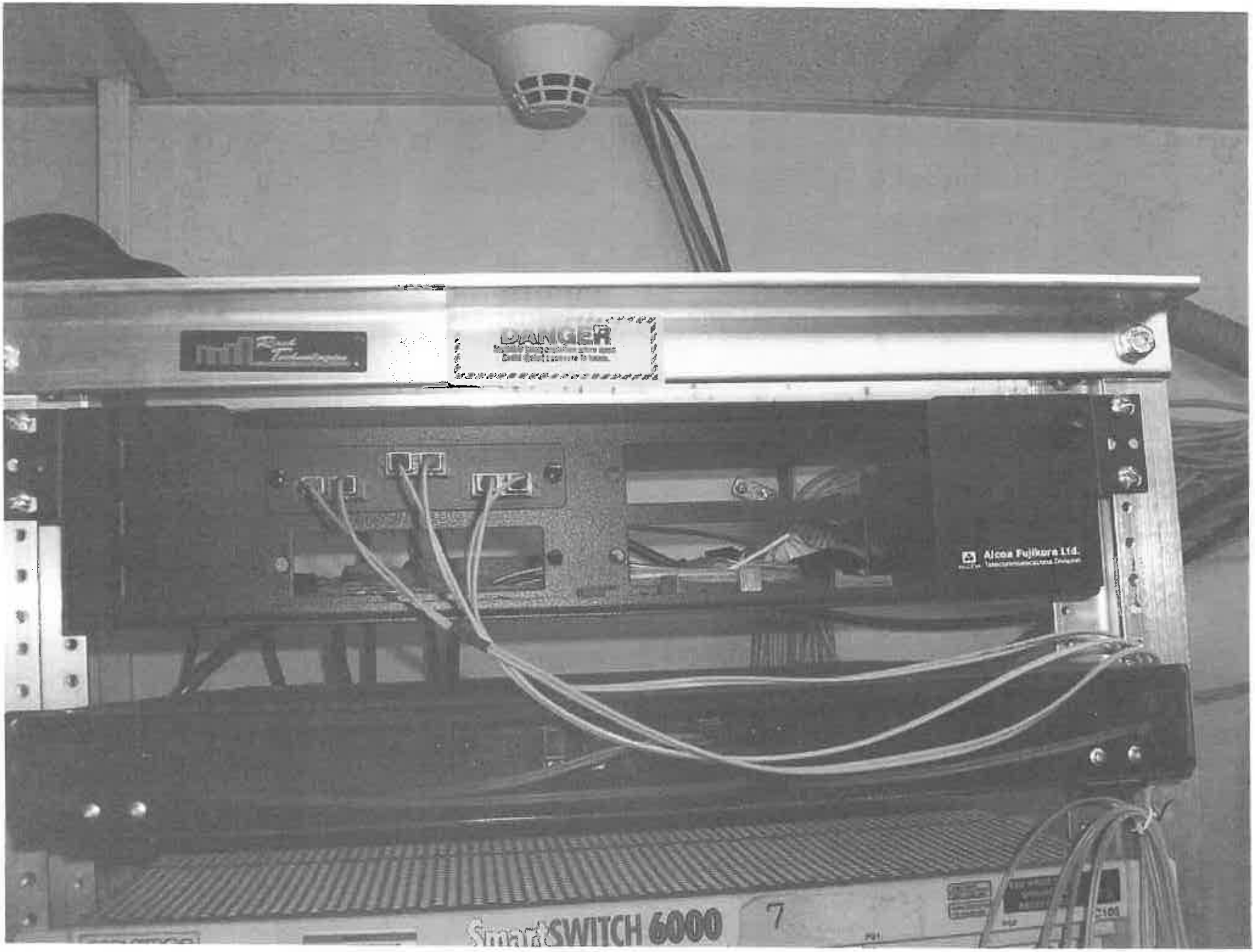


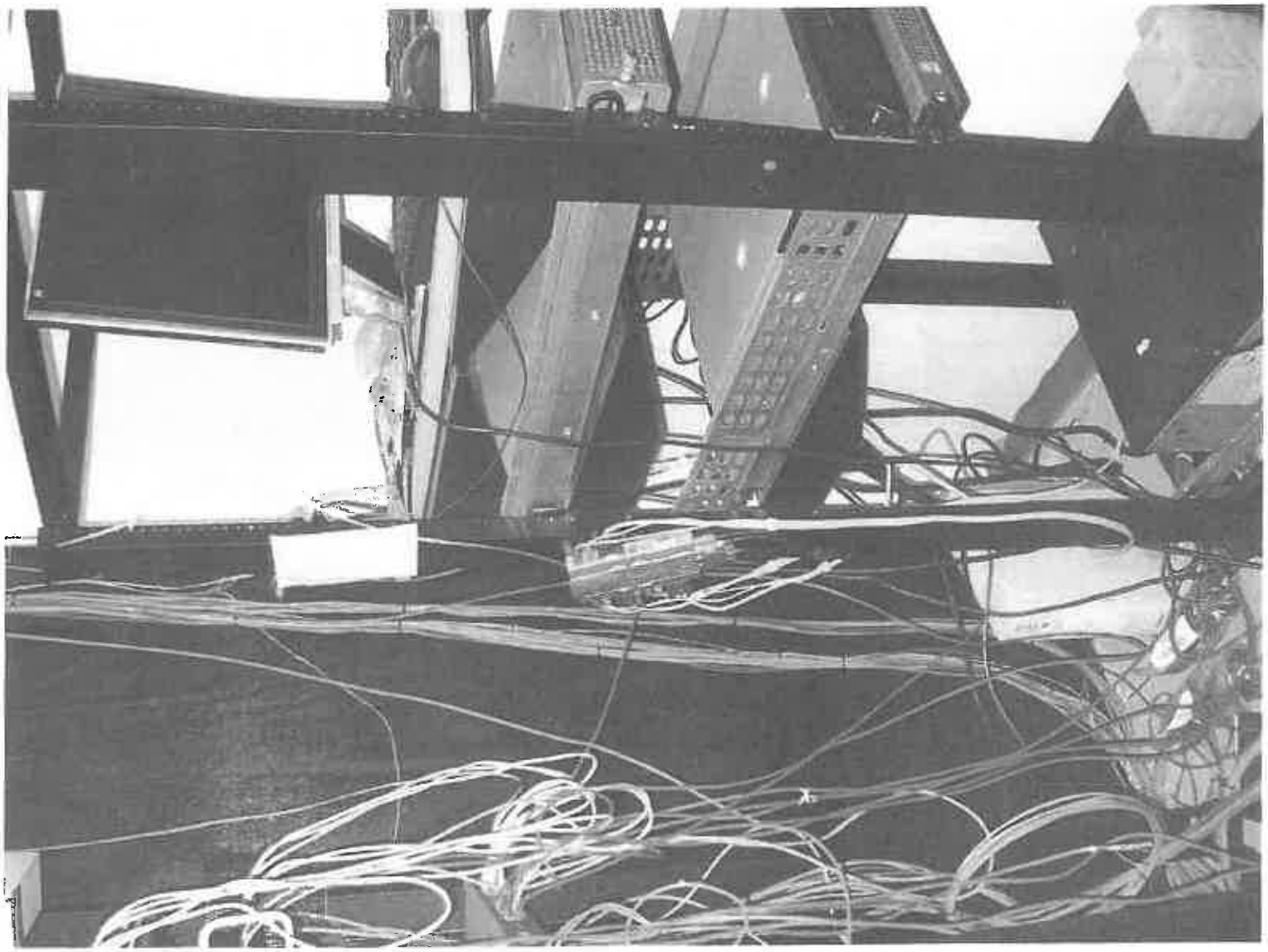

SWITCH 6000

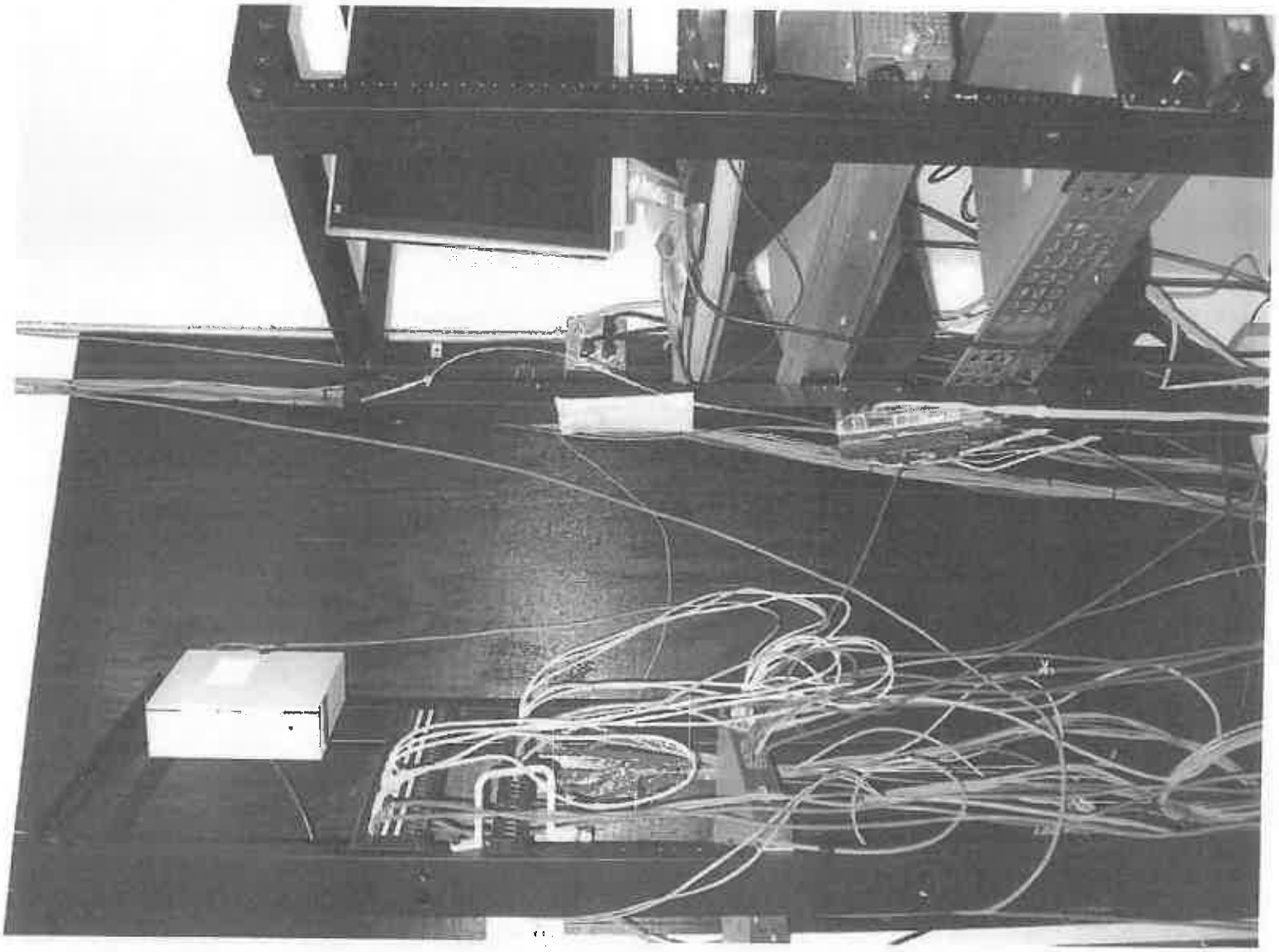


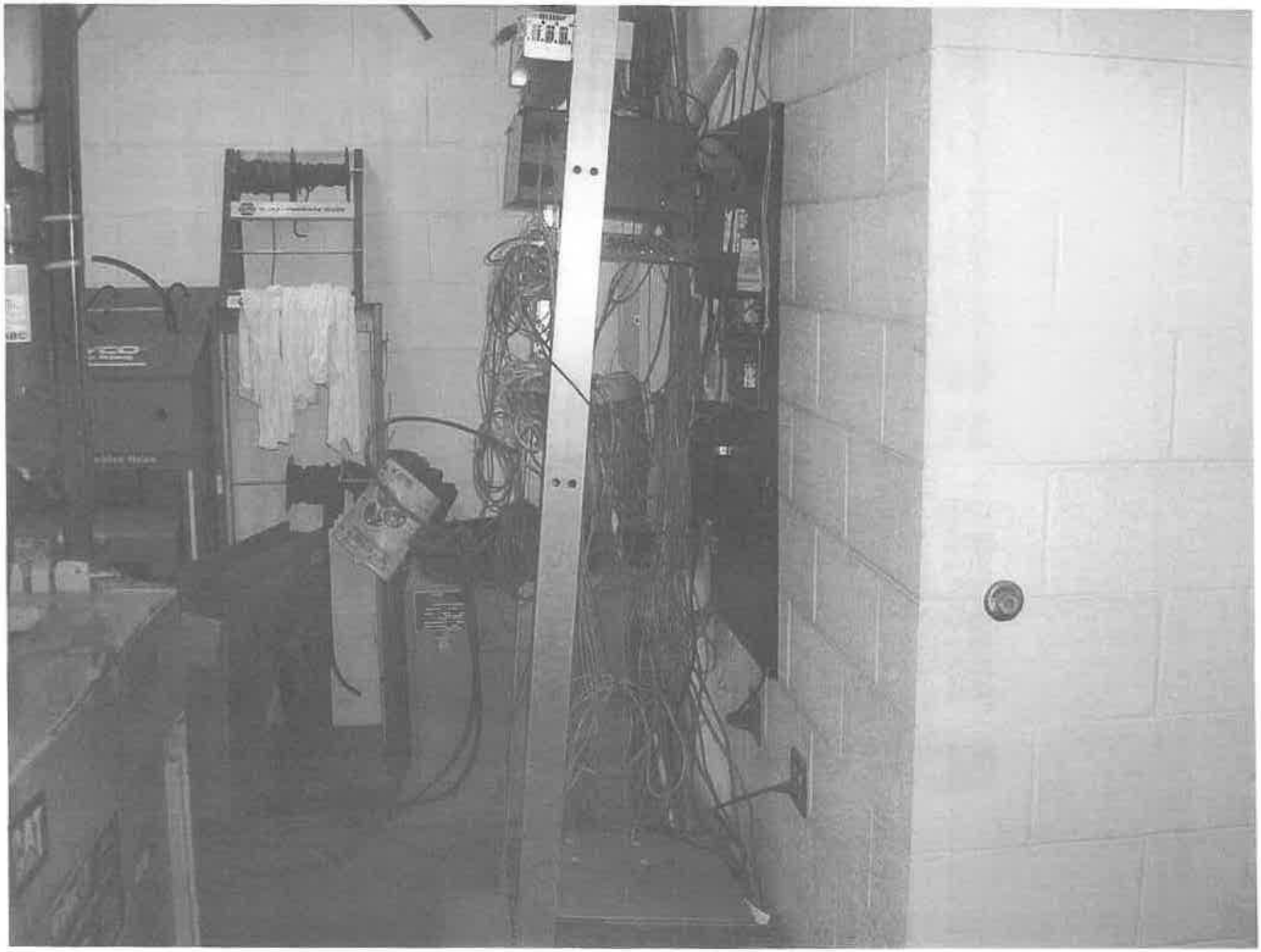

GDR
301 400

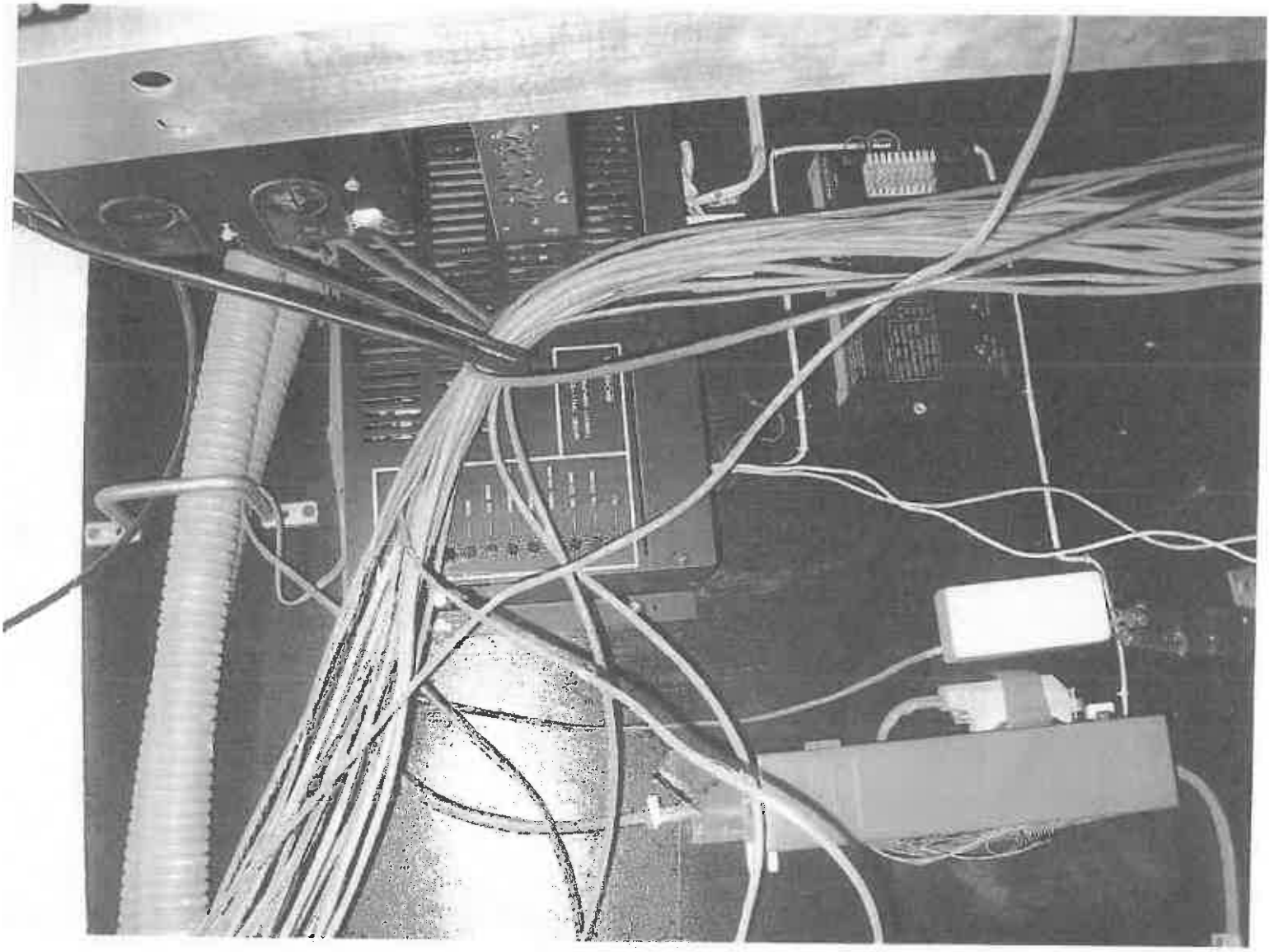


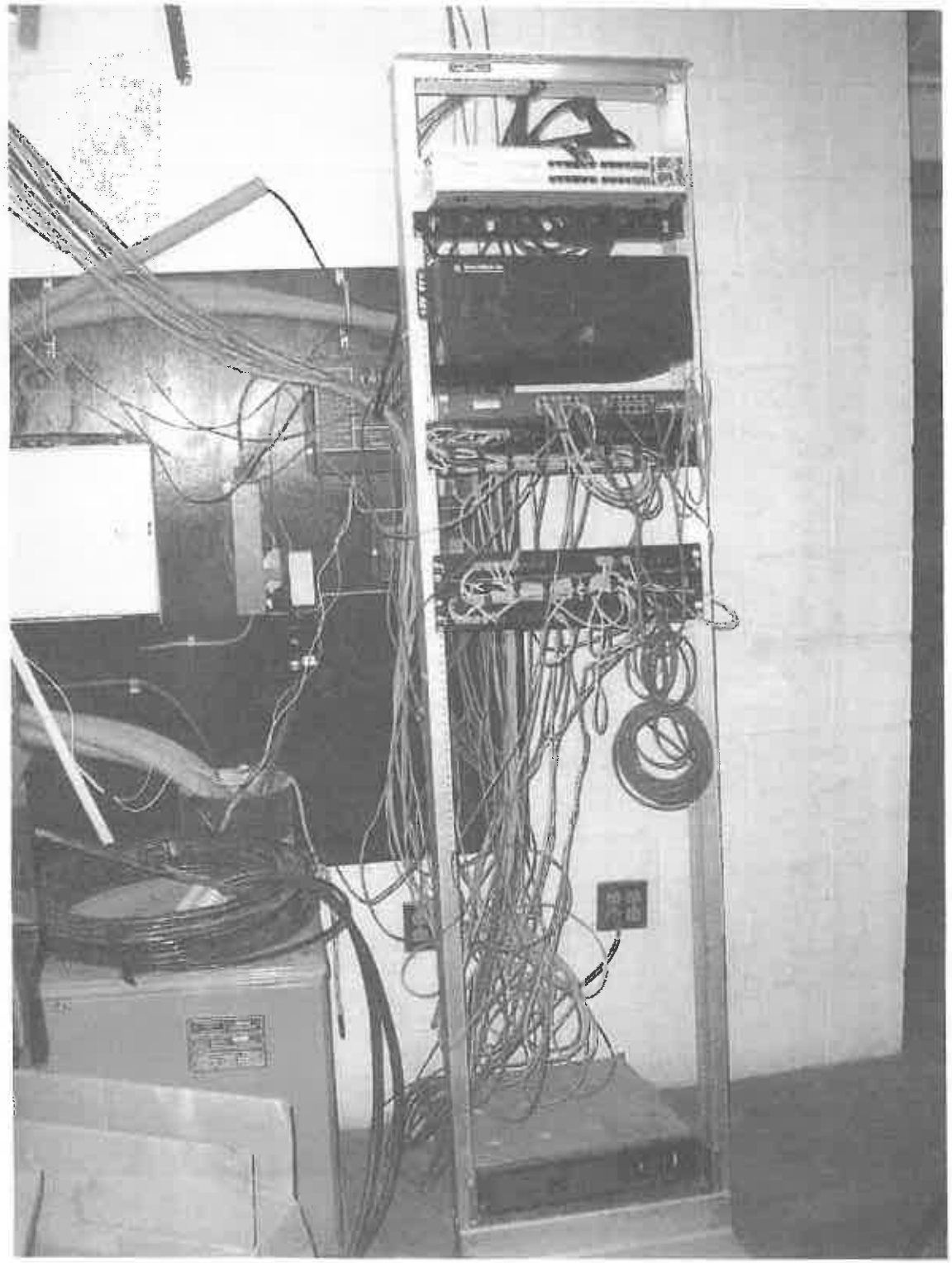

DANGER
Alcoa Fujikura Ltd.
SmartSWITCH 6000
7

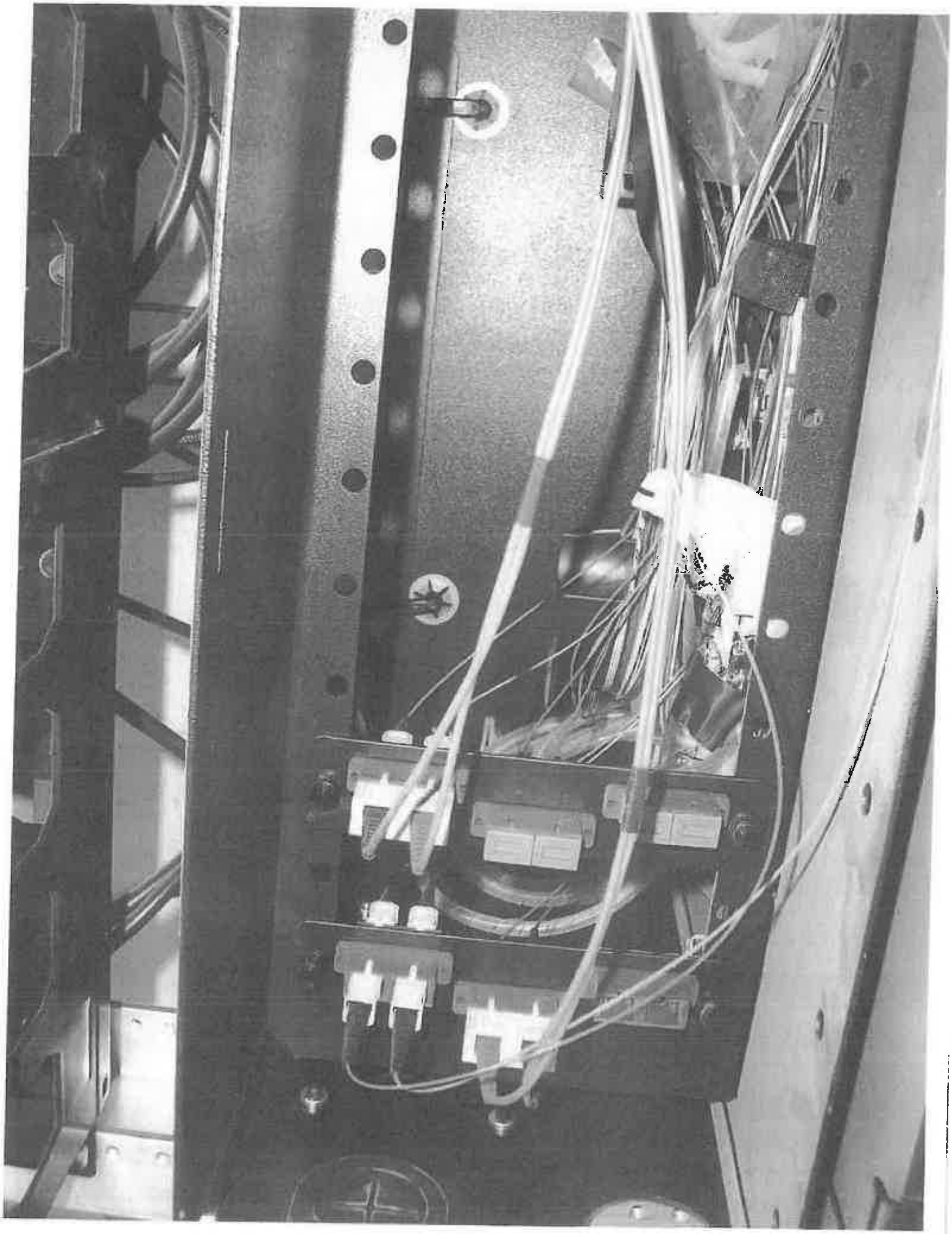


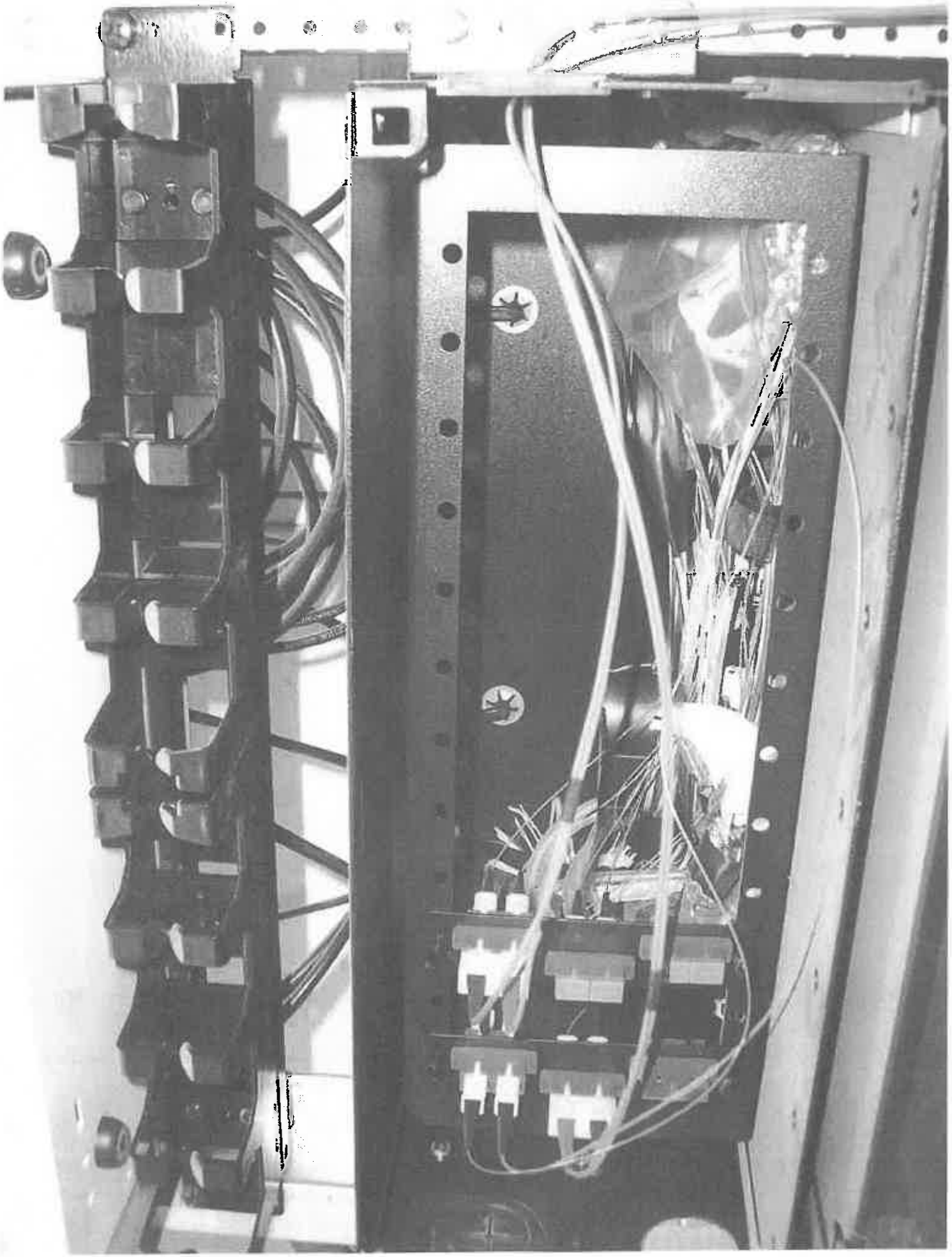


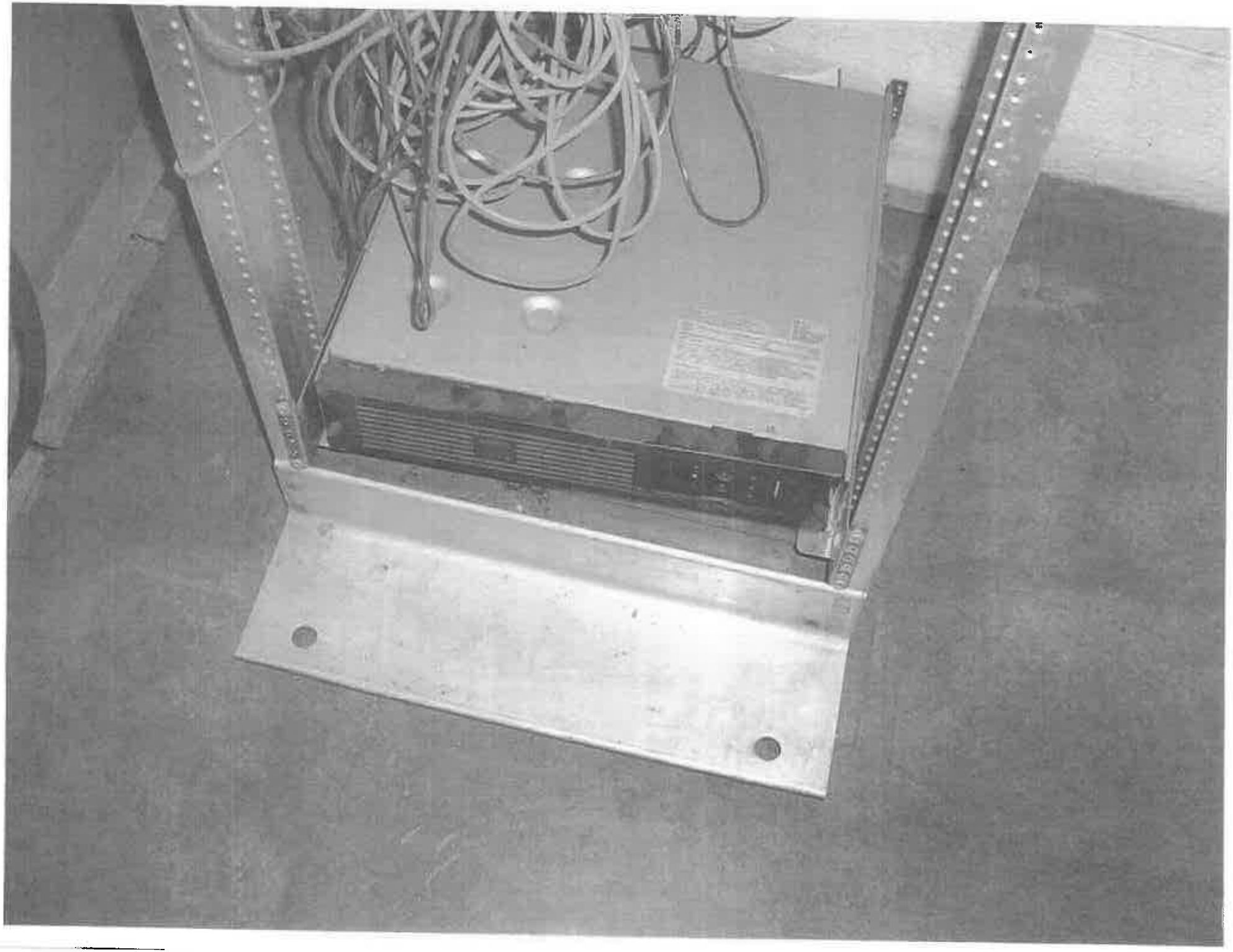


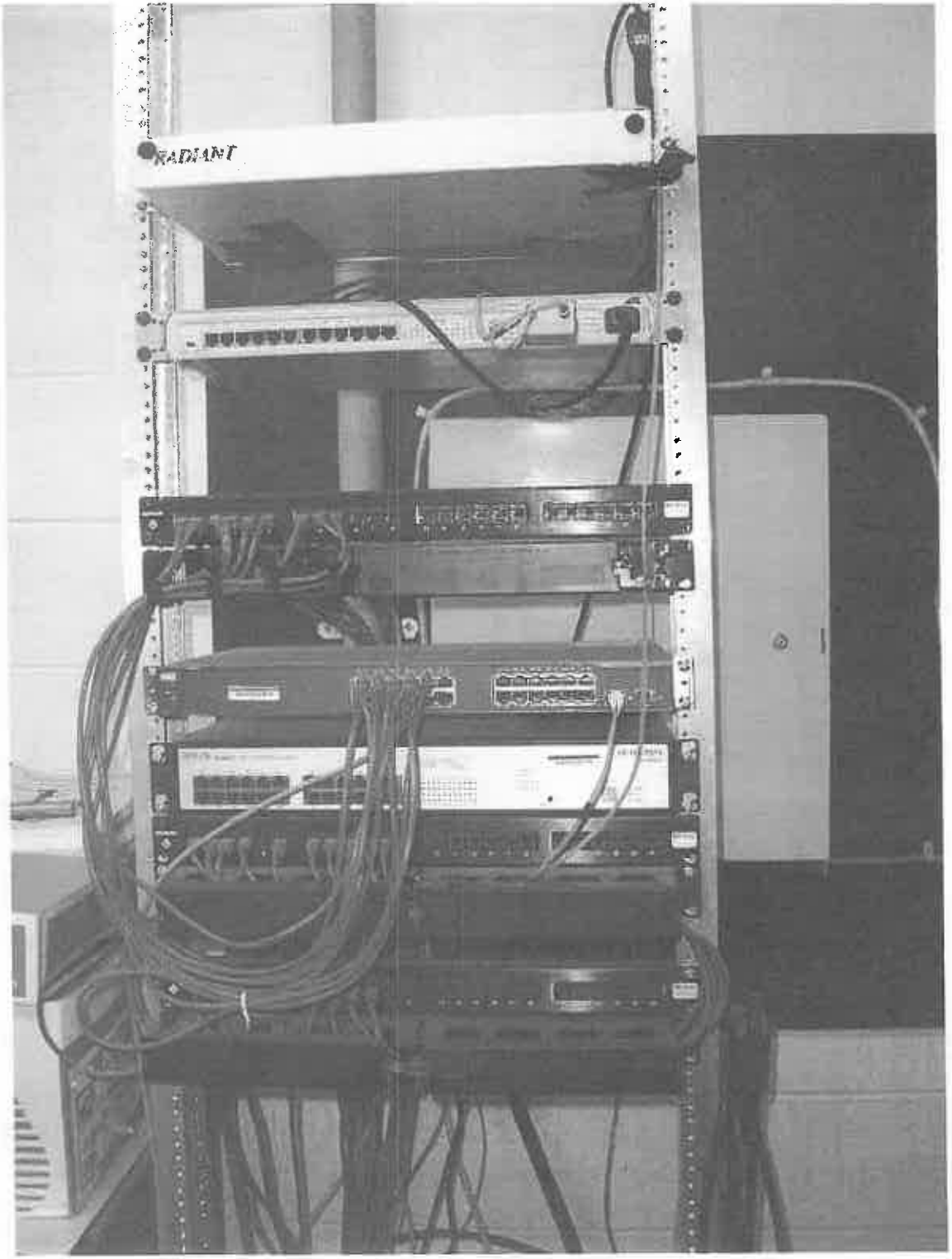


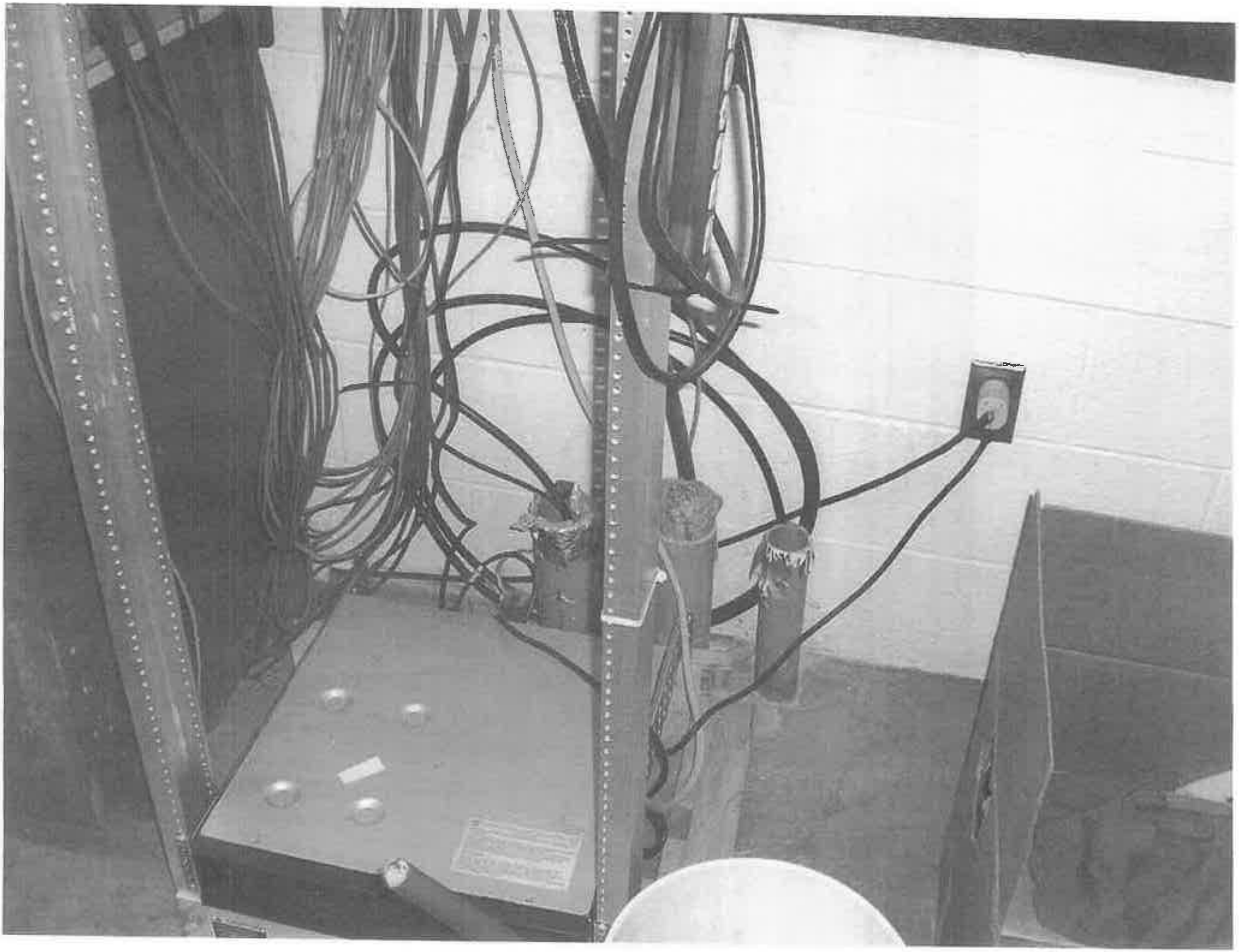






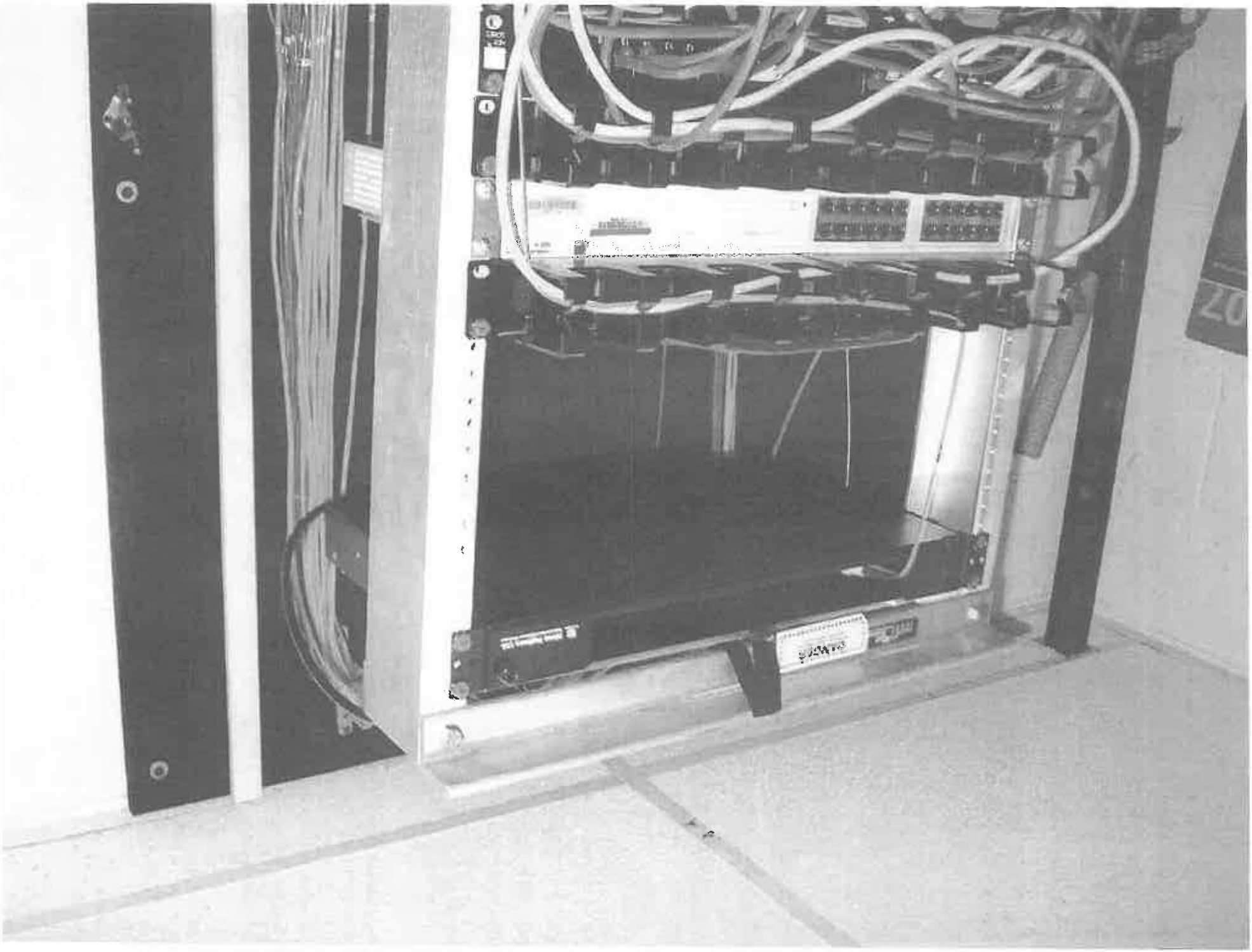



RADIANT



July

July 07



DOT Statewide Infrastructure Upgrade
Cabling Project - Cable Install Specifications
Attachment DMV-B (Regional Offices)

1. **DMV REGIONAL OFFICES:**

   Charleston, 5707 MacCorkle Ave. S.E, Charleston
   Point Pleasant, 1408 Kanawha Street, Point Pleasant
   Winfield, 116 Liberty Square, Hurricane
   Huntington, 801 Madison Ave. Huntington, WV
   Logan, 428 Main St, Logan, WV
   Williamson, 225 E 3rd Ave, Williamson, WV
   Beckley, 107 Pinecrest Drive, Beckley, WV 25801
   Princeton, 198 Davis St, Princeton, WV 24740
   Welch, 92 McDowell St. Welch, WV 24801

1.1. Work Area Scope of Work

1.1.1. Installation of ninety-six (96) Cat 6A work area outlets for telecommunications usage extended to the Telecommunications Equipment Room (TER).

1.1.2. Installation of one (1) core/sleeve for a WAP located on the exterior wall of the HQ building within three (3) feet of the current antenna. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

1.1.3. Each cable must be labeled per TIA/EIA-606-A administration standard.

1.1.4. Each drop must be terminated in a flush faceplate or surface mount box.

1.1.5. Each flush faceplate or surface mount box must be labeled per TIA/EIA-606-A. Administration Standard.

1.1.6. All cable installed in modular furniture must be enclosed in the wall or furniture pathways and spaces or duct and / or split loom must be used.

1.1.7. Each cable drop must be terminated 568B wiring configuration on a Cat.6A blue outlet unless designated otherwise.

1.1.8. One Cat 6A Patch cable shall be provided for each drop location. 75% of these cables shall be ten foot in length and 25% shall be fourteen foot in length for the station end drop location. In addition, 15 Cat 6A patch cables ten-foot-long shall be provided for spares.

1.2. Telecommunications Equipment Room (TER) Build Requirements

1.2.1. All Building TER's should meet the ANSI/TIA/EIA-569-A standard.

1.2.2. The Main TER must include a rack-mounted shelf under the last patch panel for future equipment and an environmental monitoring unit that at a minimum monitors temperature, humidity and airflow.

1.2.3. The Main TER must contain a Telecommunications Main Grounding Busbar (TMGB) which is bonded to the electrical service entrance ground and an earth ground. All other Building TER's must have a Telecommunications Grounding Busbar (TGB) and adhere to the TIA/EIA -607 standard where each TGB is connected together with a backbone of insulated stranded (or solid) copper cable. This backbone is connected back to the TMGB in the Main TER.

1.2.4. All Building TER's must have an equipment/distribution rack(s) determined by the total number of drops to be terminated in the TER and the amount of network equipment to be installed by the WVOT.

1.2.5. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

1.2.6. The equipment/distribution rack must be grounded to the TER grounding Busbar.

1.2.7. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

1.2.8. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

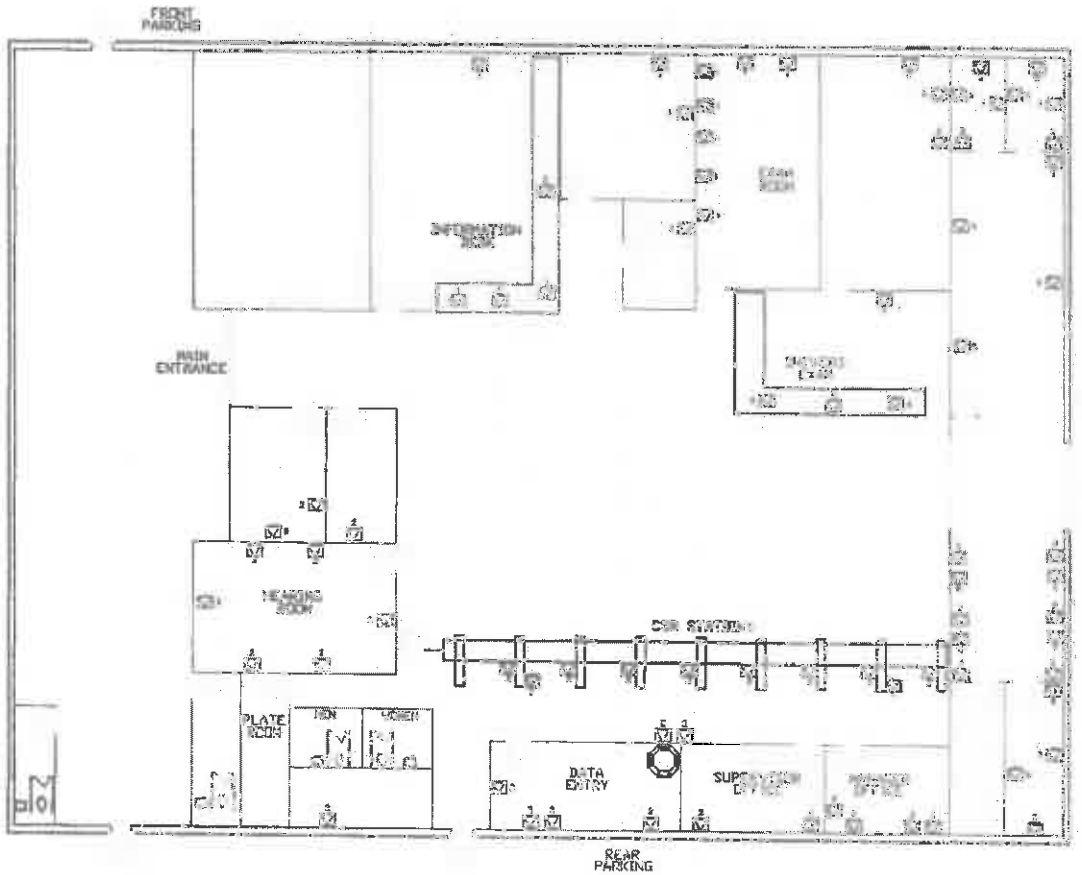
1.2.9. Each drop of Cat 6A cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

1.2.10. Each 24-port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48-port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

1.2.11. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

1.2.12. Cat 6A Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6A Patch cables five foot in length shall be provided for spares.

1.2.13. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

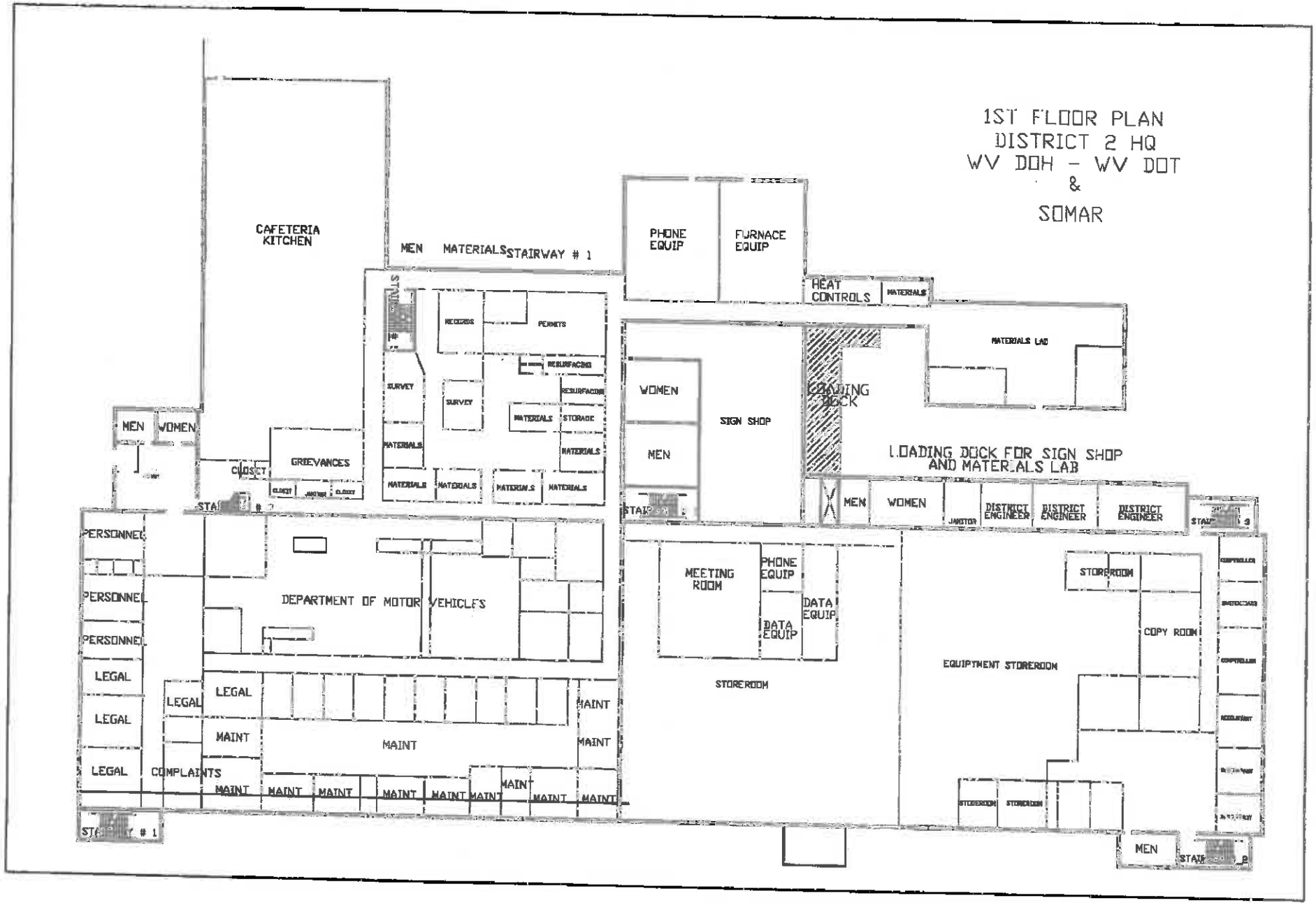


BECKLEY
DIVISION of MOTOR VEHICLES

61 DOUBLE OUTLETS
9 SINGLE OUTLETS

10=REMOVE

Attachment DMV-C


1ST FLOOR PLAN
DISTRICT 2 HQ
WV DOH - WV DOT
&
SOMAR
CAFETERIA KITCHEN
MEN
MATERIALS
STAIRWAY # 1
PHONE EQUIP
FURNACE EQUIP
HEAT CONTROLS
MATERIALS
MATERIALS LAB
RECORDS
PERMITS
RESURFACING
SURVEY
SURVEY
RESURFACING
MATERIALS
STORAGE
MATERIALS
MATERIALS
MATERIALS
MATERIALS
MATERIALS
MATERIALS
WOMEN
MEN
SIGN SHOP
LOADING DOCK
LOADING DOCK FOR SIGN SHOP AND MATERIALS LAB
MEN
WOMEN
JANITOR
DISTRICT ENGINEER
DISTRICT ENGINEER
DISTRICT ENGINEER
MEN
WOMEN
CLOSET
GRIEVANCES
CLOSET
JANITOR
CLOSET
PERSONNEL
PERSONNEL
PERSONNEL
LEGAL
LEGAL
LEGAL
LEGAL
LEGAL
COMPLAINTS
DEPARTMENT OF MOTOR VEHICLES
MAINT
MAINT
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MAINT
MEETING ROOM
PHONE EQUIP
DATA EQUIP
DATA EQUIP
STOREROOM
STOREROOM
COPY ROOM
EQUIPMENT STOREROOM
STOREROOM
STOREROOM
MEN

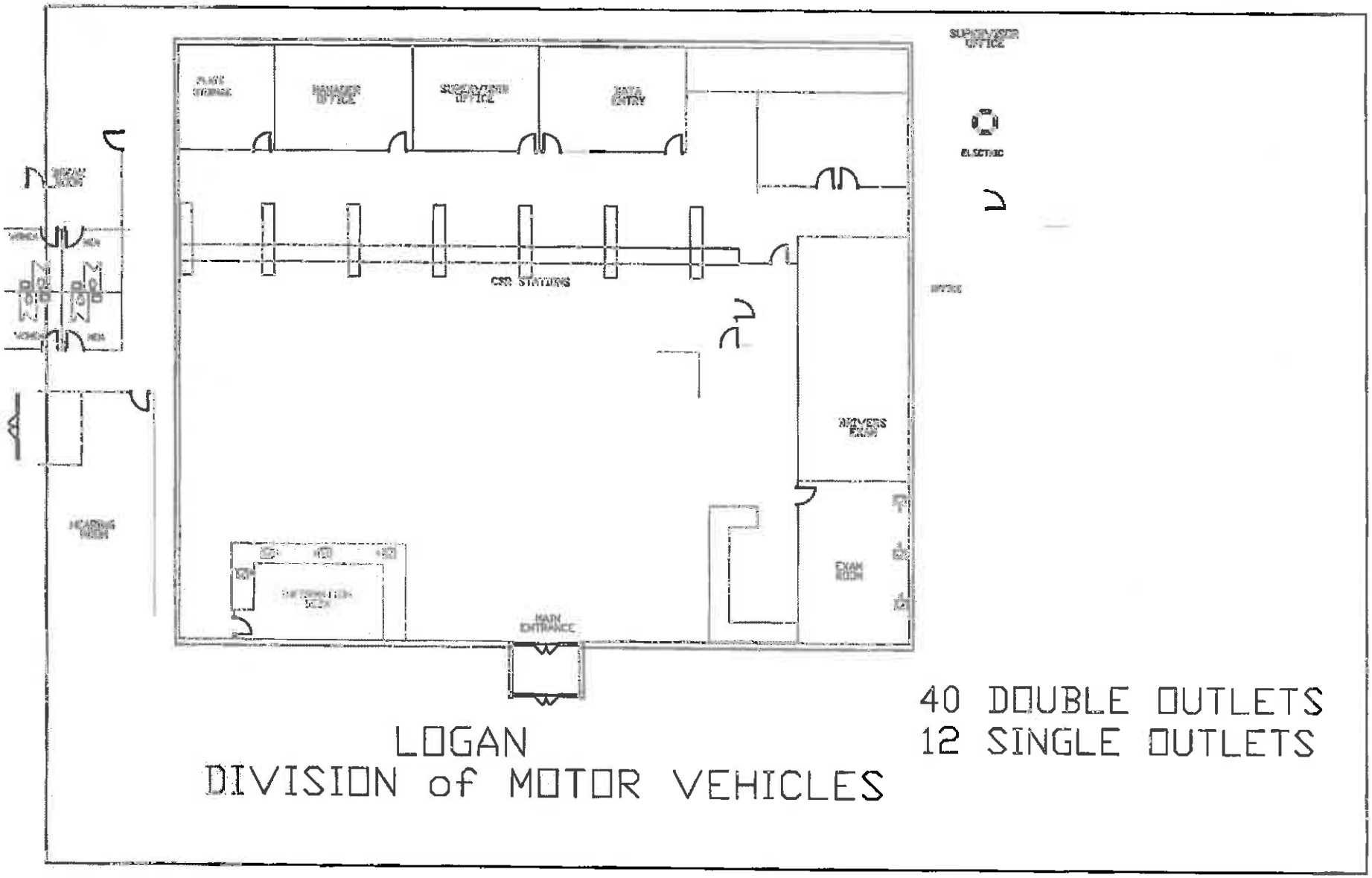
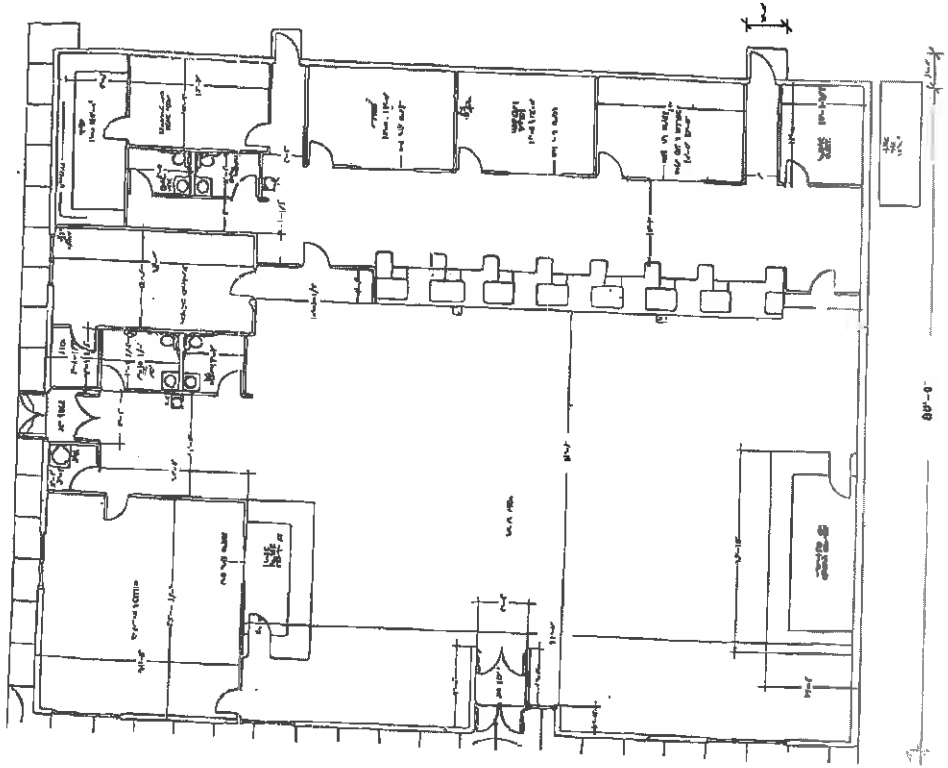


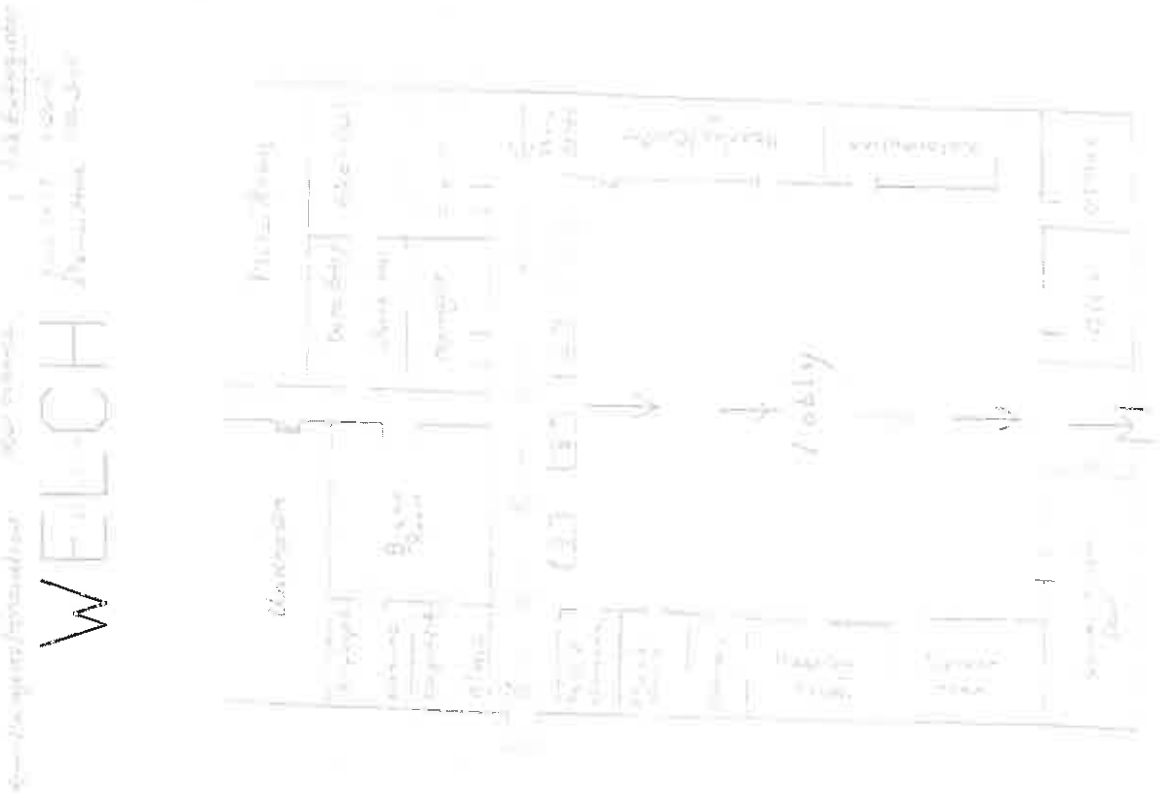
PLATE STORAGE
MANAGER OFFICE
SUPERVISOR OFFICE
DATA ENTRY
SUPERVISOR OFFICE
ELECTRIC
CSR STATIONS
DRIVERS EXAM
EXAM ROOM
HEARING ROOM
MAIN ENTRANCE
LOGAN
DIVISION of MOTOR VEHICLES
40 DOUBLE OUTLETS
12 SINGLE OUTLETS

PRINCETON



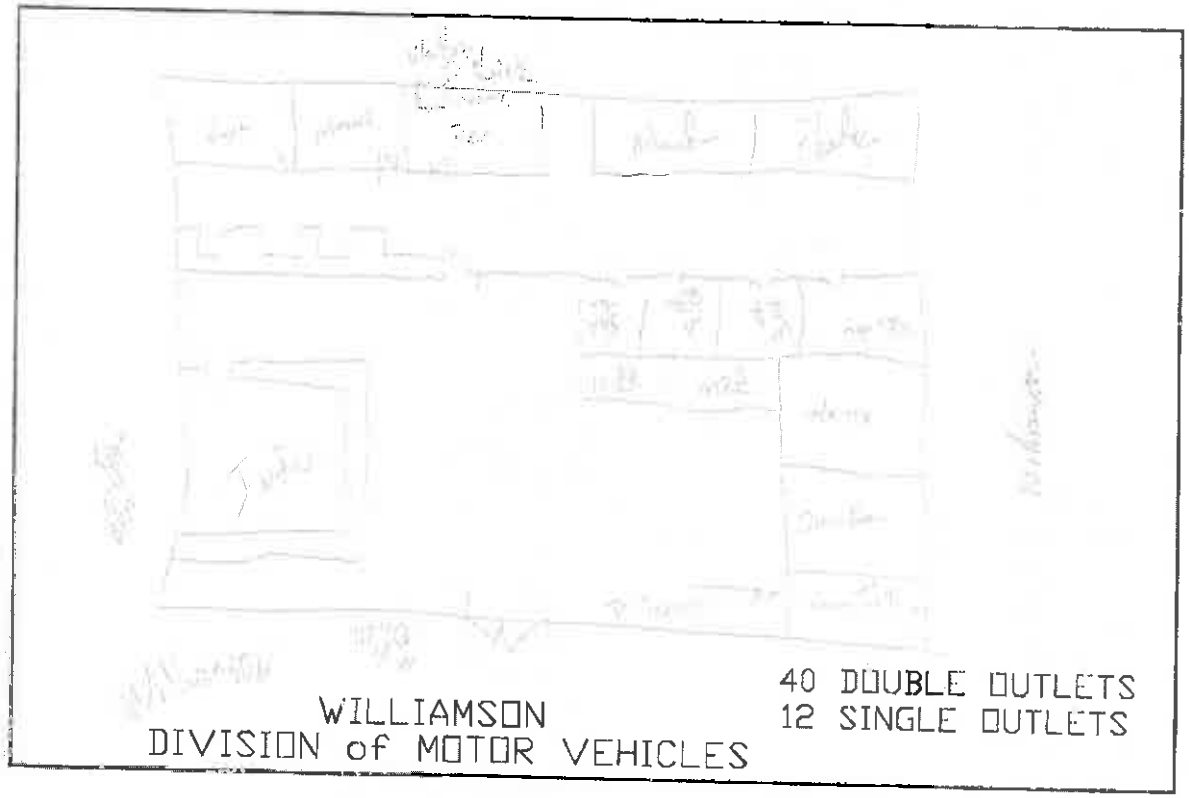
MARTINSBURG
DIVISION of MOTOR VEHICLES
Princeton

40 DOUBLE OUTLETS
12 SINGLE OUTLETS



WELCH
DIVISION of MOTOR VEHICLES

40 DOUBLE OUTLETS
12 SINGLE OUTLETS



WILLIAMSON
DIVISION of MOTOR VEHICLES

40 DOUBLE OUTLETS
12 SINGLE OUTLETS

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 1-2-10 HQ's, DMV HQ, DMV Regional Office's, County HQ's, and Substations

Materials Totals By District

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY	District 1 QUANTITY	[illegible] QUANTITY	District 10 QUANTITY
		Wall Mount Bracket 2RU	Each	33	15	8	10
		Rack / Wall Shelf 3RU	Each	57	19	20	18
		Ladder Tray 18" Section 10'	Each	28	8	10	10
		Ladder Tray 18" Top Plate Kit	Each	28	8	10	10
		Ladder Tray 18" Wall Angle Support Kit	Each	28	8	10	10
		1U SS Horizontal Trough Kit OR EQUAL	Each	53	20	20	13
		2U SS Horizontal Trough Kit OR EQUAL	Each	72	20	27	25
		M104 Type Surface Mount Box, four port ivory	Each	2600	950	950	700
		Faceplate 4-Hole w/blanks Modular Furniture	Each	950	350	350	250
		Blue Icon - 100 \ bag	Each	108	36	36	36
		Mini-Dome .5 Megapixel Fixed Camera	Each	20	3	10	7
		BASKET TRAY, 4" Section 10'	Each	75	25	25	25
		TRAY - CLAMP ASSEMBLY KIT 50 per Bag	Bag	3	1	1	1
		One Piece Latching Raceway	Feet	450	200	100	150
		Two Compartment Raceway Base	Each	120	50	30	40
		Two Compartment Raceway Cover	Each	120	50	30	40

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY	QUANTITY	QUANTITY	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet OR EQUAL	Each	33	14	9	10
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM OR EQUAL	Each	33	14	9	10
Chatsworth	57014-703			Chatsworth Velocity Standard Pack OR EQUAL	Pack	32	9	15	8
Chatsworth	13912-703			Chatsworth Vertical Wire Manager OR EQUAL	Each	37	14	15	8
Commscope	CPCS8X2-0ZF005			CommScope 360GS10E Modular Patch Cable 5FT DK BL OR EQUAL	Each	1565	500	875	190
Commscope	CPCS8X2-0ZF010			CommScope 360GS10E Modular Patch Cable 10FT DK BL OR EQUAL	Each	1800	180	750	870
Commscope	CPCS8X2-0ZF014			CommScope 360GS10E Modular Patch Cable 14FT DK BL OR EQUAL	Each	1355	320	480	555
Commscope	760092452			CommScope GigaSPEED XL MGS600 Series Cat 6A U/UTP Info Outlet, 318-blue OR EQUAL	Each	1994	372	986	636
Commscope	760152595			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 48 port OR EQUAL	Each	37	6	17	14
Commscope	760152587			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 24 port OR EQUAL	Each	8	1	6	1
Commscope	760105338			CommScope GigaSPEED X10D 2091B ETL Cat6A U/UTP Cable, blue jacket, 1000 Ft OR EQUAL	1000 Ft.	703	132	346	225
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue OR EQUAL	Each	1265	775	245	245
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue OR EQUAL	Each	1085	665	210	210
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue OR EQUAL	Each	720	440	140	140
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue OR EQUAL	Each	1442	882	280	280
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port OR EQUAL	Each	17	8	5	4
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port OR EQUAL	Each	23	13	4	6
Commscope	4763214/10			CommScope Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft OR EQUAL	1000 Ft.	253	155	49	49
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft OR EQUAL	1000 Ft.	13	5	4	4
Commscope	760106880			Commscope 12 Strand Fiber Singlemode I/O Plenum (12 SM) - OR EQUAL	Feet	9500	2750	5500	1750
Commscope	760109496			Commscope 360G2 Cartridge 12 LC TeraSPEED, Blue w/Pigtails - OR EQUAL	Each	84	28	28	28
Commscope	760193771			Commscope 360G2 1U Sliding Modular Cassette Shelf - OR EQUAL	Each	42	14	14	14
Commscope	760039867			Commscope RS-2AF-16SF RoloSplice kit E W 2x Fusion Splice Tray 1U Shelf - OR EQUAL	Each	42	14	14	14
Commscope	FEW LCLC42-MXF003			CommScope 3 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	50	10	20	20
Commscope	FEW LCLC42-MXF007			CommScope 7 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	14	4	5	5
Commscope	FDWLC8C52			Commscope TeraSPEED® LC to SC, Fiber Patch Cord, 3.0 mm Duplex, All Lengths - OR EQUAL	Each	17	5	6	6
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	20	6	10	4
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	20	6	10	4
Hargar	GBI14412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit OR EQUAL	Each	59	21	21	17
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit OR EQUAL	Each	27	5	12	10
Specified Tech	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	72	40	17	15
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	59	21	21	17
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	59	21	21	17
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount OR EQUAL	Each	30	10	12	8
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	8	2	2	4
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	10	1	8	1
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	44	16	11	17

WV State Department of Transportation HQ BLDG. 5, the Division of Highways District 1 HQ, DMV HQ, DMV Regional Offices, County HQ's, and Substations

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 1 HQ's, DMV HQ, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY
		Wall Mount Bracket 2RU	Each	15
		Rack / Wall Shelf 3RU	Each	50
		Ladder Tray 18" Section 10'	Each	20
		Ladder Tray 18" Top Plate Kit	Each	20
		Ladder Tray 18" Wall Angle Support Kit	Each	20
		1U SS Horizontal Trough Kit OR EQUAL	Each	65
		2U SS Horizontal Trough Kit OR EQUAL	Each	165
		M104 Type Surface Mount Box, four port ivory	Each	1250
		Faceplate 4-Hole w/blanks Modular Furniture	Each	750
		Blue Icon - 100 \ bag	Each	36
		TIA-607 Style Telecommunications - Main Grounding Busbar Kit 1/4" X 4" X 20" TMGB	Each	50
		Rack Mount 1/4" X 1" X 19" Grounding Busbar Kit 1/4" X 1" X 19"	Each	10
		Mini-Dome .5 Megapixel Fixed Camera	Each	10
		One Piece Latching Raceway	Feet	200
		Two Compartment Raceway Base	Each	50
		Two Compartment Raceway Cover	Each	50

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet OR EQUAL	Each	14
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM OR EQUAL	Each	14
Chatsworth	57014-703			Chatsworth Velocity Standard Pack OR EQUAL	Pack	20
Chatsworth	13912-703			Chatsworth Vertical Wire Manager OR EQUAL	Each	40
Commscope	CPCS8X2-0ZF005			CommScope 360GS10E Modular Patch Cable 5FT DK BL OR EQUAL	Each	1700
Commscope	CPCS8X2-0ZF010			CommScope 360GS10E Modular Patch Cable 10FT DK BL OR EQUAL	Each	1300
Commscope	CPCS8X2-0ZF014			CommScope 360GS10E Modular Patch Cable 14FT DK BL OR EQUAL	Each	480
Commscope	760092452			CommScope GigaSPEED XL MGS600 Series Cat 6A U/UTP Info Outlet, 318-blue OR EQUAL	Each	1675
Commscope	760152595			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 48 port OR EQUAL	Each	14
Commscope	760152587			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 24 port OR EQUAL	Each	3
Commscope	760105338			CommScope GigaSPEED X10D 2091B ETL Cat6A U/UTP Cable, blue jacket, 1000 Ft OR EQUAL	1000 Ft	73
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue OR EQUAL	Each	1450
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue OR EQUAL	Each	1050
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue OR EQUAL	Each	350
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue OR EQUAL	Each	1500
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port OR EQUAL	Each	18
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port OR EQUAL	Each	20
Commscope	4763214/10			CommScope Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft OR EQUAL	1000 Ft	275
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft OR EQUAL	1000 Ft	17
Commscope	760106880			Commscope 12 Strand Fiber Singlemode I/O Plenum (12 SM) - OR EQUAL	Feet	6500
Commscope	760109496			Commscope 360G2 Cartridge 12 LC TeraSPEED, Blue w/Pigtails - OR EQUAL	Each	28
Commscope	760093771			Commscope 360G2 1U Sliding Modular Cassette Shelf - OR EQUAL	Each	14
Commscope	760039867			Commscope RS-2AF-16SF RoleSplice Kit E/W 2x Fusion Splice Tray 1U Shelf - OR EQUAL	Each	14
Commscope	FEW LCLC42-MXF003			CommScope 3 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	15
Commscope	FEW LCLC42-MXF007			CommScope 7 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	19
Commscope	FDWLCSC52			Commscope TeraSPEED® LC to SC, Fiber Patch Cord, 3.0 mm Duplex, Plenum All Lengths - OR EQUAL	Each	5
GEIST	RCURN042			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	6
GEIST	RTAPHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	6
Hargar	GBI14412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit OR EQUAL		30
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit OR EQUAL		20
Specified Technologies	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	40
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dblc-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	50
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	50
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount OR EQUAL		50
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	5
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	4
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	40

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 2 HQ's, DMV HQ, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY
		Wall Mount Bracket 2RU	Each	15
		Rack / Wall Shelf 3RU	Each	50
		Ladder Tray 18" Section 10'	Each	20
		Ladder Tray 18" Top Plate Kit	Each	20
		Ladder Tray 18" Wall Angle Support Kit	Each	20
		1U SS Horizontal Trough Kit _ OR EQUAL	Each	65
		2U SS Horizontal Trough Kit _ OR EQUAL	Each	165
		M104 Type Surface Mount Box, four port ivory	Each	1250
		Faceplate 4-Hole w/blanks Modular Furniture	Each	750
		Blue Icon - 100 \ bag	Each	36
		TIA-607 Style Telecommunications - Main Grounding Busbar Kit 1/4" X 4" X 20" TMGB	Each	50
		Rack Mount 1/4" X 1" X 19" Grounding Busbar Kit 1/4" X 1" X 19"	Each	10
		Mini-Dome .5 Megapixel Fixed Camera	Each	10
		One Piece Latching Raceway	Feet	200
		Two Compartment Raceway Base	Each	50
		Two Compartment Raceway Cover	Each	50

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet _ OR EQUAL	Each	10
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM _ OR EQUAL	Each	10
Chatsworth	57014-703			Chatsworth Velocity Standard Pack _ OR EQUAL	Pack	15
Chatsworth	13912-703			Chatsworth Vertical Wire Manager _ OR EQUAL	Each	15
Commscope	CPCSSX2-0ZP005			[illegible]	Each	996
Commscope	CPCSSX2-0ZP010			[illegible]	Each	747
Commscope	CPCSSX2-0ZP014			[illegible]	Each	498
Commscope	760092452			[illegible]	Each	996
Commscope	760152595			[illegible]	Each	17
Commscope	760152587			[illegible]	Each	6
Commscope	760105338			[illegible]	1000 Ft.	345
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue _ OR EQUAL	Each	560
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue _ OR EQUAL	Each	420
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue _ OR EQUAL	Each	280
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue _ OR EQUAL	Each	280
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port _ OR EQUAL	Each	5
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port _ OR EQUAL	Each	4
Commscope	4763214/10			CommScope, a Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft _ OR EQUAL	1000 Ft	49
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft _ OR EQUAL	1000 Ft	4
Commscope	760106880			[illegible]	Feet	8500
Commscope	760109496			[illegible]	Each	28
Commscope	760193771			[illegible]	Each	14
Commscope	760039867			[illegible]	Each	14
Commscope	FEW LCLC42-MXF003			[illegible]	Each	20
Commscope	FEW LCLC42-MXF007			[illegible]	Each	5
Commscope	FDWLCSC52			[illegible]	Each	6
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	6
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	6
Hargar	GBI14412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit _ OR EQUAL		21
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit _ OR EQUAL		12
Specified Technologies	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	42
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	21
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	21
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount _ OR EQUAL		15
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	4
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	10
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	21

WV State Department of Transportation HQ BLDG. 5, the Division of Highways District 1 HQ, DMV HQ, DMV Regional Offices, County HQ's, and Substations

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 10 HQ's, DMV HQ, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY
		Wall Mount Bracket 2RU	Each	15
		Rack / Wall Shelf 3RU	Each	50
		Ladder Tray 18" Section 10'	Each	20
		Ladder Tray 18" Top Plate Kit	Each	20
		Ladder Tray 18" Wall Angle Support Kit	Each	20
		1U SS Horizontal Trough Kit _ OR EQUAL	Each	65
		2U SS Horizontal Trough Kit _ OR EQUAL	Each	165
		M104 Type Surface Mount Box, four port ivory	Each	1250
		Faceplate 4-Hole w/blanks Modular Furniture	Each	750
		Blue Icon - 100 \ bag	Each	36
		TIA-607 Style Telecommunications - Main Grounding Busbar Kit 1/4" X 4" X 20" TMGB	Each	50
		Rack Mount 1/4" X 1" X 19" Grounding Busbar Kit 1/4" X 1" X 19"	Each	10
		Mini-Dome .5 Megapixel Fixed Camera	Each	10
		One Piece Latching Raceway	Feet	300
		Two Compartment Raceway Base	Each	50
		Two Compartment Raceway Cover	Each	50

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet _ OR EQUAL	Each	20
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM _ OR EQUAL	Each	20
Chatsworth	57014-703			Chatsworth Velocity Standard Pack _ OR EQUAL	Pack	40
Chatsworth	13912-703			Chatsworth Vertical Wire Manager _ OR EQUAL	Each	40
Commscope	CPCSSX2-0ZF005			[illegible] 5FT [illegible] _ OR EQUAL	Each	1700
Commscope	CPCSSX2-0ZF010			[illegible] 10FT [illegible] _ OR EQUAL	Each	1300
Commscope	CPCSSX2-0ZF014			[illegible] 14FT DK BL _ OR EQUAL	Each	400
Commscope	760092452			[illegible] _ OR EQUAL	Each	2220
Commscope	760152595			[illegible] _ OR EQUAL	Each	27
Commscope	760152587			[illegible] 24 port _ OR EQUAL	Each	20
Commscope	760105338			[illegible] _ OR EQUAL	1000 Ft.	73
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue _ OR EQUAL	Each	1450
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue _ OR EQUAL	Each	1150
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue _ OR EQUAL	Each	350
Commscope	UNJ600-BL			CommScope Uniprise Cat 5 In-Outlet, Blue _ OR EQUAL	Each	1500
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat 5 Patch Panel, 48 Port _ OR EQUAL	Each	18
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port _ OR EQUAL	Each	20
Commscope	4763214/10			CommScope Uniprise 7134 Category 6 U/UTP Cable, Plenum, 1000ft _ OR EQUAL	1000 Ft	275
Commscope	760006858			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft _ OR EQUAL	1000 Ft	15
Commscope	760106880			[illegible]	Feet	5500
Commscope	760109496			[illegible]	Each	28
Commscope	760193771			[illegible]	Each	14
Commscope	760039867			[illegible]	Each	14
Commscope	FEW LCLC42-MXF003			[illegible]	Each	20
Commscope	FEW LCLC42-MXF007			[illegible]	Each	5
Commscope	FDWLCSC52			[illegible]	Each	6
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	6
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	6
Hargar	GBH44127MGBKT			HAGER 1/4" X 4" X 12" TMGB Kit _ OR EQUAL		56
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit _ OR EQUAL		18
Specified Technologies	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	56
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	56
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	56
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount _ OR EQUAL		45
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	6
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	10
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	40

DOT Statewide Infrastructure Upgrade
Cabling Project - Cable Install Specifications
Attachment C - Counties and Substations

1. County Headquarters – All Locations

1.1. Scope of Work (each location)

1.1.1. Installation of the designated amount of Cat 6 Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment in each County Office.

1.1.2. Installation of one (1) core/sleeve for a WAP located on the exterior wall of the HQ building within three (3) feet of the current antenna. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

1.1.3. Install Patch Panel(s) and Wire Manager(s) on the wall with a wall mount swing bracket. If a rack is present or required, use the equipment rack instead.

1.1.4. Install a wall mounted shelf under the patch panel for future equipment.

1.1.5. Install UPS, with installed SNMP Card, in the closet/space near the panel for others to install with future equipment.

1.1.6. Use PVC Wiremold as necessary.

1.1.7. Create a basic floor plan with jack locations and labels to serve as an As-built. Use fire escape route plan if available.

1.1.8. Label all cables, work area outlets and panels.

2. Sub-Stations – All Locations

2.1. Scope of Work (each location)

2.1.1. Installation of the designated amount of Cat 6 Work area outlets on the Materials Locations attachment for telecommunications usage extended to the Telecommunications Equipment at each Sub- Station.

2.1.2. Installation of one (1) core/sleeve for a WAP located on the exterior wall of the HQ building within three (3) feet of the current antenna. Place a 1" core/sleeve on the exterior wall so that a WAP or Antenna cable can be extended by others.

2.1.3. Install a Patch Panel and Wire Manager on the wall with a wall mount bracket.

2.1.4. Install a wall mounted shelf under the patch panel for future equipment.

2.1.5. Install UPS, with installed SNMP Card, in the closet/space near the panel for others to install with future equipment.

2.1.6. Use PVC Wiremold as necessary.

2.1.7. Create a basic floor plan with jack locations and labels to serve as an As-built. Use fire escape route plan if available.

2.1.8. Label all cables, work area outlets and panels.

2.1.9. Floor mount equipment/distribution rack(s) must be secured at two points with one of the points being the solid floor.

2.1.10. The equipment/distribution rack must be grounded to the TER grounding Busbar.

2.1.11. The equipment/distribution rack must be installed with front and rear cable management for horizontal cables and patch cords.

2.1.12. Where standards require, overhead ladder or basket cable tray shall be installed to accommodate cables entering the TER and slack loop management.

2.1.13. Each drop of Cat 6A cable extended to the designated Telecommunications Equipment Room (TER) must be terminated following TIA/EIA 568B standard using the T-568B pin/pair assignment on 12, 24 or 48 port patch panels as required in an amount determined by the total number of drops plus 15% additional empty ports for growth.

2.1.14. Each 24 port patch panel shall be installed so that there is (at a minimum) a 1 (one) u cable manager above or below the panel as well as each 48 port patch panel shall be installed so that there is (at a minimum) a 2 (two) u cable manager above and below the panel. There should not be spaces left between the panels and /or cable managers unless directed by DOT and / or WVOT.

2.1.15. When the installation of patch panels and horizontal cable managers exceeds 40% of an installed rack an additional rack should be installed to allow for Network Hardware and other electronics.

2.1.16. Cat 6A Patch cables five foot in length shall be provided for each terminated cable on the patch panels. An addition 15% Cat 6A Patch cables five foot in length shall be provided for spares.

2.1.17. Install UPS, with installed SNMP Card, in the TER near or on the rack to be used for network electronics hardware.

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of $1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

"Business entity" means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

"Interested party" or *"Interested parties"* means:

(1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
(2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
(3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

"State agency" means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of W. Va. Code § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: www.ethics.wv.gov.

Revised June 8, 2018

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

(Required by *W. Va. Code* § 6D-1-2)

Name of Contracting Business Entity: Verizon Select Services Inc **Address:** 22001 Loudoun County Parkway
Ashburn, VA 20147

Name of Authorized Agent: The Corporation Trust Center **Address:** 1209 Orange St, Wilmington, Delaware 19801

Contract Number: DOT1900000034 **Contract Description:** Structured Cabling

Governmental agency awarding contract: State of WV, Department of Transportation

☐ **Check here if this is a Supplemental Disclosure**

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below *(attach additional pages if necessary)*:

1. **Subcontractors or other entities performing work or service under the Contract**
   ☐ Check here if none, otherwise list entity/individual names below.
   Mon Valley Technologies LLC

2. **Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)**
   ☐ Check here if none, otherwise list entity/individual names below.

3. **Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)**
   ☐ Check here if none, otherwise list entity/individual names below.

Signature: Venita S. Houston Date Signed: 11/28/2018

Notary Verification

State of Oklahoma, County of TULSA:

I, Venita Houston, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 28th day of November, 2018

Brandy Fitzloff
Notary Public's Signature

To be completed by State Agency:
Date Received by State Agency:
Date submitted to Ethics Commission:
Governmental agency submitting Disclosure:

BRANDY FITZLOFF
NOTARY PUBLIC-STATE OF OKLAHOMA
COMMISSION # 12002043
MY COMMISSION EXPIRES 03-01-2020

Revised June 8, 2018

WV-72
Approved / Revised 08/01/15

State of West Virginia
Purchasing Division

CERTIFIED DRUG-FREE WORKPLACE REPORT COVERSHEET

In accordance with ***West Virginia Code*** § 21-1D-7b, no less than once per year, or upon completion of the project, every contractor shall provide a certified report to the public authority which let the contract. That report must include each of the items identified below in the Required Report Content section.

Instructions: Vendor should complete this coversheet, attach it to the required report, and submit it to the appropriate location as follows: For contracts more than $25,000, the report should be mailed to the West Virginia Purchasing Division at 2019 Washington Street East, Charleston, WV 25305. For contracts of $25,000 or less, the vendor should mail the report to the public authority issuing the contract.

Contract Identification:

Contract Number: DOT1900000034

Contract Purpose: Structured Cabling

Agency Requesting Work: State of West Virginia Dept of Transportation

Required Report Content: The attached report must include each of the items listed below. The vendor should check each box as an indication that the required information has been included in the attached report.

- ☐ Information indicating the education and training service to the requirements of ***West Virginia Code*** § 21-1D-5 was provided;
- ☐ Name of the laboratory certified by the United States Department of Health and Human Services or its successor that performs the drug tests;
- ☐ Average number of employees in connection with the construction on the public improvement;
- ☐ Drug test results for the following categories including the number of positive tests and the number of negative tests: (A) Pre-employment and new hires; (B) Reasonable suspicion; (C) Post-accident; and (D) Random.

Vendor Contact Information:

Vendor Name: Verizon Select Services Inc

Vendor Address: 4700 MacCorkle Av SE
Charleston, WV 25304

Vendor Telephone: 304-356-3395

Vendor Fax: 304-356-3590

Vendor E-Mail: sandra.k.hawkins@verizon.com

WV-73
Approved / July 7, 2017

State of West Virginia
DRUG FREE WORKPLACE CONFORMANCE AFFIDAVIT
***West Virginia Code* §21-1D-5**

STATE OF ~~WEST VIRGINIA~~ Oklahoma,

COUNTY OF Tulsa, TO-WIT:

I, Venita S. Houston, after being first duly sworn, depose and state as follows:

1. I am an employee of Verizon Select Services Inc, and,
(Company Name)

2. I do hereby attest that Verizon Select Services Inc
(Company Name)

maintains a written plan for a drug-free workplace policy and that such plan and policy are in compliance with ***West Virginia Code*** §21-1D.

The above statements are sworn to under the penalty of perjury.

Printed Name: Venita S. Houston

Signature: Venita S. Houston

Title: Sr. Analyst - Billing

Company Name: Verizon Select Services, Inc

Date: 11/28/2018

Taken, subscribed and sworn to before me this 28th day of November, 2018.

By Commission expires 03-01-2020

(Seal)

Brandy Fitzloff
(Notary Public)

BRANDY FITZLOFF
NOTARY PUBLIC-STATE OF OKLAHOMA
COMMISSION # 12002043
MY COMMISSION EXPIRES 03-01-2020

Rev. July 7, 2017

Bid Bond # 578526895-west-18-003

Agency_____
REQ.P.O# CRFQ DOT 1900000034

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, Verizon Select Services, Inc. of One Verizon Way, Basking Ridge, NJ 07920, as Principal, and Westchester Fire Insurance Company of 436 Walnut Street, Philadelphia, PA 19106, a corporation organized and existing under the laws of the State of Pennsylvania with its principal office in the City of Philadelphia, as Surety, are held and firmly bound unto the State of West Virginia, as Obligee, in the penal sum of Five Percent of Amount Bid (5%) for the payment of which, well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for installation of structured cabling pathways and spaces systems at nineteen (19) DOT/DOH/DMV

NOW THEREFORE,

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby waive notice of any such extension.

WITNESS, the following signatures and seals of Principal and Surety, executed and sealed by a proper officer of Principal and Surety, or by Principal individually if Principal is an individual, this 3rd day of December, 2018.

Principal Seal

Verizon Select Services, Inc.
(Name of Principal)

By Scott L. Cordy
(Must be President, Vice President, or Duly Authorized Agent)

Scott L. Cordy, V.P. Taxes
(Title)

Surety Seal

Westchester Fire Insurance Company
(Name of Surety)

Kelly O'Malley, Attorney-in-Fact

IMPORTANT -- Surety executing bonds must be licensed in West Virginia to transact surety insurance, must affix its seal, and must attach a power of attorney with its seal affixed.

CHUBB

Power of Attorney

Westchester Fire Insurance Company | ACE American Insurance Company

Know All by These Presents, that **WESTCHESTER FIRE INSURANCE COMPANY** and **ACE AMERICAN INSURANCE COMPANY** corporations of the Commonwealth of Pennsylvania, do each hereby constitute and appoint Kristin S. Bender, Jessica Iannotta, Annette M. Leuschner, Kelly O'Malley and April D. Perez of Morristown, New Jersey; Megan Schlueter of Raleigh, North Carolina----------

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY have each executed and attested these presents and affixed their corporate seals on this **21st** day of **August, 2018.**

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

Stephen M. Haney, Vice President

STATE OF NEW JERSEY

County of Hunterdon ss.

On this **21st** day of **August, 2018,** before me, a Notary Public of New Jersey, personally came Dawn M. Chloros, to me known to be Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY, the companies which executed the foregoing Power of Attorney, and the said Dawn M. Chloros, being by me duly sworn, did depose and say that she is Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of said Companies; and that she signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that she is acquainted with Stephen M. Haney, and knows him to be Vice President of said Companies; and that the signature of Stephen M. Haney, subscribed to said Power of Attorney is in the genuine handwriting of Stephen M. Haney, and was thereto subscribed by authority of said Companies and in deponent's presence.

Notarial Seal

KATHERINE J. ADELAAR
NOTARY PUBLIC OF NEW JERSEY
No. 2316855
Commission Expires July 16, 2019

Notary Public

CERTIFICATION

Resolutions adopted by the Boards of Directors of WESTCHESTER FIRE INSURANCE COMPANY on December 11, 2006 ; ACE AMERICAN INSURANCE COMPANY on March 20, 2009:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into in the ordinary course of business (each a "Written Commitment"):

(1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.

(2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such person's written appointment as such attorney-in-fact.

(3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(4) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing to any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.

(5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested."

I, Dawn M. Chloros, Assistant Secretary of WESTCHESTER FIRE INSURANCE COMPANY and ACE AMERICAN INSURANCE COMPANY (the "Companies") do hereby certify that

(i) the foregoing Resolutions adopted by the Board of Directors of the Companies are true, correct and in full force and effect,
(ii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Whitehouse Station, NJ, this 3rd day of December, 2018.

Dawn M. Chloros

Dawn M. Chloros, Assistant Secretary

IN THE EVENT YOU WISH TO VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT:
Telephone (908) 903-3493 Fax (908) 903-3656 e-mail: surety@chubb.com

WESTCHESTER FIRE INSURANCE COMPANY

FINANCIAL STATEMENT **DECEMBER 31, 2017**

ADMITTED ASSETS

BONDS	$1,414,055,830
SHORT - TERM INVESTMENTS	-
STOCKS	43,460
REAL ESTATE	0
CASH ON HAND AND IN BANK	(10,076,502)
PREMIUM IN COURSE OF COLLECTION*	61,431,233
INTEREST ACCRUED	14,694,454
OTHER ASSETS	175,574,508
TOTAL ASSETS	$1,655,722,983

LIABILITIES

RESERVE FOR UNEARNED PREMIUMS	$192,425,216
RESERVE FOR LOSSES	770,552,343
RESERVE FOR TAXES	13,754,897
FUNDS HELD UNDER REINSURANCE TREATIES	5,757,334
OTHER LIABILITIES	(8,973,613)
TOTAL LIABILITIES	973,516,177
CAPITAL: 70,000 SHARES, $71.43 PAR VALUE	5,000,100
CAPITAL: PAID IN	187,192,131
AGGREGATE WRITE-INS FOR SPECIAL SURPLUS FUNDS	117,350,928
SURPLUS (UNASSIGNED)	372,663,647
SURPLUS TO POLICYHOLDERS	682,206,806
TOTAL	$1,655,722,983

(*EXCLUDES PREMIUM MORE THAN 90 DAYS DUE.)

STATE OF PENNSYLVANIA

COUNTY OF PHILADELPHIA

John Taylor, being duly sworn, says that he is Senior Vice President of Westchester Fire Insurance Company and that to the best of his knowledge and belief the foregoing is a true and correct statement of the said Company's financial condition as of the 31 st day of December, 2017.

Sworn before me this 14th March 2018

Senior Vice President

Diane Wright
Notary Public

August 8, 2019
My commission expires

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Diane Wright, Notary Public
City of Philadelphia, Philadelphia County
My Commission Expires Aug. 8, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Verizon Business Network Svc Inc on behalf of Verizon Select Services Inc

Authorized Signature: Cenita S. Hunter Date: 11/28/2018

State of Oklahoma

County of TULSA, to-wit:

Taken, subscribed, and sworn to before me this 28th day of November, 2018.

My Commission expires March 01, 2020

AFFIX SEAL HERE

BRANDY FITZLOFF
NOTARY PUBLIC-STATE OF OKLAHOMA
COMMISSION # 12002043
MY COMMISSION EXPIRES 03-01-2020

NOTARY PUBLIC Brandy Fitzloff

WV-96
Rev. 5/16

AGREEMENT ADDENDUM

In the event of conflict between this addendum and the agreement, this addendum shall control:

1. **DISPUTES** – Any references in the agreement to arbitration or to the jurisdiction of any court are hereby deleted. Disputes arising out of the agreement shall be presented to the West Virginia Court of Claims.

2. **HOLD HARMLESS** – Any clause requiring the Agency to indemnify or hold harmless any party is hereby deleted in its entirety.

3. **GOVERNING LAW** – The agreement shall be governed by the laws of the State of West Virginia. This provision replaces any references to any other State's governing law.

4. **TAXES** – Provisions in the agreement requiring the Agency to pay taxes are deleted. As a State entity, the Agency is exempt from Federal, State, and local taxes and will not pay taxes for any Vendor including individuals, nor will the Agency file any tax returns or reports on behalf of Vendor.

5. **PAYMENT** – Any reference to prepayment are deleted. Payment will be in arrears.

6. **INTEREST** - Any provision for interest or charges on late payments is deleted. The Agency has no statutory authority to pay interest or late fees.

7. **NO WAIVER** – Any language in the agreement requiring the Agency to waive any rights, claims or defenses is hereby deleted.

8. **FISCAL YEAR FUNDING** – Service performed under the agreement may be continued in succeeding fiscal years for the term of the agreement, contingent upon funds being appropriated by the Legislature or otherwise being available for this service. In the event funds are not appropriated or otherwise available for this service, the agreement shall terminate without penalty on June 30. After that date, the agreement becomes of no effect and is null and void. However, the Agency agrees to use its best efforts to have the amounts contemplated under the agreement included in its budget. Non-appropriation or non-funding shall not be considered an event of default.

9. **STATUS OF LIMITATIONS** – Any clauses limiting the time in which the Agency may bring suit against the Vendor, lessor, individual, or any other party are deleted.

10. **SIMILAR SERVICES** – Any provisions limiting the Agency's right to obtain similar services or equipment in the event of default or non-funding during the term of the agreement are hereby deleted.

11. **FEES OR COSTS** – The Agency recognizes an obligation to pay attorney's fees or costs only when assessed by a court of competent jurisdiction. Any other provision is invalid and considered null and void.

12. **ASSIGNMENT** – Notwithstanding any clause to the contrary, the Agency reserves the right to assign the agreement to another State of West Virginia agency, board or commission upon thirty (30) days written notice to the Vendor and Vendor shall obtain the written consent of Agency prior to assigning the agreement.

13. **LIMITATION OF LIABILITY** – The Agency, as a State entity, cannot agree to assume the potential liability of a Vendor. Accordingly, any provision limiting the Vendor's liability for direct damages to a certain dollar amount or to the amount of the agreement is hereby deleted. Limitations on special, incidental or consequential damages are acceptable. In addition, any limitation is null and void to the extent that it precludes any action for injury to persons or for damages to personal property.

14. **RIGHT TO TERMINATE** – Agency shall have the right to terminate the agreement upon thirty (30) days written notice to Vendor. Agency agrees to pay Vendor for services rendered or goods received prior to the effective date of termination.

15. **TERMINATION CHARGES** – Any provision requiring the Agency to pay a fixed amount or liquidated damages upon termination of the agreement is hereby deleted. The Agency may only agree to reimburse a Vendor for actual costs incurred or losses sustained during the current fiscal year due to wrongful termination by the Agency prior to the end of any current agreement term.

16. **RENEWAL** – Any references to automatic renewal is hereby deleted. The agreement may be renewed only upon mutual written agreement of the parties.

17. **INSURANCE** – Any provision requiring the Agency to purchase insurance for Vendor's property is deleted. The State of West Virginia is insured through the Board of Risk and Insurance Management, and will provide a certificate of property insurance upon request.

18. **RIGHT TO NOTICE** – Any provision for repossession of equipment without notice is hereby deleted. However, the Agency does recognize a right of repossession with notice.

19. **ACCELERATION** – Any reference to acceleration of payments in the event of default or non-funding is hereby deleted.

20. **CONFIDENTIALITY** – Any provision regarding confidentiality of the terms and conditions of the agreement is hereby deleted. State contracts are public records under the West Virginia Freedom of Information Act.

21. **AMENDMENTS** – All amendments, modifications, alterations or changes to the agreement shall be in writing and signed by both parities. No amendment, modification, alteration or change may be made to this addendum without the express written approval of the Purchasing Division and the Attorney General.

22. **DELIVERY** – All deliveries under the agreement will be FOB Destination unless otherwise stated in the State's original solicitation. Any contrary delivery terms are hereby deleted.

ACCEPTED BY:

State of West Virginia

Spending Unit: _____

Signed: _____

Title: _____

Date: _____

Verizon Business Network Services Inc. on behalf of Verizon Select Services Inc.

Company Name: _____

Signed: Geneta S. Houston

Title: Sr. Analyst- Billing

Date: 11/28/2018

CUSTOMER PREMISES EQUIPMENT AND RELATED SERVICES +

Part I: Rates and Charges
Part II: Service Description and Requirements.
Part III: Terms and Conditions.
Part IV: Definitions.

Part I: Rates and Charges.

1. Customer will pay all charges for the System and CPE Services as set forth in the Contract or Agreement, as applicable.
   1.1 **Service Provider.** The products and services under these Service Terms and any related Statements of Work ("SOW") are provided by the entities indicated in the applicable Contract (referred to herein, individually and collectively, as "Verizon") except as otherwise explicitly noted.
   1.2 **Landed Costs.** Customer will pay charges including but not limited to any and all import duties, freight, shipping, and delivery charges or charges arising in connection with the delivery of the System, as well as tax charges, if applicable (collectively "Landed Costs"). The invoice for Landed Costs may be delivered as a separate invoice.
   1.3 **Quoted Charges.** Customer will pay the charges stated on Verizon's documentation of a Service Order for a System or CPE Services provided that the charges are current. For purposes of this provision, "current" means (a) for CPE Services and for a System quoted in the same currency that the ordered System or CPE Services has been purchased in (the "Vendor Currency"), that the charges were first quoted within 45 days of the Service Order's acceptance; (b) for a currency that is not the Vendor Currency that the charges were first quoted within 14 days of the Service Order's acceptance; for charges first quoted between 15 and 45 days of order submission, charges may be adjusted to reflect currency changes up to the time of Service Order acceptance. Verizon will not change a Customer's quote based on any non-currency-related change (e.g., the underlying vendor's price) for 45 days in any case.
   1.4 **Re-initiation Fees.** Customers ordering Maintenance Service for Systems not currently under Maintenance Service may be subject to re-initiation fees.
2. **Service Orders with Verizon Communications Technology (Beijing) Pte Ltd.**
   2.1 **FAPIAO.** Verizon shall use all commercially reasonable efforts to issue a tax invoice ("fapiao") together with its commercial invoices issued hereunder. However, Charges shall be payable upon issuance of the commercial invoice regardless as to whether Verizon is able to issue a fapiao. Verizon shall be deemed to have discharged all its obligations, and shall no longer be liable to Customer, with regards to the fapiao once Verizon has sent the fapiao to Customer. Customer shall be deemed to have received the fapiao and the commercial invoice on the delivery date thereof.
   2.2 **Consolidated Invoicing.** Unless otherwise agreed by Verizon, all charges pursuant to a Service Order and any other service orders that may be contracted from time to time by Customer and Verizon and which are subject to local Renminbi billing will be consolidated into a single monthly invoice against the Customer billing account nominated by Verizon and advised to Customer.
   2.3 **Credits.** In case Customer is entitled to a credit under the contract, such credit will be applied against the next monthly charges and reflected in that next month's commercial invoice and, if fapiaos have previously been issued, in the next month's fapiao.
   2.4 **Errors and Omissions.** At the request of Verizon, Customer shall cooperate with Verizon to address any errors or omissions which in the reasonable opinion of Verizon affect a previously issued invoice and/or fapiao and Customer shall return within 5 Business Days from a written request made by Verizon any such original invoice or fapiao.

Part II: Service Description and Requirements.

1. **CPE and CPE Services.** Customer may place a Service Order for the purchase of CPE and Software (individually and collectively the "System") pursuant to the terms hereof. Where available, Customer may also order CPE Services. CPE Services may be detailed in a SOW or a specific CPE Service schedule ("Schedule"). Terms for CPE Services may be further supplemented by service descriptions, end user license agreements and terms set forth by the respective equipment manufacturer, third party supplier, finance entity, or other third party providing services to Customer (collectively and individually referred to as "Third Party Services Agreement") generally available on their respective websites or set forth herein. Any such SOW, Schedule and applicable Third Party Services Agreement shall become incorporated as part of the Contract.
2. **Customer Responsibilities.** As applicable for System or CPE Services orders and as offered by each region,

Customer will:

2.1 Notify Verizon of any site-specific requirements that might impact Verizon's ability to access such site, e.g. safety or security training ("Training"). Verizon will comply with such Training requirements, however, Verizon reserves the right to bill Customer for the time required for Training at Verizon's then current labor rate. Customer will provide necessary badges, escorts, etc. required for site access per Customer's security and safety policies.

2.2 Provide suitable building facilities for the System including but not limited to equipment rack space, ducting, conduit, structural borings, etc. for cable and conductors in floors, ceilings and walls; electrical service with suitable terminals and power surge protection devices; and metallic grounds with sufficient slack in the equipment room, installed in conformity with applicable electrical codes, regulations, and laws, including but not limited to electrical, building, safety, and health and as required by Verizon and manufacturer specifications, as applicable.

2.3 Provide a suitable environment in which the System can operate, including, but not limited to, necessary power conditioning, heating, cooling, humidity and dust control, and accessibility for the System as required by Verizon and manufacturer specifications.

2.4 Remove existing equipment or cables that interfere with the provision of CPE Services.

2.5 Identify and disclose to Verizon concealed equipment, wiring or conditions that might be affected by or might affect the CPE Services. If during the provision of CPE Services, Verizon encounters any concealed or unknown condition not expressly set forth in an SOW, and such condition affects the charges or schedule for performance of CPE Services, the charges and/or the schedule will be equitably adjusted using the Change Order procedure.

2.6 Customer will provide System interconnection requirements, non-Verizon transport, out of band connectivity, and carrier circuit facilities, as required, including obtaining telephone service for testing where necessary or authorize Verizon, at Customer's expense, to make service requests upon third parties for such System requirements, pursuant to a letter of authorization or similar document.

2.7 Upon Verizon's request, where Customer has purchased maintenance from third parties, Customer will authorize Verizon to engage such third party on behalf of Customer pursuant to a letter of authorization or similar document.

2.8 Designate waste deposit points on each floor on which the System is to be installed where Verizon will place waste for removal by Customer.

2.9 Cooperate with Verizon's requests for assistance.

2.10 Be responsible for providing adequate back-up of data and software and for restoring data and software to any system that is or may be impacted by a CPE Service, including but not limited to drivers applications, and operating systems as required prior to Verizon provision of the CPE Service.

2.11 Be solely responsible for selection, implementation and maintenance of security features for defense against unauthorized long distance calling, and for payment of long distance, toll and other telecommunications charges incurred through use of the System.

2.12 Be responsible for the accuracy and completeness of all information it provides. If information is incomplete or incorrect, or if information is discovered during the course of the performance of CPE Services that could not be reasonably anticipated by Verizon, any additional work required will be treated as a change to the scope of the System or CPE Services and will require a Change Order.

2.13 Designate a single point of contact ("SPOC") who will be responsible and authorized to (i) make all decisions and give all approvals which Verizon may need from Customer, and (ii) provide Verizon's personnel on a timely basis with all information, data, access and support reasonably required for its performance under these Service Terms or the applicable SOW, including, but not limited to, making available appropriate personnel to work with Verizon as Verizon may reasonably request.

2.14 Provide, at no charge to Verizon, office space and equipment, including but not limited to copy machines, fax machines and modems, high speed Internet access and adequate secure area for storage of related equipment.

2.15 Comply with all obligations set forth in any applicable Third Party Services Agreements.

2.16 Immediately notify Verizon of any anticipated delay including a delay in building availability or inability to meet any of the above listed requirements. Where Verizon is unable to provide CPE Services due to a Customer related delay Verizon shall be entitled to invoice additional charges at its then current time and material rates and/or rescheduling fees, as applicable, (each available on request) for any time and resources expended by Verizon.

3. **CPE Deployment Services.** Where available, Verizon can provide CPE Deployment Services as described in this section below. Verizon will provide CPE Deployment Services in accordance with any applicable Service Order, these Service Terms, and any applicable SOWs. Verizon will furnish all supervision, labor, equipment, materials and supplies required to complete CPE Deployment Services.

3.1 **Basic Staging.** Verizon will stage and then ship a System to Customer designated locations as shown in the applicable Service Order. Verizon will work remotely with the SPOC to coordinate staging and delivery

of the System and activation of Verizon maintenance, if applicable. Staging occurs within the location designated by Verizon in cooperation with Customer. Verizon will, as applicable, unpack and verify CPE with package documentation, record serial numbers, load operating system and incremental operating system changes, apply Customer-provided asset tags, power-up test, repackage, and ship.

3.2 **Enhanced Staging.** For Enhanced Staging, Verizon will configure the System with Customer provided configurations in addition to the activities of Basic Staging.

3.3 **Installation.** After completion of the Basic or Enhanced Staging services, as applicable, Verizon will deliver the System to the Customer designated locations as shown in the applicable Service Order and install the System on Customer-provided racks or other facilities. Verizon will verify System power-up and operation of network interfaces. No demarc extension is provided with Installation. Remote activation of the System and transport connectivity will be provided with Verizon transport services only or in certain locations where Verizon has specifically pre-approved remote activation. Local area network configuration or activation is not included with Installation.

3.4 **Equipment Implementation.** In addition to the activities shown in the "Installation" section above, for Equipment Implementation Verizon will install Service Equipment required for the relevant Verizon Managed Network Services including out of band access devices, routers, switches, wireless access points, etc. Verizon will also perform on-site tests to ensure equipment, circuit configurations, management applications are properly working and interface with Verizon Managed Network Services to ensure management applications are properly applied, operational, and ready for remote Verizon Managed Network Services remote support.

3.5 **Custom.** Custom Services are provided pursuant to an SOW for System implementations beyond or different than provided by Staging, Installation, or Equipment Implementation.

3.6 **MAC (Move, Add, Change).** Verizon will verify equipment power-up, operation of network interfaces at Customer's designated locations as shown in the applicable Contract. No demarc extension is provided with MAC. Remote activation of the equipment and transport connectivity will be provided with Verizon transport services only or in certain locations where Verizon has specifically pre-approved remote activation. Local area network configuration or activation is not included with MAC. MACs are:

3.6.1 **Move.** For moves, Verizon will de-install the Customer designated equipment from the current designated Customer location and then install the same equipment in the new designated Customer location within the same building as shown in the applicable Contract. Customer must provide packaging to protect the equipment to be moved.

3.6.2 **Add.** Adds are available via Installation service described above.

3.6.3 **Change.** For changes, Verizon will deliver the System components and/or software required to implement the requested change to the Customer designated location as shown in the applicable Contract.

3.7 **De-installation**. For De-Installation, Verizon will de-install equipment at Customer's designated locations as shown in the applicable Contract. Verizon will power down and pack equipment in Customer provided packaging. At Customer's request and expense Verizon will move the equipment to a new location within the same building but will not unpack or re-install the equipment. Premises cables will be left in place and not removed or changed. Equipment or packaging disposal is not included as part of De-installation.

3.8 **CPE Deployment Service Provisions.**

3.8.1 CPE Deployment Services are available within the 48 contiguous United States. CPE Deployment Services in Alaska, Hawaii, and other countries are available with Verizon pre-approval.

3.8.2 CPE Deployment Services are performed between the hours of 8:00 a.m. and 5:00 p.m. local time, during a business day, excluding Verizon observed and local holidays ("Business Hours"). Work extending beyond Business Hours and work on the first day of a weekend (according to local custom) is considered "Overtime" work. All other periods of work is "Weekend and Holiday Hours" work. If Customer requests that CPE Deployment Services be performed during Overtime or Weekend and Holiday Hours, Customer will pay Verizon its then current time and material labor rate. Unless Customer otherwise requests in writing Verizon will, at Customer's expense, apply for permits necessary for CPE Deployment Services. Verizon will provide Customer written notice indicating the date CPE Deployment Services are complete (the "In-Service Date"). Should Customer request delay of CPE Deployment Services, or should CPE Deployment Services be delayed as a result of Customer's action or inaction, Verizon may store the System, or any portion thereof, at Customer's risk and expense. Wait time in excess of 30 minutes at Customer's site may result in an additional charge at Verizon's current time and material rate.

3.8.3 Verizon will attempt to meet Customer's requested In-Service Dates, however, Verizon cannot guarantee any In-Service Date. In-Service Dates are subject to the availability of materials and resources.

3.8.4 Verizon will use reasonable efforts to avoid interruption of Customer's network service during Business Hours. If it is necessary to interrupt network service during Business Hours, Verizon will notify the

SPOC at least 48 hours in advance.

3.8.5 Customer will have 5 Business Days after the In-Service Date to test the System (the "Test Period"). Customer may indicate its approval of the System by its signature on the Verizon-provided acceptance document or other mutually agreed upon means ("Customer Acceptance"), which Customer Acceptance will not be unreasonably withheld. Customer will document any issues with the System in writing to Verizon and provide those issues to Verizon within the Test Period. Upon receipt of the issues list, Verizon will have 10 Business Days to respond and remediate any issues, as required. Customer's use of the System for any other purpose than testing will be deemed to constitute Customer Acceptance. Additionally, Customer Acceptance for a System will be deemed to have occurred if the Test Period passes without notification of issue or acceptance by Customer. The Service Activation Date for a System occurs upon Customer Acceptance.

3.9 **Customer Responsibilities.** As applicable, Customer is responsible to:

3.9.1 Provide configuration(s), and asset tags as required;

3.9.2 Provide licensed copies of operating system and applications software, as applicable;

3.9.3 Install or re-install software not provided by Verizon. Customer has all responsibility for such software (e.g., charges and license fees, version level maintenance and upgrade, resolution of problems, etc.) unless otherwise provided in an SOW;

3.9.4 Control all activities associated with the existing Customer Equipment, including without limitation changes, additions or deletions of devices made by any non-Verizon provided technicians.

3.9.5 Properly dispose of or in the European Union return to Verizon for disposal as per Verizon's instructions, of all decommissioned equipment in accordance with applicable law.

3.9.6 Comply with Verizon's reasonable instructions for the modification of Customer's equipment, at Customer's own expense, to enable Installation of the System. If such modification has occurred, Verizon has no obligation to restore that Customer Site.

4. **Customer Furnished Equipment.** Equipment furnished by Customer ("CFE") is Customer-provided and Verizon-approved equipment outlined in a detailed bill of materials ("BOM") provided by Customer and approved by Verizon from time to time.

4.1 **CFE Installation.** For CFE Installation services, a Verizon technician installs Customer provided equipment on Customer-provided racks, backboards, or other facilities. Verizon will verify equipment power-up, operation of network interfaces. No demarc extension is provided with CFE Installation. Remote activation of the equipment and transport connectivity will be provided with Verizon transport services only or in certain locations where Verizon has specifically pre-approved remote activation. Local area network configuration or activation is not included with CFE Installation. CFE Installation is performed at Customer designated locations as shown in the applicable Contract.

4.2 **Customer Responsibilities**. Customer will:

4.2.1 Complete the BOM with the detailed information required by Verizon including manufacturer's part number, description, and quantity.

4.2.2 Obtain CFE from the equipment providers.

4.2.3 Notify Verizon in writing (including email), and ship CFE to the Verizon-designated facility with the Verizon-provided inbound delivery number and according to the shipping instructions and Customer-provided BOM.

4.2.4 Work with CFE equipment and maintenance providers, as required, to cause the repair or replacement of any missing, defective or damaged CFE, including CFE "dead on arrival" at the Verizon facility.

4.2.5 Provide for CFE support and maintenance each site, unless the applicable Service Order provides for support and maintenance.

4.3 **Verizon Responsibilities**. Verizon will:

4.3.1 Review Customer's BOM for completeness and provide the necessary shipping address, shipping instructions, and inbound delivery number.

4.3.2 Acknowledge Customer's CFE shipments when received.

4.3.3 Notify Customer in the event no CFE inventory exists to support a new order.

4.3.4 Provide Basic Staging, Enhanced Staging, or Installation for CFE, as applicable.

4.3.5 Credit Customer for the repair or replacement cost, or provide repaired or replaced CFE, for any loss or damage of CFE that occurs when Verizon has risk of loss.

5. **CPE Solutions Financing Program Options.** Where available, Customer may obtain use of a System and/or CPE Service from Verizon or a third party finance company (the "Monthly Recurring Plan," or "MRP") or directly through a third party of Customer's choice ("Third Party Leasing/Financing"), each as provided below.

5.1 **Monthly Recurring Plan.** The following terms and conditions apply to Contracts by a Customer for the right to i) use a System with a monthly recurring payment and, when applicable, ii) receive the provision of CPE Services. The terms and conditions in the Master Terms related to Service Equipment apply to Systems under

MRP. A quote will be provided to Customer indicating the terms and conditions related to a specific transaction prior to the issuance of any Service Order for a System or CPE Services for MRP. When Customer accepts the quote, a Service Order will be issued for Customer's review and acceptance. The quote and Service Order will both show the System or CPE Service elements, location of such System or CPE Services, associated monthly recurring charges, whether a TPFC, as defined below, has been engaged for each System or CPE Service element, and the Financing Commitment (as defined below). Notwithstanding any no-sign SOF acknowledgement ordering or similar process, Customer will indicate its acceptance of the Service Order by its physical signature on such Service Order. Customer will upon request provide formal evidence of the signatory's power to sign the Service Order on behalf of Customer (as appropriate for the relevant jurisdiction, for example, a certificate of incumbency, trade register extract or power of attorney).

5.1.1 **MRP General Terms.**

5.1.1.1 With MRP, Customer will have the right to use Systems and be provided with CPE Services, (when applicable), as indicated on the quote and Service Order as Monthly Recurring Plan. The Service Order will also indicate whether title to the System will be held by Verizon or by a third party financing company, including a Verizon Affiliate ("TPFC") by stating "TPFC Engaged" for each System or CPE Service element where Verizon is acting as an agent for the TPFC for the purpose of billing and collecting payments from Customer under MRP and title to the System is being held by the TPFC.

5.1.1.2 Customer may only use a System on a Customer Site or co-located in Verizon's facilities. The System must be dedicated to use for Customer's benefit and only for Verizon services in accordance with Verizon's reasonable instructions from time to time. Upon Verizon's request, Customer will obtain and deliver to Verizon equipment access agreements, reasonably satisfactory to Verizon from Customer and all persons claiming any interest in the real property on which such System is installed or located. All moves, modifications, or relocations of a System must be performed by Verizon for an additional cost provided by a Service Order. After a move, modification or relocation, the MRC for the System may change as a result of tax or other considerations from such move, modification or relocation and such change will be shown on the Service Order. Systems may not be moved across international borders. MRP requires Customer to purchase Verizon Maintenance Service, Enhanced Staging and Installation, where available and as applicable.

5.1.1.3 Pursuant to the "Verizon Assignment Under MRP" section below, Verizon reserves the right in its sole discretion to assign certain of its rights, remedies, obligations, and/or pledge or otherwise grant a security interest in certain of its receivables, with respect to a System to the TPFC including the right to exercise remedies contained therein directly against Customer. Notwithstanding such assignment, Verizon will continue to interact directly with Customer on behalf of the assignee TPFC as an agent for the TPFC for the purpose of billing and collecting payments from Customer under MRP, subject to the provisions of the "Events of Default" section below becoming operative. Customer will receive written notice at such time when, or if, the assignee TPFC will exercise such assigned rights directly with Customer. A credit check of Customer may be conducted at any time and, at such time, Customer will provide any financial, System and CPE Service-related information reasonably requested by Verizon.

5.2 **Direct Third Party Leasing/Financing Option.** Where available, Customer may obtain a System and/or CPE Service from Verizon through a direct financing arrangement with a third party financing company approved by Verizon pursuant to the terms of a Schedule and/or other relevant terms provided by such third party. Notwithstanding any terms provided by such third party, Customer will remain responsible for performance of all of its obligations under these terms. In the event the third party financing company fails to pay for the System and/or CPE Services in accordance with the terms of the financing agreement, purchase order or any other terms between such third party financing company and Customer related to a Service Order, Customer shall pay Verizon directly.

6. **Maintenance Service.** Verizon will provide Maintenance Services where available in accordance with these Service Terms.

6.1 **Maintenance Service Provisions.**

6.1.1 If, i) Verizon did not install the equipment or software intended to be covered by maintenance, ii) the equipment or software is out of warranty or out of third party maintenance coverage, or iii) Verizon has not provided Maintenance Service on the equipment or software for more than 60 days, then the equipment or software must be accepted by Verizon prior to being eligible for Maintenance Service. Customer warrants that such equipment or software is in good working order and meets all applicable manufacturer specifications. Verizon may recommend corrections or improvements to operating environments or configuration to be performed at Customer's cost and expense. Failure to comply with Verizon's recommended corrections or improvements may cause Verizon to reject the specific part or equipment or software and remove it from the Maintenance Service. If the equipment or software is

found not to be in good working order and/or not in compliance with all applicable manufacturer specifications, Verizon will be under no obligation to provide Maintenance Service; provided however, Customer may, upon written notice, request Verizon to upgrade and/or repair such equipment or software at Verizon's then current time and material rate.

6.1.2 In the event the manufacturer of the System covered by maintenance, discontinues a piece of the System, and/or the associated support of such System, Verizon will only be obligated to provide the Maintenance Services on the affected System for the period of time that the manufacturer continues to support such System. At the end of such period Verizon will cease to support such System in accordance with the service description, but will use commercially reasonable efforts to provide Maintenance Service on the affected System until Customer upgrades or replaces such System. In such case, Verizon reserves the right to impose additional charges on Customer for Maintenance Service (e.g., for manufacturer imposed charges or additional level of effort).

6.1.3 Maintenance Services that include repair or replacement of System components will be provided with new or like new parts, as applicable, to restore the System to the level of working condition existing prior to the fault or problem; provided, however that, unless Customer provides the most current configuration, the software will be configured to the level that was last implemented by Verizon.

6.1.4 If Verizon determines that the trouble identified is a Customer network condition instead of a problem with the System covered under Maintenance Service, and if Verizon has preapproved written authorization Verizon will coordinate the resolution of the trouble and charge its then prevailing time and material labor rate to coordinate the resolution.

6.1.5 Maintenance Service is available for Systems located within a specified service area related to a Verizon facility or an authorized Verizon service provider's facility. Verizon reserves the right to charge Customer its then prevailing labor rate for travel to Customer locations that are outside of the specified service area.

6.2 **Customer Responsibilities.**

6.2.1 Customer will allow Verizon (using reasonable efforts to do so without undue delay or undue impact to Customer's network) to suspend normal operations of the System to inspect, test and/or repair it.

6.2.2 Remote connectivity for diagnostic purposes is a prerequisite for all applicable Systems covered by a Maintenance Service. Customer must provide connectivity, as specified and approved by Verizon, to the maintained System or Maintenance Service response times will be void. Customer further agrees that if Customer does not provide remote connectivity into the applicable System the following applies:

6.2.2.1 If Verizon is required to dispatch an engineer to Customer's site to troubleshoot an outage, Customer may incur a time and material charge at Verizon's then current rate.

6.2.3 Customer will notify Verizon immediately in writing in the event that any substantial or material modifications are made to Customer's network, and shall provide Verizon with such information as it may reasonably request, in order for Verizon to perform the Maintenance Service. In the event such modifications to Customer's network or any of its component parts causes Verizon to incur any increased burden in its performance of the Maintenance Service, Customer acknowledges and agrees that Verizon may increase the fees upon prior written notice to Customer.

6.2.4 In the event Verizon or the manufacturer ships a replacement part to Customer, Customer is responsible for returning the defective part, in accordance with the instructions contained in the replacement part packaging, to Verizon within 15 Business Days of receipt of the replacement part. If Verizon does not receive the defective part within 15 Business Days, Customer may be billed for the list price of the replacement part.

6.2.5 Customer must maintain back-up copies of the original software, current platform configurations, and operating system. Such back-up copies must be available to Verizon when requested to aid in troubleshooting and/or problem resolution.

6.2.6 Customer may only move, modify, relocate or in any way interfere with the System that is under maintenance (or any words or labels on the System) with Verizon's prior written approval. Customer will not cause the System to be repaired or serviced except by an authorized representative of Verizon or its subcontractors.

6.3 **Exclusions.** Maintenance Service does not include:

6.3.1 Additions, changes, relocations, removals, operating supplies or accessories.

6.3.2 Services necessitated by accident, casualty, neglect, misuse, intentional acts or any cause other than normal use of the System.

6.3.3 Repairs or replacements necessitated by lightning, radio frequency interference, power disturbances, fire, flood, earthquake, excessive moisture, Harmful Code or any event occurring external to the System that directly or indirectly causes a malfunction in the System, a private network to which the System is connected, or in telephone lines, cable or other equipment connecting the System to the public telephone network or to other Customer equipment. Harmful Code means any virus or machine-readable instructions and data designed to intentionally disrupt the operation of the System or

intentionally destroy or damage System or data contained therein.

6.3.4 Services necessitated by use of the System with any other device or system not supplied or approved as to such combined use by Verizon, or use of any part of the System in a manner not specified by Verizon.

6.3.5 Repair or maintenance or increase in normal service time resulting from Customer's failure to provide a suitable environment for the System or any other failure of Customer to perform its responsibilities.

6.3.6 Loss or recovery of Customer Data.

6.3.7 Upgrades, enhancements or new releases of software or firmware, and configurations, except as specifically indicated in the Contract, these Service Terms and any service description.

6.3.8 Operator, system administrator and end user training except as specifically identified.

6.3.9 Repair or replacement of Customer-owned outside plant cable unless specifically set forth in the Contract or the applicable SOW.

6.3.10 Services resulting from Customer installation, configuration or other Customer changes to device software.

6.3.11 Application development, scripting, software backups, software customization, application evaluation or troubleshooting, and engineering services.

6.3.12 Damage to the System which is caused by (a) the act or omission of Customer or Customer's breach of the terms of the these Service Terms; or (b) malfunction or failure of any equipment or facility provided by Customer or its agents, employees, or suppliers, including but not limited to Customer's equipment. Verizon is not liable for any costs incurred arising out of any malfunction or failure of any such equipment or facility.

6.4 **Maintenance Service Provisions.**

6.4.1 **Term and Termination.**

6.4.1.1 Maintenance Services will become effective 30 days after Verizon accepts Customer's Maintenance only Service Order as applicable and shall remain in effect for the period set forth in the Service Order as applicable ("Maintenance Service Period"). After the Maintenance Service Period, and if Customer has not renewed for a new Maintenance Service Period, Verizon or Customer may terminate the Maintenance Service upon not less than 60 days prior written notice and the Maintenance Service will be provided at Verizon's then current undiscounted rate, unless terminated in accordance with this Attachment.

6.4.1.2 Customer may terminate the Maintenance Service during the Maintenance Service Period (in whole or in part) only for default as defined in this Attachment. If Customer has pre-paid the Maintenance Service and terminates the Maintenance Service (in whole or in part) prior to the end of the applicable term due to Verizon default, Customer will be reimbursed for the unused portion of the terminated Maintenance Service, less any discount received unless a relevant Third Party Services Agreement or Maintenance Service provided via a third party through Verizon does not allow for such reimbursement.

6.4.2 **General Maintenance Service Terms.**

6.4.2.1 The determination to order maintenance replacement parts is made by Verizon.

6.4.3 **Verizon Data Maintenance – Network.** "Verizon Data Maintenance - Network" means Verizon will do the following:

6.4.3.1 Use commercially reasonable efforts to isolate any problems with the System following receipt of Customer's notification that the System is inoperative.

6.4.3.2 Investigate trouble reports initiated by Customer and repair or replace, at Verizon's sole discretion, any of the System which fails to meet the manufacturer's published operating specifications for the System.

6.4.3.3 Replace Systems it determines needs to be replaced with equipment of like kind and functionality from a manufacturer of Verizon's choice at the time of replacement ("Exchange Unit"). Before replacing the System, Verizon will attempt to contact Customer to schedule the replacement. The replaced unit will be returned to Verizon at Verizon's expense. For Systems to which Customer holds title, upon replacement, Customer will obtain title to the Exchange Unit and Verizon will obtain title to the replaced System.

6.4.3.4 **Maintenance Takeover Service.** "Maintenance Takeover Service" means Verizon will provide Verizon Data Maintenance - Network for CPE supplied by Customer (rather than ordered from Verizon) and identified in a Service Order accepted by Verizon ("Customer-supplied CPE"). Verizon approval of Customer-supplied CPE is required before ordering. For purposes of Maintenance Takeover Service, Customer-supplied CPE will be treated as a System.

6.5 **CPE Related Assessment Services.** Verizon will provide on site assessment services in accordance with one or more SOWs, which are incorporated herein by reference (hereinafter "CPE Related Assessment Services").

Part III: Terms and Conditions.

1. **Change Orders.** Verizon will comply, to the extent it deems feasible and reasonable, with any proposed changes to the System or CPE Services under these Service Terms and any Service Order or any applicable SOW ("Change Orders"). No Change Order will become effective, and no changes in the System or CPE Services will be initiated, until the Change Order is accepted by Verizon. Change Orders are accepted by the same process as Service Orders are accepted. If changes result in an increase or decrease in charges or time needed for performance, such adjustments will be reflected in a written Change Order.
2. **Risk of Loss.** Customer shall provide notice of loss or damage to the System as soon as Customer receives notice of such loss or damage.
   2.1 **Risk of Loss for Customer Furnished Equipment.** Risk of loss or damage to CFE passes to Verizon upon the earlier of i) delivery of the CFE (including portions thereof) to the Verizon-designated location, and ii) when Verizon takes shipping responsibility. After delivery to the Verizon-designated location, risk of loss or damage to CFE passes back to Customer upon the earlier of i) delivery of the CFE (including portions thereof) to the Customer-designated location, and ii) when Customer takes shipping responsibility.
3. **Resale Title and Security Interest.** For Customer purchases where the System is purchased and delivered within the same jurisdiction and Verizon is incorporated in such jurisdiction, Verizon will retain title to the applicable System elements until full payment for the same has been rendered. Upon final payment, title will pass to Customer. Customer will not grant or convey to any other person or entity a security interest in, or permit placement of a lien on, the System unless and until Customer has paid Verizon in full for such System. For other purchase transactions, title to the System will pass to Customer at time of shipment of the System from Verizon's or its third-party vendor's warehouse to Customer, or at the time indicated on the Service Order (including attachments to the Service Order) if different from the time of shipment. Terms and conditions for title and security interests for MRP transactions are located in and subject to the "Title and Security for Systems Under MRP" section below. As between Verizon (including its suppliers) and Customer, Verizon (or its ultimate suppliers or licensors, as applicable) retains all right, title and interest in and to all software provided by Verizon. Until final payment is received from Customer, Customer grants Verizon a security interest or lien in the System, or similar or equivalent interest pursuant to local law, and agrees that Verizon may file all documents necessary to perfect that interest. At Verizon's request, Customer will provide all assistance required for the enforceability of retention of title. Upon final payment Verizon will release its security or other interest.
   3.1 **Title for Customer Furnished Equipment.** Title to CFE remains with Customer at all times.
4. **Delivery.** In those jurisdictions where Verizon has an established legal presence and except as otherwise provided in the Contract, delivery of the System will be "DDP", "Delivered Duty Paid", to the Customer's sites as defined by "Incoterms 2010" published by the International Chamber of Commerce, together with the terms and conditions set forth herein. In those situations where delivery under the DDP term is not available delivery of the System will be "DAP", "Delivered At Place", to the Customer's sites as defined by "Incoterms 2010" published by the International Chamber of Commerce, together with the terms and conditions set forth herein.
5. **Import of Equipment.** Customer will provide such assistance to Verizon as may be necessary in connection with the importation of the System into the countries in which the Customer sites are located, and as required in accordance with local regulations. Such assistance may include but not be limited to acting as the importer of record and paying import duties, fees and taxes, if any, using Customer's Tax Registration Number. Upon becoming the importer of record, Customer may be subject to the obligations placed on 'Producers' as defined and set out in the Waste Electrical and Electronic Equipment Directive 2002/96/EC or any equivalent local directive or regulation, or the relevant local legislation implementing the provisions of any such directive or regulation.
6. **Cancellation.** Prior to Customer Acceptance, either party may cancel a Service Order or a SOW for convenience, in whole or in part. A Customer cancelling any Service Order or a SOW for convenience before it has been accepted is subject to cancellation charges, based on the stage the CPE Service or System has reached toward such acceptance, which may include charges: (i) for all System elements and CPE Services provided up to the date of cancellation; (ii) for all expenses incurred up to the date of cancellation, including but not limited to the costs of cancelling purchase orders, shipping charges for the return of System elements, if permitted by Verizon, removal of System elements and other contractual obligations made by Verizon to meet its obligations under the Contract, and (iii) a minimum restocking fee of 35% of the price of the System, as shown on the applicable Service Order or SOW, for any System elements returned, provided such return is permitted by the provider of the System element, and as authorized by Verizon.
7. **Termination.** Subject to the "MRP Service Terms and Conditions" section below, after Customer Acceptance, either party may terminate a Service Order for CPE Services for convenience, in whole or in part upon 30 days prior written notice to the other party. If a CPE Service is terminated by Customer pursuant to this section, Verizon has no further responsibility under the Service Order and Customer will promptly pay Verizon an amount up to the full amount of the remaining payments due under the Service Order if not terminated and any expenses incurred by Verizon. Where multiple SOWs are associated with these Service Terms, the termination of one or fewer than all of the SOWs will only affect the terminated SOWs, and any additional SOWs will remain in effect.

7.1 **Termination for Cause.** If either party fails to perform material terms of these Service Terms and (i) such failure is not cured within 30 calendar days following receipt of a default notice in writing from the other party; or (ii) if such failure cannot reasonably be cured within such 30 calendar days, and the defaulting party fails to uses commercially reasonable efforts to cure such breach as soon as practicable, but in any event within 90 calendar days following written notice, then the non-defaulting party may suspend its performance of and/or terminate the affected CPE Services or System order to which the default pertains. Upon termination of such CPE Service or System order, Customer is liable for any unpaid charges for the terminated CPE Service incurred up to the time of termination of such CPE Service and for any System element provided up to such termination. These Service Terms will not be terminated, and will continue in effect, with respect to all other CPE Services and Systems that are not the subject of such default. Termination of any CPE Service or System will be in addition to and not in substitution of any other rights and remedies available to the non-defaulting party under these Service Terms applicable law, or otherwise.

8. **Confidentiality.** Notwithstanding any contrary term in the Contract and consistent with applicable law, Verizon may disclose the terms of these Service Terms, in whole or in part, to: (a) Verizon Affiliates; (b) Verizon's or Verizon's Affiliate suppliers and/or subcontractors that offer (including new offers or renewal offers), provide, repair, maintain, bill, collect, or perform other functions in connection with Verizon or Verizon Affiliate products or services, including the financing thereof, under or in connection with these Service Terms; (c) successors in interest to Verizon or Verizon Affiliates (by merger or otherwise); and/or (d) persons to whom Verizon or Verizon Affiliates may sell all or part of their respective businesses or assets.

9. **Warranty.** Verizon warrants it will perform the CPE Services provided by Verizon under these Service Terms in a good and workmanlike manner. Unless otherwise set forth herein or in an SOW, Verizon is not the manufacturer or licensor of the System but will transfer or pass through to Customer the benefit of any and all manufacturer warranties on the same terms as offered by such manufacturers which are capable of being transferred or passed through.

9.1 **UNAUTHORIZED ACCESS.** IN ADDITION TO DISCLAIMERS IN THE AGREEMENT, VERIZON WILL NOT BE LIABLE FOR UNAUTHORIZED ACCESS TO VERIZON'S OR CUSTOMER'S TRANSMISSION FACILITIES OR EQUIPMENT OR FOR UNAUTHORIZED ACCESS TO OR ALTERATION, THEFT OR DESTRUCTION OF CUSTOMER'S DATA FILES, PROGRAMS, PROCEDURES OR INFORMATION THROUGH ACCIDENT, FRAUDULENT MEANS OR DEVICES, OR ANY OTHER METHOD.

9.2 **Third Party Services.** Verizon is not the provider of Third Party Services, as defined below, therefore Verizon provides no warranties, guarantees and assurances of quality that apply to Third Party Services but will transfer or pass through to Customer the benefit of any and all third party warranties on the same terms as offered by such third parties which are capable of being transferred or passed through. THE WARRANTIES SET FORTH IN THESE SERVICE TERMS ARE IN LIEU OF ALL OTHER WARRANTIES FROM VERIZON TO THE EXTENT PERMITTED BY LAW. Notwithstanding the foregoing, Verizon warrants that the System will be free from defects for 12 months from delivery (the "Warranty Period"). Should the System become defective within this period, Customer shall initially only be entitled to subsequent performance. For the purpose of such subsequent performance Verizon will be subject to receiving notification of the defect within the Warranty Period, comply with the obligations set out in the third party supplier's warranty supplied with the System or otherwise repair or replace the System within a reasonable time period. All other warranty claims regarding the System may only be asserted if subsequent performance has failed. Verizon does not give a warranty for merely immaterial deviations from the agreed condition of the System and fitness for any particular purpose. Customer shall examine the System without undue delay upon delivery with respect to the amount, condition and quality. Obvious defects must be reported to Verizon within 10 Business Days; claims for warranties for such defects shall be excluded thereafter.

10. **Limitation of Liability.**

10.1 **ENTIRE LIABILITY.** SUBJECT TO THE "EXCLUSIONS" SECTION OF THE CONTRACT, VERIZON'S AND ANY VERIZON ASSIGNEE'S ENTIRE LIABILITY FOR ANY OTHER DAMAGE WHICH MAY ARISE HEREUNDER, FOR ANY CAUSE WHATSOEVER, AND REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT OR IN TORT, INCLUDING VERIZON'S AND ANY VERIZON ASSIGNEE'S NEGLIGENCE, OR OTHERWISE, WILL BE LIMITED TO THE LESSER OF I) THE PURCHASE PRICE OF THE SPECIFIC SERVICE ORDER GIVING RISE TO THE CLAIM; AND II) THE LIMITATION OF LIABILITY IN THE CONTRACT.

10.2 **EXCLUSIONS.** VERIZON AND ANY VERIZON ASSIGNEE'S WILL BEAR NO LIABILITY FOR USE OF THE SYSTEM OR CPE SERVICES PROVIDED UNDER THIS ATTACHMENT IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR DEVICES OR PUBLIC SAFETY SYSTEMS. EXCEPT AS EXPRESSLY STATED OTHERWISE HEREIN, VERIZON AND ANY VERIZON ASSIGNEE'S WILL HAVE NO LIABILITY OR RESPONSIBILITY FOR INTEROPERABILITY OR COMPATIBILITY OF THE SYSTEM WITH THIRD-PARTY PRODUCTS OR SYSTEMS THAT CUSTOMER MAY UTILIZE IN CONJUNCTION WITH THE SYSTEM OR TO WHICH CUSTOMER MAY CONNECT EQUIPMENT.

10.3 **Acknowledgement.** Customer and Verizon acknowledge that the warranties, limits on liability and exclusions

set out in these Service Terms fairly allocate the risk between Customer, Verizon and any Verizon assignee and are reflected in the charges for the System and/or CPE Services.

11. **Insurance.**

11.1 **Coverage.** Customer shall maintain in full force and effect, at its own cost and expense, during the Service Commitment, the following insurance coverage:

11.1.1 Commercial General Liability insurance with a minimum combined single limit of $2,000,000 per occurrence for bodily injury and property damage and $2,000,000 general aggregate including but not limited to premises-operations; products/completed operations; contractual liability; independent contractors and personal and advertising injury.

11.1.2 Commercial Automobile Liability insurance with a minimum combined single limit of $2,000,000 each accident for bodily injury and property damage. Coverage shall include owned, non-owned, leased and hired vehicles.

11.1.3 Workers' Compensation in compliance with the statutory requirements of the state(s) of operation and Employer's Liability with a minimum limit of $1,000,000 each employee-accident/each employee-disease/policy limit.

11.1.4 A combination of primary and excess/umbrella liability policies will be acceptable as a means to meet the limits specifically required hereunder. The required minimum limits of coverage shown above, however, will not in any way restrict or diminish company's liability under this agreement.

11.1.5 Errors & Omissions liability in the amount of $2,000,000 each claim covering the acts, errors or omissions of Customer under this agreement.

11.2 **Additional Insured.** All insurance coverage required herein, excluding Workers' Compensation, Employer's liability and Errors & Omissions liability shall name Verizon Communications Inc., its Affiliates and Subsidiaries as additional insured by means of an unrestricted endorsement to the above policies with regard to any liability arising out of Customer's operations, products or completed operations.

11.3 **Policies.** All policies required herein shall (i) contain waivers of subrogation in favor of Verizon (ii) be primary and non-contributory with any insurance or program of self-insurance that may be maintained by Verizon (iii) shall be issued by companies that are licensed, authorized or permitted to conduct business in the jurisdiction in which the work is to be performed (iv) must have an A.M. Best rating of A-; VII or better.

11.4 **Certificates.** Prior to commencement of work, Customer shall provide Verizon with certificate(s) of insurance that evidence the coverage required by this agreement. Verizon shall receive 30 days prior written notice of intent to non-renew, cancellation or material adverse change, except 10 day notice for nonpayment of premium shall apply. In the event any of the above policies is cancelled, Customer shall immediately submit documentation to Verizon verifying that Customer has obtained alternative insurance in conformance with these Service Terms.

12. **Intellectual Property Infringement Indemnity.**

12.1 **Verizon CPE Services Indemnity.** Except as provided below, Verizon will defend Customer against any claim, suit, action or proceeding alleging that the purchase or use by Customer of any CPE Services infringes a valid U.S. patent or copyright ("Services Claim"), and Verizon will indemnify and hold harmless Customer against any and all finally awarded costs and expenses, including attorneys' fees, in connection with any such Services Claim.

12.1.1 If the use of any CPE Services is enjoined or subject to a Services Claim, Verizon may, at its option and expense, either procure for Customer the right to continue to use the affected CPE Services, replace the affected CPE Services with substantially equivalent, non-infringing service, or modify the affected CPE Services so that it becomes non-infringing. In the event that none of the foregoing options is commercially reasonable, Verizon may terminate the CPE Services.

12.1.2 Verizon shall have no obligation to defend, indemnify or hold harmless Customer for any Services Claim or portion thereof that arises from (i) any negligent or willful act or omission by or attributable to Customer or, with the exception of Verizon, any agents, contractors, or suppliers acting on behalf of Customer; (ii) any combination, use or operation of any CPE Services with equipment or services provided by Customer or any third party; (iii) any addition to or modification of the CPE Services by Customer, any third party or Verizon at Customer's request; (iv) use of other than the then current unaltered release of any Verizon-provided software used in the CPE Services provided Verizon has made such release available to Customer; (v) any equipment, system, product, process, method or service of Customer which otherwise infringed any U.S. patent or copyright asserted against Customer prior to the supply of the CPE Services to Customer hereunder; (vi) functionality provided by Verizon at the direction of Customer, its agents, employees, or other contractors (including the provision of functionality in accordance with technical specifications provided by Customer); or (vii) use or operation, by Customer, its agents, employees or other contractors, of CPE Services other than as specified in these Service Terms.

12.2 **Sole and Exclusive Remedy.** The foregoing states the entire obligation of Verizon to Customer and is Customer's sole and exclusive remedy with respect to any claim of infringement of any intellectual property

right of any kind, including the manufacturer's(s') or owner's(s') indemnities applicable to the CPE and software that Verizon is authorized to pass through for the benefit of Customer, if any, and Verizon disclaims all other warranties and obligations with respect thereto.

12.3 **Indemnity.** Each party (the "indemnitor") will defend, indemnify, and hold harmless the other party (the "indemnitee") against all claims and liabilities for direct damages imposed on the indemnitee for bodily injuries, including death, and for damages to real or tangible personal property to the extent caused by the negligent or otherwise tortious acts or omissions of the indemnitor, its agents or employees in the course of performance of these Service Terms.

12.4 **Contingencies.** The defense and indemnification obligations set forth in this clause are contingent upon (1) the indemnitee providing the indemnitor prompt, written, and reasonable notice of the claims, demands, and/or causes of action subject to indemnification, (2) the indemnitee granting the indemnitor the right to control the defense of the same, and (3) the indemnitee's full cooperation with the indemnitor in defense of the claim, including providing information and assistance in defending the claim. Nothing herein, however, will restrict the indemnitee from participating, on a non-interfering basis, in the defense of the claim, demand, and/or cause of action at its own cost and expense with counsel of its own choosing. No settlement may be entered into by the indemnitor on behalf of the indemnitee that includes obligations to be performed by the indemnitee (other than payment of money that will be fully paid by the indemnitor under sections above) without indemnitee's prior written approval.

13. **Disclosure Indemnification.** If Customer fails to identify and disclose to Verizon concealed Customer equipment, wiring or conditions, as required under these Service Terms, then Customer will defend and hold Verizon harmless from any claim, damage or liability resulting from a failure to disclose this information.

14. **Hazardous Substances.** Except as disclosed to and acknowledged in writing by Verizon, Customer certifies that it is not aware of the presence of any asbestos or other hazardous substance (as defined by any applicable hazardous waste or environmental law or regulation) at any location where Verizon is to perform CPE Services under these Service Terms. if during such performance Verizon employees or agents encounter any such substance, Customer agrees to take all necessary steps, at its own expense, to remove or contain the asbestos or other hazardous substance and to test the premises to ensure that exposure does not exceed the lowest exposure limit for the protection of workers. Verizon may suspend performance under these Service Terms until the removal or containment has been completed and approved by the appropriate governmental agency and Verizon. Performance obligations under these Service Terms will be extended for the period of delay caused by said cleanup or removal. Customer's failure to remove or contain hazardous substances will entitle Verizon to terminate by virtue of law, without Court intervention, delay, or other formality and liability, these Service Terms, a Service Order, or an SOW at Verizon's option. Upon such termination, Customer will permit Verizon to remove any System that has not been accepted, will reimburse Verizon for expenses incurred in performing these Service Terms, Service Order, or SOW until termination (including but not limited to expenses associated with such termination, such as removing a System, terminating leases, demobilization, etc.), and will complete payment for any portion of a System or CPE Services that has been accepted.

15. **Export and Legal Compliance.** Customer acknowledges that the export, import, and use of certain hardware, software, and technical data provided under the Contract is regulated by the United States and other governments and agrees to comply with all applicable laws and regulations, including the U.S. Export Administration Act, the regulations promulgated thereunder by the U.S. Department of Commerce, and any other applicable laws or regulations of the United States or other relevant jurisdictions (collectively, "Export Laws"). Without limiting the generality of the foregoing the parties further agree:

15.1 Customer shall not export, re-export, release, transfer or allow the diversion of any items, hardware, software, technology, or the direct product of such technology obtained by Customer under these Service Terms without first complying fully with all applicable Export Laws and obtaining any and all required licenses from United States and other governmental authorities.

15.2 Customer shall not conduct business with any company, individual, organization or country that is subject to trade sanctions, embargoes, or other restrictions under applicable Export Laws, nor any entity that is involved in an end use prohibited under Export Laws including but not limited to chemical or biological weapons proliferation of nuclear or missile technology proliferation, in either case without complying fully with all applicable Export Laws and obtaining any and all required licenses from United States and other governmental authorities.

15.3 Customer shall cooperate with and provide all necessary information to Verizon in order to facilitate full compliance with all trade-related laws and regulations.

15.4 Unless prohibited by law, Customer agrees to provide notice to Verizon of trade compliance related communications received from and/or actions taken by government export officials and/or customs authorities, as relate specifically to the System and/or CPE Services provided herein by or to Customer. Notice shall be provided to Verizon within 10 days of receiving the above referenced communications or notice of actions to be taken by government officials. Such notice shall include the details of any pending investigation and to what extent Verizon items, hardware, technology, or services are involved.

15.5 Customer further agrees to release, hold harmless, defend, and indemnify Verizon, its officers, directors, shareholders, agents, and employees, from and against any claims, breaches of the representations, costs, damages, penalties, fines or liabilities (including attorneys fees) arising out of, or in connection with any violation or alleged violation by Customer of Export Laws.

15.6 Verizon may refuse to proceed with any transaction contemplated hereunder where it determines such transaction may violate Export Laws. The obligations in this clause survive the expiration or early termination of these Service Terms.

16. **Order of Precedence.** In the event of conflicts among the terms of the Agreement, a Contract, an SOW and any Schedule, the following order of precedence will apply: (i) the Schedule; (ii) a Contract; (iii) the Agreement (and within the Agreement the Service Terms will take precedence over the Master Terms); and (iv) the SOW.

17. **Exclusion of CISG.** The United Nations Convention for the International Sale of Goods shall not apply.

18. **Third Party Services.** In addition to the terms of the Contract, any third party maintenance and services will be provided on a Subscription basis in accordance with (i) the Third Party Services Agreement generally available on their respective websites or attached as an exhibit and (ii) the relevant terms and conditions of these Service Terms, specifically excluding the termination for convenience provisions in the first sub clause of the "Termination" section in this Part III, above. A subscription ("Subscription") means the agreement by which Customer purchases, and Verizon resells, certain CPE Services provided by third parties ("Third Party Services"). The charges and/or the terms and conditions applicable to the Subscription(s) may change at Customer's renewal or extension of such Subscription(s). Information concerning some Third Party Services Agreements is provided below, however, additional Third Party Services Agreements may be provided from Verizon from time to time as required by a Service Order.

18.1 **Cisco Services.** When ordering Cisco products or services, Customer acknowledges having read and understood the applicable End User Obligations and service descriptions found at http://www.cisco.com/go/servicedescriptions/ or other URL as may be provided by Cisco from time to time. Further, Customer agrees to the terms and conditions of Cisco's Software License Agreement, available via the web URL shown above. Further, Customer agrees to the terms and conditions of Cisco's Software License Agreement.

18.2 **Juniper Services.** When ordering Juniper products or services, Customer acknowledges having read and understood the applicable End User Obligations and service descriptions found at http://www.juniper.net/support/guidelines/990216.pdf or other URL as provided by Juniper Networks from time to time.

18.3 **Polycom Services.** When ordering Polycom products or services, Customer acknowledges having read and understood the applicable End User Obligations and service descriptions found at http://www.portal.polycom.com or other URL as provided by Polycom from time to time.

18.4 **Riverbed Services.** When ordering Riverbed products or services, Customer acknowledges having read and understood the applicable end user obligations and license agreements, and service descriptions found at http://www.riverbed.com/license or other URL as provided by Riverbed from time to time.

18.5 **Sonus Services.** When ordering Sonus products or services, Customer acknowledges having read and understood the applicable end user obligations and license agreements, and service descriptions found at http://www.sonusnet.com/global-services/customer-support/maintenance-plans.aspx and http://www.sonusnet.com/Products/Sonus-Software-EULA.aspx or other URL as provided by Sonus from time to time.

18.6 **MobileIron.** MobileIron server software may only be installed in Customer owned, maintained and/or controlled servers housed on Customer's premise, or in data center space controlled by a third party, located within the United States.

18.7 **AirWatch.** AirWatch software is subject to the manufacturer's license and support terms and conditions, which are available at http://www.air-watch.com/downloads/legal/20130815_AirWatch_EULA.pdf (the "AirWatch EULA"). Customer's acceptance of a Service Order containing AirWatch software represents agreement to license such AirWatch software under the AirWatch EULA. Maintenance and Support is included as part of manufacturer's subscription license plan or at an additional annual fee under a perpetual license model as shown in a Service Order. In the case of a perpetual license, annual Maintenance and Support commences upon delivery of the software. Additional licenses can be purchased under a separate or supplemental Service Order.

19. **Country Specific Provisions.**

19.1 **Greece.** For CPE Services and Systems provided in Greece, for the avoidance of doubt, Verizon shall bear the after sales responsibilities according to the provisions of article 5 of LAW 2251/2004, as in force.

19.2 **Italy.** For CPE Services and Systems provided in Italy, in accordance with articles 1341 and 1342 of the Italian Civil Code, Customer acknowledges to have carefully read the entire text of this Attachment and hereby specifically approves the provisions contained in the following Clauses of the Attachment: Part I: Rates and Charges; Part II: - "Customer Responsibilities"; Part III: - "Risk of Loss"; "Resale Title and Security Interest"; "Delivery"; "Import of Equipment"; "Termination"; "Confidentiality"; "Warranty"; "Limitation of Liability";

"Insurance"; "Hazardous Substances"; "Third Party Maintenance Services"; "Export and Legal Compliance"; "Order of Precedence".

19.3 **Austria, Germany, and Switzerland.** For CPE Services and Systems provided under Austrian, German, or Swiss Law, until full payment for the System has been rendered to Verizon, Customer will (i) not obliterate any identifying mark on the System or its packaging (ii) at Verizon's request mark the System as being the sole property of Verizon, or a TPFC, as applicable.

19.4 **Turkey.**

19.4.1 **Notice of Termination and Default.** Termination, suspension or cancellation of an Order provided in Turkey by Customer shall be valid only upon at least 30 days prior written notice of such termination, suspension or cancellation to Verizon with the requested termination date falling on the last day of the following calendar month. Notice of default by either Verizon or Customer in Turkey pursuant to these Service Terms will be served on the non-defaulting Party either: (i) through a notary or (ii) by registered mail with an acknowledgement of receipt of such notice.

19.4.2 **Paper Invoices.** Invoices for CPE Services and Systems for Turkey will be sent to Customer in hard copy paper form.

19.4.3 **No Retention of Title; Bank Guarantee.** The terms in Part III "Resale Title and Security Interest" nor any other term herein granting to Verizon a post-transfer retention of title in a System shall apply where the System is to be delivered in Turkey. Where a System is delivered in Turkey, title shall pass to the Customer upon physical transfer, provided that Customer has first issued an irrevocable bank guarantee issued by a bank lawfully established in Turkey in an amount no less than the value of the relevant System component(s).

19.5 **Encryption.**

19.5.1 **Service Orders in relation to CPE for use in India (Restriction on Encryption Functionality).** Customer understands and acknowledges that in accordance with the licenses and with statutory guidelines which govern the provision of the Service by Verizon in India, Customer is not allowed to employ encryption on any equipment (including CPE and Customer Equipment) which is directly or indirectly connected to the Network in India. Customer must ensure that any encryption equipment connected to the Network for specific requirements has the prior evaluation and approval of the Department of Telecommunications or officer specially designated for the purpose. Customer hereby indemnifies and hold harmless Verizon, from and against any claims, suits, judgments, settlements, losses, damages, expenses (including reasonable attorneys' fees and expenses), and costs (including allocable costs of in-house counsel) asserted against or incurred by Verizon arising out of a failure by Customer to comply with the restrictions described in this clause or as otherwise imposed by the licenses or statutory guidelines from time to time.

19.5.2 **Service Orders in relation to CPE for use in China (Restriction on Encryption Functionality).** This clause shall only apply to CPE containing encryption features which will be delivered and used by Customer in the People's Republic of China. Use of CPE containing encryption features in China is regulated by the State Encryption Management Commission ("SEMC"). Customer shall obtain and maintain all necessary permits, licenses and authorizations ("Permits") necessary for the use of the CPE at all relevant times. Verizon does not warrant or make any representations that the Permits for the use of the CPE will be granted by the SEMC.

19.5.3 **Service Orders in relation to CPE for use in Poland (Notification Requirements for Encryption).** When Customer serves as the importer of record for Verizon-provided System. Customer is responsible for obtaining all authorizations or permits for the import of such System into Poland including but not limited to submitting any required "Notification of the Intended Import," or "Intra-EU Transfer of Dual-Use Items Used for Telecommunications," or for "Information Security with the Polish Internal Security Agency" (the "Agencja Bezpieczenstwa Wewnetrznego").

19.6 **IPT Covenants in Asia Pacific ("AP").**

19.6.1 **Toll Bypass in AP.** The System and the underlying network service upon which the IP Telephony ("IPT") is provided cannot be used to bypass international/long distance charges in contravention of applicable law or regulation, specifically inclusive of telecommunications law and regulations in any country where any part of the underlying network service or the System is used.

19.6.2 **PSTN Interaction in AP.** The underlying network service and the System may permit egress/ingress to/from the local PSTN for international IPT sessions only in Australia, the EU member countries, Switzerland, Japan, Korea, Singapore and the United States (the "PSTN Countries"). In all other countries (the "Excluded Countries"), the international communications capabilities of the System and underlying network service can only be used for on-net-to-on-net sessions among a pre-defined set of end-users located at Customer and Customer Affiliate premise locations or connected via secure connection to a pre-defined PC/laptop ("Closed User Groups"). Customer and Customer's Affiliates shall prevent use by the general public, and the System and underlying network service cannot be used to provide any part of a 'for-hire' telecommunications service.

19.6.3 **Third Party Solutions in AP.** In the event that Customer desires to connect a Verizon IPT solution with a third party's IPT solution not under Verizon management or control, Customer must ensure that the third party IPT functionality complies with all the terms hereof.

19.6.4 **Indian Requirements.** In India, if any of the users are in call centers or network operation centers, engaged in business process outsourcing, tele-marketing, tele-education, tele-medicine, tele-trading, or provision of e-commerce services, Customer must obtain Other Service Provider ("OSP") registration from the Indian Department of Telecommunication covering said activities and associated infrastructure prior to use of the CPE or the underlying network service.

19.6.5 **Indemnity for Service in AP.** Customer shall comply and shall cause each of its Affiliates and any direct or indirect users of the System or the underlying network service to comply with the terms this "IPT Covenants" section and Customer will indemnify, defend and hold Verizon and its Affiliates harmless for breach of any of the IPT Covenants section conditions by it or any of its Affiliates or any direct or indirect user of the System or underlying network service.

19.6.6 **Information.** Customer agrees to cooperate with Verizon to provide any relevant information regarding Customer's IPT solution to any national regulatory authority upon their request, and Customer shall provide compliance certifications in form and substance acceptable to Verizon upon request.

20. Additional Service Terms and Conditions for the provision of CPE and CPE Services.

20.1 MRP Service Terms and Conditions.

20.1.1 **Term.** The term of the financing commitment for each System is specified in the related Service Order ("Financing Commitment") and commences on Customer Acceptance. Except in the case of Cause attributable to Verizon, Customer's payment obligation as provided in the Service Order for such System and CPE Service is absolute and unconditional after Customer Acceptance, without set-off, abatement, or deduction. Customer hereby further waives any recoupment, cross-claim, counterclaim, or any other defense at law or in equity to any such payment or other amount due with respect hereto, whether any such defense arises out of these Service Terms, the Agreement, any Statements of Work, or Contract, any claim by Customer against Verizon, its assignees or supplier, or otherwise.

20.1.2 **Customer Acceptance.** In addition to the Customer Acceptance procedures in the "CPE Deployment Services" section, Customer must indicate its acceptance of the System by a Customer-authorized signature on the Verizon-provided acceptance document; provided, however, that if Customer has not signed the acceptance document and has not provided written notification of an issue, Customer Acceptance for a System will be deemed to have occurred upon the expiration of the Test Period. In any case, Customer's acceptance shall be irrevocable.

20.1.3 **Title and Security for Systems Under MRP.** With MRP, Customer will not have title to the System or any sub-element thereof. Verizon, or a TPFC will have title. Customer waives and releases any right, title and interest that it may have in a System, other than its right to use the System for Verizon services. In the event that MRP is determined by a court to be an extension of credit, Customer hereby grants a security interest in Customer's right, title and interest, now existing and hereafter arising, in and to any System, including all insurance, warranty, and chattel paper arising out of a System to secure payment of all amounts due. Verizon or a TPFC may, at its option, perfect ownership in a System by filing a registration or financing statement (e.g., in the United States, a Uniform Commercial Code filing) naming Customer as the debtor and identifying the ownership or security interest in the System, as applicable.

20.1.4 **Verizon Assignment Under MRP.** When the assignee TPFC holds title to a System, Verizon will, at Customer Acceptance, assign certain of its rights with respect to such System and related CPE Service, each as indicated on the Service Order, to such TPFC assignee, including without limitation: (a) the right to receive a portion of the payments due hereunder that relate to the System and CPE Services under MRP; (b) the benefits of (i) any indemnity and/or limitations of liability with respect to the System and CPE Services, and (ii) Customer's representations and warranties with respect to the System and CPE Services, in either case contained herein or in the Master Terms; and (c) in the case of a Customer Event of Default (as defined below), the right to enforce on its own behalf any of its assigned rights, including the right to enforce payment of amounts relating to the System and CPE Services, or to take possession of or enforce title to the System. Such assignment of rights in relation to the TPFC's interest with respect to such System and related CPE Service is nonexclusive and Verizon reserves any rights and benefits relevant to Verizon's interests in such System and related CPE Service. Customer's execution of the Customer Acceptance indicates Customer's consent to such assignment.

20.1.5 **Event of Loss.** Customer will promptly notify Verizon in writing if any item of the System becomes unfit or unavailable for use (e.g. lost, stolen, damaged, or destroyed) (an "Event of Loss"). Customer may choose to repair or restore the System to the condition it had prior to such Event of Loss, or replace such damaged System with Like Equipment, as defined below, each at Customer's cost and expense. Otherwise, Customer will pay to Verizon within sixty (60) days after such Event of Loss the System

Casualty Value (as defined below) associated with such System as of the date of the Event of Loss, and title to the damaged System will pass to Customer upon such payment. "Like Equipment" is equipment which (a) has been manufactured by the same manufacturer as the System; (b) is of the same type and model as the System (or the manufacturer's equivalent type and model), with all engineering changes incorporated as specified by the manufacturer; (c) has an equal or greater market value as the System Element replaced by Like Equipment; and (d) meets all requirements for the System as set forth in the Service Order or herein. "System Casualty Value" is an amount equal to (i) the present value of all remaining MRC for such System, or element thereof, from the date of the Event of Loss through the end of the Financing Commitment, discounted at an annual rate of 3%, plus (ii) for MRP, the purchase price as of the date of the Event of Loss for such System, or element thereof, as provided by Verizon promptly after receipt by Verizon of a notice of Event of Loss.

20.1.6 **Customer Responsibilities.**

20.1.6.1 **Condition of the System.** Customer will ensure that the System is covered by Verizon Maintenance for the duration of the Financing Commitment or any renewal thereof.

20.1.6.2 **No Customer Assignment; Lien.** Customer will not: (a) assign, transfer or otherwise dispose of any System or individual element thereof, or any right or obligation hereunder as it relates to the System or CPE Services or any rights or obligations with respect thereto, (b) provide a right of use of any of the System and CPE Services to any person other than Customer, (c) permit the System and CPE Services to be under the dominion and control of any other person or party, other than Customer, or any maintenance provider acting on behalf of Customer other than Verizon or (d) create, incur, or permit to exist any security interest, lien or encumbrance with respect to any of the System.

20.1.6.3 **Insurance.** For Systems under MRP, Customer shall obtain and maintain for the duration of the Financing Commitment, including any extension thereof, at its own expense, commercial general liability insurance, and special risk insurance against loss or damage to the System as a result of fire, explosion, theft, vandalism and such other risks of loss as are normally maintained on equipment of the type financed hereunder by companies carrying on the business in which Customer is engaged, in the minimum amount of the full replacement cost value, in such form and with such insurers as shall be satisfactory to Verizon. Each insurance policy shall name Customer as insured and Verizon and its successors and assigns as additional insureds and loss payees thereof as their interests may appear and if applicable, and shall provide that it may not be cancelled or materially altered without at least thirty (30) days' prior written notice thereof being given to Verizon (or ten (10) days (fourteen (14) days for Contracts under Swiss Law) in the event of non-payment of premium). Customer shall provide Verizon with a certificate of insurance evidencing the coverage required by these MRP terms. Where applicable, if at any time Customer fails to provide the necessary insurance and Customer does not provide insurance from another insurance company, the foregoing insurance may be provided on behalf of Customer at Customer's sole cost and expense, i.e., "forced place" insurance.

20.1.7 **Hold Harmless.** Customer agrees to indemnify and hold Verizon and its assignees harmless from any and all liability, loss, damage, expense, and causes of action arising from or based upon the System under MRP, or actual or alleged use of same except, with respect to Verizon, for action, suits, claims or judgments arising from Verizon's negligence in providing Services other than MRP.

20.1.8 **Events of Default.** The following shall constitute a "Customer Event of Default" under these MRP terms and Cause under the Master Terms: (i) failure by Customer to pay any amounts due under these MRP terms; (ii) Customer fails to maintain insurance as required under these MRP terms or to pay for "forced place" insurance; (iii) failure to return a System to Verizon as provided herein; or (iv) if applicable, bankruptcy, receivership, insolvency, reorganization, dissolution, liquidation or other similar proceedings are instituted by or against a Customer or any guarantor of a Customer, or all or any part of such person's property, under the United States Federal Bankruptcy Code or other law of the United States or of any other jurisdiction in which Systems are located or being used or in which the Customer is incorporated, and, if such proceeding is brought against such person, it consents thereto or fails to cause the same to be discharged within sixty (60) days after it is filed; or (v) prerequisites for filing a motion to open insolvency proceedings or a rehabilitation proceedings with respect to the Customer have been satisfied, or a motion to open such proceedings has been filed by Customer's creditor and was not dismissed within 60 days from filing; (vi) Customer or any guarantor of Customer terminates its existence by merger, consolidation, sale of substantially all of its assets or otherwise, unless the surviving entity or purchaser of such assets assumes all liabilities of the Customer hereunder and is (1) approved in writing by Verizon (after receipt of written approval from the TPFC) prior to such termination or sale, which approval shall not be unreasonably withheld, conditioned or delayed, or (2) of a credit

rating as rated by Standard and Poor's of BBB- or better or by Moody's Investors' Service of Baa3 or better after such sale or termination. Customer shall reimburse Verizon for all reasonable and necessary charges, costs, expenses and attorney's fees incurred by Verizon or the assignee in exercising any remedy against Customer hereunder; or (vii) if Customer grants, creates or permits to exist any security interest, lien or encumbrance with respect to any of the System other than to Verizon or a TPFC.

20.1.9 **Termination**. Notwithstanding any other provision in these Service Terms, in the event of any termination of MRP by Customer for convenience or for any other reason (including without limitation Customer's invocation of a Force Majeure Event pursuant to a Contract or the Agreement) except for Cause, or in the event of any termination by Verizon for Cause, Customer will pay to Verizon (i) an amount equal to the aggregate of all remaining monthly recurring charges for the System as set forth in the Service Order from the date of termination through the end of the Financing Commitment discounted at an annual rate of 3%, plus (ii) in the case of TPFC financing, the fair market value (as of the date of termination for the System as provided by Verizon promptly after termination), or regardless of financing entity, return of the System as provided below. Customer agrees that as between Verizon and Customer Verizon shall have the right to determine which portion of Customer's MRP charges represents Services and which represent the System.

20.1.9.1 **Return of Equipment.** Upon any termination of MRP, Customer shall return the System at its expense, to Verizon or Verizon's designee, and such returned System shall be shipped to be received: (i) no later than 15 Business Days after the termination is effective; and (ii) at the location as provided in writing by Verizon and in the condition provided below. If Customer fails to return the System within the above time period, then such failure shall constitute a "Customer Event of Default" hereunder and Cause under the Master Terms.

20.1.9.2 **Condition of Returned Equipment.** When a System is returned to Verizon or its designee, Verizon will cause the System to be inspected and certified acceptable for the manufacturer's maintenance service. If any of the System is not in good repair, condition and working order, ordinary wear and tear excepted, Customer will pay Verizon the reasonable out-of-pocket expenses incurred in bringing such System up to such status, but not in excess of the System Casualty Value.

20.1.10 **End of MRP Financing Commitment.** At the end of the Financing Commitment, the term will continue until terminated by either party, with or without Cause, effective 90 days after written notice of termination is given to the other party. Upon such termination, Customer shall return the System as provided in "Termination" within this section, above.

20.1.11 **Disputed Claims.** Notwithstanding the Dispute Resolution provision in the Agreement, a TPFC is entitled to enforce, outside of arbitration, all rights held by or assigned to such TPFC following the negotiation period applicable to Disputed Claims (as defined in the Agreement), unless Verizon or such TPFC determines in its sole discretion to submit the issue to arbitration and notifies the Customer in writing within thirty days following the end of such negotiation period. Nothing herein or in the Agreement shall be construed to preclude immediate enforcement outside of arbitration by a TPFC of its rights to enforce its of security interests in the event of a Customer Event of Default.

20.1.12 **Property Taxes.** In addition to any Taxes or Governmental Charges, Customer will pay to Verizon the amount of any personal property taxes incurred on the System. Such personal property taxes will be included in the charges shown in the Service Order, provided however, that changes to such taxes (e.g. for tax rate increases) may require that a new Service Order be issued.

20.1.13 **No Warranties or Representations.** Under MRP, Verizon or its assignee makes no warranty or representation, express or implied, including but not limited to fitness for a particular purpose, merchantability, quality, design, condition, capacity, suitability or performance of the System, the material and workmanship thereof or as to intellectual property rights, it being agreed that all such risks as between Verizon and Customer are to be borne by Customer alone and at Customer's expense. For the avoidance of doubt, Verizon will transfer or pass through to Customer the benefit of any and all manufacturer warranties for the System on the same terms as offered by such manufacturers which are capable of being transferred or passed through. To the extent deemed applicable and to the extent permitted by applicable law, Customer waives any and all rights or remedies conferred upon a "lessee" under section 2a-508 through 2a-522 of the United States uniform commercial code or similar provisions under another commercial code or statute with respect to a default by a "lessor" as such sections may be applied to MRP.

20.2 **CPE Deployment Services Terms and Conditions in the United States.**

20.2.1 **Warranty.**

20.2.1.1 **Voice Equipment.** In addition to other applicable warranties contained herein, for voice Systems installed by Verizon, the warranty period begins on the In-Service Date and continues

for 12 months.

20.2.1.2 **CPE Deployment Services Warranties.** Verizon warrants that any cables and connectors between the System and any other equipment on Customer's premises that are provided by Verizon will be in good working order for a period of thirty days after installation unless the failure of such cables and connectors is caused by Customer's misuse or abuse.

20.2.1.3 These warranties do not cover damage to or malfunction of the System caused in whole or in part by Customer or third parties through other than normal use of the System or caused by an event external to the System.

20.3 **Customer Furnished Equipment Terms and Conditions.** Verizon is not responsible for implementation delays, loss, or damage to equipment when equipment is shipped to Verizon without a detailed BOM or inbound delivery number or to the extent CFE shipments are not consistent with the BOM.

20.4 **Maintenance Terms and Conditions.**

20.4.1 Verizon reserves the right to change the rates, terms and conditions of Maintenance Service under these Service Terms to be effective upon the commencement of any renewal term and without formal amendment of these Service Terms by providing Customer written notice thereof prior to the expiration of the then-current term. If Customer is unwilling to accept such amended rates, terms and conditions, Customer will provide Verizon written notice thereof prior to the expiration of the then-current term, in which event the maintenance service will terminate upon expiration of the then-current term. Verizon may terminate the Maintenance Service at the end of the then current term upon 60 days written notice. Otherwise the Maintenance Service will continue to be provided at the then current undiscounted rate. If Customer has pre-paid the Maintenance Service and terminates prior to the end of the term, Customer will be reimbursed for the unused portion of the Maintenance Service, less any applicable cancellation charge and discount received unless a relevant Third Party Services Agreement does not allow for such reimbursement.

20.4.2 **Data Maintenance Terms.** Verizon warrants that Verizon Data Maintenance - Network and Maintenance Takeover Service will be performed in a good and workmanlike manner. CUSTOMER'S SOLE REMEDY FOR A BREACH OF THIS WARRANTY IS FOR VERIZON TO REPERFORM THE DEFECTIVE WORK.

20.5 **CPE Related Assessment Services Terms and Conditions in the United States.**

20.5.1 **Term of Services.** The CPE Related Assessment Services will commence as set forth in the applicable SOW and will continue in effect for the period of time required for Verizon to provide such CPE Related Assessment Services, or otherwise as specified in such SOW.

20.5.2 **Warranty.** Verizon warrants that it will perform the CPE Related Assessment Services hereunder in a good and workmanlike manner and substantially in conformity with the applicable SOW. VERIZON PROVIDES AND/OR LICENSES ALL DELIVERABLES TO CUSTOMER "AS IS". VERIZON'S SOLE LIABILITY AND CUSTOMER'S EXCLUSIVE REMEDY FOR BREACH OF SUCH WARRANTY WILL BE RE-PERFORMANCE BY VERIZON OF ANY NON-CONFORMING CPE RELATED ASSESSMENT SERVICES.

20.5.3 **Developed Information.** Unless otherwise set forth in a SOW, the parties acknowledge and agree that Verizon will at all times retain and have sole and exclusive title to and ownership of all (i) deliverables, documentation and information provided by Verizon to Customer under or in connection with a SOW, whether provided in hard-copy or electronic form, including, without limitation, all methodologies, processes, programs, tools/templates, software, templates, specifications, techniques, data, presentations, studies, compositions, marketing collateral, training programs and materials, analyses and assessments, and (ii) works of authorship, inventions, discoveries, concepts, ideas, designs, methods and information, whether or not patentable or copyrightable, developed, acquired, made, conceived or worked on by Verizon or any of its employees and agents, either solely or jointly with others, in connection with the performance of services under or in connection with a SOW.

20.5.4 **General Provisions.** During the term of the CPE Services and for a period of 6 months after their completion, Customer agrees not to employ or solicit for employment, directly or indirectly, or to permit its agents, contractors or others contemporaneously performing services for Customer to employ or solicit for employment, directly or indirectly, any of Verizon's employees involved in the provision of CPE Services under the applicable SOW.

Part IV: Definitions.

1. In addition to the Online Definitions, the following service-specific definitions apply:

Definitions	Definition
Asia Pacific (AP)	Includes countries in that region (as determined by Verizon) in which Verizon is able to provide Services.

Part V: Schedules.

List Of Schedules	Description
Cisco Schedule for U.S. Services Cisco Schedule for non-U.S. Services	Cisco Technology Migration Program Schedule To Customer Premises Equipment And Related Services +
Avaya Schedule for U.S. Services Avaya Schedule for non-U.S. Services	Avaya Products, Maintenance And Professional Services Schedule To Customer Premises Equipment And Related Services+

United States Service Agreement

between

Verizon Select Services Inc.

and

State of West Virginia

This United States Service Agreement is entered into by and between Customer and Verizon to establish the terms and pricing under which customer will purchase Services offered by Verizon. The Master Terms below set out the terms and conditions governing all Services. All capitalized terms not otherwise defined in the Agreement have the meanings set forth in the Master Terms Section 21, Definitions. **Service and Pricing Schedules will be added at a later time.**

MASTER TERMS

1. SERVICE ORDERING OPTIONS

1.1 **Orders.** Customer may place Orders for Service via Verizon's standard process for such Service.

1.2 **No Sign SOF (NSS) Process.** When using the NSS Process, Verizon will send the NSS to Customer via email to an address provided by Customer. The NSS has the same effect as a signed Order. Customer has five days from receipt of the NSS to notify Verizon of any errors.

2. CHARGES, PAYMENT, TAXES, AND PURCHASE COMMITMENTS

2.1 **Charges.** Customer shall pay the applicable Charges for Services as specified in the Agreement. Unless otherwise expressly set out in the Agreement, Verizon may change its Charges as follows: (a) for voice Services, upon seven days' notice to Customer; and (b) for all other Services upon 30 days' notice to Customer to take effect, (i) immediately for Services with no Purchase Commitment, or (ii) for Services with a Purchase Commitment at any time after the expiration of the Volume Commitment Period and/or Service Commitment (as applicable).

2.2 **Online Pricing.** If the Agreement incorporates online Charges, those Charges may be supplemented by the Charges for new Service options as they become available, such as faster speeds and advanced features. Any such new Charges will be clearly distinguished from existing Charges, which will not be affected. Customer may order such new Service options at the referenced Charges, subject to applicable terms.

2.3 **Activation.** Customer is deemed to have accepted Services on the Activation Date. Charges are accrued and invoiced as follows: (a) recurring Charges accrue from the Activation Date and are invoiced in advance; (b) usage based Charges accrue from the Activation Date and are invoiced in arrears; (c) non-recurring Charges accrue from the Commencement Date and are invoiced at any time thereafter; and (d) Third Party Charges are invoiced in accordance with the Order or Service Attachment. For Charges invoiced more than six months after the date a Charge accrues Customer may obtain a credit on request (except in cases involving fraud or Third Party Charges).

2.4 **Activation Delays.** If the Activation Date is delayed because Customer: (a) has not done all that is necessary on its part to activate the Services, Verizon may deem a date to be the Activation Date (whether the Services are ready for use or not) by notice to Customer and Charges will accrue in accordance with the clause entitled Activation; or (b) requests a delay; then in either case Customer shall be liable for any third party costs incurred by Verizon relating to the affected Services at a Customer Site during the period of delay.

2.5 **Payment.** Customer shall pay Verizon invoices within 30 days of the relevant invoice date in accordance with the remittance instructions on the invoice.

2.6 **Security.** In order to secure payment from Customer, Verizon may at any time request Customer to provide reasonable Security or increase existing Security. Customer must comply with any such request.

2.7 **Disputed Amounts.** If Customer notifies Verizon of a Disputed Amount by the Due Date, the Disputed Amount may be withheld. If a Disputed Amount is found to be not owed then Verizon will issue a credit. Verizon may elect to apply any credit balance(s) to the account(s) with the oldest unpaid charges. If a Disputed Amount is found to be owed, any withheld amount must be paid within five days after notification by Verizon to Customer of that determination. If Customer does not give Verizon notice of a Disputed Amount with respect to Charges or the application of Taxes within six months after the Due Date, the invoice will be deemed to be correct and binding on Customer.

2.8 **Past Due Amounts.** Amounts not paid on or before the Due Date are past due, and will accrue interest from the Due Date until payment at the rate of: (a) 1.5% per month (compounded monthly); or, where that rate is not permitted by applicable law or regulation (b) the maximum amount allowed. Without prejudice to any other rights under applicable law or regulation, Verizon may exercise its rights of termination or suspension in accordance with the Agreement with respect to any past due amount other than Disputed Amounts. Customer agrees to pay Verizon its reasonable expenses, including legal and collection agency fees, incurred in enforcing its rights under the clause entitled Charges, Payment, Taxes, and Purchase Commitments.

2.9 **Taxes.** All Charges are exclusive of Taxes. Customer shall pay any Taxes that apply to Charges. Verizon will exempt Customer from Taxes in accordance with law and regulation, after receiving a valid tax exemption certificate. If Customer is required by law or regulation to make any deduction or withholding from any payment, then the gross amount payable by Customer to Verizon will be increased so that, after any such deduction or withholding, the net amount received by Verizon will not be less than Verizon would have received had no such deduction or withholding been required. In addition, Verizon may adjust or introduce Governmental Charges in order to recover amounts it is required or permitted by governmental or quasi-governmental authorities to collect from or pay to others in support of statutory or regulatory programs.

2.10 **Purchase Commitments**

2.10.1 **Volume Commitments**

2.10.1.1 **Volume Commitment Obligations.** Where a Volume Commitment applies, Customer shall pay Verizon the amount of Eligible Charges required to meet the relevant Volume Commitment within the applicable measurement period. If, at the end of any Contract Year or Volume Commitment Period (as applicable), the Eligible Charges Customer has paid are less than the Volume Commitment, then Customer shall pay an Underutilization Charge equal to 75% of the shortfall (or other percentage detailed elsewhere in the Agreement).

2.10.1.2 **Responsible Party.** The Customer entity that is the Party to the USSA (not a Participating Entity) remains responsible in all respects for any failure to meet any Volume Commitment.

2.10.2 **Service Commitment.** For Optimized Services, no Service Commitment applies unless it is stated in the Agreement. For non-Optimized Services, a minimum one year Service Commitment applies unless otherwise stated in the Agreement. For all Services, any Service Commitment stated in an Order will take precedence over conflicting information elsewhere in the Agreement.

2.10.3 **Purchase Commitment Expiry.** Upon expiration of a Volume Commitment Period and/or Service Commitment (as applicable), the associated Service automatically continues until either Party terminates it under the terms of the Agreement.

3. TERM, TERMINATION AND CONSEQUENCES OF TERMINATION

3.1 **Term.** The Agreement will remain in force and the Services under it will continue to be provided unless and until terminated by either Party in accordance with the Agreement.

3.1.1 **Extended Term.** For standalone Agreements for Optimized Services with a Volume Commitment,

upon expiration of a Volume Commitment Period, the Agreement is automatically renewed for a subsequent Volume Commitment Period equal to the expired Volume Commitment Period (including any extensions) ("Extended Term") with a Volume Commitment equal to that which was in effect at the end of the expired Volume Commitment Period, unless a Party provides the other Party with notice of its intent not to auto-renew the Agreement at least 90 days prior to the expiration of the Volume Commitment Period. After expiration of the Extended Term, the Agreement is automatically extended on a month-to-month basis until either Party terminates it upon 60 days written notice. The terms of the Agreement (excluding the Volume Commitment) will continue to apply during any service-specific commitments that extend beyond the Volume Commitment Period.

3.2 **Customer Termination for Convenience**

3.2.1 **Termination Notice.** Unless otherwise specified in the Agreement and subject to the clauses entitled Consequences of Termination, Verizon Enterprise Center (VEC) Termination Requirement and Notices, Customer may terminate the Agreement or Services at any time for Convenience as follows:

(a) for Services, upon providing to Verizon no less than: (i) 30 days' notice for Services provided solely to locations in the U.S.; and (ii) 60 days' notice for all other Services; or

(b) for the Agreement, upon providing to Verizon no less than 60 days' notice.

3.2.2 **Date of Termination.** Termination for Convenience takes effect on: (i) the end of the period of notice; or (ii) if Customer specifies a later date, the day that Verizon actually disconnects a Service (or in the case of termination of the Agreement, the day Verizon disconnects the last Service).

3.2.3 **Verizon Enterprise Center (VEC) Termination Requirement.** Customer may only terminate Services for Convenience by completing Verizon's standard form via the VEC online portal at verizonenterprise.com, as such URL may be updated from time to time. Any other means of providing notice (including, without limitation, postal mail or email to Customer's account representative) has no effect, even if actually received by Verizon.

3.3 **Verizon Termination for Convenience.** Verizon may terminate a Service or the Agreement for Convenience on 60 days' notice to Customer provided all applicable Volume Commitment Periods and/or Service Commitments have expired.

3.4 **Termination for Cause or Insolvency**

3.4.1 **Cause.** Either Party may terminate for Cause immediately, by notice: (i) the Agreement where the Cause has application to all Services then provided under the Agreement; or (ii) the affected Services.

3.4.2 **Insolvency.** Either Party may immediately terminate by notice either the Agreement or any affected Services (to the extent permitted by applicable law and regulation) if the other Party experiences an Insolvency Event.

3.5 **Consequences of Termination**

3.5.1 **Consequences of Termination for Convenience.** If the Agreement or a Service is terminated by Customer for Convenience Customer shall pay or refund to Verizon, as applicable, without set off or deduction, the following with respect to each of the terminated Services: (i) all accrued but unpaid Charges incurred up to and including the date of such termination; (ii) a pro rata portion of credits and waivers received by Customer hereunder (except credits for Services failures, foreign tax credits (if any), and any other credits or waivers explicitly excluded elsewhere); and (iii) any applicable Early Termination Charges.

3.5.2 **Consequences of Termination by Verizon for Cause/Insolvency.** Where the Agreement or a Service is terminated by Verizon for Cause or due to an Insolvency Event affecting Customer then Customer shall pay or refund, as applicable, without set off or deduction, the amounts set out in the clause entitled Consequences of Termination for Convenience. The termination liability provided in

this clause is without prejudice to any other rights or remedies available to Verizon under the Agreement or otherwise in law or regulation.

3.5.3 **Early Termination Charges**

3.5.3.1 **Service Commitment.** If Services subject to a Service Commitment are terminated by Customer pursuant to the clause entitled Customer Termination for Convenience or by Verizon pursuant to the clause entitled Termination for Cause or Insolvency, on or after the:

(a) Commencement Date but before the Activation Date, Customer shall pay the Cancellation of Order Charges specified in the Service Attachment (if any) together with any third party termination charges related to such termination as notified by Verizon; or

(b) Activation Date but prior to the expiration of the Service Commitment, Customer shall pay an Early Termination Charge equal to 75% (or other percentage detailed elsewhere in the Agreement) of the Recurring Charges that would have been payable for those Services for the remaining unexpired part of the Service Commitment.

3.5.3.2 **Early Termination Charges for Moves, Changes.** Customer will not be charged the full Early Termination Charge set forth in part (b) of the preceding clause for moves or changes. Instead, for moves or changes to Optimized Services the Early Termination Charge described in part (b) of the preceding clause will be reduced by the recurring Charges for the replacement Optimized Service multiplied by the number of months in the new Service Commitment. To qualify as a move or change, changes to the Optimized Services must be placed at the same time with related coordinated implementation

3.5.3.3 **Volume Commitment.** If the Agreement contains a Volume Commitment and is terminated by Customer pursuant to the clause entitled Customer Termination for Convenience or by Verizon pursuant to the clause entitled Termination for Cause or Insolvency, Customer shall pay an Early Termination Charge equal to: (a) 75% (or other percentage detailed elsewhere in the Agreement) of the shortfall in any Volume Commitment(s) in the Contract Year of termination; and (b) 75% (or other percentage detailed elsewhere in the Agreement) of the aggregate of the remaining applicable Volume Commitments.

4. **SERVICE SUSPENSION.** Verizon may suspend one or more Services (or a part thereof) if: (a) Customer fails to pay any past due amounts for Services within 10 days after Customer receives notice of such non-payment; or (b) necessary to: (i) prevent or mitigate fraud, (ii) protect persons or property or protect the integrity or normal operation of Verizon Facilities, (iii) comply with law or regulation, or (iv) undertake Emergency Works; or (c) Verizon has reasonable grounds to consider that use of the Services violates the AUP. Verizon will give to Customer reasonable notice of the suspension where practicable, except in relation to suspension pursuant to sub-clause (a) above, where no notice is required beyond the 10 days stated therein. If Verizon exercises its right to suspend the Services, it will resume the Services as soon as practicable after the reason for suspension no longer exists (subject to the exercise of any termination right on the part of Verizon). If Services are suspended as a consequence of the breach, fault, act or omission of Customer or any Customer Affiliate, Customer shall pay to Verizon all reasonable costs and expenses incurred by the implementation of such suspension and/or reconnection of the Service.

5. **AVAILABILITY OF SERVICES.** If Verizon cannot fulfill an Order (after the Commencement Date) for reasons other than Force Majeure Event, after making commercially reasonable efforts to fulfill such Order, Verizon will notify Customer as soon as possible and where available, Verizon will advise Customer of any alternative Service offerings. In any event Verizon will have no further obligation to provide the Service under that Order.

6. **SERVICE LEVEL AGREEMENT (SLA).** Verizon reserves the right to amend any applicable SLA from time to time effective upon posting of the revised SLA to the URL where the SLA is set out or other notice to Customer, provided that in the event of any amendment resulting in a material reduction of the SLA's service levels or credits, Customer may terminate Services without termination liability (except for payment of all Charges up to the effective date of the termination of any such Services) by providing Verizon at least 30 days' notice of termination during the 30 days following the posting or notice of such

amendment, as applicable. Customer is not entitled to terminate if, within 30 days of receipt of Customer's notice, Verizon agrees to amend the relevant SLA so that the affected SLA service levels and credits are not materially reduced for Customer. The SLA sets forth Customer's sole remedies for any claims with respect to Services to which the SLA relates. Verizon records and data are the basis for all SLA calculations and determinations.

7. **EVOLUTION OF SERVICES.** The Parties acknowledge that Verizon's services will evolve over time and consequently Verizon may introduce new services to replace existing Services or cease to offer new instances of a Service in whole or in part (referred to here as grandfathering). Accordingly, Verizon may terminate Services upon not less than six months' written notice in the event that it generally decommissions any Services (that is, ceases to provide such Services on a commercial basis to its customers). Verizon may grandfather a Service (or any part thereof) at any time. Where available, Verizon will advise Customer of any alternative service offerings that have comparable technical characteristics.

8. LIABILITY

8.1 **Liability - Limitations.** Subject to the clauses entitled Liability - Exclusions and Liability - Inclusions:

8.1.1 **Aggregate Liability.** The aggregate liability of either: (a) Customer, its Affiliates and Participating Entities; or (b) Verizon and its Affiliates, to the others collectively for any and all Events in an Annual Period is limited to an amount equal to 12 times the Average Monthly Charges during the Annual Period in which an Event first occurred. For the purpose of this clause and calculation, where: (i) an Event gives rise to a number of separate liabilities, claims or causes of action, and/or (ii) there is a series of connected Events, such will be considered a single Event and will be deemed to have occurred in the Annual Period in which the first Event occurred.

8.1.2 **CPE Liability.** The entire liability of Verizon and its Affiliates for Events arising in connection with the sale of CPE is limited to the Charges for the specific CPE giving rise to the particular Event. This clause operates independently to (and to the exclusion of) the aggregate liability limitation detailed in the clause entitled Aggregate Liability.

8.2 **Liability - Exclusions.** Subject to the clause entitled Liability - Inclusions below, neither: (a) Customer, Customer Affiliates and Participating Entities; nor (b) Verizon and Verizon Affiliates, will be liable to the others for any: (i) special damages, (ii) incidental damages, (iii) exemplary damages, (iv) punitive damages, (v) indirect and/or consequential loss, (vi) loss of sales or business, (vii) loss of value, (viii) loss of use, (ix) loss of goodwill, (x) damage to reputation, (xi) loss of data, (xii) loss of anticipated savings, or (xiii) business interruption.

8.3 **Liability - Inclusions.** Nothing in this Agreement operates to exclude or limit any of the following and these amounts will not be counted in assessing whether the aggregate liability limitation in the clause entitled Liability - Limitations has been reached: (a) any liability relating to bodily injury (including death) caused by a Party's negligence; (b) any liability resulting from a party's fraud or fraudulent misrepresentation; (c) any liability that cannot be limited under applicable law or regulation, including but not limited to mandatory local law; (d) any indemnification obligation under the Agreement; (e) damages, including with respect to loss of or damage to real property or tangible personal property, resulting from gross negligence or intentional tortious conduct of a Party; and (f) any liability of Customer and Participating Entity with respect to non-payment, including any claim for interest.

8.4 **Warranty/Disclaimer.** Except as expressly set out in the Agreement, all warranties, representations, or agreements, with respect to the provision of Services or otherwise, whether oral or in writing and whether express or implied, either by operation of law, statute or otherwise, are excluded to the extent permitted by law and regulation. All other warranties, including the implied warranties or conditions of satisfactory quality, merchantability, non-infringement, and fitness for a particular purpose are excluded, to the extent permitted by law and regulation. Verizon does not warrant that any network, computer systems, and Services are fully secure. Verizon does not warrant that use of any of the Services will be uninterrupted or error-free or that Verizon will correct all defects or prevent third party disruptions or unauthorized third party access to the Services.

9. CUSTOMER DATA AND CONFIDENTIALITY

9.1 **Customer Data**

9.1.1 **Customer Data**. Verizon, and Verizon Affiliates and their respective agents will, by virtue of the provision of Services, come into possession of Customer Data.

9.1.2 **Protection Measures.** Verizon will implement appropriate technical and organizational measures to protect Regulated Customer Data against accidental or unlawful destruction or accidental loss, alteration, unauthorized disclosure or access and against other unlawful forms of processing which measures may for example relate to data handling practices, backup procedures and server, workstation and transmission security for internal communications.

9.1.3 **Access.** Customer may access Regulated Customer Data in the possession of Verizon, on notice, and any agreed errors in such Regulated Customer Data will be rectified.

9.1.4 **Use of Customer Data.** By entering into the Agreement, Customer expressly and unequivocally consents to Verizon, Verizon Affiliates and their respective agents, using, processing and/or transferring Customer Data (including intra-group transfers and transfers to entities in countries that do not provide statutory protections for personal information) as set forth in the Privacy Policy and as necessary: (a) in connection with provisioning of Services; (b) to incorporate Customer Data into databases controlled by Verizon, Verizon Affiliates or their respective agents for the purpose of providing Services; administration; provisioning; invoicing and reconciliation; verification of Customer identity, solvency and creditworthiness; maintenance, support and product development; fraud detection and prevention; sales, revenue and customer analysis and reporting; market and customer use analysis including in the manner described in the Privacy Policy; and (c) to communicate to Customer regarding services.

9.1.5 **Customer Consent.** Customer warrants that it has obtained or will obtain all legally required consents and permissions from relevant Parties (including data subjects) for the use, processing and transfer of Customer Data as described in this clause entitled Customer Data and Confidentiality.

9.1.6 **Withdrawal of Consent.** Customer may withdraw consent for such use, processing or transfer of Customer Data as set out above, except as it is required to: (a) provision, manage, account or invoice for Services; (b) carry out fraud detection; or (c) comply with any statutory or regulatory requirement or the order of a court or other public authority, by sending notice to Verizon in the prescribed form, available from Verizon on request.

9.2 **Confidentiality.** Except as required by law or regulation, each Party shall, during and for no less than three years after the termination or expiration of the Agreement: (i) use the other Party's Confidential Information only for purposes of the Agreement; (ii) not disclose it to third parties except as provided below; and (iii) protect it from disclosure using the same degree of care it uses for its own similar Confidential Information (but no less than a reasonable degree of care). Either Party may disclose the other Party's Confidential Information only to its employees, agents, and subcontractors (including professional advisors and auditors), and to those of its Affiliates, who have a need to know for purposes of the Agreement, and who are bound to protect it from unauthorized use and disclosure under the terms of a written agreement at least as protective of the other Party's Confidential Information as the related terms of the Agreement. In addition, information, whether or not Confidential Information, may be disclosed by a receiving Party as may be required or authorized by applicable law, rule, regulation, or lawful process provided that the receiving Party, to the extent practicable and permitted by applicable law, rule, regulation or lawful process, first notifies the disclosing Party in order to permit the disclosing Party to seek protective arrangements. Confidential Information remains the property of the disclosing Party and, upon written request of the disclosing Party, must be returned or destroyed provided however that a party may retain one copy of the other Party's Confidential Information solely for archiving and auditing purposes or as otherwise may be required by law or regulation. Any such retained Confidential Information will continue to be subject to requirements of confidentiality set out in this clause entitled Confidentiality.

10. CUSTOMER OBLIGATIONS

10.1 **Access.** Where Verizon or its third party providers require access to a Customer Site, Customer will grant or will procure the grant to Verizon or its third party provider such access including all licenses, waivers and consents as necessary to install, construct or use space in the building risers, innerduct, or conduit from the property line to the Customer Site and to operate and maintain Service Equipment at the Customer Site. Customer will advise Verizon in writing of all health and safety rules and regulations and any other reasonable security requirements applicable at the Customer Site.

10.2 **Assistance.** Customer will provide Verizon with such facilities, information and co-operation as Verizon may reasonably require to perform its obligations or exercise its rights under the Agreement or an Order, including with respect to Verizon's implementation of new processes or systems.

10.3 **Service Equipment.** Where Verizon provides Service Equipment, Customer warrants and undertakes that it will: (a) use the Service Equipment only for the purpose of receiving Services and in accordance with Verizon's reasonable instructions from time to time and/or any Software license that may be provided with the Service Equipment; (b) not move, modify, relocate, or in any way interfere with the Service Equipment or Verizon Facilities; (c) insure and keep insured all Service Equipment against theft and damage; (d) not create or allow any charges, liens, pledges or other encumbrances to be created over the Service Equipment; (e) permit Verizon to inspect, test, maintain and replace the Service Equipment at all reasonable times; (f) comply with Verizon's reasonable instructions, at Customer's own expense, in relation to the modification of the Customer Equipment to enable Customer to receive Services; and (g) upon termination of any of the Services, follow Verizon's reasonable instructions with respect to the return of the Service Equipment including allowing Verizon access to each Customer Site to remove the Service Equipment. Should any construction or alteration to a Customer Site have occurred to facilitate any Services, Verizon is not obliged to restore that Customer Site to the same physical state as prior to delivery of the Services. Customer is liable for any and all damage to Service Equipment or Verizon Facilities which is caused by: (i) the act or omission of Customer or Customer's breach of the Agreement or an Order, or (ii) malfunction or failure of any equipment or facility provided by Customer or its agents, employees, or suppliers, including but not limited to the Customer Equipment. Verizon is not liable for any costs incurred by Customer arising out of any malfunction or failure of any such equipment or facility, including Customer Equipment.

11. **SOFTWARE AND DOCUMENTATION.** Software not otherwise subject to a separate agreement or license is provided to Customer subject to Verizon's standard Software license terms as follows. In consideration for payment of any applicable fees, Customer is granted a License. Customer may not use the Software either in connection with the products and/or services of any third party or to provide services for the benefit of any third party. Customer may make one copy of the Software, other than the documentation, for archival or back-up purposes only if any copyright and other proprietary rights notices are reproduced on such copy. Customer may make a reasonable number of copies of documentation provided as part of the Software solely in support of its use of the Software and Services. Customer may not: (a) attempt to reverse engineer, decompile, disassemble or otherwise translate or modify the Software in any manner; or (b) sell, assign, license, sublicense or otherwise transfer, transmit or convey Software, or any copies or modifications thereof, or any interest therein, to any third party. All rights in the Software, including without limitation any patents, copyrights and any other intellectual property rights therein, remain the exclusive property of Verizon and/or its licensors. Customer agrees that the Software is the proprietary and confidential information of Verizon and/or its licensors subject to the provisions of the clause entitled Confidentiality. Except to the extent otherwise expressly agreed by the Parties in writing, Verizon has no obligation to provide maintenance or other support of any kind for the Software, including without limitation any error corrections, updates, enhancements or other modifications. The License will immediately terminate upon the earlier of: (i) termination or expiration of any Agreement or Order between Verizon and Customer pertaining to the Software, (ii) termination of the Services with which the Software is intended for use, or (iii) failure of Customer to comply with any provisions of this clause entitled Software and Documentation. Upon termination of any License, at Customer's option, Customer will promptly either: (1) destroy all copies of the Software in its possession; or (2) return all such copies to Verizon, and in either event provide an officer's written certification confirming the same.

12. **USE OF SUBCONTRACTORS/AFFILIATES.** Without releasing it from any of its obligations, Verizon may at any time utilize the services of one or more Verizon Affiliates or subcontractors in connection with the performance of its obligations.

13. **RESALE OF SERVICES.** Except as expressly prohibited by law or regulation or as set forth in the Agreement, Customer may not resell, charge, transfer or otherwise dispose of Services (or any part thereof) to any third party.

14. **ACCEPTABLE USE POLICY (AUP).** Use of Verizon IP Services must comply with the AUP of the countries from which Customer uses such Services (in the event no AUP exists for a country, the U.S. AUP will apply). The applicable AUP is available at the following URL: verizonenterprise.com/terms or other URL designated by Verizon. Customer will ensure that each user of the Services complies with the AUP.

15. **IP ADDRESSES.** Any IP addresses assigned to Customer by Verizon must be used solely in connection with the Services for which they are assigned. If such Services are terminated, Customer's right to use the IP addresses ceases immediately and the IP addresses immediately revert to Verizon.

16. **NETWORK MONITORING.** Transmissions passing through Verizon Facilities may be subject to legal intercept and monitoring activities by Verizon, its suppliers or local authorities in accordance with applicable local law and regulatory requirements.

17. **CONTENT DISCLAIMER.** Verizon exercises no control over and has no responsibility for the accuracy, quality, security or other aspect of any Content accessed, received, transmitted, stored, processed or used through Verizon Facilities or any Services (except to the extent particular Services explicitly state otherwise). Customer accesses, receives, transmits, stores, processes, or uses any Content at its own risk. Customer is solely responsible for selecting and using the level of security protection needed for the Content it is accessing, receiving, transmitting, storing, processing or using, including without limitation Customer Data, individual health and financial Content.

18. **GENERAL**

18.1 **Compliance with Laws.** Verizon will comply with all applicable laws and regulations including all mandatory legal and regulatory requirements in the jurisdiction where Services are to be provided. Customer will comply, and ensure that users of the Services comply, with all applicable laws and regulations including without limitation applicable export/re-export (including U.S. export regulations), sanctions, import and customs laws and regulations.

18.2 **Governing Law and Venue.** This Agreement will be governed by and construed in accordance with the laws of New York, without regard to its choice of law principles, except where the Communications Act of 1934 applies. The Parties waive all objections to venue in the US District Court for the Southern District of New York or state courts within the City of New York, as applicable.

18.3 **Dispute Resolution.** Any controversy, claim, or dispute ("Disputed Claim") arising out of or relating to the Agreement (including incorporated terms), except for claims relating to indemnity, infringement, or confidentiality obligations or matters relating to injunctions or other equitable relief (together "Equitable Claims"), must be resolved by binding arbitration of a single arbitrator in accordance with the rules of the American Arbitration Association. The decision of the arbitrator must be based upon the Agreement and applicable law. The decision of the arbitrator must be reduced to writing, is final and binding except for fraud, misconduct, or errors of law, and judgment upon the decision rendered may be entered in any court having jurisdiction. In all arbitrations, the arbitrator must give effect to applicable statutes of limitation subject to limitation of actions terms in the Agreement and the USSA, and has no authority to award relief in excess of what the Agreement provides or to order consolidation or class arbitrations. The arbitrator has no authority to award punitive damages in any Disputed Claim. Any such claims arising under the Agreement must be pursued on an individual basis in accordance with the procedure noted above. Even if applicable law permits class actions or class arbitrations, the dispute resolution procedure specified here applies and Verizon and Customer waive any rights to pursue any claim arising under the Agreement on a class basis. The arbitration will be held in a mutually agreed-to location, and is final and binding.

18.4 **Import and Delivery.** In jurisdictions where Verizon has an established legal presence, delivery of Service Equipment will be Delivered Duty Paid (DDP) to a Customer Site unless stated elsewhere in the Agreement or delivery under the DDP term is not available. In situations where delivery under

the DDP term is not available (including where Verizon does not have an established legal presence), delivery of Service Equipment will be Delivered At Place (DAP) to a Customer Site. In the Philippines, delivery of Service Equipment will be Free Carrier (FCA) (Customer designated port). For avoidance of doubt, in all cases for import into the Philippines, Customer will act as the importer of record or otherwise cause the Service Equipment to be imported.

18.5 **Injunctive Relief**. Nothing in the Agreement precludes either Party from seeking interim, interlocutory or permanent injunctive relief on an urgent basis from any court of competent jurisdiction.

18.6 **Assignment**. Either Party may assign its rights or obligations under (and subject to) the Agreement, to: (a) an Affiliate; or (b) a successor to the business or assets of a Party that includes this Agreement without the other Party's consent, provided in the case of Customer, the assignee meets Verizon's generally applicable credit standards. Except as stated, no Party may novate, assign, encumber, or transfer the Agreement in whole or in part without the prior written consent of the other Party (which may not be unreasonably withheld or delayed).

18.7 **Notices**. Except as set out in the clause entitled Verizon Enterprise Center (VEC) Termination Requirement, all notices (including notices to terminate the Agreement for Convenience) must be in writing and sent to the notice address specified below and for Customer, as specified, or if no such address is specified, the registered address of Customer. Notice may be transmitted via any of email, overnight courier, hand delivery, a class of certified or registered mail that includes proof of receipt or, for Verizon only, via invoice message. Notice sent in accordance with this clause is effective when received, except for email notice, which is effective the Business Day after being sent.

Verizon Business Services 6415-6455 Business Center Drive Highlands Ranch, CO 80130 Attn: Customer Service Email: notice@verizon.com With a subject of "OFFICIAL LEGAL NOTICE"	with a copy to Verizon Business Services 500 Summit Lake Drive Office 4-04 Valhalla, NY 10595 Attn: Vice President, Legal

18.8 **Relationship of the Parties**. Verizon is an independent contractor, not Customer's agent, joint venturer, partner, or fiduciary, and does not undertake to perform any of Customer's regulatory obligations, or assume any responsibility for Customer's business or operations.

18.9 **Applicability of Terms**. If any of the provisions of the Agreement are held by any entity of competent jurisdiction to be unenforceable, the remainder of the Agreement remains enforceable. Failure or delay to exercise or enforce any right under the Agreement is not a waiver of that right. Certain provisions are intended by their nature to survive expiration or termination (including, without limitation, Liability and Customer Data and Confidentiality). The Agreement may not be amended except by a written instrument that both Parties agree to be bound by (whether by execution or some other method).

18.10 **No Third Party Beneficiaries**. No right or cause of action for any third party is created by the Agreement or any transaction under it.

18.11 **Force Majeure**. Any failure by a Party to perform an obligation, (other than a failure to make payment), under the Agreement that is the result of a Force Majeure Event is not a breach of the Agreement. A Party claiming non-performance from a Force Majeure Event must promptly provide the other Party notice of the relevant details, and the obligations of the notifying Party are suspended to the extent caused by the Force Majeure Event. The time for performance of the affected obligation will be extended by the delay caused by the Force Majeure Event. If the affected Party is prevented by the Force Majeure Event from performing its obligation(s) with respect to a Service for 30 days, either Party may in its sole discretion immediately terminate such Service with notice to the other Party; provided that in the case of termination by Customer, Customer first provides Verizon a reasonable opportunity to replace the affected Service with comparable Service(s). Upon such termination, Verizon is entitled to payment of all accrued but unpaid Charges incurred through the date of such termination. The Parties will otherwise bear their own costs and Verizon will be under no further liability or obligation to perform the Service affected by the Force Majeure Event.

18.12 **Counterparts and eSign**. Where a signature is required, an Order or the USSA may be executed in one or more counterparts, each of which is be deemed to be an original, but together constitutes one instrument. The Parties agree that an Order or the USSA may be executed by eSign if available.

18.13 **Order of Precedence.** In the case of any inconsistency, the USSA takes precedence over Orders. Within the USSA, the order of precedence (in descending priority) is: Master Terms, Service Attachments (Schedule A), and Pricing (Schedule B). Within each of those parts of the Agreement, those terms set out directly into the document to which Customer is a Party take precedence over any online terms.

18.14 **Changes to Online Terms.** Verizon may change the Online Master Terms and Service Terms from time to time, effective upon 30 days posting or other notice. By continuing to use Service(s) after a change becomes effective, Customer agrees to be bound by the changed terms, which apply to new and previously-ordered Services. It is Customer's responsibility to check the Online Master Terms and Service Terms regularly for changes.

18.15 **Entire Agreement.** The Agreement: (a) expresses the entire understanding of the respective Parties with respect to their subject matter; (b) supersedes all prior or contemporaneous representations, solicitations, offers, understandings or agreements regarding their subject matter which are not fully expressed herein; and (c) contains all the terms, conditions, understandings, and representations of the Parties. Any terms and conditions sent to Verizon by Customer as a purchase order or otherwise, are void and of no effect and, will not supersede any terms and conditions in the Agreement.

19. **CUSTOMER CONSENT TO USE OF U.S. CUSTOMER PROPRIETARY NETWORK INFORMATION (CPNI).** Verizon desires to give you the best digital and connected experience and the most reliable products and services. Verizon protects all your Customer information, but may need to share your Customer information with our affiliates, and with our partners, vendors, and agents, in order to offer and provide products and services to you, our Customer. The Federal Communications Commission, and various states, require Verizon, and indeed all telecommunications providers, to protect Customer Proprietary Network Information (CPNI). CPNI is information that identifies the quantity, technical configuration, type, destination, location, and amount of use of a Customer's telecommunications and interconnected VoIP services purchased from a provider, and related local and toll billing information. Verizon respects our Customers' rights to the protections afforded by these laws and regulations. By signing the USSA, Customer grants Verizon permission to use, give access to, and share, Customer's CPNI between and among Verizon and its Affiliates, and with their agents, contractors, and partners, solely so Verizon and its affiliates can offer Customer our current and future products and services; and to disclose any of Customer's current and future affiliates' CPNI to Customer upon Customer's request. Additionally, Customer represents that the individual signing the USSA has the authority to grant this permission to Verizon. You, our Customer, may withdraw or limit your consent at any time via email at cpni-notices@verizon.com or at cpni-notices@verizonwireless.com. Please note that your consent will remain valid until Verizon receives a notice withdrawing consent. Withdrawal or limitation of consent will not affect existing service delivery.

20. **PROTECTION OF CUSTOMER U.S. CPNI AND PROVISION OF CUSTOMER CPNI TO AUTHORIZED CUSTOMER REPRESENTATIVES.**

20.1 **Access and Use**. Verizon will protect the confidentiality of Customer CPNI in accordance with applicable U.S. laws, rules and regulations. Verizon may access, use, and disclose Customer CPNI as permitted or required by applicable laws, rules, and regulations or the USSA.

20.2 **Provision of CPNI Information.** Provided that Customer is served by at least one dedicated Verizon representative under the USSA (that can be reached by Customer by means other than calling through a call center) and as permitted or required by applicable law and regulation, Verizon may provide Customer CPNI (including, without restriction, call detail) to representatives authorized by Customer ("Authorized Customer Representatives" as defined below) in accordance with the following.

20.3 **Means of Provision.** Verizon may provide Customer CPNI to Authorized Customer Representatives via any means authorized by Verizon that is not prohibited by applicable laws, rules, or regulations, including, without restriction: to Customer's email address(es) of record (if any) or other email

addresses furnished by Authorized Customer Representatives, to Customer's telephone number(s) of record or other telephone numbers provided by Authorized Customer Representatives, to Customer's postal (U.S. Mail) address(es) of record or to other postal addresses furnished by Authorized Customer Representatives, or via Verizon's online customer portal or other online communication mechanism.

20.4 **Notice of Authorized Customer Representatives**. Authorized Customer Representatives include Customer employees, Customer agents, or Customer contractors, other than Verizon, who have existing relationships on behalf of Customer with Verizon customer service, account, or other Verizon representatives and all other persons authorized in written notice(s) (including email) from Customer to Verizon. Authorized Customer Representatives shall remain such until Customer notifies Verizon in writing that they are no longer Authorized Customer Representatives as described below. Customer agrees, and will cause Authorized Customer Representatives, to abide by reasonable authentication and password procedures developed by Verizon in connection with disclosure of Customer CPNI to Authorized Customer Representatives.

20.5 **Necessary Information**. Customer's notices of authorization or deauthorization must be sent to Verizon's service or account manager, and must contain the following information:

(a) the name, title, postal address, email address, and telephone number of the person authorized or deauthorized
(b) that the person is being authorized, or is no longer authorized, (as applicable), to access CPNI
(c) the full corporate name of the Customer whose CPNI (and whose Affiliates' CPNI) the person can access (or can no longer access, if applicable)

20.6 **CPNI Authorizers**. At all times that the Agreement is in effect, Customer may designate in a form provided by Verizon and returned to Verizon (all containing the same data elements listed below) up to three representatives ("CPNI Authorizers") with the power to name Authorized Customer Representatives who may access CPNI under the USSA as well as additional CPNI Authorizers. Additions or removals of CPNI Authorizers will be effective within a reasonable period after Verizon has received a signed writing of the change, including the affected person(s)' name, title, postal address, email address and telephone number. The person who executes the Agreement or Order will be a CPNI Authorizer and may add or remove CPNI Authorizers for that Customer and for its Participating Entities.

21. **DEFINITIONS.** Capitalized terms contained in the Agreement are defined as follows:

"+" after a Service name indicates the Service is an Optimized Service.

"Acceptance Date" as used in any Order or Service Attachment, means Activation Date.

"Activation Date" means: (a) with respect to Internet, data and on-network voice Services, the date the hub and telephone circuits are prepared to route packets or cells to a Customer Site; (b) with respect to off-network voice Services, the date the calling line identification is provisioned; (c) with regard to other Services, the earliest of: (i) the date identified in the relevant Service Attachment or Order, (ii) the date that Verizon informs Customer that Services are ready for use, (iii) the date Customer first uses Services or (iv) for CPE deployment services under the CPE Service Attachment, the date on which the deployment acceptance process and Customer signature requirements specified therein are completed; and (d) in the case of existing Services that are renewed, the date that is stated on the Order.

"Affiliate" means any entity or person controlled by, controlling, or under common control with Verizon or Customer, as applicable.

"Agreement" means the USSA together with all Orders entered into pursuant thereto.

"Annual Period" means the 12 month period beginning on the Commencement Date of the USSA, and each anniversary thereafter.

"Annual Volume Commitment" or "AVC" means the total Eligible Charges which Customer must pay during each Contract Year of the Volume Commitment Period.

"AUP" means the applicable Verizon Acceptable Use Policy.

"Average Monthly Charges" means all Charges (save for any Charges relating to the sale of CPE) which: (i) have been invoiced; and (ii) will be invoiced during the relevant Annual Period to Customer and its Participating Entities under the Agreement and calculated as a monthly average across the Annual Period.

"Business Day" means a day other than a Saturday and Sunday, or other customary rest day(s), and national holiday(s) in the jurisdiction of the Customer Site.

"Cancellation of Order Charges" means the charges (if any) specified in the Administrative Charges table in a Service Attachment.

"Cause" means a breach by the other Party of any material provision of the Agreement (including in relation to a particular Order) which: (i) is incapable of remedy; or (ii) if capable of remedy, remains uncured for 30 days from written notice of such breach; or (iii) in the case of Customer's failure to pay any past due amount, 10 days from notice of such failure.

"Charges" means all amounts owed by Customer relating to the provision of Services as set out in the Agreement, and including Underutilization Charges and Early Termination Charges.

"Commencement Date" means: (a) for the USSA, the date on which both Parties agree to be bound by (whether by execution or some other method) the USSA; (b) for any Order (including in relation to a renewed Service), the date on which both Parties agree to be bound by (whether by execution or some other method) the Order or Verizon commences performance, whichever is the earlier; and (c) for a NSS the date that the Order is acknowledged by Verizon email to Customer.

"Commitment Effective Date" means the first day of the first full month following the Commencement Date.

"Confidential Information" means information (in whatever form): (a) designated as confidential; (b) relating to the Agreement including the existence of the Agreement itself; (c) relating to the Party's business affairs, customers, products, developments, trade secrets, intellectual property rights, know-how or personnel; or (d) received or discovered at any time that the Agreement is in effect, or otherwise in connection with the Agreement, by a Party (including through an Affiliate or other agent), which information should reasonably have been understood as Confidential Information of the Party (or one of its Affiliates or subcontractors), either because of legends or other markings, the circumstances of disclosure or the nature of the information itself. Confidential Information does not include information that: (i) is in the possession of the receiving Party free of any obligation of confidentiality at the time of its disclosure, (ii) is or becomes publicly known other than by a breach of this provision, (iii) is received without restriction from a third party free to disclose it, or (iv) is developed independently by the receiving Party without reference to the Confidential Information.

"Content" means anything that can be accessed, received, transmitted, stored, processed or used – (whether actively or passively) - including any form of information, audio, image, computer program or other functionality.

"Contract" has the same meaning as Order.

"Contract Year" means the 12 month period beginning on the Commitment Effective Date and each anniversary thereafter, or as set forth in the Agreement.

"Convenience" means termination by a Party for any reason other than: (i) for Cause; (ii) if the other Party experiences an Insolvency Event; or (iii) pursuant to the clauses entitled Service Level Agreement or Force Majeure.

"CPE Services" means CPE related deployment, maintenance, assessment, rental, lease and other service furnished to Customer in connection with the CPE, Software or Customer Equipment.

"Customer" means the non-Verizon entity that agrees to be bound by (whether by execution or some other method) the USSA or an Order, as the context requires.

"Customer Data" means voice and data transmissions (including the originating and destination numbers and IP addresses, date, time, duration of voice or data transmissions, and other data necessary for the establishment, invoicing or maintenance of the transmission), data containing information regarding Customer, its employees and users including personal and/or private information and other data provided to or obtained by Verizon, Verizon Affiliates and their respective agents and employees in connection with the provision of the Services. A reference to Customer Data will include Regulated Customer Data where applicable.

"Customer Equipment" means any equipment, systems, software, cabling and facilities provided by or on behalf of Customer and used in conjunction with the Services at a Customer Site. Ownership of the Customer Equipment will not at any time vest in Verizon or a Verizon Affiliate.

"Customer Premises Equipment" or "CPE" means any equipment, systems, Software, cabling and facilities, including without limitation, handsets and other related materials, which is sold or otherwise furnished by Verizon to Customer as itemized in an Order.

"Customer Site" means the location specified by Customer at which Services are to be provided.

"Disputed Amount" means an amount which Customer disputes. A Disputed Amount may relate to the whole or part of an invoice(s).

"Due Date" means the date on which payment for Service by Customer is to be received by Verizon as set out in the Agreement.

"eSign" means the process designated by Verizon which permits an Agreement or Order to be executed electronically by Customer without the need for a hard copy signature.

"Early Termination Charges" means the charges calculated in accordance with the clause entitled Early Termination Charges.

"Eligible Charges" means all Charges, after application of all discounts and credits, incurred by Customer, specifically excluding: (a) Taxes; (b) Charges for CPE and CPE Services; (c) Third Party charges where Verizon or Verizon Affiliates act as agent for Customer in its acquisition of Services; (d) non-recurring charges; (e) Governmental Charges; (f) other Charges expressly excluded by the Agreement (including in any Service-specific pricing URL). Whether Charges are Eligible Charges does not depend on which Verizon entity is providing the Services. Charges of the same type, incurred by Participating Entities and subject to the Agreement, are treated as Eligible Charges for purposes of satisfying Customer's Volume Commitment(s).

"Emergency Works" mean works, the execution of which, at the time it is proposed to be executed, is required to put an end to, or prevent, the arising of circumstances then existing or imminent that are likely to cause: (a) danger to persons or property; (b) the interruption of any Services provided by the Verizon Facilities; (c) substantial loss to Verizon or any third party; and/or (d) such other works as in all the circumstances it is reasonable to execute with those works.

"Event" means any incident, event, statement, act or omission giving rise to any liabilities, claims or causes of action under or in connection with the Agreement including (but not limited to) contract, warranty, tort (including negligence), strict liability, misrepresentation, breach of statutory duty, breach of warranty or otherwise.

"Force Majeure Event" means an event beyond the reasonable control of the Party affected, including, but not limited to, acts of God, embargoes, governmental restrictions, strikes, riots, insurrection, wars or other military action, civil disorders, acts of terrorism, rebellion, fires, explosions, accidents, floods, vandalism, cable cuts and sabotage. Market conditions or fluctuations are not Force Majeure Events.

An "Insolvency Event" occurs when a Party: (i) files for bankruptcy; (ii) becomes or is declared insolvent, or is the subject of any bona fide proceedings related to its liquidation, administration, provisional

liquidation, insolvency or the appointment of a receiver or similar officer for it; (iii) passes a resolution for its voluntary dissolution or liquidation, (iv) has a receiver or manager appointed over all, or substantially all, of its assets; (v) makes an assignment for the benefit of all, or substantially all, of its creditors; (vi) enters into an agreement or arrangement for the composition, extension, or readjustment of all, or substantially all, of its obligations or any class of such obligations; (vii) becomes incapable of paying its undisputed debts when due; or (viii) experiences an event analogous to any of the foregoing in any jurisdiction in which any of its assets are situated

"License" means a personal, non-exclusive, non-transferable, non-sublicensable license to use Software, in object code form only, solely in connection with Services for Customer's internal business purposes on Customer-owned or Customer-leased equipment.

"Master Terms" means the terms and conditions set out in this document including any Addendum to the Master Terms. The Master Terms may also be referred to as the Online Master Terms.

"Normal Business Hours" or "Normal Working Hours" or "Business Hours" means the hours between 8 am and 5 pm on Business Days in the time zone of the Customer Site. Verizon may vary Normal Business Hours by notice to Customer at any time.

"NSS" means No Sign SOF and refers to an Order which is accepted by Verizon via the NSS Process.

"NSS Process" means the process set out in the Agreement in the clause entitled No Sign SOF (NSS) Process.

"Optimized Service" means any Service, Software and CPE (including any CPE Services) optimized for Verizon's automation platform, which is indicated by '+' after the Service name (e.g., 'Private IP +'). The '+' is not a part of the Service name.

"Order" means a Customer request for one or more Services that is delivered by Customer to Verizon and effective and binding upon the Commencement Date.

"Participating Entity" means an entity authorized by the Customer entity that agrees to be bound by (whether by execution or some other method) the USSA under Verizon's processes to contract for Services via an Order in Participating Entity's own name subject to the terms of the Agreement.

"Party" means the particular Verizon or Customer entity that agrees to be bound by (whether by execution or some other method) the USSA or an Order, as applicable and "Parties" will be construed accordingly.

"Privacy Policy" means the applicable Verizon Privacy Policy set out at http://www.verizonenterprise.com/privacy/.

"Purchase Commitment" means a Service Commitment or a Volume Commitment. A Service may be subject to both a Service Commitment and a Volume Commitment if specified in the USSA or Order.

"Regulated Customer Data" means Customer Data the use, processing or transfer of which is regulated by law or regulation as personal data.

"Security" means a cash deposit, director's guarantee, company guarantee, letter of credit from an approved financial institution, or bank guarantee, or any combination of these.

"Services" means the specific services, and CPE (including any CPE Services) provided under the Agreement and may include Third Party Services.

"Service Activation Date" means the same as Activation Date.

"Service Attachment" means an online or paper document containing the terms for one or more Services. A Service Attachment may also be referred to as an Online Service Attachment, an Attachment or Service Terms.

"Service Commitment" means the period of time for which Customer is committed to pay for a particular Service, if any, as set out in the Agreement.

"Service Equipment" means any equipment, Software, systems, cabling and facilities provided by or on behalf of Verizon and used to facilitate provision of the Services at a Customer Site. Ownership of the Service Equipment does not pass to Customer. Service Equipment does not include Verizon Facilities.

"Service Order" or "SOF" has the same meaning as Order.

"Software" means any software and any related documentation provided to Customer as part of the Services and includes both Verizon and Third Party software.

"Subminimum Volume Commitment" means a Service-specific commitment to pay an agreed amount of Eligible Charges in each Contract Year.

"Tariff" means, where applicable, the tariffs on file as amended from time to time with the appropriate national or regional governmental body governing the rates and/or terms and conditions of Services that are subject to tariff filings, as applicable.

"Tax" and "Taxes" means applicable federal, state, local, foreign, sales, use, excise, utility, gross receipts, value-added and other taxes, tax-like charges, and tax-related and other surcharges.

"Third Party" means a third party vendor from whom Verizon sources products and services including CPE and CPE Services.

"Tiered Volume Commitment" means the total Eligible Charges Customer must pay during each Contract Year of the Volume Commitment Period, which amount may vary from Contract Year to Contract Year.

"Total Volume Commitment" or "TVC" means the total Eligible Charges which Customer must pay during the Volume Commitment Period to which Customer has committed under the Agreement.

"Underutilization Charge" means an amount owed by Customer if Customer's Eligible Charges do not reach the Volume Commitment in any Contract Year and/or by the end of the Volume Commitment Period, as applicable

"United States" or "U.S." means the 50 states, the District of Columbia, and the U.S. Territories.

"U.S. Governmental Charges" or "Governmental Charges" means charges that Verizon is required or permitted to collect from or pay to others, by a governmental or quasi-governmental authority, which include, but are not limited to, Universal Service Fund charges and payphone use charges, or any successor of any such charges.

"U.S. Service Agreement" or "USSA" means the agreement entered into by Verizon and Customer excluding Orders but including applicable Definitions. The USSA sets out the terms that Customer and Verizon agree will apply to all Orders under it. The USSA may be referred to by another title such as the Master Service Order Form to the U.S. Service Agreement.

"U.S. Services" means Services provided pursuant to an Order where the Verizon entity that executes the Order is legally organized in the U.S.

"Verizon" means the Verizon entity that is the contracting party to the USSA or an Order as the context requires (including by way of permitted assignment). For a standard contract not actually signed by Verizon, the relevant U.S. Verizon entity is identified either in the Service Attachment, of if not, in the rules at verizonenterprise.com/service/g_service_provider_list.htm.

"Verizon Facilities" or "Network" means any network or system, cable, transmission facility owned or leased by Verizon, or operated or managed on behalf of Verizon, excluding Service Equipment.

"Volume Commitment" means the agreed upon Customer commitment to purchase, and may be described as an Annual Volume Commitment, Total Volume Commitment, Tiered Volume Commitment, or Subminimum Volume Commitment.

"Volume Commitment Period" means the period of time that applies to the Volume Commitment beginning on the Commitment Effective Date.

Agreed to by the Parties' authorized representative below.

Verizon Business Network Services Inc. on behalf of **Verizon Select Services Inc.**	**State of West Virginia**
By: Jenita S. Hawkins	By: _____
Name: JENITA S. HAWKINS	Name: _____
Title: Sr. Analyst- Billing	Title: _____
Date: 11/28/2018	Date: _____

Routing Code: 5CPE

STATEMENT OF WORK (SOW) NO. 1
TO VERIZON VOICE AND DATA EQUIPMENT AND RELATED SERVICES ATTACHMENT
Structured Cabling Services

Customer: State of West Virginia	**Quote: 1-3IFHPFN**
Contract ID: DOT1900000034	**Date:**

Verizon Business Network Services Inc., on behalf of Verizon Select Services Inc. **One Verizon Way** **Basking Ridge, N.J. 07920** By: Senita S. Houston Name Senita S. Houston Title: Sr. Analyst- Billing Date: 11/28/2018	**CUSTOMER'S LEGAL NAME:** State of West Virginia **Address** Department of Administration 1900 Kanawha Blvd East Building 5, Room 920 Charleston, WV 25305 By:_____ Name: Crystal Rink, Buyer Title: _____ Date: _____

This Statement of Work ("SOW") amends and is a part of the Voice and Data Equipment and Related Services Attachment and related Verizon master services agreement (collectively "Agreement"), entered between Verizon Select Services Inc. ("Verizon"), and State of West Virginia ("Customer"), Contract ID number as shown above, if applicable, executed by both parties as of , 20 .

Description of Project

1. **Services.**

This SOW defines the structured cabling services and deliverables that Verizon will provide to Customer under the terms of the Agreement ("Structured Cabling Services") and forms the basis for the pricing in the quote referenced above (the "Quote"). Verizon will perform the Structured Cabling Services at the locations listed in the Quote. Certain Structured Cabling Services detail may be provided for Customer's reference in additional documentation separate from this Agreement.

2. **Scope of Work.**

Verizon proposes the following structured cabling installation services for Customer. Verizon has based the Quote on the cabling solution and technical specifications* described below. Structured Cabling Services will include the installation of Cat-6 and fiber optic cable and associated support structure as described in State of WV RFQ - DOT1900000034 - WV DOT Districts 1, 2, 10 and DMV Cabling.

The "System", as used within this SOW, means the structured cabling solution provided under this SOW, e.g. CPE, including without limitation, cables and other related materials.

3. Deliverables and Documentation (if any) to be Produced by Verizon and Verizon Obligations.

Verizon will:

3.1. Provide installation which complies with standards and codes, including as applicable:

- NFPA 70 – National Electric Code
- ANSI/TIA-568-C.0 – Generic Telecommunications Cabling for Customer Premises
- ANSI/TIA-568-C.1 – Commercial Building Telecommunications Cabling Standard
- TIA-569-B – Commercial Building Standard for Telecommunications Pathways and Spaces
- ANSI/TIA-606-A – Administration Standard for Commercial Telecommunications Infrastructure
- ANSI-J-STD-607-A – Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications
- TIA-526-7 – Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
- TIA-526-14-A – Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant
- ANSI/TIA-758-A – Customer-Owned Outside Plant Telecommunications Infrastructure Standard
- ANSI/TIA-942 – Telecommunications Infrastructure Standard for Data Centers

3.2. Provide a single point of contact ("SPOC") who will be responsible and authorized to (i) make all decisions and give all approvals which Customer may need from Verizon, and (ii) provide Customer's personnel on a timely basis with all information, data, and support reasonably required for its performance under this SOW, including but not limited to making available appropriate personnel to work with the Customer as the Customer may reasonably request. (iii) manage and participate in the kickoff discussion, schedule coordination, and acceptance testing.

3.3. Deliver the System to the Customer's site(s) shown on the Quote;

3.4. Contact the Customer prior to install in order to confirm site readiness;

3.5. Provide the labor to complete the project in a good and workmanlike manner ;

3.6. Provide progress updates to review actual progress with the Customer SPOC;

3.7. Provide a schedule indicating general project deadlines with specific dates relating to the installation of the System;

3.8. Coordinate access to the building, daily parking, access to materials, and material storage with the Customer SPOC;

3.9. Additional Verizon Deliverables and Documentation:

The structured cabling installed will be documented and delivered to the customer in the form of an As-built Drawing

Documentation to be Produced by Customer and Customer Obligations.

Customer must:

4.1 Designate a SPOC who will be responsible and authorized to (i) make all decisions and give all approvals which Verizon may need from Customer, and (ii) provide Verizon's personnel on a timely basis with all information, data, access and support reasonably required for its performance under this SOW, including but not limited to making available appropriate personnel to work with Verizon as Verizon may reasonably request.

4.2 Confirm and agree to the schedule indicating general project deadlines with specific dates relating to the installation of the System as provided by Verizon;

4.3 Provide a soft copy of all related plans clearly depicting installation locations and features that is sufficiently recent, accurate, and detailed to allow Verizon to install the System;

4.4 Provide the appropriate security clearances, access badges, and access to buildings and any other structures related to the Project ("Locations") and Training as defined below, if required.. It is the Customer's sole responsibility to provide the necessary means of access to Locations;

4.5 Provide prompt physical and electronic access to Locations where Verizon will install the System. NOTE: Wait time in excess of 60 minutes may result in a time and material charge. Verizon will coordinate Project activities in advance in order to allow for timely access and avoid delay.

4.6 Remove or move any obstacles required to implement this Project at a Location in a timely manner.

4.7 Provide loading dock space and freight elevators at no expense to Verizon. Verizon deliveries shall be scheduled during Office Hours as defined below;

4.8 Control all activities associated with the existing Customer equipment, including without limitation changes, additions or deletions of devices made by any non-Verizon provided technicians.

4.9 Provide adequate and secure storage space for the Verizon equipment, tools, and materials at the Location;

4.10 Unless otherwise provided for in Section 2, Scope of Work, provide sufficient rack space or other appropriate installation location for the System;

4.11 Ensure that the Customer's ground meets the recommendations of the System manufacturer. If a new ground work is required, Verizon can perform such work at Customer's request pursuant to a quote;

4.12 Ensure that any and all main or intermediate distribution frames ("MDF/IDF") are of sufficient size to accommodate System being installed;

4.13 Ensure conformance with any applicable codes, regulations, and laws, including but not limited to electrical, building, safety, and health;

4.15 Dispose of all decommissioned equipment, unless provided otherwise in the Quote.

☐ If this box is checked, Verizon will demolish and dispose of all abandoned cable as required by code. If this box is not checked, Verizon will not demolish and dispose of abandoned cable.

4.16 Additional Responsibilities:

- Cost associated with the right-of-way, permits and leasing
- Easements for placing buried conduit
- Permission from the building owner to excavate the on the property if required
- Customer is to provide prompt access to the facilities as required completing the installation(s).

4. Change Order Request

Customer may request changes in, or additions to, the Structured Cabling Services being provided hereunder by agreeing to a completing Verizon Change Order form, provided by Verizon. Requested changes will be facilitated to the extent feasible. If Verizon determines that such changes will cause an increase or decrease in the cost of, or time required for performance of the Structured Cabling Services, Verizon will advise Customer thereof and such adjustments will be reflected in the Verizon Change Order form. The Verizon Change Order form will not become effective unless and until it is agreed to and executed by both Customer and Verizon. Verizon will initiate changes to the project that affect cost or significantly affect schedule using this Change Order procedure.

5. Acceptance Testing Criteria for the Service or Deliverable(s).

Customer will have five business days after the In-Service Date, as defined below, to test the System (the "Test Period"). Customer may indicate their approval of the System by its signature on the Verizon-provided acceptance document or other mutually agreed upon means. Customer will document any issues with the System in writing to Verizon and provide those issues to Verizon within the Test Period. Upon receipt of the issues list, Verizon will have ten business days to respond and remediate any issues, as required. Customer's use of the System for any other purpose than testing will be deemed to constitute acceptance by Customer. The System will be deemed accepted if the Test Period passes without notification of issue or acceptance by Customer.

6. Conditions.

7.1 Structured Cabling Services are generally available within the 48 contiguous United States. Orders for Structured Cabling Services in Alaska and Hawaii must be specifically pre-approved by Verizon.

7.2 Structured Cabling Services are performed between the hours of 8:00 a.m. and 5:00 p.m. local time, Monday through Friday, excluding Verizon observed and United States Federal holidays ("Office Hours"). Work extending beyond Office Hours on Monday through Friday and work on Saturday is "Overtime" work. All other periods of work is "Sunday and Holiday Hours" work. If Customer requests that Structured Cabling Services be performed during Overtime or Sunday and Holiday Hours, Customer will pay Verizon its then current time and material labor rate.

☐ If this box is checked, this project requires work to be performed outside of Office Hours. The Structured Cabling Services will be performed between the hours of 7:00 a.m. to 3:00 p.m. local time, These hours are included in the Quote.

7.3 Unless Customer otherwise requests in writing Verizon will, at Customer's expense, apply for permits necessary for Structured Cabling Services

7.4 Verizon will provide Customer written notice indicating the date Structured Cabling Services is complete (the "In-Service Date"). Verizon will attempt to meet Customer's requested In-Service Dates, however Verizon can not guarantee any In-Service Date. In-Service Dates are subject to the availability of materials and resources.

7.5 Should Customer request delay of Structured Cabling Services, or should Structured Cabling Services be delayed as a result of Customer's action or inaction, Verizon may store the System, or any portion thereof, at Customer's risk and expense.

7.7 Verizon will use reasonable efforts to avoid interruption of Customer's network service during Office Hours. If it is necessary to interrupt network service during Office Hours, Verizon will notify the SPOC at least 48 hours in advance.

7.8 Customer will only assign persons to this project that have the necessary skills required to complete the Customer's part of this project.

7.9 Customer will allow Verizon access to sites for performance of any required Structured Cabling Service. Customer will notify Verizon of any site-specific requirements that might impact Verizon's ability to access such site, e.g. safety or security training ("Training"). Verizon will comply with such Training requirements however Verizon reserves the right to bill Customer for the time required for Training at Verizon's then current labor rate. Customer will provide necessary badges, escorts, etc. required for site access per Customer's security and safety policies.

☐ If this box is checked, Verizon personnel will require additional training for site access.

7.10 Additional Conditions
N/A

8. **Term of SOW.** This SOW is effective upon full execution by the parties and will remain in effect during the delivery of the Structured Cabling Services. Except for warranties specifically provided herein, this SOW will terminate upon final delivery of the Structured Cabling Services.

9. **Warranty**

9.1 Verizon warrants the System against defects solely related to Verizon's installation for one year after the System is accepted as provided above. To the extent permitted, manufacturers' end user warranties will be passed through to Customer. Customer will present such warranty claims directly to the manufacturer.

9.2 If a manufacturer's end-user warranty is included, Verizon will provide the appropriate certified labor, documentation, and materials to qualify the installation for such warranty.

☒ If this box is checked, the System includes manufacturer's warranty.

9.3 These warranties do not cover damage to or malfunction of the System caused in whole or in part by Customer or third parties through other than normal use of the System or caused by an event external to the System.

The warranties contained herein are Customer's sole and exclusive warranties for Structured Cabling Services.

10. **Assumptions**

10.1 This SOW constitutes the entire agreement between the parties with respect to the Structured Cabling Services and supersedes all other prior or contemporaneous representations, understandings or agreements. Except as otherwise expressly stated herein, no amendment to this SOW is valid unless in writing and signed by both parties.

10.2 Structured Cabling Services are limited to the services, deliverables, documentation, and conditions stated herein and in the Agreement, and the System defined in the Quote.

10.3 Additional Assumptions

Excluded from this proposal:

- State and Local Sales Tax (if applicable)
- Any cost associated with the repair of underground conduits along the route (if applicable)

CONTRACTOR LICENSE

Authorized by the

West Virginia Contractor Licensing Board

Number: WV037918

Classification:

GENERAL BUILDING

VERIZON SELECT SERVICES INC
DBA VERIZON SELECT SERVICES INC
1320 N COURTHOUSE RD RM 9SE009
ARLINGTON, VA 22001

Date Issued	Expiration Date
DECEMBER 27, 2017	DECEMBER 27, 2018

Authorized Company Signature

Chair, West Virginia Contractor Licensing Board

WEST VIRGINIA CONTRACTOR LICENSING BOARD

This license, or a copy thereof, must be posted in a conspicuous place at every construction site where work is being performed. This license number must appear in all advertisements, on all bid submissions and on all fully executed and binding contracts. This license cannot be assigned or transferred by licensee. Issued under provisions of West Virginia Code, Chapter 21, Article 11.

Building Industry Consulting Service International

THE PROFESSIONAL DESIGNATION OF

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER®

IS AWARDED TO

Lawrence W Host

by BICSI in recognition of having successfully completed BICSI's registration and examination requirements.

Designation Number: 191957R

Registration Start Date: 1/1/2017

Registration End Date: 12/31/2019

Chair, Registrations & Credentials Supervision Committee

BICSI RCDD Since 2/14/1998

Director of Credentialing

Building Industry Consulting Service International

THE PROFESSIONAL DESIGNATION OF

OUTSIDE PLANT DESIGNER

IS AWARDED TO

Lawrence W Host

by BICSI in recognition of having successfully completed BICSI's registration and examination requirements.

Designation Number: 1910630

Registration Start Date: 1/1/2017

Registration End Date: 12/31/2019

Chair, Registrations & Credentials Supervision Committee

Bicsi OSP DESIGNER

Since

5/22/2004

Director of Credentialing

COMMSCOPE®
INFRASTRUCTURE ACADEMY

CERTIFICATE OF AUTHORIZATION

This certifies that

Lawrence Host
Verizon

has successfully completed

ND3361 - SYSTIMAX Installation and Maintenance

James Donovan
Approval

8th May 2018
Date Issued

BG669531US205EC8
Certificate

NICSI Recognized Continuing Education Credits (CECs)
1.5 Event ID: OV-COMMHL-0916-8

This designation expires two (2) years from the date above

This is a training certificate. On its own, it does not infer or imply membership of the CommScope PartnerPRO™ Program or any other CommScope program. For further details visit www.commscope.com/PartnerPRO.

Project Management Institute

THIS IS TO CERTIFY THAT

Lawrence W Host

HAS BEEN FORMALLY EVALUATED FOR DEMONSTRATED EXPERIENCE, KNOWLEDGE AND PERFORMANCE IN ACHIEVING AN ORGANIZATIONAL OBJECTIVE THROUGH DEFINING AND OVERSEEING PROJECTS AND RESOURCES AND IS HEREBY BESTOWED THE GLOBAL CREDENTIAL

Project Management Professional (PMP)®

IN TESTIMONY WHEREOF, WE HAVE SUBSCRIBED OUR SIGNATURES UNDER THE SEAL OF THE INSTITUTE

Caterina La Tona • Chair, Board of Directors

Marc A. Langley • President and Chief Executive Officer

PROJECT MANAGEMENT INSTITUTE PENNSYLVANIA CORPORATE SEAL 1969

PMP® Number	1906022
PMP® Original Grant Date	08 January 2016
PMP® Expiration Date	07 January 2022

PMI Project Management Institute

Building Industry Consulting Service International

THE PROFESSIONAL DESIGNATION OF

REGISTERED TELECOMMUNICATIONS PROJECT MANAGER

IS AWARDED TO

Lawrence Host

by BICSI in recognition of having successfully completed BICSI's registration and examination requirements.

Designation Number: 115222

Registration Start Date: 1/1/2019

Registration End Date: 12/31/2021

Chair, Registrations & Credentials Supervision Committee

BICSI RTPM Since 8/1/2012

Director of Credentialing

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 — Info Technology

Proc Folder: 493476

Doc Description: ADDENDUM 1 STRUCTURED CABLING FOR DOT/DOH/DMV (63190023)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-11-16	2018-12-05 13:30:00	CRFQ 0803 DOT1900000034	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Verizon Business Network Services Inc., on behalf of Verizon Select Services Inc.
4700 MacCorkle Av SE., Charleston, WV 25304
304-356-3395

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature X Venita S. Houston FEIN # 16-1337624 DATE 11/28/2018

All offers subject to all terms and conditions contained in this solicitation

Sr. Analyst - Billing

FORM ID : WV-PRC-CRFQ-001

ADDITIONAL INFORMATION:

THE STATE OF WEST VIRGINIA PURCHASING DIVISION IS SOLICITING BIDS ON BEHALF OF THE DEPARTMENT OF TRANSPORTATION TO ESTABLISH A CONTRACT FOR THE INSTALLATION OF STRUCTURED CABLING PATHWAYS AND SPACES SYSTEMS AT NINETEEN (19) DOT/DOH/DMV PER THE ATTACHED DOCUMENTS.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NETWORK CABLING, INSTALLATION, TESTING &	0.00000			

Comm Code	Manufacturer	Specification	Model #
83111601			

Extended Description :

TO PROVIDE STRUCTURED CABLING NETWORK DISTRIBUTION SYSTEM, INSTALLATION, TESTING & ACCEPTANCE

SCHEDULE OF EVENTS

Line	Event	Event Date
1	MANDATORY PRE-BID MEETING	2018-11-07
2	MANDATORY PRE-BID MEETING	2018-11-08
3	MANDATORY PRE-BID MEETING	2018-11-09
4	QUESTION DEADLINE	2018-11-16

SOLICITATION NUMBER: CRFQ DOT1900000034
Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[ ] Attachment of vendor questions and responses

[✓] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

1. To provide mandatory pre-bid meeting sign-in sheets

No other changes at this time

Bid opening remains December 5, 2018 at 1:30 PM EST

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

District 1

SIGN IN SHEET

Request for Proposal No. CRFQ DOT 1944 34

PLEASE PRINT

Date: 11/7/18

*** PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD**

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: WV DOT Rep: Kristy James Email Address: Kristyjne.james@wv.gov	Bldg 5 Rm 920 Charleston WV 25305	PHONE 304-558-9536 TOLL FREE FAX
Company: WV DOT Rep: TODD MCINTYRE Email Address: todd.a.mcintyre@wv.gov	Bldg 5 Rm 920 Charleston WV 25305	PHONE 304-558-9525 TOLL FREE FAX
Company: WV DOH Rep: Doug Brown Email Address: Douglas.Brown@WV.Gov	1340 Smith St Charleston WV 25301	PHONE 304-382-5611 TOLL FREE FAX
Company: Verizon (VSSI) Rep: Lawrence (Lance) Host Email Address: lawrence.host@verizon.com	827 Fairmont Rd, Suite 204 Morgantown, WV 26501	PHONE 304-381-3969 TOLL FREE FAX
Company: Graybar Rep: Kevin Hypes Email Address: Kevin.hypes@graybar.com	1010 Young St CHARLESTON WV 25301	PHONE 304-206-3424 TOLL FREE FAX

SIGN IN SHEET

Request for Proposal No.

PLEASE PRINT

Date: 11/7/18

*** PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD**

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: Gotronics Rep: Kent Reed Email Address: kent.reed@gotronics.com	135 Center Drive Scott Depot, WV 25560	PHONE 304 546-2285 TOLL FREE FAX
Company: Advantage Technology Rep: Brad Williams Email Address: bwilliams@advantage.tech	950 Kanawha Blvd E Charleston, WV	PHONE 304-942-6500 TOLL FREE FAX
Company: Mon Valley Technologies Rep: Bob Bishop Email Address: RBISHOP@MVTECH.US	3564 River Road Morgantown, WV 26501	PHONE 304 288 0746 TOLL FREE FAX
Company: WV Office of Technologies Rep: Shirlie Email Address: RICHARD.W.WICKERT@WV.GOV	1900 Kanawha Blvd SE Charleston WV Bldg 5 10th Floor	PHONE 304-558-8121 TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX

District 2

SIGN IN SHEET

PLEASE PRINT

Request for Proposal No.

Date: 11/8/18

*** PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD**

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: Verizon (VSSI) Rep: Lawrence (Lance) Host Email Address: lawrence.host@verizon.com	827 Fairmont Road Suite 204 Morgantown, WV 26501	PHONE 304-381-3969 TOLL FREE FAX
Company: Mon Valley Technologies Rep: Bob Bishop Email Address: RBishop@MVTECH.US	3564 River Road Morgantown, WV 26501	PHONE 304 288-0146 TOLL FREE FAX
Company: Advantage Technology Rep: Brad Williams Email Address: bwilliams@advantage.tech	950 Kanawha Blvd E. Charleston, WV.	PHONE 304-942-6500 TOLL FREE FAX
Company: Getronics (Formerly Pomeroy) Rep: Luke Evans Email Address: Luke.Evans@getronics.com	Teays Valley, WV	PHONE 304.208.3150 TOLL FREE FAX
Company: OT Rep: Eric Daniel Email Address: Eric.M.Daniel@wv.gov		PHONE TOLL FREE FAX

SIGN IN SHEET

Request for Proposal No.

PLEASE PRINT

Date: 11/8/18

*** PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD**

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: WVDOT Rep: Richard Wickert Email Address: Richard.W.Wickert@wv.gov	Capitol Bldg 5 10th Floor	PHONE 304-558-9121 TOLL FREE FAX
Company: WVDOT Rep: Todd McIntyre Email Address: todd.a.mcintyre@wv.gov	Building 5 Rm 920	PHONE 304-558-9525 TOLL FREE FAX
Company: WVDOT Rep: Mark A. Waid Email Address: Mark.A.Waid@wv.gov	Building 5 RM 920	PHONE 304 558-9236 TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX

DISTRICT 10

SIGN IN SHEET

PLEASE PRINT

Request for Proposal No.

Date: 11/9/18

*** PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD**

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: WV DOT Info. Services Rep: Kristy James Email Address: kristy.e.james@wv.gov	Bldg 5 Rm 900 Charleston, WV 25305	PHONE 304-558-9536 TOLL FREE FAX
Company: WVDOT Rep: Todd McIntyre Email Address: todd.a.mcintyre@wv.gov	BLDG 5 Rm 920	PHONE 304-558-9525 TOLL FREE FAX
Company: Advantage Technology Rep: Brad Williams Email Address: bwilliams@advantage.tech	950 Kanawha Blvd E Charleston, WV	PHONE 304-342-0796 TOLL FREE FAX
Company: Verizon (VSSI) Rep: Lawrence (Lance) Host Email Address: lawrence.host@verizon.com	827 Fairmont Road Suite 204 Morgantown, WV 26501	PHONE 304-381-3969 TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX

SIGN IN SHEET

Request for Proposal No.

PLEASE PRINT

Date: 11/9/18

* PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: Mon Valley Technologies Rep: Bob Bishop Email Address: RBishop@MVTECH.US	3564 River Road Morgantown WV 26501	PHONE 304 288-0746 TOLL FREE FAX
Company: Getronics (Pomeroy) Rep: Kent Reed Email Address: kent.reed@getronics.com	135 Corporate Centre Dr. Scott Depot WV 25560 Suite 410	PHONE 304 546-2289 TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX
Company: Rep: Email Address:		PHONE TOLL FREE FAX

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DOT1900000034

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[ ] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

_____
Company

_____
Authorized Signature

_____
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 — Info Technology

Proc Folder: 493476

Doc Description: ADDENDUM 2 STRUCTURED CABLING FOR DOT/DOH/DMV (63190023)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-11-19	2018-12-05 13:30:00	CRFQ 0803 DOT1900000034	3

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Verizon Business Network Services Inc., on behalf of Verizon Select Services Inc.
4700 MacCorkle Av SE., Charleston WV 25304
304-356-3395

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature X Senita S. Houston **FEIN #** 16-1337624 **DATE** 11/28/2018

All offers subject to all terms and conditions contained in this solicitation

Sr. Analyst - Billing

FORM ID : WV-PRC-CRFQ-001

ADDITIONAL INFORMATION:

THE STATE OF WEST VIRGINIA PURCHASING DIVISION IS SOLICITING BIDS ON BEHALF OF THE DEPARTMENT OF TRANSPORTATION TO ESTABLISH A CONTRACT FOR THE INSTALLATION OF STRUCTURED CABLING PATHWAYS AND SPACES SYSTEMS AT NINETEEN (19) DOT/DOH/DMV PER THE ATTACHED DOCUMENTS.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NETWORK CABLING, INSTALLATION, TESTING &	0.00000			

Comm Code	Manufacturer	Specification	Model #
83111601			

Extended Description :

TO PROVIDE STRUCTURED CABLING NETWORK DISTRIBUTION SYSTEM, INSTALLATION, TESTING & ACCEPTANCE

SCHEDULE OF EVENTS

Line	Event	Event Date
1	MANDATORY PRE-BID MEETING	2018-11-07
2	MANDATORY PRE-BID MEETING	2018-11-08
3	MANDATORY PRE-BID MEETING	2018-11-09
4	QUESTION DEADLINE	2018-11-16

SOLICITATION NUMBER: CRFQ DOT1900000034
Addendum Number: 2

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[✓] Modify specifications of product or service being sought

[ ] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[✓] Other

Description of Modification to Solicitation:

1. To provide updated Attachment B
2. To provide updated drawings for District 2 and District 10
3. To provide clarification on Cat-6

No other changes at this time

Bid opening remains 12/05/2018

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

CRFQ 0803 DOT1900000034 (63190023)
Addendum 2
Clarification

All instances of Cat-6 throughout the specifications shall be replaced with Cat-6A.

An updated version of Attachment B – Materials List shall replace the original Attachment B – Materials List. The updated Materials List includes additional drops that were identified during the Pre-Bid meetings. Additional network drops are being added for District 2 and 10. In addition, updated floor plans are also included.

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 1-2-10 HQ's, DMV HQ, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY	Materials Totals By District: District 1 QUANTITY	District 2 QUANTITY	District 10 QUANTITY
		Wall Mount Bracket 2RU	Each	33	15	8	10
		Rack / Wall Shelf 3RU	Each	57	19	20	18
		Ladder Tray 18" Section 10'	Each	28	8	10	10
		Ladder Tray 18" Top Plate Kit	Each	28	8	10	10
		Ladder Tray 18" Wall Angle Support Kit	Each	28	8	10	10
		1U SS Horizontal Trough Kit OR EQUAL	Each	53	20	20	13
		2U SS Horizontal Trough Kit OR EQUAL	Each	72	20	27	25
		M104 Type Surface Mount Box, four port ivory	Each	2600	950	950	700
		Faceplate 4-Hole w/blanks Modular Furniture	Each	950	350	350	250
		Blue Icon - 100 \ bag	Each	108	36	36	36
		Mini-Dome .5 Megapixel Fixed Camera	Each	20	3	10	7
		BASKET TRAY, 4" Section 10'	Each	100	10	50	40
		TRAY - CLAMP ASSEMBLY KIT 50 per Bag	Bag	10	1	5	4
		One Piece Latching Raceway	Feet	450	200	100	150
		Two Compartment Raceway Base	Each	120	50	30	40
		Two Compartment Raceway Cover	Each	120	50	30	40

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY	District 1 QUANTITY	District 2 QUANTITY	District 10 QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet OR EQUAL	Each	33	15	9	9
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM OR EQUAL	Each	33	15	9	9
Chatsworth	57014-703			Chatsworth Velocity Standard Pack OR EQUAL	Pack	31	7	15	9
Chatsworth	13912-703			Chatsworth Vertical Wire Manager OR EQUAL	Each	22	5	10	7
Commscope	CPCSSX2-0ZF005			CommScope 360GS10E Modular Patch Cable 5FT DK BL OR EQUAL	Each	532	126	247	159
Commscope	CPCSSX2-0ZF010			CommScope 360GS10E Modular Patch Cable 10FT DK BL OR EQUAL	Each	1521	189	785	547
Commscope	CPCSSX2-0ZF014			CommScope 360GS10E Modular Patch Cable 14FT DK BL OR EQUAL	Each	2076	221	1134	721
Commscope	760092452			CommScope GigaSPEED XL MGS600 Series Cat 6A U/UTP Info Outlet, 318-blue OR EQUAL	Each	1874	252	986	636
Commscope	760152595			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 48 port OR EQUAL	Each	39	4	21	14
Commscope	760152587			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 24 port OR EQUAL	Each	11	0	9	2
Commscope	760105338			CommScope GigaSPEED X10D 2091B ETL Cat6A U/UTP Cable, blue jacket, 1000 Ft OR EQUAL	1000 Ft.	329600	44100	174200	111300
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue OR EQUAL	Each	361	221	70	70
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue OR EQUAL	Each	1117	697	210	210
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue OR EQUAL	Each	1658	1014	322	322
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue OR EQUAL	Each	1442	882	280	280
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port OR EQUAL	Each	31	22	5	4
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port OR EQUAL	Each	14	4	4	6
Commscope	4763214/10			CommScope Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft OR EQUAL	1000 Ft.	252350	154350	49000	49000
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft OR EQUAL	1000 Ft.	11600	5000	3050	3550
Commscope	760106880			Commscope 12 Strand Fiber Singlemode I/O Plenum (12 SM) - OR EQUAL	Feet	9500	2250	5500	1750
Commscope	760109496			Commscope 360G2 Cartridge 12 LC TeraSPEED, Blue w/Pigtails - OR EQUAL	Each	64	16	28	20
Commscope	760193771			Commscope 360G2 1U Sliding Modular Cassette Shelf - OR EQUAL	Each	42	14	14	14
Commscope	760039867			Commscope RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray 1U Shelf - OR EQUAL	Each	42	14	14	14
Commscope	FEW LCLC42-MXF003			CommScope 3 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	50	10	20	20
Commscope	FEW LCLC42-MXF007			CommScope 7 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	14	4	5	5
Commscope	FDWLCSC52			Commscope TeraSPEED® LC to SC, Fiber Patch Cord, 3.0 mm Duplex, All Lengths - OR EQUAL	Each	17	5	6	6
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	20	6	10	4
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	20	6	10	4
Hargar	GBI14412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit OR EQUAL	Each	53	20	18	15
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit OR EQUAL	Each	11	5	3	3
Specified Tech	EZ-FATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	72	40	17	15
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	64	21	23	20
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	64	21	23	20
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount OR EQUAL	Each	30	10	12	8
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	8	2	2	4
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	10	1	8	1
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	44	16	11	17

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 1 HQ's, DMV HQ, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY
		Wall Mount Bracket 2RU	Each	15
		Rack / Wall Shelf 3RU	Each	19
		Ladder Tray 18" Section 10'	Each	8
		Ladder Tray 18" Top Plate Kit	Each	8
		Ladder Tray 18" Wall Angle Support Kit	Each	8
		1U SS Horizontal Trough Kit OR EQUAL	Each	20
		2U SS Horizontal Trough Kit OR EQUAL	Each	20
		M104 Type Surface Mount Box, four port ivory	Each	950
		Faceplate 4-Hole w/blanks Modular Furniture	Each	350
		Blue Icon - 100 \ bag	Each	36
		TIA-607 Style Telecommunications - Main Grounding Busbar Kit 1/4" X 4" X 20" TMGB	Each	3
		Rack Mount 1/4" X 1" X 19" Grounding Busbar Kit 1/4" X 1" X 19"	Each	25
		Mini-Dome .5 Megapixel Fixed Camera	Each	1
		BASKET TRAY, 4" Section 10'	Each	10
		TRAY - CLAMP ASSEMBLY KIT 50 per Bag	Bag	1
		One Piece Latching Raceway	Feet	200
		Two Compartment Raceway Base	Each	50
		Two Compartment Raceway Cover	Each	50

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet OR EQUAL	Each	15
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM OR EQUAL	Each	15
Chatsworth	57014-703			Chatsworth Velocity Standard Pack OR EQUAL	Pack	7
Chatsworth	13912-703			Chatsworth Vertical Wire Manager OR EQUAL	Each	5
Commscope	CPCSSX2-0ZF005			CommScope 360GS10E Modular Patch Cable 5FT DK BL OR EQUAL	Each	126
Commscope	CPCSSX2-0ZF010			CommScope 360GS10E Modular Patch Cable 10FT DK BL OR EQUAL	Each	189
Commscope	CPCSSX2-0ZF014			CommScope 360GS10E Modular Patch Cable 14FT DK BL OR EQUAL	Each	221
Commscope	760092452			CommScope GigaSPEED XL MGS600 Series Cat 6A U/UTP Info Outlet, 318-blue OR EQUAL	Each	252
Commscope	760152595			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 48 port OR EQUAL	Each	4
Commscope	760152587			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 24 port OR EQUAL	Each	0
Commscope	760105338			CommScope GigaSPEED X10D 2091B ETL Cat6A U/UTP Cable, blue jacket, 1000 Ft OR EQUAL	1000 Ft.	44100
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue OR EQUAL	Each	221
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue OR EQUAL	Each	697
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue OR EQUAL	Each	1014
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue OR EQUAL	Each	882
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port OR EQUAL	Each	22
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port OR EQUAL	Each	4
Commscope	4763214/10			CommScope Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft OR EQUAL	1000 Ft.	154350
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft OR EQUAL	1000 Ft.	5000
Commscope	760106880			Commscope 12 Strand Fiber Singlemode I/O Plenum (12 SM) - OR EQUAL	Feet	2250
Commscope	760109496			Commscope 360G2 Cartridge 12 LC TeraSPEED, Blue w/Pigtails - OR EQUAL	Each	16
Commscope	760193771			Commscope 360G2 1U Sliding Modular Cassette Shelf - OR EQUAL	Each	14
Commscope	760039867			Commscope RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray 1U Shelf - OR EQUAL	Each	14
Commscope	FEW LCLC42-MXF003			CommScope 3 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	10
Commscope	FEW LCLC42-MXF007			CommScope 7 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	4
Commscope	FDWLCSC52			Commscope TeraSPEED® LC to SC, Fiber Patch Cord, 3.0 mm Duplex, Plenum All Lengths - OR EQUAL	Each	5
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	6
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	6
Hargar	GBI144412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit OR EQUAL	Each	20
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit OR EQUAL	Each	5
Specified Technologies	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	40
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	21
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	21
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount OR EQUAL	Each	10
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	2
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	1
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	16

ATTACHMENT B - MATERIALS LIST

WV State Department of Transportation, Division of Highways District 2 HQ's, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY
		Wall Mount Bracket 2RU	Each	8
		Rack / Wall Shelf 3RU	Each	20
		Ladder Tray 18" Section 10'	Each	10
		Ladder Tray 18" Top Plate Kit	Each	10
		Ladder Tray 18" Wall Angle Support Kit	Each	10
		1U SS Horizontal Trough Kit OR EQUAL	Each	20
		2U SS Horizontal Trough Kit OR EQUAL	Each	27
		M104 Type Surface Mount Box, four port ivory	Each	950
		Faceplate 4-Hole w/blanks Modular Furniture	Each	350
		Blue Icon - 100 \ bag	Each	36
		TIA-607 Style Telecommunications - Main Grounding Busbar Kit 1/4" X 4" X 20" TMGB	Each	10
		Rack Mount 1/4" X 1" X 19" Grounding Busbar Kit 1/4" X 1" X 19"	Each	25
		Mini-Dome .5 Megapixel Fixed Camera	Each	1
		BASKET TRAY, 4" Section 10'	Each	80
		TRAY - CLAMP ASSEMBLY KIT 50 per Bag	Bag	5
		One Piece Latching Raceway	Feet	100
		Two Compartment Raceway Base	Each	30
		Two Compartment Raceway Cover	Each	30

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet OR EQUAL	Each	9
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM OR EQUAL	Each	9
Chatsworth	57014-703			Chatsworth Velocity Standard Pack OR EQUAL	Pack	15
Chatsworth	13912-703			Chatsworth Vertical Wire Manager OR EQUAL	Each	10
Commscope	CPCSSX2-0ZF005			CommScope 360GS10E Modular Patch Cable 5FT DK BL OR EQUAL	Each	247
Commscope	CPCSSX2-0ZF010			CommScope 360GS10E Modular Patch Cable 10FT DK BL OR EQUAL	Each	785
Commscope	CPCSSX2-0ZF014			CommScope 360GS10E Modular Patch Cable 14FT DK BL OR EQUAL	Each	1134
Commscope	760092452			CommScope GigaSPEED XL, MGS600 Series Cat 6A U/UTP Info Outlet, 318-blue OR EQUAL	Each	986
Commscope	760152595			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 48 port OR EQUAL	Each	21
Commscope	760152587			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 24 port OR EQUAL	Each	9
Commscope	760105338			CommScope GigaSPEED X10D 2091B ETL Cat 6A U/UTP Cable, blue jacket, 1000 Ft OR EQUAL	1000 Ft.	174200
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue OR EQUAL	Each	70
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue OR EQUAL	Each	210
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue OR EQUAL	Each	322
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue OR EQUAL	Each	280
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port OR EQUAL	Each	5
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port OR EQUAL	Each	4
Commscope	4763214/10			CommScope Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft OR EQUAL	1000 Ft.	49000
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft OR EQUAL	1000 Ft.	3050
Commscope	760106880			Commscope 12 Strand Fiber Singlemode I/O Plenum (12 SM) - OR EQUAL	Feet	9500
Commscope	760109496			Commscope 360G2 Cartridge 12 LC TeraSPEED, Blue w/Pigtails - OR EQUAL	Each	28
Commscope	760193771			Commscope 360G2 1U Sliding Modular Cassette Shelf - OR EQUAL	Each	14
Commscope	760039867			Commscope RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray 1U Shelf - OR EQUAL	Each	14
Commscope	FEW LCLC42-MXF003			CommScope 3 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	20
Commscope	FEW LCLC42-MXF007			CommScope 7 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	5
Commscope	FDWLCSC52			Commscope TeraSPEED® LC to SC, Fiber Patch Cord, 3.0 mm Duplex, Plenum All Lengths - OR EQUAL	Each	6
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	10
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	10
Hargar	GBI14412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit OR EQUAL	Each	18
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit OR EQUAL	Each	3
Specified Technologies	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	17
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	23
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	23
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount OR EQUAL	Each	12
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	2
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	8
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	11

ATTACHMENT B - MATERIALS LIST

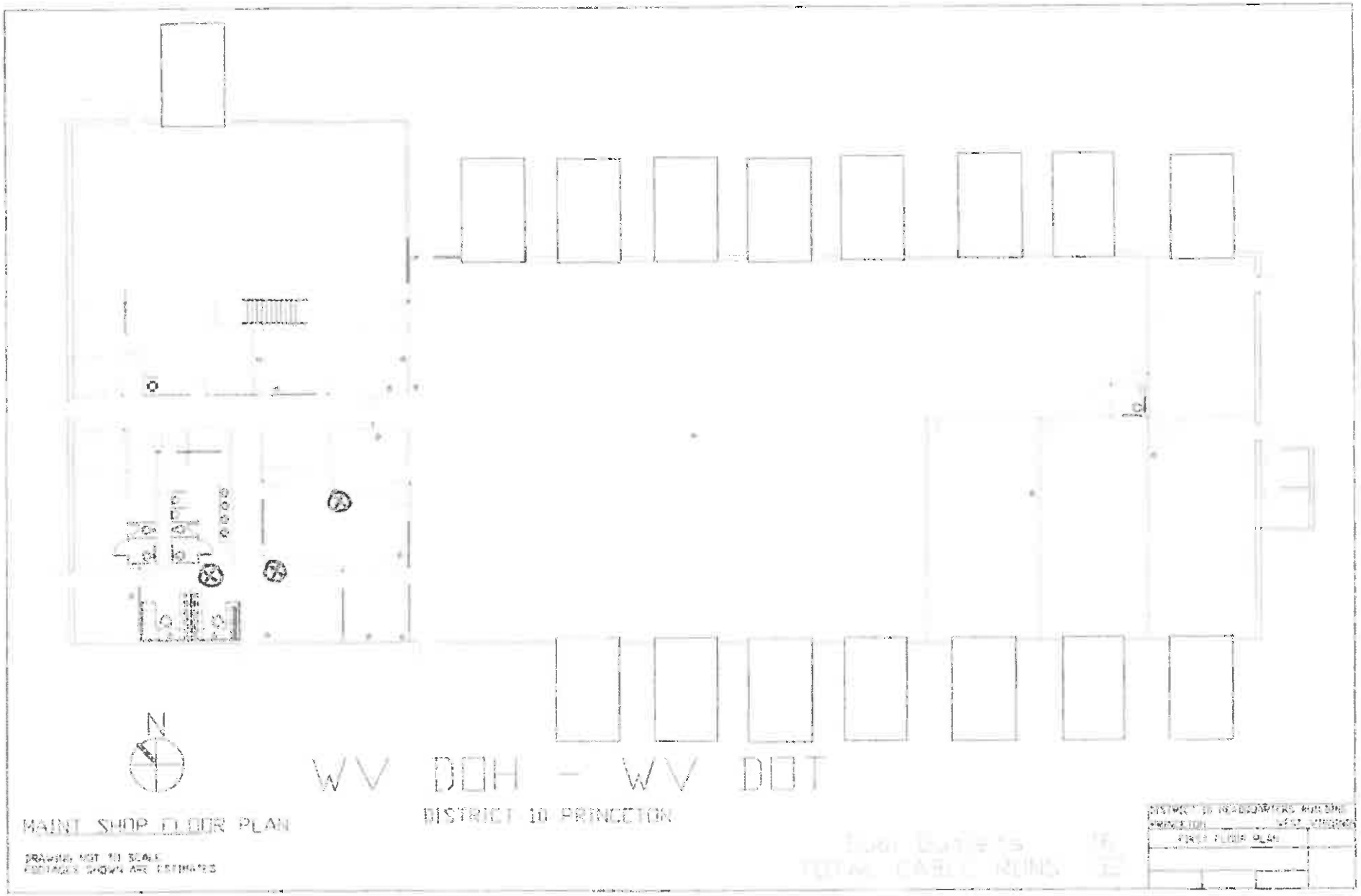
WV State Department of Transportation, Division of Highways District 10 HQ's, DMV Regional Office's, County HQ's, and Substations

VENDORS BID MANUFACTURER BRAND NAME of PRODUCT	MANUFACTURER PART NUMBER of VENDORS BID PRODUCT	DESCRIPTION	UNIT	QUANTITY
		Wall Mount Bracket 2RU	Each	10
		Rack / Wall Shelf 3RU	Each	18
		Ladder Tray 18" Section 10'	Each	10
		Ladder Tray 18" Top Plate Kit	Each	10
		Ladder Tray 18" Wall Angle Support Kit	Each	10
		1U SS Horizontal Trough Kit OR EQUAL	Each	13
		2U SS Horizontal Trough Kit OR EQUAL	Each	25
		MJ04 Type Surface Mount Box, four port ivory	Each	700
		Faceplate 4-Hole w/blanks Modular Furniture	Each	250
		Blue Icon - 100 \ bag	Each	36
		TIA-607 Style Telecommunications - Main Grounding Busbar Kit 1/4" X 4" X 20" TMGB	Each	7
		Rack Mount 1/4" X 1" X 19" Grounding Busbar Kit 1/4" X 1" X 19"	Each	25
		Mini-Dome .5 Megapixel Fixed Camera	Each	1
		BASKET TRAY, 4" Section 10'	Each	40
		TRAY - CLAMP ASSEMBLY KIT 50 per Bag	Bag	4
		One Piece Latching Raceway	Feet	150
		Two Compartment Raceway Base	Each	40
		Two Compartment Raceway Cover	Each	40

MANUFACTURER BRAND NAME	BRAND NAME PART NUMBER	BRAND NAME of VENDORS ALTERNATE	PART NUMBER of VENDORS ALTERNATE	DESCRIPTION	UNIT	QUANTITY
Chatsworth	12419-736			Chatsworth - 36" Wall Mount Cabinet OR EQUAL	Each	9
Chatsworth	12804-701			Chatsworth - Fan Kit, 115 VAC, 100 CFM OR EQUAL	Each	9
Chatsworth	57014-703			Chatsworth Velocity Standard Pack OR EQUAL	Pack	9
Chatsworth	13912-703			Chatsworth Vertical Wire Manager OR EQUAL	Each	7
Commscope	CPCSSX2-0ZF005			CommScope 360GS10E Modular Patch Cable 5FT DK BL OR EQUAL	Each	159
Commscope	CPCSSX2-0ZF010			CommScope 360GS10E Modular Patch Cable 10FT DK BL OR EQUAL	Each	547
Commscope	CPCSSX2-0ZF014			CommScope 360GS10E Modular Patch Cable 14FT DK BL OR EQUAL	Each	721
Commscope	760092452			CommScope GigaSPEED XL MGS600 Series Cat 6A U/UTP Info Outlet, 318-blue OR EQUAL	Each	636
Commscope	760152595			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 48 port OR EQUAL	Each	14
Commscope	760152587			CommScope GigaSPEED X10D 1100GS6 Evolve Cat 6A U/UTP Patch Panel, 24 port OR EQUAL	Each	2
Commscope	760105338			CommScope GigaSPEED X10D 2091B ETL Cat 6A U/UTP Cable, blue jacket, 1000 Ft OR EQUAL	1000 Ft.	111300
Commscope	UC1BBB2-0ZF005			CommScope Uniprise UNC-BL-5FT Modular Patch Cable 5FT Blue OR EQUAL	Each	70
Commscope	UC1BBB2-0ZF010			CommScope Uniprise UNC-BL-10FT Modular Patch Cable 10FT Blue OR EQUAL	Each	210
Commscope	UC1BBB2-0ZF014			CommScope Uniprise UNC-BL-14FT Modular Patch Cable 14FT Blue OR EQUAL	Each	322
Commscope	UNJ600-BL			CommScope Uniprise Cat6 Info Outlet, Blue OR EQUAL	Each	280
Commscope	UNP-U-610-2U-48			CommScope Uniprise Cat6 Patch Panel, 48 Port OR EQUAL	Each	4
Commscope	UNP-U-610-1U-24			CommScope Uniprise Cat6 Patch Panel, 24 Port OR EQUAL	Each	6
Commscope	4763214/10			CommScope Uniprise 7504 Category 6 U/UTP Cable, Plenum, 1000ft OR EQUAL	1000 Ft.	49000
Commscope	760008888			CommScope GigaSPEED® XL 1571 Category 6 U/UTP Cable, outdoor, black 1000ft OR EQUAL	1000 Ft.	3550
Commscope	760106880			Commscope 12 Strand Fiber Singlemode I/O Plenum (12 SM) - OR EQUAL	Feet	1750
Commscope	760109496			Commscope 360G2 Cartridge 12 LC TeraSPEED, Blue w/Pigtails - OR EQUAL	Each	20
Commscope	760193771			Commscope 360G2 1U Sliding Modular Cassette Shelf - OR EQUAL	Each	14
Commscope	760039867			Commscope RS-2AF-16SF RoloSplice Kit E/W 2x Fusion Splice Tray 1U Shelf - OR EQUAL	Each	14
Commscope	FEW LCLC42-MXF003			CommScope 3 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	20
Commscope	FEW LCLC42-MXF007			CommScope 7 FOOT - LC/LC Jumper Cable - SM OR EQUAL	Each	5
Commscope	FDWLCSC52			Commscope TeraSPEED® LC to SC, Fiber Patch Cord, 3.0 mm Duplex, Plenum All Lengths - OR EQUAL	Each	6
GEIST	RCURN082			GEIST - 102D20ST5-OD Switched Ultra PDU - OR EQUAL	Each	4
GEIST	RTAFHD3-12			GEIST - Remote Temperature, Humidity, Air Flow, and Dew Point Sensor, 12' cord - OR EQUAL	Each	4
Hargar	GBI14412TMGBKT			HAGER 1/4" X 4" X 12" TMGB Kit OR EQUAL	Each	15
Hargar	RGBHKIT14119.25			HAGER 1/4" X 1" X 19" Rack Mount Kit OR EQUAL	Each	3
Specified Technologies	EZ-PATH Series 44+			STI 44+Single Pathway Kit w/ 1 Pathway, Two (2) Mount Plates And Labels	Each	15
TRIPP LITE	SU1000RTXL2UA			Tripp Lite SmartOnline 1kVA Dble-Conversion UPS, 100/110/120V NEMA outlets - OR EQUAL	Each	20
TRIPP LITE	SNMPWEBCARD			Tripp Lite SNMP, Web or Telnet - OR EQUAL	Each	20
TRIPP LITE	2-9USTAND			TrippLite Convert- UPS + BP- Rackmount to a Tower Mount OR EQUAL	Each	8
TRIPP LITE	BP24V15RT2U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	4
TRIPP LITE	BP24V70-3U			Tripp Lite External Battery Pack for UPS System - OR EQUAL	Each	1
TRIPP LITE	ENVIROSENSE			Tripp Lite Environmental Sensor for use with Tripp Lite SNMPWEBCARD - OR EQUAL	Each	17

WV DOH - WV DOT
DISTRICT 2
2nd FLOOR PLAN

DRAWING NOT TO SCALE
COTAGES SHOWN ARE ESTIMATES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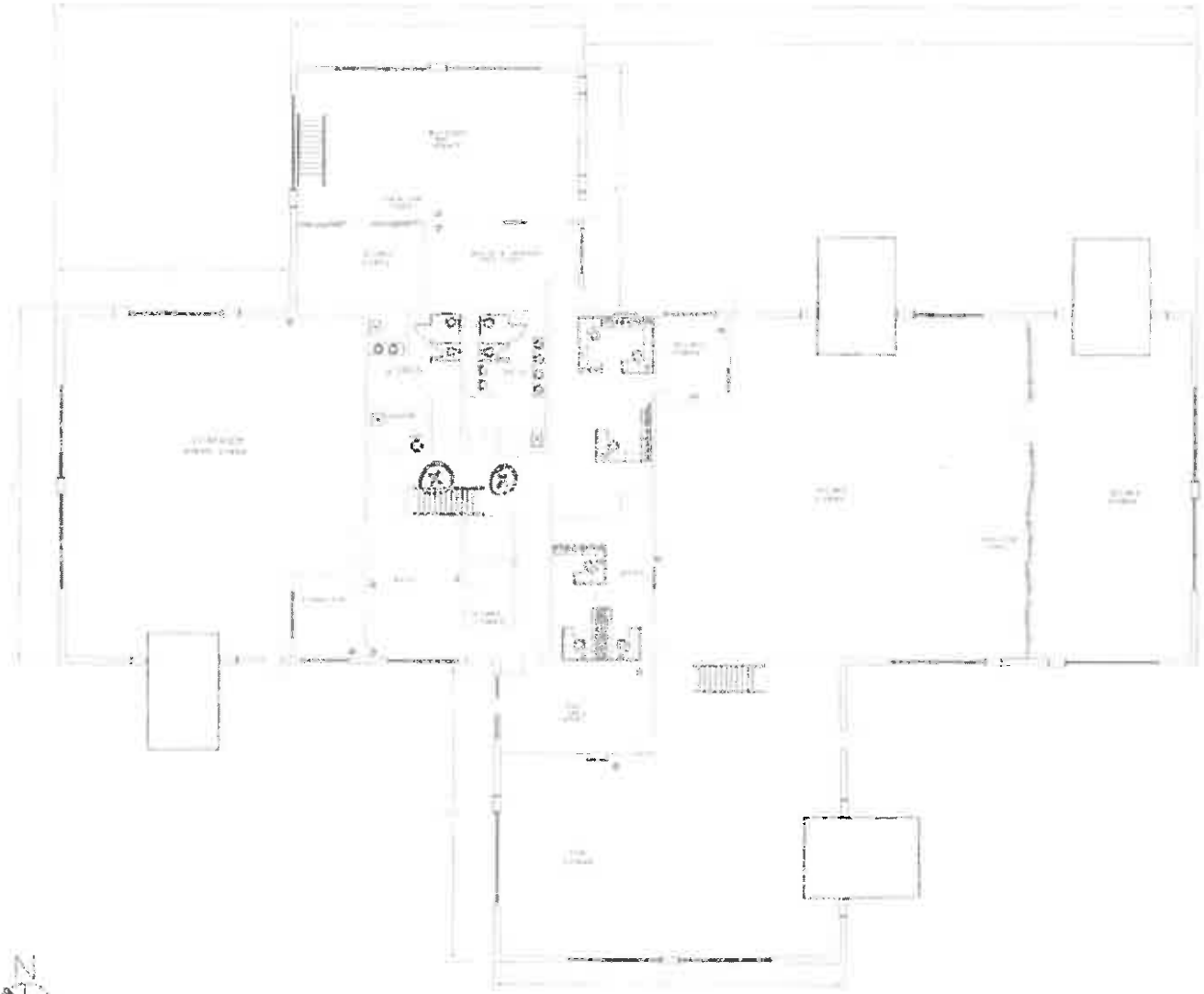
WV DOH - WV DOT
DISTRICT 10 PRINCETON
MAINT SHOP FLOOR PLAN
DRAWING NOT TO SCALE
DISTANCES SHOWN ARE ESTIMATED



WV DOH - WV DOT

DISTRICT 10 PRINCETON

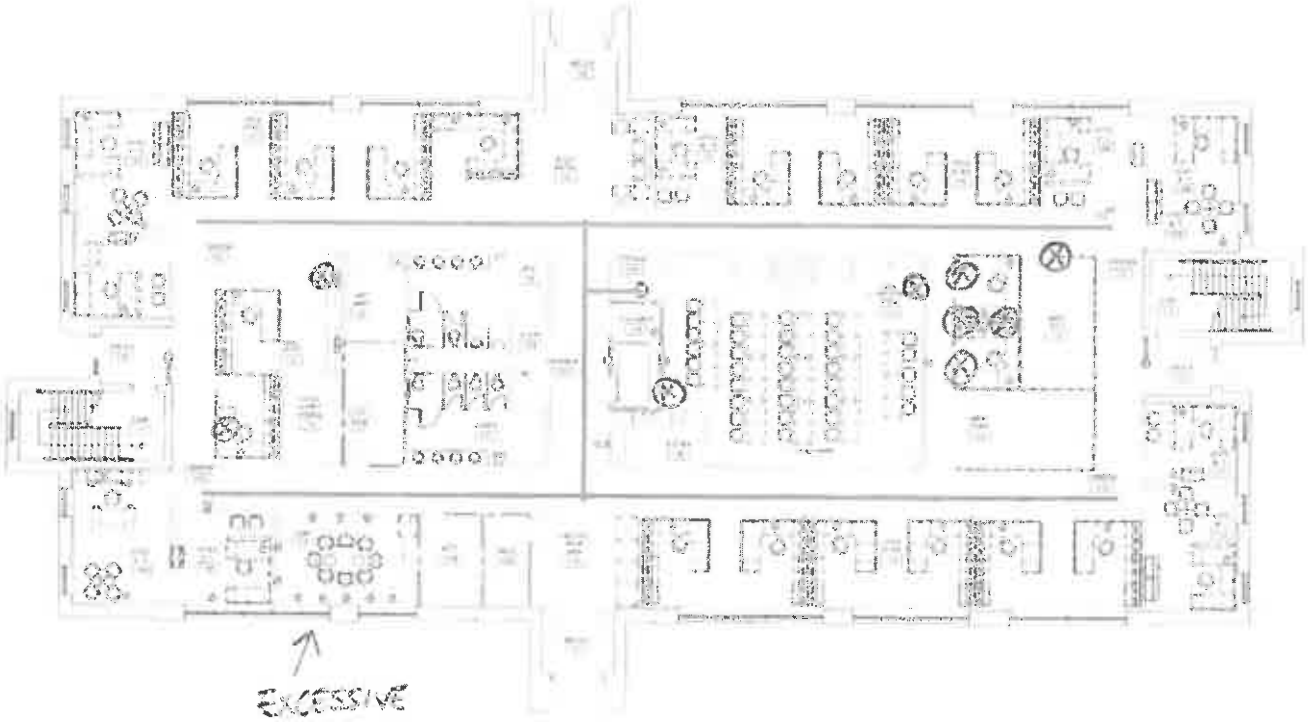
BRIDGE AND SIGN SHOP

DRAWING NOT TO SCALE
FOR QUICK SIGN ARE ESTIMATES

DISTRICT 10 MAINTENANCE BUILDING
PRINCETON, WEST VIRGINIA

FIRST FLOOR PLAN

PLAN NOTES



FIRST FLOOR

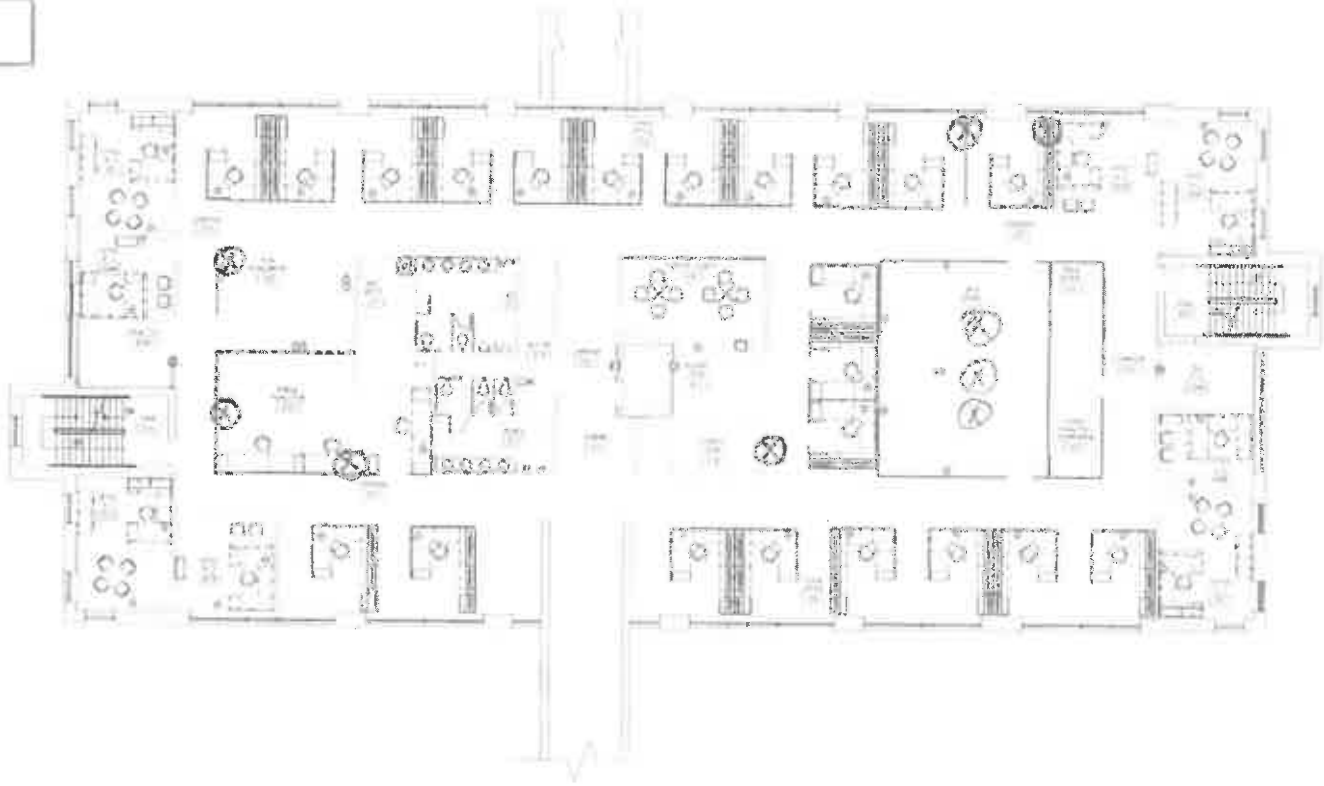
SYMBOL LEGEND

90% PROGRESS SET
NOT FOR CONSTRUCTION

DISTRICT 10 HEADQUARTERS BUILDING
PEKLEROS WEST VIRGINIA

PLAN NOTES

NOTE



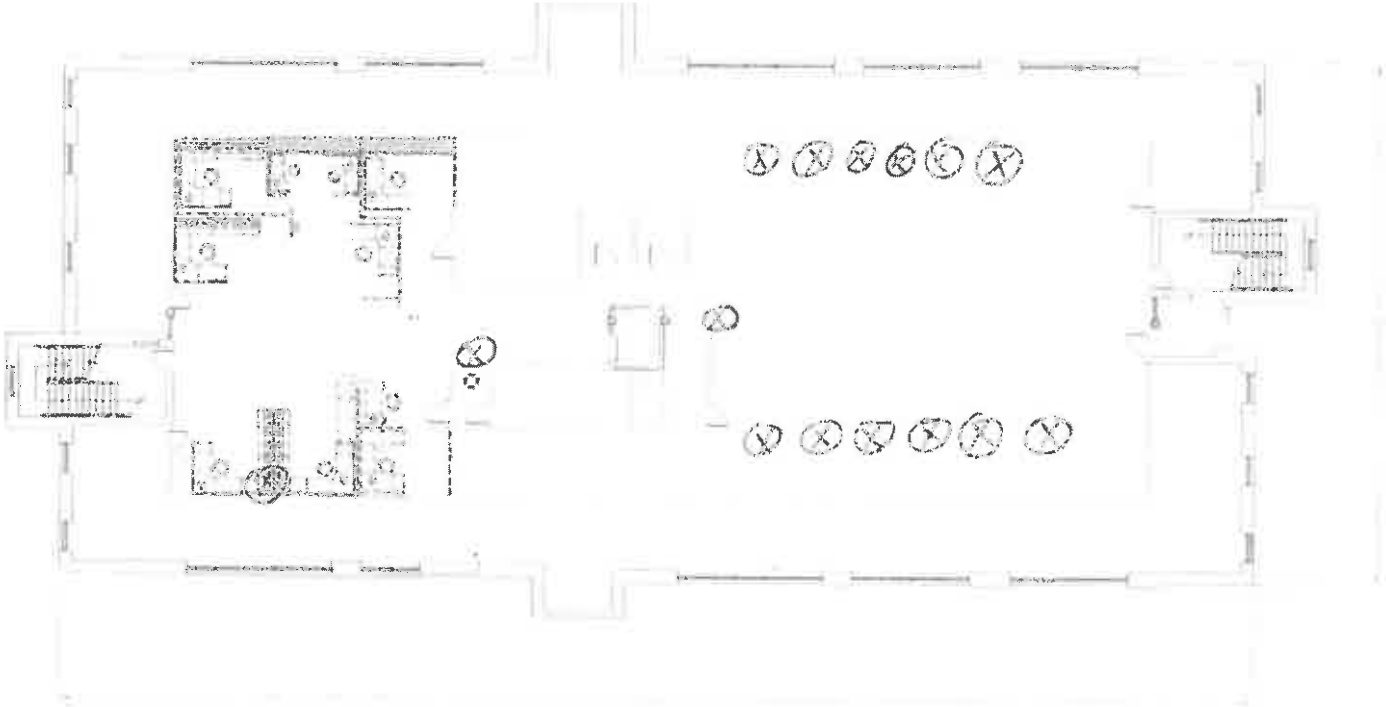
SYMBOL LEGEND

SECOND FLOOR

90% PROGRESS SET
NOT FOR CONSTRUCTION

SECOND FLOOR

WEST VIRGINIA



Back of Building

WV DOH - WV DOT

DISTRICT 10 PRINCETON

3rd FLOOR PLAN

DRAWING NOT TO SCALE
FOOTAGES SHOWN ARE ESTIMATES

DISTRICT 10 HEADQUARTERS BUILDING
PRINCETON WEST VIRGINIA

THIRD FLOOR PLAN

PORT DATA 11
TOTAL CABLE RUNS 22

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DOT1900000034

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[ ] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

_____
Company

_____
Authorized Signature

_____
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 — Info Technology

Proc Folder: 493476

Doc Description: ADDENDUM 3 STRUCTURED CABLING FOR DOT/DOH/DMV (63190023)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2018-12-04	2018-12-06 13:30:00	CRFQ 0803 DOT1900000034	4

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Verizon Business Network Services Inc., on behalf of Verizon Select Services Inc
4700 MacCorkle Av SE., Charleston, WV 25304
304-356-3395

RECEIVED
2018 DEC -6 AM 10: 31
WV PURCHASING DIVISION

FOR INFORMATION CONTACT THE BUYER

Crystal Rink
(304) 558-2402
crystal.g.rink@wv.gov

Signature X Sencia S. Austin FEIN # 16-1337624 DATE 12/5/2018

All offers subject to all terms and conditions contained in this solicitation

Sr. Analyst-Billing

FORM ID : WV-PRC-CRFQ-001

ADDITIONAL INFORMATION:

THE STATE OF WEST VIRGINIA PURCHASING DIVISION IS SOLICITING BIDS ON BEHALF OF THE DEPARTMENT OF TRANSPORTATION TO ESTABLISH A CONTRACT FOR THE INSTALLATION OF STRUCTURED CABLING PATHWAYS AND SPACES SYSTEMS AT NINETEEN (19) DOT/DOH/DMV PER THE ATTACHED DOCUMENTS.

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	NETWORK CABLING, INSTALLATION, TESTING &	0.00000			

Comm Code	Manufacturer	Specification	Model #
83111601			

Extended Description :

TO PROVIDE STRUCTURED CABLING NETWORK DISTRIBUTION SYSTEM, INSTALLATION, TESTING & ACCEPTANCE

SCHEDULE OF EVENTS

Line	Event	Event Date
1	MANDATORY PRE-BID MEETING	2018-11-07
2	MANDATORY PRE-BID MEETING	2018-11-08
3	MANDATORY PRE-BID MEETING	2018-11-09
4	QUESTION DEADLINE	2018-11-16

SOLICITATION NUMBER: CRFQ DOT1900000034
Addendum Number: 3

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[✓] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[ ] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

1. To change bid opening date to December 6, 2018 at 1:30 PM EST due to United States Postal Service being closed on December 5th.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DOT1900000034

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[X]	Addendum No. 1	[ ]	Addendum No. 6
[X]	Addendum No. 2	[ ]	Addendum No. 7
[X]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Verizon Business Network Svc Inc on behalf of
Verizon Select Services Inc
Company

Sr. Analyst-Billing
Authorized Signature

12/5/2018
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

APPENDIX 4
VERIZON BUSINESS
CPS-103 LETTER OF DELEGATION OF AUTHORITY
FORM 101

Within the authority granted to me in CPS-103, "Authority to Approve Transactions," I delegate

Michael O'Connor, Associate Director - Billing Solutions (VZ ID [redacted]); and
Adam S Davis, Sr. Manager - Billing (VZ ID [redacted]); and
Renee L Bright, Consultant - Billing (VZ ID [redacted]); and
Venita S Houston, Sr. Analyst - Billing (VZ ID [redacted]); and
Debra Hall, Analyst - Billing (VZ ID - [redacted]); and
Tiara A Parker, Analyst - Billing (VZ ID [redacted])

the authority to perform the following function:

> Execute and deliver Verizon Business Customer Contracts and Proposals requiring "wet ink" signatures, including any and all ancillary documents and amendments related thereto, that are duly approved in accordance with then-applicable Verizon Business corporate policies, including the use of stamp bearing facsimile of my signature in accordance with *Security Procedure for Anthony Recine, SVP, Blue Ink Stamp* Policy.

This will be effective beginning on August 21, 2018 and ending on June 30, 2019 or before if rescinded by me.

(Annual delegations must be completed by July 1st of each respective year and may not exceed one year from their effective date. Delegations with a start date other than July 1st should also include an end date of the subsequent June 30 or earlier.)

Distribution:

- The person delegated authority must retain a copy of Form 101 delegation, either electronic or hard copy, for one (1) year after expiration date.
- The person granting the delegation must retain the Form 101 delegation, either electronic or hard copy, for one (1) year after expiration date; send a copy to the delegate, the group Chief Financial Officer, and Corporate Finance Compliance at corporatefinancecompliance@core.verizon.com; and ensure the delegation is entered into the Accounts Payable system when appropriate.

Approved By:

Signature 8/27/18 Date

Anthony Recine [redacted]
Name VZ ID

SVP (Band 4)

0130001707
Responsibility Code or Cost Center Code

Delegate's Signature - Michael O'Connor

Delegate's Signature - Adam S Davis

Delegate's Signature - Renee L Bright

Delegate's Signature - Venita S Houston

Delegate's Signature - Debra Hall

Delegate's Signature - Tiara A Parker