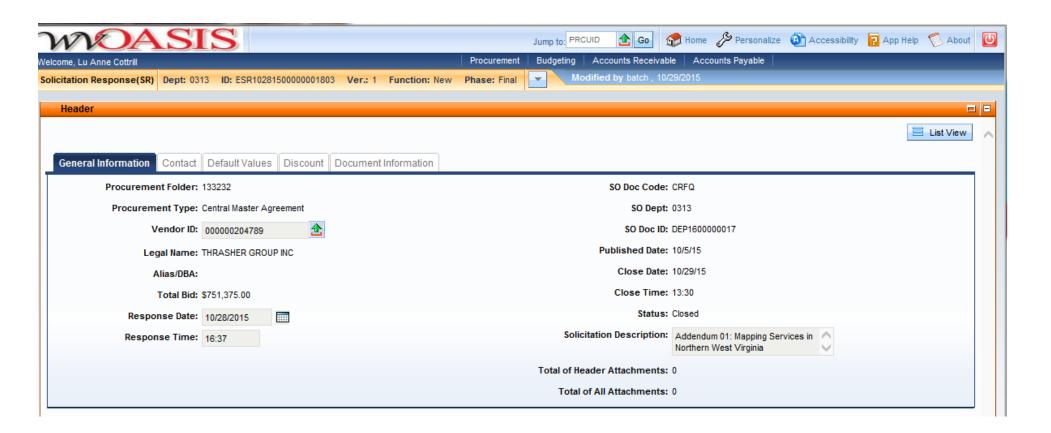


2019 Washington Street, East Charleston, WV 25305 Telephone: 304-558-2306 General Fax: 304-558-6026

Bid Fax: 304-558-3970

The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at *wvOASIS.gov*. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at *WVPurchasing.gov* with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.





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

State of West Virginia Solicitation Response

Proc Folder: 133232

Solicitation Description : Addendum 01: Mapping Services in Northern West Virginia

Proc Type: Central Master Agreement

Date issued	Solicitation Closes	Solicitation No	Version
	2015-10-29 13:30:00	SR 0313 ESR10281500000001803	1

VENDOR

000000204789

THRASHER GROUP INC

FOR INFORMATION CONTACT THE BUYER

Beth Collins (304) 558-2157 beth.a.collins@wv.gov

Signature X FEIN # DATE

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

Page: 1 FORM ID: WV-PRC-SR-001

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Control Surveying	ol Surveying 600.00000 HOUR \$110.0000			\$66,000.00
Comm Code	Manufacturer	Specification		Model #	
81151601					
Extended Des	Scription: Control Surveying				
Line	Comm Ln Desc	Qty 1800.00000	Unit Issue	Unit Price \$110.000000	Ln Total Or Contract Amount \$198,000.00
	Topographic, Planimetric and Check Surveying	1800.00000	HOUR	\$110.000000	\$198,000.00
Comm Code 81151601	Manufacturer	Specification		Model #	
Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Terrestrial LIDAR Collection	600.00000	HOUR	\$150.000000	\$90,000.00
Comm Code	Manufacturer	Specification		Model #	
81151601					
Extended Des	Scription: Terrestrial LIDAR Collection	on			
Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	Topographic Mapping - Aerial Photography (0-25 Acres)	15.00000	ACRE	\$600.000000	\$9,000.00
Comm Code	Manufacturer	Specification		Model #	
				<u> </u>	
81151601					

6 Topograph Photograph	ic Mapping - Aerial ny (25-50 Acres)	30.00000	ACRE	\$300.000000	\$9,000.00
	,				
Comm Code Man	ufacturer	Specification		Model #	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
7	Topographic Mapping - Aerial Photography (50-100 Acres)	75.00000	ACRE	\$150.000000	\$11,250.00

Comm Code	Manufacturer	Specification	Model #	
81151601				

Extended Description : (including LIDAR Collections)

Extended Description:

List only one rate for each category.

(including LIDAR Collections)

List only one rate for each category.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
8	Topographic Mapping - Aerial Photography (Over 100 Acres)	125.00000	ACRE	\$125.000000	\$15,625.00

Comm Code	Manufacturer	Specification	Model #	
81151601				

Extended Description : (including LIDAR Collections)

List only one rate for each category.

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
9	Licensed Land Surveyor	600.00000	HOUR	\$125.000000	\$75,000.00

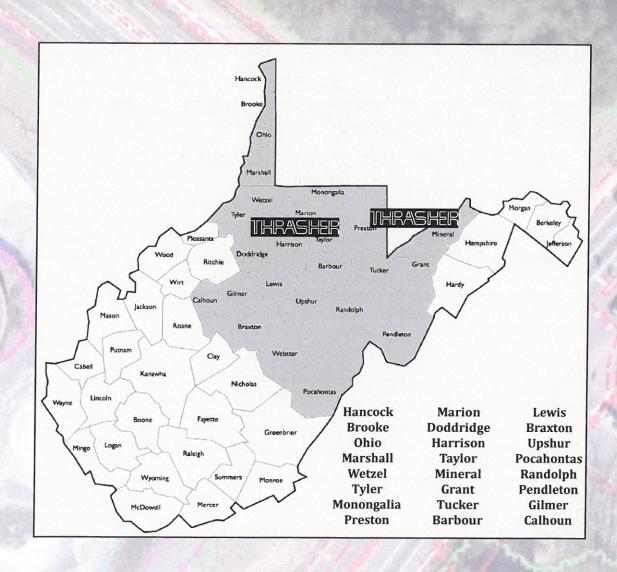
Comm Code	Manufacturer	Specification	Model #	
81151601				

Extended Description : Professional Rates (Listed Disciplines Only)

	Comm Ln Desc		Unit Issue	Unit Price	Ln Total Or Contract Amount	
10	Survey Manager	1200.00000	HOUR	\$95.000000	\$114,000.00	
Comm Code	Manufacturer	Specification		Model #		
81151601						
Extended De	Professional Rates (Listed	d Disciplines Only))			
Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount	
11	Mapping/CAD Technician	2400.00000	HOUR	\$65.000000	\$156,000.00	
	Wapping, 67 to Toomiolan					
0	Manufastona	0		88 - 1-1 #		
81151601	Manufacturer	Specification		Model #		
01131001						
Extended De	Professional Rates (Listed	d Disciplines Only)				
Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount	
12	Travel Per Diem (Rate/Person)Day)	125.00000	EA	\$60.000000	\$7,500.00	
Comm Code	Manufacturer	Specification		Model #		
81151601						
01131001						

EXPRESSION OF INTEREST Mapping Services for Northern West Virginia

DEP 16000000017 October 29, 2015



THRASHER

600 WHITE OAKS BLVD. BRIDGEPORT, WV 26330 www.thrashereng.com October 29, 2015

Department of Administration, Purchasing Division 2019 Washington Street East Charleston, WV 25305-0130

RE: DEP 1600000017

Dear Members of the Selection Committee:

For decades, Thrasher has worked on projects involving the West Virginia Department of Environmental Protection. As West Virginia's largest privately owned engineering firm, we specialize in multidisciplinary engineering services, including survey and mapping services.

We employ one of the largest survey departments in the Mid-Atlantic region and offer a wide range of land surveying and related services for federal, state, and private clients. We are committed to evolving our techniques and equipment to best serve our clients and their growing needs. Thrasher's experience with survey has evolved into mapping focusing on our ability to analyze, process, and visualize information to assist in solving problems and making sound business decisions. The team at Thrasher utilizes commercially available software as well as develop custom GIS software to provide workable tools that are user friendly for resolving everyday issues.

Thrasher has first hand experience in working with a variety of clients to provide the survey and mapping needed to successfully complete projects. We understand the impact survey and mapping has on DEP AML projects, as we have completed dozens of mine reclamation projects across West Virginia.

Thrasher looks forward to the opportunity to interview for this very important task and continuing our working relationship with the DEP for the benefit of AML projects.

Sincerely,

CHADWICK D. BILLER, PE

hadbeller

Partner, Principal-in-Charge

TABLE OF CONTENTS

Request for Quote Form

- Control Survey Price
- Topographic, Planimetric and Check Surveying
- Terrestrial LIDAR Collection
- Mobile Scanner
- Topographic Mapping Aerial Photography (0-25 acres)
- Topographic Mapping Aerial Photography (25-50 acres)
- Topographic Mapping Aerial Photography (50-100 acres)
- Topographic Mapping Aerial Photography (Over 100 acres)
- Licensed Land Surveyor
- Survey Manager
- Mapping/CAD Technician
- Travel Per Diem ((Rate/Person) Day)

Thrasher's Response to Southern Mapping

- Background
- Related Services
- Related Experience
- Project Team
- Equipment

Certified Signature Page

Addendum Acknowledgment Form

THRASHER

THRASHER'S BACKGROUND

Thrasher is a privately owned engineering firm that specializes in multidisciplinary engineering services. Established in 1983, Thrasher is built on stable leadership, financial strength and reputation. Our dedication to creative design solutions, well-managed projects and customer service has made Thrasher West Virginia's largest privately owned engineering firm and an industry leader in the Mid-Atlantic region.

Since our formation, the company has grown to a firm of more than 350 employees. Our diverse staff has the resources to handle many projects, both large and small, simultaneously. Our client base is diverse and includes municipalities, state and federal government agencies, secondary and higher education, pubic and private entities, etc.

Principals:

H. Wood "Woody" Thrasher, PE

Kenneth P. Moran, PE, PS

Chad M. Riley, PE

Daniel E. Ferrell, PE

Wm. Randy Watson, PE

Clay P. Riley, PE

Jonathan Carpenter, PE

Chadwick D. Biller, PE

Craig Baker, Associate AIA

Robert R. Milne, PE

Ron Stanley, CPA

Jenelle Armstrong, PE

Matt Fluharty, PE

Our Locations:

Bridgeport, West Virginia Charleston, West Virginia

Beckley, West Virginia

Oakland, Maryland

Canton, Ohio

Fredericksburg, Virginia

Canonsburg, Pennsylvania

Multi-Disciplinary Services:

Civil Engineering

Utility Services

Land and Site Development

Roadways

Bridges

Streetscapes

Airports

Storm Water Systems

Environmental Services

Architecture

Land Planning

Landscape Architecture

Construction Monitoring

Materials Testing

Pipeline Inspection

GIS Mapping

RELATED SERVICES

SURVEY

Thrasher employs one of the largest survey departments in the Mid-Atlantic region and offers a wide range of land surveying and related services for federal, state, and private clients. We are committed to evolving our techniques and equipment to best serve our clients and their growing needs.

At Thrasher, we are able to provide both surveying and engineering services which provide a distinct advantage over survey-only companies. The combination of these two services provide our surveyors with a better understanding of what engineers and architects require to develop an appropriate design for different types of projects. Our field and survey personnel offer extensive experience, certified training, and flexibility to meet our clients' unique project schedules.

GENERAL SURVEY SERVICES:

- Large-scale Boundary Work
- · Topographic Survey and Mapping
- ALTA/ACSM Survey and Mapping
- Lake and River Soundings
- Accident Reconstruction Survey and Mapping
- · Drug-free Zone Mapping
- Expert Witness Testimony
- Construction Layout
- Permanent Project GPS Base Stations
- Building Control and Layout
- · Road/Bridge Alignment and Staking
- Sewer/Water/Pipeline
- Site Layout
- Quality Assurance Surveying
- Volume/Quantity Surveys
- As-Built Surveys

GPS SURVEYS:

- Geodetic Control Networks
- Ground Control for Aerial Mapping
- Telecommunications
- FAA 1A and 2C Letters

ROUTE LOCATION SURVEYS:

- Transmission Lines
- Natural Gas Pipelines
- Wind Turbine
- · Roadway, Railway and Rec Trails

COAL AND ENERGY SURVEYS:

- Pre and Post Mining Blast Surveys
- · Water Quality Monitoring Plan
- Construction Layout
- Emergency Control Survey/Plans



Thrasher has worked with the Department of Environmental Protection to successfully complete the following AML projects. Thrasher is aware of the importance of accurate survey and mapping that is needed to get these projects to engineering design.

Roaring Creek

· Portals, Subsidence Depressions, Dewatering of Farm pond into subsided areas

Anglins Run

· Portals and AMD

Squire's Creek

· Portals, Highwall, AMD and Refuse

Overfield (Lafferty)

· Clogged Stream, Portal and Landslide

Clarksburg (Lyons) Landslide

· 2 acre Landslide

Lauren Run #1

· Portals, Highwall and AMD

Pleasant Valley (Brown)

· Portals, Highwall and AMD

Roger Camp Hill

1/2 Acre AMD Impoudment and Refuse

Stowe (Prince) Landslide

· Emergency Landslide

Owl Creek #2

· Portals, Highwalls, AMD and Refuse

Landgraff Refuse Pile

Refuse

Canyon Refuse and Dump

· Portals, Highwalls and Refuse





Thrasher has successfully completed topographic surveys and aerial mapping for the following coal companies in and surrounding West Virginia.

Apogee Coal Company Scott Depot, West Virginia

ARCH/Beckley, LLC Eccles, West Virginia

ARCH/Mountain Laurel Mining Sharples, West Virginia

Greenbrier Minerals, Coronado Coal II Rupert, West Virginia

MET Resources Bridgeport, West Virginia

Pinnacle Mining LLC Cleveland, Ohio

Sugar Camp Energy, LLC Macedonia, Illinois

Vecellio & Grogan, Inc. Beckley, West Virginia

Mid-Vol Coal Sales Princeton, West Virginia

Berkeley Land Surveyors, Inc. Berkeley Springs, West Virginia

Cliffs Logan County Coal, LLC Cleveland, Ohio

Magnum Caol Company Yolyn, West Virginia



Thrasher's survey teams have performed numerous survey assignments for the WVDOH through our Statewide Agreement. The following is a list of recent projects:

Brooke County - Route 2

Prepared right-of-way plans, legal descriptions, plats, field surveys

Putnam County - Route 35

Prepared route location surveys, right-of-way plans, legal descriptions, plats, field surveys

Fairmont Connector - Construction Stakeout for Mountaineer Contractors

Construction layout, quantity surveys

Hurricane Creek Road - WVDOH Project #U340-35-4.40 00

Construction layout, property corner verifications, GPS control verifications, GPS control confirmation, cemetery location, electronic deliverables, and route location surveys for 6 miles of proposed roadway.

Lodgeville Road - WVDOH Project # X317-50/76-00.00 00

Prepared route location surveys, right-of-way plans, legal descriptions, plats, field surveys

Jakes Run Arch Bridge - WVDOH Project #BR0007(180)

Prepared right-of-way plans, legal descriptions, plats, field surveys

Old Bridgeport Hill Drainage - WVDOH Project # S317-20/75-0.43 00

Prepared right-of-way plans, legal descriptions, plats, field survey

SR 279 North Bridgeport By-Pass - WVDOH Project #X317-279-0.00

Performed route location surveys, construction layout, prepared right-of-way plans, legal descriptions, plats, field surveys

Route 11 Near Musselman High School - WVDOH Project # U302-11-4.36

Prepared right-of-way plans, legal descriptions, plats, field surveys

King Coal Hwy Baisden-Mudlick - WVDOH Project #U330-52-44.70 00 C-2

Prepared right-of-way plans, legal descriptions, plats, field surveys

Corridor H, Grant County, West Virginia – WVDOH Project #X312- H-79.05 00

Prepared route location surveys, right-of-way plans, legal descriptions, plats, field surveys

Thrasher has completed every phase of topographical survey and mapping needed to propertly execute site development for various confidential oil and gas clients. Examples of this work includes the following:

Confidential Client

500 mile survey, mapping and alignment sheets

West Virginia Confidential Client

34 mile survey, mapping, erosion and sediment control plans and routing recommendations

West Virginia Confidential Client

60 mile survey for construction of propane line

Marion and Monongalia Counties, West Virginia

8,000 linear feet of survey and drawings completed within 4 months

TL 536/TL 543 in Wellsville, NY

22 mile survey, wetland survey, as-built survey and mapping completed within 10 months

LN-19 in Delmont, Pa

2 mile as-built survey for gas transmission line completed within 3 months

TL260 in Bridgeport, Harrison County, WV

1.5 mile survey for gas transmission line completed within 3 months

Tioga/Storage Field in Tioga, PA

4.8 mile stakeout, survey and mapping completed within 10 weeks

TL-272 in Cornwell Compressor Station, Clendenin, WV

Two hundred foot of as-built survey in Kanawha County, West Virginia completed within 1 month

TL-570/TL-263 Boone County, WV

6.4 mile survey for rural areas of Boone County, West Virginia. completed within 7 months

TL-342/EXT.4 Waynesburg, Pa

9.7 mile pre-construction survey in Greene County, Pennsylvania completed within 3 months

TRANSMISSION/ DISTRIBUTION LINE FIELD SURVEY EXPERIENCE

Specific examples of project experience for transmission lines include:

Performed boundary, ALTA, topographic, and/or control and construction stakeout surveys for substation sites at:

Lazenby - Mercer County, WV

Jarrold - Raleigh County, WV

McGraws - Wyoming County, WV

Caretta - McDowell County, WV

Hall's Ridge - Mercer County, WV

Patrick Street - Kanawha, WV

Claypool Hill - Tazewell County, VA

Spectra Energy - Washington County, VA

Garrison Switch - Boone County, WV

Rockhouse Road - Boone County, WV

Lockhart - Dickenson County, VACross Lanes - Kanawha County, WV

Patrick Street - Kanawha County, WV

Lanham - Kanawha County, WV

Duffield - Scott County, VA

Wellmont - Sulivan County, TN

Performed Transmission Line Surveys at:

McGraws – Wyoming County, WV

Patrick Street – Kanawha County, WV

Halls Ridge – Mercer County, WV

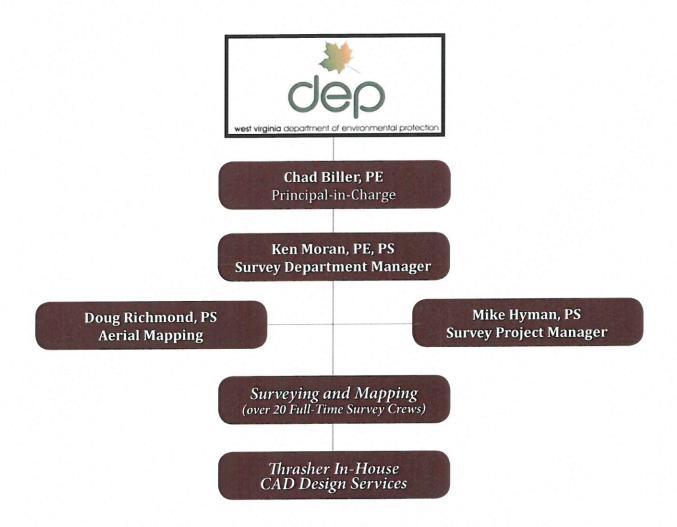
Lockhart – Dickenson County, VA

Spectra Energy – Washington County, VA

Iaeger-Wharncliffe – McDowell/Mingo County, WV

Duffield, Scott County, VA





Contract Manager: Mike Hyman, PS Contract Telephone Number: (304) 624-4108

Cell Phone Number: (304) 677-6962

Fax Number: (304)624-7831

E-Mail Address: mhyman@thrashereng.com

Chadwick Biller, PE Principal-in-Charge

In 1999, Chad Biller, PE, joined the team at Thrasher and is now a partner within the firm. Mr. Biller has extensive experience in all aspects of civil engineering. He has successfully completed hundreds of projects for the WVDEP and WVDOH. Chad has a clear understanding of the procedures required for the DEP, as he has completed over a dozen AML restoration projects. Chad's knowledge of this type of project will be helpful to the survey and mapping team.

Education:

· Bachelor of Science, Civil Engineering - West Virginia University

Registrations:

- Registered Professional Engineer
 - · States of West Virginia, Pennsylvania, and Ohio

Affiliations/Certifications:

- · American Society of Highway Engineers
- · American Society of Civil Engineers
- · National Society of Professional Engineers

Related Experience Includes:

- WVDOH Corridor H, Davis to Bismark—Mr. Biller served as Principal-In-Charge/Project Manager for the design of over two miles of a four-lane divided highway. This roadway includes an additional 1.5 miles of secondary roads.
- WVDOH Jakes Run Bridge— Mr. Biller served as Principal-In-Charge/Project Manager for the design
 of a 95 foot long, single span steel girder bridge, roadway approaches, water line relocation and
 right-of-way.
- WVDOH Orlando Bridge— Mr. Biller served as Principal-In-Charge/Project Manager for the single concrete box beam bridge with approximately 1,000 LF of roadway realignment.
- Landgraff Refuse Pile: Involved a ± 3 acres exposed refuse site, 500 linear feet of dangerous highwall
 and streambank restoration of an unnamed tributary of Elkhorn Creek. The scope of work for this
 project included regrading the refuse site from the unnamed tributary's stream bank and to reclaim
 the highwall. Then an adjoining borrow sites were used to obtain sufficient suitable material to
 entomb the refuse for re-vegetation. The project site covered a total area of 4.3 acres and reclamation
 included ±16,000 cubic yards of earthwork.
- Stowe Landslide: Involved a 2 acre landslide caused an abandoned portal blowout. The slide mass
 was situated directly above a private residence at the base of a steep mountainside. The slide material
 upon removal was transported to a nearby waste site, spread, dried and compacted. The project site
 covered a total area of 2.9 acres and reclamation included ± 6,000 cubic yards of earthwork.

Ken Moran, PE, PS Survey Department Manager

Kenneth P. Moran, PE, PS, serves as Vice President of Thrasher. Mr. Moran is the Chief Operating Officer of Thrasher and the manager of the Survey Division within the firm. His areas of responsibility include quality assurance and quality control of engineering design and survey services for projects ranging from well site development through midstream.

Aside from his work in the oil and gas field, Mr. Moran has extensive experience in all aspects of engineering and surveying with an emphasis on project management and administration. Ken works on both large-scale, multi-million dollar projects as well as smaller community improvement projects.

Education:

· Bachelor of Science, Civil Engineering Technology - Fairmont State University

Registrations:

- · Registered Professional Engineer
 - · States of West Virginia, Virginia, and Ohio
- Registered Professional Land Surveyor
 - · State of West Virginia

Related Experience Includes:

- Statewide Aerial Survey/Mapping Open End Contract Statewide, West Virginia
- WVDOH Road Widening (Big Elm) Harrison County, West Virginia
- WVDOH Robert C. Byrd High School Access Road Harrison County, West Virginia
- Doddridge County Recreation Park Phase I Property Development Doddridge County, West Virginia
- Confidential Client 500 mile survey, mapping and alignment sheets
- West Virginia Confidential Client 34 mile survey, mapping, erosion and sediment control plans and routing recommendations
- West Virginia Confidential Client 60 mile survey for construction of propane line
- Marion and Monongalia Counties, West Virginia 8,000 linear feet of survey and drawings completed within 4 months
- $\bullet~$ TL 536/ TL 543 in Wellsville, NY $\,$ 22 mile survey, wetland survey, as-built survey and mapping completed within 10 months

Doug Richmond, PS Aerial Mapping

Douglas Richmond joined Thrasher in 2012 and serves as a Senior Survey Manager for the firm, as well as heads up the entire Survey Division in Virginia. Mr. Richmond has experience nationally and internationally in survey construction, engineering, GPS scales and technical support and training related to the fields of surveying and mapping for public and private clients.

Mr. Richmond has performed numerous integrated survey projects utilizing GNSS, Robotic Total Station, 3D Laser Scanning, Hydrographic Tools, and Photogrammetry.

Education:

· Bachelor of Science, Civil Engineering - University of New Orleans

Registrations:

Registered Professional Surveyor
 Commonwealth of Virginia [#043001718], State of Louisiana, [#0004507], Ohio [#7860], Texas [#4660],
 Mississippi [#01959], Alabama [#15925], and North Carolina [#L-4008]

Affiliations/Certifications:

- Certified Floodplain Manager
- · Virginia Association of Surveyors
- Virginia Association of Mapping and Land Information System

Related Experience:

- NGS Height Modernization Surveys various locations
- FAA Airport Surveys various locations
- Mid-Atlantic & Midwest NAVFAC Projects (VA, MD, DC, MI, MN, WI, ND, SD, IA, NE) various locations

Mike Hyman, PS Survey Project Manager

Michael Hyman joined Thrasher in 2000 and serves as Survey Crew Supervisor for the firm. Mr. Hyman is responsible for project set-up, review and coordination of his field crews for all types of survey projects including, boundary and easement surveys and the preparation of plats and legal descriptions.

Mr. Hyman also performs courthouse research and computes field data for construction layout. Because of his fine attention to detail and meticulous methods, Mr. Hyman dissects each record and compares it thoroughly to performed field work.

Education:

- Bachelor of Science, Civil Engineering Technology Fairmont State University
- Associate of Science, Engineering Design and Drafting Fairmont State University
- Law of Colonial State University of Maryland
- Continuing Education: Subdivision Design, Hydrology/Storm Water Management and Boundaries

Registrations:

 Professional Land Surveyor: State of West Virginia

Related Experience:

- WVDOH Topographic Survey of Route 41/9 Mr. Hyman was responsible for supervising the survey and construction crews.
- WVDOH Center Line Layout for Route 20 During this project, Mr. Hyman was tasked with the management of all survey crews as well as the input and drafting of all data collected.
- WVDOH Meadowbrook Road Survey Mr. Hyman was responsible for supervising the survey and construction crews.

THRASHER

EQUIPMENT

The following is a summary of the available equipment that Thrasher owns. Attached in the apendix, is a complete list of our equipment with calibrations:

- 46- total stations, 8 of these are Trimble Robotic Total stations, other are compiled of Nikon Nivo's, Topcons, and Leica Total Stations- All calibrated within the last year.
- 69-Trimble R-8's
- 42-Trimble R-10's
- 63-Trimble TSC3's
- 2 Trimble Geo-7x
- 5 Trimble Geo XH6000
- 7 Trimble Geo XR6000
- 28 Trimble TDL 450H Repeaters
- 5 Metro Tech Spar Units
- 19 Levels, Trimble, Leica and Topcons

Please see attached camera calibration report.

December	Description		uipment Matrix						+-
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Manual Ra	Margin All Model	TRIMBLE-RB	R8 Model 3	5220487415	Justin Gordon	16-Apr	X X	×	
TRANSIL F. R. R. Mondel 3 S. 2009/2566 Roof the gry (MC) 15-Apr X X TRANSIL F. R. R. Mondel 3 S. 2009/2566 Representations 15-Apr X X X X X X X X X	TRANSE R. R. Model S. S. S. S. S. S. S. S	TRIMBLE-RS	R8 Model 3	5220487748	Cage	16-Apr	×	×	
TRAMEL AB RANGE SIZEMENTA Cape Sizema Range Rang	TAMBLE AB R8 Model 3 S250045125 Cage 36 Apr X X X TAMBLE AB R8 Model 3 S250045125 Cage 0-044540564 16 Apr X X X TAMBLE AB R8 Model 3 S250045125 PERMETER SERVICE SER			5226491568	Bud Bargy (MD)	16-Apr		×	
TRANSIL AR RR Model 3 \$324,045574 \$24,04574 \$26,045 \$24,04574 \$26,045 \$24,04574 \$26,045 \$24,04574 \$26,045 \$24,04574 \$26,045 \$26,04574 \$26,045 \$26,04574 \$26,045 \$26,04574 \$2	TARMEL AB RA Model 3 \$23,224,855.00 Cage of (Adaption) Service RA Model 3 \$23,224,855.00 Cage of (Adaption) Service RA Model 3 \$23,224,855.00 Flay paid (Service 108) Service RA Model 3 \$20,224,855.00 Flay paid (Service 108) Service RA Model 3 \$20,224,855.00 Flay paid (Service 108) Service RA Model 3 \$20,224,855.00 Flay paid (Service 108) Service RA Model 4 \$20,224,855.00 Flay paid (Service 108) Service RA Model 4 \$20,224,855.00 Flay paid (Service 108) Service RA Model 4 \$20,224,855.00 Service RA Model 4 Service	TRIMBLE-RB					×	X X	
TRANSIC ARE AR Model 2 \$24,000 \$20,000	TRANSILERS	TRIMBLE-R8	R8 Model 3	5242498554	Oakland (Spare)	16-Apr	A THE RESIDENCE	×	
TRANSIC - 18			R8 Model 3	5243499332	Toby Paul (Canton OH)	16-Apr	x	x	
TRAME AR	TRAMBLE RE		TO THE PROPERTY OF THE PROPERT	5026435710 5026435653	Contract Con	16-Apr	×	×	
DESCRIPTION MODEL S/N ASSIGNMENT WARRANTY EXP. APR-16 FIRMWARE 5.01 2015 PULIST	DESCRIPTION MODEL S/N ASSIGNMENT WARRANTY EXP. APR-16 FIRMWARE 5.01 2015 PULIST	TRIMBLE-R8	R8 Model 3		Jason Garrett	16-Apr Have no record	X Have no record	*	
DESCRIPTION MODEL S/N ASSIGNMENT WARRANTY EXP. APR-16 FIRMWARE 5.01 2015 PULIST	DESCRIPTION MODEL S/N ASSIGNMENT WARRANTY EXP. APR-16 FIRMWARE 5.01 2015 PULIST								
TRIMBLE RID	TRIMMER PRO OD CO S200437390 Fredricks burs Oue Ou	DESCRIPTION	MODEL	The state of the s	ASSIGNMENT	WARRANTY EXP. APR-16	FIRMWARE 5.01	2015 PLI LIST	
TRIMBLE RID	TRIMBLE RID						×	X X	
TRAME FID	TRAMERIER 00	TRIMBLE-R10	001-60	5220487390	Fredricksburg				
TRAMELERID OCI-60 S20045629 Andrew Middleton 16 Apr X X	TRAMELE RID			5306426368	Jarrett Lantz		NEEDEN PROPERTY	×	
THAME FILD	THAME FILD	TRIMBLE-R10	001-60	5320436619	Andrew Middleton			X X	
THAME FID	THAME FRID	TRIMBLE-R10	001-60	5313432348	Cage	16-Apr	×	×	
TRAMELERID	TRIMBLE-RID			5302423131	Joe Lowther	16-Apr		×	
TRIMBLE-RID	TRANSELEND 001-60 \$131437863 Make Valler (Canton CH) X X X TRANSELEND 001-60 \$242487850 Cape 15-Apr X X X X X X X X X	TRIMBLE-R10	001-60	5324438795	Andy Stull (Beckley)		X	×	
TRIMBLE-RID	TRIMBLE RID	TRIMBLE-R10	001-60	5313432363	Mike Walker (Canton OH)			×	
TRIMBLE-RID	TRIMBLE-RID			5308426566	Chris Baker	16-Apr	x x	×	100
TRAMELERID	TRIMBLE-RID 001-60 5242498377 Chris Defino (PA.) NO WARRANTY X TRIMBLE-RID 001-60 5412499660 Cape (No Warranty) TRIMBLE-RID 001-60 549479452 James Howes 16-Apt X X TRIMBLE-RID 001-60 549477234 Greg Goodwin NO WARRANTY X TRIMBLE-RID 001-60 549477234 Jee Dodson (Va.) 16-Apt X TRIMBLE-RID 001-60 549477234 Jee Dodson (Va.) 16-Apt X TRIMBLE-RID 001-60 532448795 Andy STUI (Beckley) 16-Apt X TRIMBLE-RID 001-60 533442476 May Brown (Charleston) 16-Apt X TRIMBLE-RID 001-60 5374197945 Kirk Wilson 19-Apt X TRIMBLE-RID 001-60 531432433 Justin Gordon 16-Apt X TRIMBLE-RID 001-60 531432433 Justin Gordon 16-Apt X TRIMBLE-RID 001-60 531432433 Justin Gordon 16-Apt X TRIMBLE-RID 001-60 53143838 Janto Gardon 16-Apt X TRIMBLE-RID 001-60 53143838 Janto Gardon 16-Apt X TRIMBLE-RID 001-60 532448838 Janto Carrett 16-Apt X X	TRIMBLE-R10	001-60			NO WARRANTY	Basic Commercial	X	
TRAMBLE-RID	TRAMBLE-RID	TRIMBLE-R10	001-60	5242498177	Chris DeFino (PA.)			×	
TRUMBLE-RLD	TRIMBLE-RID		001-60	5439479452	James Howes		X	×	
TRIMBLE-R10	TRIMBLE-11D 003-60 545M2/95/13 Jue Dodron (Va.) 16-Apr X TRIMBLE-11D 003-60 5324436765 Andy-Stuf (Beckley) 16-Apr X TRIMBLE-11D 003-60 5335447676 Miley Brown (Charleston) 16-Apr X X X X X X X X X		001-60				BUNGSHA NAMED IN	×	
TRIMBLE-R10 001-60 5335442476 Makey Brown (Charleston) 16-Apr X TRIMBLE-R10 001-60 5372437945 kirk Wilbon 16-Apr X X TRIMBLE-R10 001-60 5313432433 Justin Gordon 16-Apr X X TRIMBLE-R10 001-60 532543838 Justin Garrett 16-Apr X X	TRIMBLE-RID	TRIMBLE-R10 TRIMBLE-R10			Joe Dodson (Va.)	16-Apr		×	
TRIMBLE-R10 001-60 5313422433 Justin Gordon 16 Apr X X TRIMBLE-R10 001-60 532543838 Javon Garrett 16 Apr X X	TRIMBLERID 001-60 5313432433 Justin Gordon 16-Apr X X TRIMBLE-310 001-60 5325438238 Jacob Gurrett 16-Apr X X TRIMBLE-310 001-60 5324438786 Edde Versfall 16-Apr X X	TRIMBLE-R10 TRIMBLE-R10 TRIMBLE-R10 TRIMBLE-R10	001-60	gonamen					
TRIMBLE-R10 001-00 5325438838 Jason Garrett 16-Apr X X	TRIMBLE-R10 001-60 5325438838 Jaion Garrett 16 Apr X X TRIMBLE-R10 001-60 532438746 Eddle Westfall 16-Apr X X	TRIMBLE-R10 TRIMBLE-R10 TRIMBLE-R10 TRIMBLE-R10 TRIMBLE-R10	001-60 001-60 001-60	5335442476	Mikey Brown (Charleston)	16-Apr		×	
		TRIMBLE-RID TRIMBLE-RID TRIMBLE-RID TRIMBLE-RID TRIMBLE-RID TRIMBLE-RID TRIMBLE-RID TRIMBLE-RID	001-60 001-60 001-60 001-60	5335442476 5322437945	Mikey Brown (Charleston) Kirk Wilson	16-Apr 16-Apr	× × ×	× × ×	

Level									
TRANSP. 1-10 COLOR COLOR	March Marc	TRIMBLE-R10	001-60	5411458547	Drake Levo	16-Apr		*	
TRANSECTION	December	TRIMBLE-R10	001-60	5413460447	Phil Odonell (Beckley)		Removed	X Removed	
Transact 200 Co. C		TRIMBLE-R10	001-60	5412460054	Bud Bargy (MD.)	16-Apr	×	×	
TRANSPERSON CONTRACTOR CO	1.00 1.00	TRIMBLE-R10	001-60	5413460789	Adam Cooper (Cage)	16-Apr	× ×	x x	
Transport All Color Colo	10.00 1.00	TRIMBLE-R10	001-60		J. Dix (Beckley)	16-Apr	X	×	
Throng Act		TRIMBLE-R10	001-60	5320436612	Mapping Dept.	16-Apr	*	X X	
DESCRIPTION MODEL BRAND SATISMENT CAUBACTON EXP. D.	MODIL SAND S/N	TRIMBLE-R10	001-60	5408454957	Aaron Rawe	16-Apr	X X	X X	
Lead	March Marc	TRIMBLE-R10	001-60		David Pritt	No Warranty	Removed	Remoyes	
Level	Add Septem Michael	DESCRIPTION	MODEL BRAT	ND S/N	ASSIGNMENT	CALIBRATION EXP. DATE		2015 PLI LIST	
Level	AT 20 Troops					Needs Calibrated			
Level	MACRE March MacRe MacR	Level	AT-B3 Topo	on N03400	Mikey Brown (CH)				
Insert	March Marc	Level	NA73D Leic	a 5368775	Josh Oyler (OH)			To be the second	OTO SO
Good AF-8 Propose Gold Propose	### ASSOCIATION BAND SANDER SANDE	Level	AT-83 Topo	on N01549	Rob Lynch				To the
General NATIO Lake 1982 Cap Description New Collection New Col	MAZION Links 1992	Level	AE-7 Niko	on 249205	Robert Stark Cage				TANK
Level	1.00 1.00	Level	NA730 Leic	a 10812 on R10812	Cage (Damaged) Andrew Middleton				
Lovel	Description	Level	B21 SOKK AT-B3 Topo	KIA 416773 pn N01548	Toby Paul (OH) Aaron Rawe	Needs Calibrated			1010
Invest	AC-S. No. S10000 December				Mike Walker (Canton OH)	Needs Calibrated			
Level	### Nicol \$1004		AT-B4 Topo	on N57833	Robert Stark				
Level Leve	DATE 100		AP-8 Niko	on 510886	77777777777777777777777777				
Level	Pack User Display	Level	AP-8 Niko	on 510786	777777777777777777777777777777777777777	15-tal			
Level	## A 2-30 Topon B3255 MAN wooded Specific Calibrated Spe	Level	TS20A Liet	z D10163/13297	Cage				Table 1
DESCRIPTION MODEL BRAND S/N ASSIGNMENT CALIBRATION EXP. DE	MOOFIL BRAND S/N ASSIGNMENT CAUBRATON EXP. DATE	Level	AT-22A Topo	on 812545	Mike Woodall	Needs Calibrated			
DISCRIPTION MODEL BRAND S/N ASSIGNMENT CAUBRATION CRP. DI	MODEL BRAND S/N ASSIGNMENT CAUBRATION DP. DATE 2015 PLILET	, ,,,,,							
Section 1995 Section 2005 Sect	Section Sect		TOTAL S	TATION INSTRU	JMENTS				
Second S	Section Sect	DESCRIPTION	MODEL BRAN	4D S/N	ASSIGNMENT			2015 PLI LIST	\perp
Bellet S3	1	Robot Robot	SS Trimb	ple 91411109	Rob Lynch	5/15 "Past Due"		*	
Robert S.S. Tremble SELECTED Freshchalery Ciffice VA NO Date Supplied Robert VA Tremble SELECTED Freshchalery Ciffice VA NO Date Supplied Robert VA Tremble SELECTED Tremble SELECTED Robert VA Tremble SELECTED Tremble SELECTED SEL	Second Color		53 Trimi	ble 91411253	Carton Office	Needs Calibrated			
Total station T.C. 203 Lake 68.1755 Entre station T.C. 405 Leica 8.2499 7777777777777777777777777777777777	Total Lieu	Robet	Si Trimit	ble 93010708	Andy Stuff	16-Jun			
Total station	Tot-405	Bobot	VX Trimi	ble 99710432	Gregg Goodwin	15-Oct			
Total station	Color Colo	Total station	TC-403 Leic	756722	Capp				
Total station	15-762				The state of the s	15 May			
Total station	TCR 703	Total station	1C-409 take TG-703 tel	856203 a 647516	Grage Goodwin Case (Will not Connect)	16-Apr 16-Apr			
Total station Total Call	15-Sep 1				88				
Total station	TS-02	Total station	TCR 409 Lesc	A 658965	John Leary Mikey Brown				
Total station	15-02	The state of the s	TS-02 Lek	a 1322734					
Total station	New Bild Nation A15138- Case 15-lum	Total station Total station	TS-02 Leic TS-02 Leic	a 1322739 a 1322785	Eddie Westfall	16-hm			Mode
Total station	Nico 3M	Total station	Nivo IM Niso	n A151353		16 Aug		HE CONTRACTOR	
Total station New 3th Nikon A15043 Tyler Bille 16-Jun	Nivo 3M	Total station			Mike Walker-Canton	15-3411		×	7
Total station	Novo 3M Nikon A150543 Tyler Affile 16-lum X Nikon A20613 7????????????????????????????????????	Total station	THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.		Phil Odonell (Beckley)	16 Mar		X X	A 11
Total station	Nivo 3M Nikon A30613 ????????????????????????????????????	Total station Total station Total station	Nivo 3M Niko	A152020				X X	1500
Total station	No.	Total station Total station Total station Total station Total station	Nivo 3M Niko Nivo 3M Niko Nivo 3M Niko		Tyler Riffle				
Total station New 2M Nation A15/07/44 James Holes 16-Jam 16-J	New 2M Nilson DCB-5122 Chis Deg Pro (PA) No Date Supplied No. 2 No	Total station	Nivo 3M Niko	A150543 A152313 on A300613	Toe Dodson (VA) 777777777777777777777777777777777777	No Date Supplied		X X	
Total station New 2M	National	Total station	Nivo 3M Niko	A150543 A152113 A1 A300613 A151527 A151531 A152091	Ion Dochem (VAI) 2777777777777777777777777777777777777	No Date Supplied Needs Calibrated		×	
Total station	Name	Total station	Nivo 3M Niko Nivo 3M Niko	A150543 A150543 A150543 A15057 A151527 A151531 A15001 A150754 B1 A15001	Iose Dockson (VAI) 777777777777777777777777777777777777	No Date Supplied Needs Calibrated "New" No Calibration date No Date Supplied		X X X X	
Total station ES-103 Topcon BR0442 ??????????????????????????????????	ES-103 Topcon B80442 ???????????????????????????????????	Total station	Nivo 2M. Nivo 2M. Nivo 3M. Nivo 3M. Nivo 3M. Nivo Nivo Nivo Nivo Nivo Nivo Nivo Nivo	A150643 A150813 A30613 A30613 A315157 A315157 A31557 A31557 A350754 D083479 D083479 D083488	Jon Dockon (VA) 222222222222222222222222222222222222	No Date Supplied Needs Calibrated "New" No Calibration date 16 May 16		X X X X X	
Total station GPT3005LW Topcon 410975 Beaver Office	Topicon 400175 Beaver Office	Total station	Nine 2M	A150643 A151313 A30613 A151527 A151527 A151527 A152091 A152	Jon Dockon (VA) 222222222222222222222222222222222222	No Date Supplied Needs Calibrated "New" No Calibration date No Date Supplied 15-8-8-9 15-8-9-9 35-9-9-9		X X X X X X	
Total station	### NOSEW Topcom 41296 Bush Option (NA) No Date Supplied 8/15 Part Due* #### NOSEW Topcom 641296 Bush Option (NA) No Date Supplied 8/15 Part Due* ##### NO Date Supplied 9/15 Part Due* No Date Supplied	Total station	Nice 2M. Nice 3M. Nice 2M. Nice 3M. Nice 2M. Nice 3M. Nice 2M. Nice 3M. Nice 2M. Nice 3M. Nice 3M. Nice 3M. Nice 3M. Nice 3M. Nice 3M. Nice 2M. Nice 3M. Nic	A150543 A150513 A300613 A300613 A151527 A151527 A151529 A152091 A15	Jon Dockon (MA) 22222222222222222222222222222222222	No Date Supplied Needs Calibrated "New" No Calibration date No Date Supplied 15-Aug 15-Aug No Date Supplied		X X X X X X	
Total station GTS-000 Total station FredStd station GTS-005 Topcon 350102 Cage Total station SS0120 Topcon S50120 77777777777777777777777777777777777		Total station	Nice 2M. Nice 3M. Nice 2M. Nice 2M. Nice 2M. Nice 2M. Nice 2M. Nice 2M. Nice 3M. Nic	A150643 A157813 A157813 A157814 A151527 A151527 A151527 A151529 A152091 A152091 A152091 A152091 A152081 A15	Jon Deckon (MA) 22222222222222222222222222222222222	No Date Supplied Needs Calibrated "New" No Calibration date No Date Supplied 15-Aug 15-Aug No Date Supplied		X X X X X X X	
Total station	SS0120 Topcon SS0120 ???????????????????????????????????	Total station	Nice 2M. Nice 3M. Nice 2M. Nice 3M. Nic	A150643 A15711 A300613 A151527 A31557 A3157 A	Jos Deckon (MA) 77777777777777777777777777777777777	No Date Supplied Needs Calibrated "New" No Calibration date No Date Supplied No Date Supplied 7/15 "Past Due"		X X X X X X X	
	APTISODS, W. Topicon 4/1591 Juseph Lambert 14-Nov	Total station	Nico 2M. Nico 3M. Nico 2M. Nico 3M. Nico 2M. Nico 3M. Nico 2M. Nico 3M. Nic	A150643 A15111 A300613 A151527 A31557 A151527 A151527 A151521 A151522 A15122 A151522 A151522 A151522 A151522 A151522 A151522 A15152	Jose Deckoon (MA) 77777777777777777777777777777777777	No Date Supplied Needs Calibrated "New" No Calibration date 18		X X X X X X X X X X	
	HAND HELD COS LINUTS	Total station	Nice 2M Nice Nice Nice Nice Nice Nice Nice Nice	A150643 A15111 A30613 A151157 A30613 A151527 A151511 A151511 A1515074 A151571 A15171 A151571 A15171 A151571 A15157	Jose Deckoon (MA) 77777777777777777777777777777777777	No Date Supplied Needs Calibrated "New" No Calibration date 18		X X X X X X X X X	
	HAND HELD GRELINITS	Total station	Nice 2M Nice Nice Nice Nice Nice Nice Nice Nice	nn A150543 A151313 A151313 A151527	Jon Dockon (VA) 22222222222222222222222222222222222	No Date Supplied Needs Calibrated "New" No Calibration date No Date Supplied 18-Mag 18-Mag No Date Supplied 7/15 "Pest Due" No Date Supplied 8/15 "Pest Due" No Date Supplied		X X X X X X X X X	

CEC AT TOO	89101.80	5222418504	Care	16 Apr	- X		COLUMN TO SERVICE
GEO-XR6000	89100-80	5222418532	Office	Not Valid	Removed	Removed	
	89100-80 89100-80		Joe Lowther (Office) David Boyd (VA)				
GEO-X86000			James Howes Joe Lowther (Office)	16-Apr 15-Apr			
GEO-XREGOD GEO-XREGOD		5403438485				*	
		5403438524 5403428623	The second second	15-Apr			
GEO-XH 6000	88950-00	5112401784	Cage	escontano.			
GEO-XH 6000 GEO-XH 6000	88950-00 88950-00	5126404960 5126404991	Office Environmental	16-Apr 16-Apr	x	×	
GEO-XH 6000		5207413191	Charleston			×	
GEO-XH 6000	88950-00 88950-00	5112401764 5126404990	Environmental Beckley Office-Inspection Dept	16-Apr		X X	
GEO-XH 6000 GEO-XH 6000	88950-00	5126404971	Inspection Dept	16-Apr		x	
GEO-7X GEO-7X	88180-04 88180-04	5351437884 5405439005	Bridgeport Environmental Bridgeport Environmental	16-Apr 16-Apr		×	
	1020004						T T
		RADIO AMPS					
		ILADIO AIIII 3					+
DESCRIPTION	MODEL	S/N	ASSIGNMENT	Warranty Exp. Date		2015 PLI LIST	
TDL-450H	74450-65	14049169	777777777777777777777777777777	16-Apr		×	1.
TEL-450H	74450-65	12504223	Ternes Howes		5735 1	*	
			Coge Fredricksburg Office			*	
	74450-65		John Leary			×	
	74450-65 74450-65	12507066 12504347	Mikey Brown Justin Gordon			×	
TOL-450H	74450-65			No Warranty Sheet		X	
TDL-450H	74450-65 74450-65	14049168	Gregg Goodwin	16-Apr		x	
TOU-450H TOU-450H	74450-65 74450-65	12518646 12466214	Kirk Wilson Jonathan Dennison			×	
TD1-450H	74450-65			No Warranty Sheet		*	
	74450-65 74450-65	12507172 12504390	Cage Chris Baker			â	
TOC-450H			Drake Levo			3333 243	
TOL-450H TOL-450H	74450-65 74450-65	12518338 14332186	Cage Andrew Middleton	No Warranty Sheet		*	
TDL-450H TDL-450H	74450-65 74450-65	14332164 12260006		No Warranty Sheet 16-Apr		×	
TDL-450H	74450-65	12506720	Fredricksburg - David Boyd	16-Apr		X	
TDL-450H 101-450H	74450-65 74450-65	12312619 11231847	Andrew Barns (Damaged in Truck Fit Jason Garrett	No Warranty 16-Apr		X	APPENDING.
TDL-450H TDL-450H	74450-65 74450-65	12203975 12466552	Mike Walker (OH)	16-Apr 16-Apr		X	
10K-450H	74450-65 74450-65	12506762	Mark Gallager (MD) Andy Stull	15-Apr No Warranty Sheet		×	
TDL-450H	74450-65	12312385	Josh Oyler (OH)	16-Apr No Warranty		X	
		DATA COLLECTORS					
4	MODEL	DATA COLLECTORS	ASSIGNMENT	Warranty Exp. Date	FIRMWARE 5.01	2015 PU LIST	
DESCRIPTION	MODEL	s/n	ASSIGNMENT	Warranty Exp. Date	FIRMWARE 5.01	2015 PLI LIST	
DESCRIPTION TRIMBLE	MODEL TSC2 TSC2		77777777777777777777777777777777777777	Warranty Exp. Date	FIRMWARE 5.01	2015 PLI LIST	
DESCRIPTION TRIMBLE TRIMBLE TRIMBLE	TSC2 TSC2 TSC2	S/N SSA9C46601 SSB1C57078 SSB1C57142	77777777777777777777777777777777777777	Warranty Exp. Date	FIRMWARE 5.01	2015 PU LIST	
DESCRIPTION TRIMBLE TRIMBLE	TSC2 TSC2	S/N SSA9C46601 SSBLC57078	77777777777777777777777777777777777777	No Warranty	Removed	Removed A/15	
DESCRIPTION TRIMBLE TRIMBLE TRIMBLE TRIMBLE TRIMBLE TRIMBLE TRIMBLE	TSC2 TSC2 TSC2 TSC3 TSC3	S/N SSA0C46601 SSB1C57078 SSB1C57142 RS00C0128 RG15017909 RS01008712	72777777777777777777777777777777777777	No Warranty 16-Apr		Removed A/15	-
DESCRIPTION TRIMBLE	TSC2 TSC2 TSC2 TSC3 TSC3 TSC3 TSC3 TSC3	S/N SSA9C46601 SSB1C57078 SSB1C57142 RS09C0128 RG15017909 RS0C08772 RS08C00824 RS0A0C9444	77777777777777777777777777777777777777	No Warranty 16-Apr 16-Apr 16-Apr	Removed. X X	Removed A/15 X X	•
DESCRIPTION TRIMBLE	15C2 15C2 15C2 15C3 15C3 15C3 15C3 15C3 15C3 15C3	S/N SSA0C46601 SSB1CS7078 SSB1CS7078 SSB1CS7142 RS00C0128 RG15017909 RS01C08772 RS00C0024 RS0AC07944 RS00C03973	77777777777777777777777777777777777777	No Warranty 16-Apr 16-Apr	Removed X	Removed A/15	•
DESCRIPTION TRIMBLE	15C2 15C2 15C2 15C3 15C3 15C3 15C3 15C3 15C3 15C3 15C3	S/N SSA0C46601 SSB1CS7078 SSB1CS7078 SSB1CS7142 RS00C0128 RG1S017009 RS01C08772 RS00C00624 RS0AC02944 RS00C03973 RS00C06264 RS0CC05626	77777777777777777777777777777777777777	No Warranty 16-Apr 16-Apr 16-Apr 16-Apr 16-Apr	Removed. X X X	Removed #/35 X X X X X X	•
DESCRIPTION TRIMBLE	15C2 15C2 15C2 15C3 15C3 15C3 15C3 15C3 15C3 15C3	S/N SSA0C46601 SSB1CS7078 SSB1CS7078 SSB1CS7142 RS00C0128 RG1S017909 RS01C089772 RS00C0824 RS0AC02944 RS0AC02944 RS0C029626 RS0C066666 RS0C0666691 RS0C056691	77777777777777777777777777777777777777	No Warranty 16-Apr 16-Apr 16-Apr 16-Apr 16-Apr 16-Apr 16-Apr 16-Apr	Removed. X X	Removed 4/35 X X X X X X X	•
DESCRIPTION TRIMBLE	150 150 150 150 150 150 150 150 150 150	S/N SSA9C46601 SSB1C\$7078 SSB1C\$7078 SSB1C\$7142 RS08C0128 RG15017909 RS01C08777 RS08C00624 RS0AC02944 RS0AC03973 R50EC06691 R50EC06691 R50EC07766 FS0C08837	77777777777777777777777777777777777777	No Wesserty 16 Apr	Removed. X X X	Removed #/35 X X X X X X	
DESCRIPTION TRIMBLE	150 150 150 150 150 150 150 150 150 150	S/N SSA9C46601 SSB1C\$7078 SSB1C\$7078 SSB1C\$7142 RS080C0128 R615017907 R501C08777 R508C0024 R50AC02944 R50AC02944 R50C02676 R50C06676 R50C06676 R50CC06837 R50CC08837 R50CC13548 R50CC13548	77777777777777777777777777777777777777	No Warranty, 16 Apr 16 Apr 16 Apr 16 Apr 16 Apr 16 Apr 16 Apr 16 Apr	Removed. X X X	Removed 4/35 X X X X X X X	•
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•	TRIMBLE	TSC3		RS2DC47788		Mark Gallagher (Oakland) Jason Garrett	16-Apr 16-Apr	×	ŷ		
:	TRIMBLE	TSC3 TSC3		R52DC47759 R51QC36571		Josh Kniceley	16-Apr	x	×		
	TRIMBLE	TSC3		RS2CC47323		Joseph Lambert	16-Apr	THE RESERVE OF	×		
	TRIMBLE	TSC3		RS2IC52303		John Leary	16-Apr	X	X		
•	TRIMBLE	TSC3		RS2BC46485		Cage (Mac.Fullmer)	16-Apr	X	X		
•	TRIMBLE	TSC3		RS27C44156		Drake Levo	16-Apr	THE STEWNSTON	×		
	TRIMBLE	TSC3		RS29C45781		Tyler Riffle	16-Apr 16-Apr	X	ı î		
	TRIMBLE	TSC3		RS2JC53199 RS29C4S516		Josh Oyler (Ohio) David Boyd (Va.)	16-Apr		x		
	TRIMBLE	TSC3 TSC3		RS28C46497		Cage	16-Apr	X	X		
	TRIMBLE TRIMBLE	TSC3		RS0BC04145		Canton Office	16-Apr	Control Control	X		
	TRIMBLE	TSC3		RS1RC37114		Mapping Dept.	16-Apr		X		
	TRIMBLE	TSC3		RS1RC37355		J. Dix (BECKLEY)			. ×		
	TRIMBLE	TSC3		RS23C42041		Phil Odonell (Beckley)			X		
•	TRIMBLE	TSC3		RS2CC47010		Cage	16-Apr	X	Х		
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•	TRIMBLE	TSC3		RS27C44085		David Pritt Chris Baker	16-Apr 16-Apr	x	x		
1:	TRIMBLE	TSC3 TSC3		RS29C45637 RS0PC13041		Gregg Goodwin	16-Apr	×	x		
	TRIMBLE TRIMBLE	TSC3		RS2FC49052		Brant Busdecker	16-Apr	ATTENDED TO THE OWNER.	×		
	TRIMBLE	TSC3		RS08C01028		Beckley Office (Bob Ruffner)	16-Apr		х		
•	TRIMBLE	TSC3		RS26C43612		Aaron Rawe	16-Apr	, x	, x		
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-		GA 52CX	CONTRACTOR OF THE PARTY OF	283814	THE REAL PROPERTY.	John Leary	16-Apr	THE REAL PROPERTY AND ADDRESS OF THE PARTY AND	A CONTRACTOR OF THE PARTY OF TH	1000	29 X 95E
1000	Schonstedt Schonstedt	GA 52CX		307129		Chris Baker	16-Apr				
	Schonstedt	GA 52CX		297703		Kirk Wilson	16-Apr				
	Chicago Steel Tape	50122-5808		101033032		Eddle Westfall	16-Apr				
	Schonstedt	GA 52CX		303762		Mike Walker	16-Apr				
	Schonstedt	GA 52CX		292571		Josh Oyler	16-Apr				
	Schonstedt	GA 52CX		313695		Toby Paul	16-Apr				
	Schonstedt	GA 52CX		281600		Canton Office	16-Apr 16-Apr				
1	Sub-Surface Instruments	ML-IM		5075754		Rob Lynch Jarrett Lantz	16-Apr 16-Apr				
1	Sub-Surface Instruments	ML-1M		10123688 313697		Jarrett Lantz Jonathan Dennison	16-Apr				
100	Schonstedt	GA 52A Magna Track 100		313697 450681808		Justin Gordon	16-Apr				
	Cst-Berger Dunham & Morrow	Magna Track 100 DML-200-XR		123906		David Boyd	16-Apr				
	Schonstedt Schonstedt	GA-52CX		304480		Fredricksburg Office (VA)	16-Apr				
	Schonstedt	GA-SZCX		304479		James Howes	16-Apr				
	Sub-Surface Instruments	ML-1		10123713		Mikey Brown	16-Apr				
-	Dunham & Morrow	DML-2000				Joseph Lambert	16-Apr				
	Dunham & Morrow	DML-2000				Scott Whitlock	16-Apr				
•	Schonstedt	GA-52CX				Andy Stull	16-Apr				
	Schonstedt	GA-S2CX		302359		Drake Levo	16-Apr 16-Apr				
	Schonstedt	GA-S2CX		307131 304477		Chris DeFino Mark Gallagher	16-Apr				10000
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		7	Dog Bone	5107020076		Cage	RENTAL	I.			
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	Vivax	Metrotech	spar box	171090600996		cage	Rental				
	Radio Detection	RD4000T10	Transmitter	11/T10-I-6710TJ		cage				-	-
	Radio Detection	RD4000	Receiver	11/4KRX-151624P0		cage					
	Radio Detection	RD4000T10	Transmitter	11/T10-I-6738UV		cage	All the second second				
	Radio Detection	RD4000	Receiver	11/4KRX-155088RE		Capten (OH)	1				
-	Vivax	Metrotech		20003100167		Canton (OH)					
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-					MS CONTROL	and the second second					
	ROVER POLES	THRASHER		The second second							
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_	PRISM POLES	THRASHER				GEORGE MALLOW	7/9/2014				
-	SECO 8' TWIST LOC	SECO 00001				GEORGE MALLOW	7/9/2014				
-	SECO 8' TWIST LOC	SECO 00002				JOHN BRADY	7/18/2014				
\vdash	SECO 8' TWIST LOC	SECO 00003 SECO 00004				JOHN BRADY	7/18/2014				111111
\vdash	SECO 8' TWIST LOC PRISMS	THRASHER									
-	SECO PRISM	PRISM 001				GEORGE MALLOW	7/9/2014		and the second second		
-	SECO PRISM	PRISM 002				GEORGE MALLOW	7/9/2014				
	SECO PRISM	PRISM 003				JOHN BRADY	7/18/2014			-	
						JOHN BRADY	7/18/2014				
\vdash	SECO PRISM	PRISM 004									

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	TRIMBLE GEO 7X		5351437884	PN. 88180-04 IMEI:9	9000218986772	SERP	7/14/2014				
	TRIMBLE GEO 7X		5405439005	PN. 88180-04 IMEI:9	9000218986644	CAGE					1
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	FIXED TRIPOD	PLI-BASE		5119-01		CAGE					-
	FIXED TRIPOD	PLI-BASE		5119-02		CAGE					_
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	QUICK CLAMP TRIPOD	BLACK W/ LOGO		60-ALQRI20-BPL-01		CAGE					-
	QUICK CLAMP TRIPOD	BLACK W/ LOGO		60-ALQRI20-BPL-02		ED WESTFALL		7/7/2014		-	
											-
	TRIPOD	CST WOOD/FIBERGLASS		60-WDF-20		CAGE					-
											-
	PRISM POLE	SECO 8'		5500-11		CAGE					_
	SECO PRISM			6422-02-FLB		CAGE					
						CACE	-				-
\rightarrow	BATTERY	INT. RPL CELL	TRIMBLE HPB 450			CAGE					
_	BATTERY	INT. RPL CELL	TRIMBLE HPB 450	DCM0035-02	-	CAGE				_	
_				B00 404500 04		CAGE					
\rightarrow	BATTERY CHARGER	PDLHPB	_	PCC-A01509-01 PCC-A01509-02		CAGE					
\rightarrow	BATTERY CHARGER	PDLHPB	-	PCC-A01509-02		CAGE	 				
\rightarrow	BATTERY BAG	PDLHPB		PCC-A00644-01		CAGE					
-	BATTERY BAG	PDLHPB		PCC-A00644-02		CAGE					
\rightarrow	BATTENT BAG	FULTIFO		TCC-HOOPITOL						- 100	20
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\rightarrow	TDL 450H 5DB GAIN ANT KIT			20130827		ED WESTFALL	RENTAL	7/7/2014			
_	TDL 450H 5DB GAIN ANT KIT			20140634		JOHN BRADY	RENTAL	7/18/2014			
	TDL 450H 5D8 GAIN ANT KIT										
- 1	TDL 450H 5DB GAIN ANT KIT										
							RENTAL	7/10/2011		0	
	Fixed Height Tripod			20140626		JOHN BRADY	RENTAL	7/18/2014			
_	Fixed Height Tripod			20140811							
\rightarrow	Fixed Height Tripod				-						-
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	GEO 6000	ZEPHYR ANT	THE PARTY OF THE	5412118442	第5州市 《中国》		RENTAL	REMOVED	REMOVED	Protection of	THE REAL PROPERTY.
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				TBC-SA-1867581229	LS-TBC-ADV-SW-RI	FREDRICKSBURG		PASSWORD:8709680032665			
				TBC-SA-28320786	LS-TBC-ADV-SW-RI	FREDRICKSBURG	EXPIRES MAY 2015	ASSWORD: 31419737551890	ть		
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	rasher Equipment Matrix					
NICC F						
NSS Equipment escription	Model		Options	SN	WARRANTY SHEET	Assignment
R8	Model 3	67250-66	Options	4918170714	X X	Cage
R8	Model 3	67250-66		4921173275	x	
R8	Model 3	67250-66				Cage
				4921173278	X	Cage
R8	Model 3	67250-66		4921173297	X	Cage
R8	Model 3	67250-66		4934400707	X	Cage
R8	Model 3	67250-66		4943404641	X	Cage with unit 5251421600
R8	Model 3	67250-66		4943404643	X	Mike Walker (OH)
R8	Model 3	67250-66		4943404660	X	Cage
R8	Model 3	67250-66		4943404666	X	Cage
R8	Model 3	67250-66		5026435651	X	Adam Cooper (Cage)
R8	Model 3	67250-66		5026435652	X	Cage with unit 5216485800
R8	Model 3	67250-66		5026435653	X	Cage
R8	Model 3	67250-66		5026435682	X	Chris Baker
R8	Model 3	67250-66		5026435701	X	Kirk Wilson
R8	Model 3	67250-66		5026435710	×	??????????????????????
R8	Model 3	67250-66		5044453844	X	Johnathon Dennison
R8	Model 3	67250-66		5046455633	×	Scott Whitlock
R8	Model 3	67250-66		5046455635	X	James Howes
R8	Model 3	67250-66		5046455656	X	John Leary
R8	Model 3	67250-66		5046455706	X	Rob Lynch
R8	Model 3	67250-66		5046455934	X	Mikey Brown (CH)
R8	Model 3	67250-66		5047456004	×	Oakland (Spare)
R8	Model 3	67250-66		AND SHALL SH	X	Control of the Contro
R8		THE RESERVE THE PARTY OF THE PA		5106461055	- Allen State Committee Co	Cage
	Model 3	67250-66		5106461115	X	Toby Paul (OH)
R8	Model 3	67250-66		5106461136	X	Cage
R8	Model 3	67250-66	Line Laboratoria de Carlos	5114464687	X	Eddie Westfall
R8	Model 3	67250-66		5126468107	mikazin ana 🔁 🗙	Canton Office
R8	Model 3	67250-66		5126468122	X	Rob Lynch
R8	Model 3	67250-66		5139473035	X	Cage
R8	Model 3	67250-66		5152479868	X	Kirk Wilson
R8	Model 3	67250-66		5215485600	X	Cage
R8	Model 3	67250-66		5216485800	X	Cage with unit 5026435652
R8	Model 3	67250-66		5216485819	X	Jarrett Lantz
R8	Model 3	67250-66		5220487390	X	Fredricksburg (Office)
R8	Model 3	67250-66	11.1.15	5220487415	х	Justin Gordon
R8	Model 3	67250-66		5220487748	X	Cage
R8	Model 3	87208-66		5225490460	X	Andrew Middleton
R8	Model 3	67250-66		5226491568	X	Bud Bargy (MD)
R8	Model 3	67250-66		5235494511	X	Bryan Hudkins
R8	Model 3	67250-66		5235494513	X	Cage
R8	Model 3	67250-66	STATE OF THE STATE	5242498554	X	Oakland (Spare)

R8	Model 3		5243499198	X	David Pritt
R8	Model 3	67250-66	5243499233	X	Jason Garrett
R8	Model 3	67250-66	5243499332	X X	Toby Paul (OH)
R8	Model 3		5247417232	x x	Joseph Lambert (BE)
R8	Model 3	67250-66	5251421574	X	Cage
R8	Model 3	67250-66	5251421600	X	Cage with unit 49443404641
R8	Model 3		5316433917	x	Phil Odonell (BE)
R8	Model 4		5316434005	X	Cage
R8	Model 3	67250-66	5324438795	×	A. Stull (BE)
R8	Model 3		5335442476	×	Mark W
R8	Model 3		5133470499	x	?????? @ Work Station
R8	Model 4		5220487625	x	David Boyd (VA)
R8	Model 4	Personal Property	5316433917	X	Charleston (Office)
R8	Model 4		5316434313	X	Tyler Riffle
R8	Model 4		5329440601	X	Cage
R8	Model 4		5410457626	X	?????? @ Work Station
R8	Model 4		5411458728	X	Cage
R8	Model 4		5414461761	X	Mark Gallagher (MD)
R8	Model 4		5414461809	X	Mark Gallagher (MD)
R8	Model 4		5414461814	X	Josh Kniceley
R8	Model 4		5414461821	X	Cage
R8	Model 4		5414461847	X	(Mac. Fullmer)@ Work Station
R8	Model 4		5414461849	X	Drake Levo
R8	Model 3		5414462256	No Warranty	Joe Dodson (VA)
R8	Model 4		5414462260	NO WARRANTY	Chris DeFino (PA)
R8	Model 4		5423467764	×	Gregg Goodwin
R8	Model 4	OF STREET, SALES	5433475877	×	Josh Oyler (OH)
R8		67250-66	5220487626	NO WARRANTY	Fredricksburg David Boyd
R8	Model 3	67250-66	5215485743	NO WARRANTY	Found in the Cage 7/29/15
R8	Model 4		5329440537	NO WARRANTY	Andy Stull
				Updated w/5.01 Version	
		T T		opuated w/5.01 version	
				Not on Warranty Sheet	
	ACTOR PROSESSION		IN CHECK TO SEE	On Warranty Sheet &	Needs Updated w/ 5.01
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Thr	asher Equipment Matrix					
NSS Equipment						
escription	Model		Options	SN	WARRANTY SHEET	Assignment
<u>SCITPORT</u>	Woder		Options	311	WARRAINTT SHEET	Assignment
Trimble GNSS	R10	001-60		5242498180	x	Cage
Trimble GNSS	R10	001-60		5252422269	×	Cage
Trimble GNSS	R10	001-60		5302423131	×	Joseph Lowther
Trimble GNSS	R10	001-60		5302423142	×	Josh Oyler (OH)
Trimble GNSS	R10	001-60		5308426305	X	David Boyd (VA)
Trimble GNSS	R10	001-60	×	5308426368	×	Jarrett Lantz
Trimble GNSS	R10	001-60		5308426549	×	Tyler Riffle
Trimble GNSS	R10	001-60		5308426566	×	Chris Baker
Trimble GNSS	R10	001-60		5311428820	×	Johnathon Dennison
Trimble GNSS	R10	001-60		5312430283	×	Scott Whitlock
Trimble GNSS	R10	001-60		5312430350	X	Cage
Trimble GNSS	R10	001-60		5312430356	×	Bryan Hudkins
Trimble GNSS	R10	001-60		5313432348	×	Cage
Trimble GNSS	R10	001-60		5313432363	×	Mike Walker (OH)
Trimble GNSS	R10	001-60		5313432433	×	Justin Gordon
Trimble GNSS	R10	001-60		5320436612	X	Mapping Dept.
Trimble GNSS	R10	001-60		5320436619	×	Andrew Middleton
Trimble GNSS	R10	001-60		5320436622	×	Cage
Trimble GNSS	R10	001-60		5322437945	X	Kirk Wilson
Trimble GNSS	R10	001-60		5324438746	×	Eddie Westfall
Trimble GNSS	R10	001-60		5324438761	X	Cage
Trimble GNSS	R10	001-60		5324438795	×	Andy Stull
Trimble GNSS	R10	001-60		5325438838	×	Jason Garrett
Trimble GNSS	R10	001-60		5335442476	×	Mikey Brown (CH)
Trimble GNSS	R10	001-60		5336442889	Extra x	J. Dix (BE)
Trimble GNSS	R10	001-60		5408454953	X	(Mac. Fullmer) @ Work Station
Trimble GNSS	R10	001-60		5408454957	×	Aaron Rawe
Trimble GNSS	R10	001-60	4 55 (4.6)	5410456414	x x	Scott Whitlock (BE)
Trimble GNSS	R10	001-60		5410458424	×	Joseph Lambert
Trimble GNSS	R10	001-60		5411458547	×	Drake Levo
Trimble GNSS	R10	001-60		5412460054	Company of the compan	Bud Bargy (MD)
Trimble GNSS	R10	001-60		5413460397	×	Josh Kniceley
Trimble GNSS	R10	001-60		5413460399	x	John Leary
Trimble GNSS Trimble GNSS	R10 R10	001-60		5413460447 5413460789	X	Phil Odonell (BE) (Box in Cag Cage (Adam Cooper)
Trimble GNSS	R10	001-60		5413460795	X X	Fredricksburg (Office)
Trimble GNSS	R10	001-60		5430473543	NOT ON WARRANTY	Joe Dodson (VA)
Trimble GNSS	R10	001-60		5242498177	NOT ON WARRANTY	Chris DeFino (PA)
Trimble GNSS	R10	001-60		5435477234	X	Gregg Goodwin

Trimble GNSS	R10	001-60	5406453896	x	Brant Busdecker
Trimble GNSS	R10	001-60	5439479452	×	James Howes
Trimble GNSS	R10	001-60	5412459660	NOT ON WARRANTY	Cage
Trimble GNSS	R10	001-60	5413460395	NOT ON WARRANTY	Cage
Trimble GNSS	R10	001-60	5408454968	NOT ON WARRANTY	David Pritt
	40, 8				
			L	Updated w / 5.01 Version	
				Not on Warranty Sheet	
				On Warranty Sheet &	Needs Updated w/ 5.01
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NSS Equipment	-	+						Warranty Sheet	
Description Description	Make	Model	Options	SN	Assignment	Standard Software	Additional Software	Warranty Exp. Apr. 2015	Updated
Data Collector	Trimble	TSC3	Options	RS1TC38161	Allegra	Standard Software	Roads, Robotic	Waitanty Exp. Apr. 2015	Opuated
Data Collector	Trimble	TSC3		RS01C08772	Eddie Westfall	GS, AS,S,EM,IS,F,I,MP	nodus, moodic	×	26-Jan-1
Data Collector	Trimble	TSC3		RS01C08837	SPAR-Aaron's Office	GS, AS,S,EM,IS,F,I,MP	Roads, Utility	x	14-Jan-1
Data Collector	Trimble	TSC3		RS08C00824	James Howes	G5, A5,5,E141,15,1 ,1,1411	Radio, Utility	×	16-Apr-1
Data Collector	Trimble	TSC3		RS08C01028	Beckley Office (Bob Ruffner)		Radio, Utility		16-Apr
Data Collector	Trimble	TSC3	AZZILARION BID	RSOAC02360	Rob Lynch	GS, AS,S,EM,IS,F,I,MP	Radio, Utility	X	16-Apr-1
Data Collector	Trimble	TSC3	ENGRICHE.	RS0AC02944	Toby Paul (OH)	G5, A5,5,E101,15,1 ,1,1011	Radio, othicy		10-Apr-1
Data Collector	Trimble	TSC3		RSOBC03732	Kirk Wilson		Road, Tunnel, Radio	X	Salar Salar
Data Collector	Trimble	TSC3	x	RS0BC03973	Cage		Road, Tulliel, Radio	×	
Data Collector	Trimble	TSC3		RS0BC04145	Canton Office (Ohio)	GS, AS,S,EM,IS,F,I,MP	Radio, Utility		CONTRACT OF THE PARTY OF THE PA
Data Collector	Trimble	1SC3		RS0DC06243	Bud Bargy	G5, A5,5,ENI,15,F,1,IVIP	Kadio, Othicy	·	16-Apr-1
						CC ACCEPAICELAND			
Data Collector	Trimble	TSC3	State of the State of the	RSOECO6626	Beckley Office (Bob Ruffner)	GS, AS,S,EM,IS,F,I,MP		Series and American Series	16-Apr-1
Data Collector	Trimble	TSC3		RS0EC06691	Justin Gordon	GS, AS,S,EM,IS,F,I,MP		X	27-Feb-1
Data Collector	Trimble	TSC3	x	RS0EC06724	Cage	CC ACC FAA IC F I AAD		x	45.44
Data Collector	Trimble	TSC3		RS0FC07768	Scott Whitlock	GS, AS,S,EM,IS,F,I,MP		X	16-Apr-1
Data Collector	Trimble	TSC3		RS0PC13041	Gregg Goodwin	GS, AS,S,EM,IS,F,I,MP	Utility	X	
Data Collector	Trimble	TSC3		RSOTC15365	Fredricksburg Office (VA)				
Data Collector	Trimble	TSC3		RS0UC15829	Jarrett Lantz	GS, AS,S,EM,IS,F,I,MP	Radio	*	
Data Collector	Trimble	TSC3		RS13C18946	Fredricksburg Office (VA)	GS, AS,S,EM,IS,F,I,MP	METERS RECEIVED IN FRANCISCO	* 100 miles	
Data Collector	Trimble	TSC3		RS13C19156	Cage (Adam Cooper)	GS, AS,S,EM,IS,F,I,MP		x	
Data Collector	Trimble	TSC3		RS13C19195	Cage	GS, AS,S,EM,IS,F,I,MP		x	
Data Collector	Trimble	TSC3		RS13C19341	Bryan Hudkins			×	
Data Collector	Trimble	TSC3		RS16C20828	Kirk Wilson			x	
Data Collector	Trimble	TSC3		RS17C21230	Oakland (Spare)				in the same
Data Collector	Trimble	TSC3		RS17C22069	VX Gregg Goodwin	GS, AS,S,EM,IS,F,I,MP		x	27-Feb-1
Data Collector	Trimble	TSC3		RS18C22272	Fredericksburg Office (Spare)	GS, AS,S,EM,IS,F,I,MP		* * * * * * * * * * * * * * * * * * *	
Data Collector	Trimble	TSC3	100 E 1512	RS18C22597	Joseph Lowther	GS, AS,S,EM,IS,F,I,MP	Radio	×	13-Mar-
Data Collector	Trimble	TSC3		RS18C22634	Cage	GS, AS,S,EM,IS,F,I,MP	Radio, Utility	x	
Data Collector	Trimble			RS1JC30814	Johnathon Dennison	GS, AS,S,EM,IS,F,I,MP	Radio, Utility	x	4-Fel
Data Collector	Trimble	TSC3	×	RS1JC30923	Cage	GS, AS,S,EM,IS,F,I,MP	Radio, Utility, Roads	×	
Data Collector	Trimble	TSC3	x	RS1KC31944	Cage	GS, AS,S,EM,IS,F,I,MP	Utility, Roads	×	
Data Collector	Trimble	TSC3		RS1QC36477	Cage			×	
Data Collector	Trimble	TSC3		RS1QC36571	Josh Knicely	GS, AS,S,EM,IS,F,I,MP	Roads	×	
Data Collector	Trimble	TSC3		RS1QC36805	Cage	GS, AS,S,EM,IS,F,I,MP		×	11-Fe
Data Collector	Trimble			RS1RC37114	Mapping Dept.	GS, AS,S,EM,IS,MP		×	17-Ma
Data Collector	Trimble			RS1RC37355	J. Dix (BE)			×	
Data Collector	Trimble	TSC3	×	RS1TC38093	Cage	GS, AS,S,EM,IS,F,I,MP	Radio, Roads	×	14-Ja
Data Collector	Trimble	TSC3	×	RS1TC38272	Johnathon Dennison	GS, AS,S,EM,IS,F,I,MP	Radio, Roads	×	16-Apr-
Data Collector	Trimble	TSC3	x	RS1TC38276	Andrew Middleton		5.01	×	
Data Collector	Trimble	TSC3	No parallel	RS1TC38491	Mikey Brown (CH)		12 TO STATE OF THE PARTY OF THE	X	16-Apr-
Data Collector	Trimble	TSC3		RS23C42041	Phil Odonell (BE)	GS, AS,S,EM,IS,F,I,MP		x x	
Data Collector	Trimble	TSC3		RS26C43612	Aaron Rawe	GS, AS,S,EM,IS,F,I,MP	Radio, Roads	X	
Data Collector	Trimble		No. of the last	RS27C44085	David Pritt			PANCHAL AND LANGUAGE LANGUAGE	16-A
Data Collector	Trimble			RS27C44156	Drake Levo				16-Aı
Data Collector	Trimble	TSC3		RS29C45516	David Boyd (VA)	GS, AS,S,EM,IS,F,I,MP		X	16-A
Data Collector	Trimble	TSC3		RS29C45637	Chris Baker	GS, AS,S,EM,IS,F,I,MP	Utility	x x	10-A
Data Collector	Trimble	TSC3		RS29C45637		33, A3,3,EW,13,F,1,WIP	Othity		
Data Collector	Trimble	TSC3		RS29C45781	Tyler Riffle Drake Levo			x	

Data Collector	Trimble	TSC3	RS2BC46472	Chris DeFino (PA)			Not on Warranty	
Data Collector	Trimble		RS2BC46485	Cage (Mac.Fullmer)			X	13-Mar-15
Data Collector	Trimble	TSC3	RS2BC46497	Cage	GS, AS,S,EM,IS,F,I,MP		x	
Data Collector	Trimble		RS29C45266	Canton Office			X	
Data Collector	Trimble	TSC3	RS2CC47010	Cage	GS, AS,S,EM,IS,F,I,MP		х	17-Feb-15
Data Collector	Trimble	TSC3	RS2CC47323	Joseph Lambert	GS, AS,S,EM,IS,F,I,MP		x	16-Apr-15
Data Collector	Trimble	TSC3	RS2DC47759	Jason Garrett			х	
Data Collector	Trimble	TSC3	RS2DC47788	Mark Gallagher (MD)			X X	16-Apr-15
Data Collector	Trimble	TSC3	RS2FC49052	Brant Busdecker			×	16-Apr-15
Data Collector	Trimble	TSC3	RS2IC52303	John Leary			X	
Data Collector	Trimble	TSC3	RS2JC53199	Josh Oyfer (OH)	10/14/2014		Electric de X	Land Company
Data Collector	Trimble	TSC3	RS2PC56916	Joe Dodson (VA)			X	16-Apr-15
Data Collector	Trimble	TSC3	RS1IC30244	Mike Walker (OH)			x	
Data Collector	Trimble	TSC3	RSP1A00287	Cage	GS, AS,S,EM,IS,F,I,MP	Roads	X	
Data Collector	Trimble	TSC3	RS1TC39246	Cage			x	
Data Collector	Trimble	TSC3	RS1MC33499	Andy Stull			Not on Warranty	16-Apr
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Data Callantes	Trimble	TCCS	DCD1400357	MICCINIC 222222222222222222	THE RESERVE TO SERVE THE RESERVE THE RESERVE TO SERVE THE RESERVE THE RESER			
Data Collector Data Collector	Trimble	TSC3	RSP1A00357 RSP1A00549	MISSING ?????????????????				
Data Collector	Trimble	TSC3 TSC2	SS24A16373					
Data Collector	Trimble Trimble	TSC2	SSS7C16727					
Data Collector	Trimble	TSC2	SSA0C46605					
Data Collector	Trimble	1300	SSA7C45985		STOLENS OF THE			
Data Collector	Trimble	TSC2	SSA9C46601					
Data Collector	Trimble	TSC2	SSB1C57078		BACK TO SERVICE			
Data Collector	Trimble	TSC2	SSB1C57142		\$2.550 pts			
Data Collector	Trimble	TSC2	SSB1C57166					
		(A)		10 C SUI (50 C S C)				
				Updated w/ 5.01 Version				
	-			Not on Warranty Sheet				
EVEL MENT	REFEREN	G. P. Bling	Minchistory and Colored Lines.	On Warranty Sheet &	Need Updated w/ 5.01			
	Salata Acid			Out For Repair	Need Updated w/ 5.01			
THE WORLD STREET, STRE	Section of the last	The state of the s	and substantial the first	No Warranty				

			Current So	oftware Ver	rsions						
Access	Gen. Sur.	Eqt Man.	Acc. Sync	Settings	Market	EMA	Utility	Roads	Firmware		
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2 (0 141	1.00.1.20	2.02.2	1.05.0				
2014.2 (7595)		2.02.1	1.90.152	2.60.141	1.00.1.20 1.00.1.20	2.02.3	1.06.0 1.06.0	2 00 141	5.01		
2014.2 (7333)	2.00.141	2.02.1	1.50.152	2.00.141	1.00.1.20	2.02.3	1.06.0	2.60.141	5.01		
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	2014.1								5.01		
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2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3	1.05.7				
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3			5.01	The second like	u-u Sta
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2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3					
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2014.2 (7595)	2.60.141	2.02.1	1.90.152 1.90.152	2.60.141	1.00.1.20	2.02.3		2.60.141			
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2014.2 (7595)	2.60.141	2.02.1	1.90.152	The second secon	1.00.1.20	2.02.3					HOLDAND.
2014.2 (7595)	2.60.141	2.02.1	1.90.152		1.00.1.20	2.02.3	1.06.0		5.01		
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.22	2.02.3	1.06.0	2.60.141	5.01		
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.22	2.02.3	1.06.0	2.60.141	5.01		
	2013.2								5.01		
2014.2 (7595)		2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3			5.01		
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3			5.01		
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3			5.01		
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.22	2.02.3	Service and Servic	2.60.141	5.01	Market St.	
2014.01	2.40.86	2.01.26	1.70.96	2.40.86	1.00.1.16	2.01.77		2.40.86	5.01		
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2014.2 (7333)	2.00.141	2.02.1	1.50.152	2.60.141	1.00.1.20	2.02.3		Charles at	5.01	SCOLUNIE DA	
2014 2 (7505)	1.80.48							1.211.		7 (1	
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3	1.06.0		5.01		
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2014.2 (7595)	2 60 141	2.02.1	1 90 152	2.60.141	1 00 1 23	2.02.3			5.01			
2014.2 (7595)	2.60.141	2.02.1		2.60.141		2.02.3	1.06.0		5.01			
2014.2 (7595)								60/32				21/22
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.23	2.02.3	1.06.0		5.01			
2014.2 (7595)	2.60.141	2.02.1	1.90.152	2.60.141	1.00.1.20	2.02.3		ide and a				
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Thra	asher Equipment Matrix				
GNSS Equipment					
Description	Model	Options	SN	WARRANTY SHEET 2015	Assignment
GEO-XR 6000	89100-80		5222418504	X	Cage
GEO-XR6000	89100-80		5222418551	X	David Boyd
GEO-XR6000	89100-80		5222418543	x	J.Pruett/Lowther's Office
GEO-XR6000	89100-80		5403438483	x	J.Dennison/Lowther's Office
GEO-XR6000	89100-80		5403438485	×	Fredricksburg Office
GEO-XR6000	89100-80		5403438524	×	Cage
GEO-XR6000	89100-80		5403438682	X	Cage
GEO-XR6000	89100-80		5403438487	X	James Howes
GEO-XH 6000	88950-00		5112401764	X	Environmental
GEO-XH	88950-00		5126404990	X	Beckley Office-Inspections
GEO-XH	88950-00		5126404991	X	ENVIRONMENTAL
GEO-XH			5207413191	X	CHARLESTON
GEO-XH			5126404971	X	Inspections
TRIMBLE GEO 7X	88180-04		5351437884	X	DDIDGEDORT FAMILION AFAITA
TRIMBLE GEO 7X	88180-04				BRIDGEPORT ENVIROMENTAL
THINDLE GEO /A	88180-04		5405439005	X	BRIDGEPORT ENVIROMENTAL
Seafloor	Sonarmite	MILSPEC	SMIL060513		Cage
Intuicom	RTK Bridge		4076550		Cage

Antenna	SN	Warranty Exp. Ap14
Zephyr Model 2 5.01	1212118286	X
Zephyr Model 2	1912118603	X
Zephyr Model 2 5.01		
Zephyr Model 2	2212756499	
Zephyr Model 2	2012756928	
Zephyr Model 2	8000011256	
Zephyr Model 2 5.01		
TEI-GIS-1		X
TEI-GIS-2		X
7/44/0044		
7/14/2014		15-Mar
		15-Mar
	X	

Th	rasher Equipment Matrix				
NSS Equipment		-			
escription	Model	Or	otions SN	WARRANTY SHEET	Assignment
- CONTROL CONT	IN OCC.	<u> </u>	Radio A		Assignment
Trimble	TDL 450H	74450-65	11231847	X	Jason Garrett
Trimble	TDL 450H	74450-65	12203925	X	Jarrett Lantz
Trimble	TDL 450H		12203947	X	Bryan Hudkins
Trimble	TDL 450H	74450-65	12260006	×	Josh Knicely
Trimble	TDL 450H	74450-65	12312385	X	Josh Oyler (OH)
Trimble	TDL 450H	74450-65	12312619		Found (In Fire)
Trimble	TDL 450H	74450-65	12466214	X	Jonathan Dennison
Trimble	TDL 450H	74450-65	12466552	X	Mike Walker (OH)
Trimble	TDL 450H	74450-65	12504223	X	James Howes
Trimble	TDL 450H		12504347	X	Justin Gordon
Trimble	TDL 450H	74450-65	12504390	X	Chris Baker
Trimble	TDL 450H	74450-65	12506720	X	David Boyd (VA)
Trimble	TDL 450H	74450-65	12506762	X	Mark Gallagher
Trimble	TDL 450H		12506942	X	John Leary
Trimble	TDL 450H		12506954		Tyler Riffle
Trimble	TDL 450H		12507066	X	Mikey Brown (CH)
Trimble	TDL 450H		12507159	X	Eddie Westfall
Trimble	TDL 450H	74450-65	12507172	X	
Trimble	TDL 450H	7445-65	12518338	X	Cage
Trimble	TDL 450H		12518646	X	Kirk Wilson
Trimble	TDL 450H		12518904	X	Fredricksburg Office (VA)
Trimble	TDL 450H		13031155	X	Drake Levo
Trimble	TDL 450H		13031212	X	Cage
Trimble	TDL 450H		14049168	X	Goodwin
Trimble	TDL 450H		14049169	X	Cage
Trimble	TDL 450H		14332181	×	Chris DeFino
Trimble	TDL 450H		14332184	X	Joe Dodson (VA)
Trimble	TDL 450H		14332186	X	Andrew Middleton
Trimble	trimmark3		4438138264		Cage
Trimble	TDL 450H		12518739		Andy Stull
Trimble	HPB-450H	PDL4535	09085126		Cage
Trimble	HPB-450H	PDL4535	09085126		Cage
Trimble	HPB-450H	PDL4535	09366322		Cage
Trimble	HPB450	PDL4535	09366322		Cage
Trimble	HPB-450H	PDL4535	11126523	X	Cage
Trimble	HPB450	PDL4535	11126523	x	Cage
Trimble	HPB450	PDL4535	11147598	X	Cage
Trimble	HPB450	PDL4535	11200419	X	Cage
Trimble	HPB-450H	PDL4535	0931 6323		Cage
Trimble	HPB-450H	PDL4535	1024 8535		Cage

Trimble	HPB-450H	PDL4535	1049 5861		Cage
Trimble	HPB-450H	PDL4535	1114 7598	X	Cage
Trimble	HPB-450H	PDL4535	1116 6520		Cage
Trimble	HPB-450H	PDL4535	1120 0419	X	Cage
	HPB-450H	PDL4535			Cage
	HPB-450H	PDL4535			Cage
?	?	?	10302529	X	?

ew Number		Warranty Exp.	
		Chester Transport	16-A
		200000000000000000000000000000000000000	16-A
	SWEET OF STREET	MATCH PROPERTY	16-A
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Thra	sher Equipment Matrix	1				
GNSS Equipment						
<u>Description</u>	Model		Options	SN	WARRANTY SHEET	Assignment
					RADIO DETECTION UNITS	
Description	Model		Options	SN		Assignment
Radio Detection	RD4000	Receiver		11/4KRX-151624P0		FREDRICKSBURG
Radio Detection	RD4000	Receiver		K. Wilson		
Radio Detection	RD4000T10	Transmitter		FREDRICKSBURG		
Radio Detection	RD4000T10	Transmitter 11/T10-I-6738UV				K. Wilson
SPAR 300	300RL1G1	dog bone		Cage		
SPAR 300	300RL1G1	dog bone		51070200076		Cage
SPAR 300	300RL1G1	dog bone		52070200066		Klayt
SPAR 300	300RL1G1	dog bone		52080400180		Cage
SPAR 300	300RL1G1	dog bone		52080400188		Cage
SPAR 300	300RL1G1	dog bone		52081200218		Jarrett Lantz
SPAR 300	300RL1G1	dog bone		52090400251		canton
Vivax	Metrotech	spar box		20003100167		Canton Office
Vivax	Metrotech	spar box		170712000218		J. Lantz
Vivax	Metrotech	spar box		171090600996		Cage
Vivax	Metrotech	spar box		171090600998		Klayt
Vivax	Metrotech	spar box		171090901741		Cage
	LASERTECH			65234		

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- 10	rasher Equipment Matrix	T				
NSS Equipment						
escription	Model		Warranty	SN	Assignment	Calibration Date Due
Leica	TC303	TS		681755	Cage	Sep-15
Leica	TC403	TS		756722	Cage	Jul-16
Leica	TC403	TS		757668	Bud Bargy (loaner)	Apr-16
Leica	TC405	TS		842490		
Leica	TC405	TS		843632	Kirk Wilson	Jun-16
Leica	TC405	TS		856203	Gregg Goodwin	Jun-16
Leica	TC703	TS		647516	Justin Gordon	Apr-16
Leica	TCR403	TS		698965	John Leary	Sep-15
Leica	TCR405	TS		698960	Out for Repair 8/28/15	Apr-16
Leica	TS-02	TS		1322649	Mikey Brown	Apr-15
Leica	TS-02	TS		1322703	Cage	Apr-16
Leica	TS-02	TS		1322739	Cage	Apr-16
Leica	TS-02	TS		1322785	Eddie Westfall	Jun-16
Nikon	Nivo 2M	TS	×	D093332	David Pritt	Dec-15
Nikon	Nivo 2M	TS	x	D093432	Chris DeFino (PA)	unk
Nikon	Nivo 2M	TS	x	D093438	Beckley Office (Bob Ruffner)	Jul-15
Nikon	Nivo 2M	TS	x	D093479	Cage	Aug-16
Nikon	Nivo 3M	TS	x	A150543	Tyler Riffle	Jun-15
Nikon	Nivo 3M	TS	x	A150754	Jimbob Howes	Apr-15
Nikon	Nivo 3M	TS	x	A151353	Cage	Sep-16
Nikon	Nivo 3M	TS	x	A151846	Phil Odonell (BE)	May-15
Nikon	Nivo 3M	TS	X	A152113	Joe Dodson (VA)	Sep-15
Nikon	Nivo 3M	TS	X	A152118	Cage	Jun-15
Nikon	Nivo 3M	TS	×	C120467	Out for Repair 8/28/15	
Nikon	Nivo 3m	TS	X	A152120	Drake Levo	May-15
Nikon	Nivo 3m	TS	×	A152091	Toby Paul (OH)	
Nikon	Nivo3m	TS	x	A151531	cage	unk
Nikon	Nivo3m	TS	x	A151527	Cage	unk
Nikon	Nivo3m	TS	×	A300613	Cage	
Nikon	Nivo 2m	TS	X	DO93515	Cage	Aug-16
Nikon	Nivo 3M	TS	×	D002726	Mike Walker (OH)	May-15
Topcon	ES-103	TS		BR0437	Mark Gallegher	unk
Topcon	ES-103	TS		BR0442		
Topcon	ES-103	TS		GY0169	Mike Walker (OH)	
Topcon	ES-103	TS		GY0173	Cage "Suppose to go to Oakland	d
Topcon	GPT3005LW	TS		4J0692	David Boyd (VA)	unk
Topcon	GPT3005LW	TS		4J1296	Josh Oyler	Aug-15
Topcon	GTS-300	TS		NV0351	Fredricksburg Office (VA)	unk
Topcon	GPT3005LW	TS		4J0975	Beaver Office	May-14
Topcon	GPT3005LW	TS		4J1191	Joseph Lambert	14-Nov
Topcon	GPT3005LW	TS		4J1182	Scott Whitlock	16-May

Trimble	S3	Robotic	X	91410800	Jarrett Lantz	Aug-15
Trimble	\$3	Robotic	x	91411109	Rob Lynch	May-15
Trimble	S3	Robotic	×	91411222	Jonathan Dennison	Sep-15
Trimble	S3	Robotic	x	91411253	Canton	
Trimble	53	Robotic	X	91411678	Drake Levo	Aug-15
Trimble	S6	Robotic		93010708	Andy Stull	16-Jun
Trimble	S6	Robotic	x	93310269	Fredricksburg Office (VA)	Nov-15
Trimble		Robotic	×	93710432	Gregg Goodwin	Aug-15

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Th	rasher Equipment Matrix			
Optical Instruments				
Description	Model	Make	Options SN	Assignment
Level	DNA03	Leica	344903	Fredricksburg Office (VA)
Level	NA730	Leica	5083760	Mike Walker (OH)
Level	NA730	Leica	5368775	Josh Oyler (OH)
Level	NA730	Leica	5419284	CAGE
Level	AE-7	Nikon	249205	0.02
Level	AP-3	Nikon	508124	Bryan Hudkins
Level	B21	SOKKIA	416773	Toby Paul
Level	AT-B3	Topcon	486363	
Level	AT-B3	Topcon	N01532	Jarrett Lantz
Level	AT-B3	Topcon	N01548	Aaron Rawe
Level	AT-B3	Topcon	N01549	Rob Lynch
Level	AT-B3	Topcon	N01551	Kirk Wilson
Level	AT-B3	Topcon	N03400	Mikey Brown (CH)
Level	AT-B3	Topcon	N03435	Scott Pacifico
Level	AT-B4	Topcon	N57833	Robert Stark
Level	AT-B4	Topcon	X57866	
Level	AT-F2	Topcon	R10812	Andrew Middleton
Level	AT-G3	Topcon	487284	Eddie Westfall
Level	AT-S3	Topcon	D177	Joseph Lambert
Level	AT-G3	Topcon	487284	The state of the s
Level	DINI 12	Trimble	7000981	Rob Lynch
Level	AP8	Nikon	510890	James Howes
Level	AP8	Nikon	510886	Cage
Level	AP8	Nikon	510884	Jonathon Dennison
Level	AP8	Nikon	510786	Andrew Middleton

Needs Calibrated	
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Thra	sher Equipment Matrix					
GNSS Equipment				***		
Description	Model		Options	SN	WARRANTY SHEET	Assignment
GEO-XR 6000	89100-80		Options	5222418504	XX	Assignment
GEO-XR6000	89100-80		1 1	5222418532	XX	Cage
GEO-XR6000	89100-80			5222418543	XX	Office
GEO-XR6000	89100-80					Office
GEO-XR6000	89100-80	×		5222418551	XX	David Boyd (VA)
GEO-XR6000	89100-80			5403438487		A. Middleton
GEO-XR6000				5403438483		D. Boyd (VA)
	89100-80			5403438485		J. Howes
GEO-XR6000	89100-80			5403438524		Cage
GEO-XR6000	89100-80			5403438682		Cage
GEO-XH 6000	88950-00		1	5112401784		Environmental
GEO-XH	88950-00			5126404960	X	OFFICE
GEO-XH	88950-00			5126404991	X	ENVIRONMENTAL
GEO-XH				5207413191		CHARLESTON
GEOXH	88950-00			5112401764		
ZEPHYR ANT	57970-00			5412118442		
TRIMBLE GEO 7X	88180-04			5351437884	IMEI:99000218986772	SERP
TRIMBLE GEO 7X	88180-04			5405439005	IMEI:99000218986644	Cage
Seafloor	Sonarmite	MILSPEC		SMIL060513		Cage
ntuicom	RTK Bridge			4076550		Cage
Metal Locators	GA-52Cx	Schonesdet		283814		Repair
Metal Locators	GA-52Cx	Schonesdet		297703		RAWE
Metal Locators	GA-52Cx	Schonesdet		304480		Fredricksburg
Metal Locators	GA-52Cx	Schonesdet		306738		Oakland
Metal Locators	GA-52Cx	Schonesdet		307127		B. Hudkins
Metal Locators	GA-52Cx	Schonesdet		307127		B. Hudkins Baker
Metal Locators	GA-52Cx	Schonesdet		307131		
Metal Locators	GA-52Cx	Schonesdet		307132		C. DeFino (PA) G. Goodwin
Metal Locators	GA-52Cx	Schonesdet		30/132		
Metal Locators	GA-52Cx	Schonesdet				A. Schrader
Metal Locators	GA-52Cx	Schonesdet				J. Howes
Metal Locators	GA-52CX	Schonesdet				K. Wilson
Metal Locators	GA-52Cx	Schonesdet		313695		M. Gallagher
Metal Locators	GA-52Cx GA-52Cx	Schonesdet				C. Whitacre (OH)
Metal Locators	GA-52CX GA-52CX			313696		C. Mason (OH)
		Schonesdet		313697		J. Dennison
Metal Locators	GA-52Cx	Schonesdet		292571		S. Pacifico

Metal Locators	GA-52Cx	Schonesdet	303672		M. Walker (OH)
Metal Locators	GA-52Cx	Schonesdet	292571		J. Oyler (OH)
Metal Locators	GA-52Cx	Schonesdet	313695		T. Paul (OH)
Metal Locators	GA-52Cx	Schonesdet	281600		L.Dillsworth (OH)
Clinometer	PM-5/SPC OPTI	Suunto	14281774		A. Cooper
Clinometer	PM-5/SPC OPTI	Suunto	14281772		OFFICE
Clinometer	PM-5/SPC OPTI	Suunto	14076328		R. Haveron
Clinometer	PM-5/SPC OPTI	Suunto	14281768		G. Goodwin
	TBC #		1964316479		
			TBC-SA-1867581229	EWLS-TBC-ADV-SW-RNST	FREDRICKSBURG
			TBC-SA-28320786	EWLS-TBC-ADV-SW-RNST	FREDRICKSBURG

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<u>Omnistar</u>	Warranty Exp. Ap14
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	w/ leather case	
EXPIRES MAY 2015	PASSWORD:8709680032665	
EXPIRES MAY 2015	PASSWORD: 314197375518906	
EM MES IVIAT 2015	1 735 11 610 . 514197373318900	

WV VRS - ROVER OPTIONS

RTK VRS(CMR)

VECTORS

ELEV MASK-10 DEGREES

PDOP MASK-6.0

ATENNA

R-10 OR R-8 INTERNAL

MEASURE TO BOTTOM OF ANTENNA MOUNT ATENNA HEIGHT- 6.56 6.562 or R10 Bottom of quick release GNSS SIGNAL TRACKING-CHECK MARK GPS L2C AND GLONASS

ROVER RADIO

INTERNET CONNECTIO ION GNSS CONTACT-WV VRS

TAP ARROW TO PUT IN IP ADDRESS

Name WV VRS

Network connection W Wi-Fi, ActiveSync

NTRIP Connfiguration

Use RTX (TGIP) No

Use NTRIP Yes

Use NTRIP v1.0: No

Use proxy server:No

Connect directly to Mountpoint: No

NTRIP username:TE_1 thru 25 you choose

NTRIP password: 1234 IP address: 184.19.151.56

IP Port:2101

Send user Identity info: No

BASE OPTIONS SURVEY TYPE-RTK&INFILL

BROADCAST FORMAT-CMRX LOGGING DEVICE-RECEIVER

LOGGING INTERVAL-2SECS
ELV MAK-10 DEGREES
ANTENNA-R8GNSS/SPS88X
MEASURE TO BOTTOM OF ANTENNA MOUNT
GNSS SIGNAL TRACKING CHECK MARK GPS L2C AND GLONASS

BASE RADIO TYPE-RECEIVER INTERNAL

LOGGING DEVICE-CONTROLLER

SURVEY TYPE-FASTSTATIC LOGGING INTERVAL-1 SEC **ELEV MASK-10 DEGREES** PDOP MASK-6.0 ANTENNA-R-10 OR R-8 (DEPENDS ON UNIT) MEASURE TO BOTT OF QUICK RELEASE OR ANTENNA MOUNT(AGAIN DEPENDS ON UNIT) 6.562 GNSS SIGNAL TRACKING- CHECK MARK GPS L2C AND GLONASS

ROVER OPTIONS

SURVEY TYPE-RTK

BROADCAST FORMAT-CMRX

STATION INDEX ANY

SATELITE DIFF -OFF

ELEV MASK-10 DEGREES

PDOP MASK-6.0

ANTENNA TYPE -R10 INTERNAL OR R-8

MEASURE TO BOTT QUICK RELEASE OR BOTT ANTENNA MOUNT (DEPENDS ON UNIT)

6.562

GNSS SIGNAL TRACKING CHECK MARK L2C AND GLONASS

ROVER RADIO

RECEIVER INTERNAL

METHOD-TRIMBLE 450/900

BASE OPTIONS

SURVEY TYPE-RTK

BROADCAST FORMAT-CMRX

STATION INDEX

ELEV MASK-10 DEGREES

ANTENNA

TYPE=R8GNSS/SPS88X

MEASURE TO BOTT ANTENNA MOUNT

GNSS SIGNAL TRACKING CHECK MARK GPS L2C AND GLONASS

BASE RADIO

TYPE-INTERNAL

METHOD-TRIMBLE450/900

ROVER OPTIONS

SURVEY TYPE-RTK

BROADCAST-CMRX

BASE INDEX ANY

ELEV MASK 10 DEGREES

PDOP 6.0

ANTENNA- R-10 INTERNAL OR R-8 INTERNAL DEPENDING ON UNIT MEASURE TO BOTT QUICK RELEASE OR ANTENNA MOUNT GNSS SIGNAL TRACKING CHECK MARK L2C AND GLONASS

ROVER RADIO

TYPE-RECEIVER INTERNAL

METHOD-TRIMBLE 450/900

Topcon	GTS-605	TS	SS0120		Cage		
Trimble GNSS	R10	001-60	5220487390		Fredricksbur	g	
Trimble GNSS	90909-61		5320436678		CAGE		
Trimble GNSS	R10	001-60	5408454968	X		E Char	
Trimble GNSS	R10	001-60	5413460395	X		Enrich	
Data Collector	Trimble	TSC3	RG15017909				
Data Collector	Trimble	TSC3	RS0CC05338				X
Data Collector	Trimble	TSC3	RS0QC13548	SPAR			
R8	Model 3	67250-66	5152479840		???		
R8	Model 3	67250-66	5215485599		355		
R8	Model 3	67250-66	5220487625		???		
R7	Model 4		4916K34898		Cage		
R8	Model 4		510xxxx1000		Cage		#######
Trimble	TDL 450H		12506954	X			
GEO-XR6000	89100-80		5222418532	X	Office	TEI-GEO-1	
GEO-XR6000	89100-80		5222418543	X	Office	TEI-GEO-2	
GEO-XR6000	89100-80		5403438487	X	Office	TEI-GEO-2	

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TYPE OF LICUSCENSE NUMBER	ASSIGNED WARRANTY
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HARDWAR	894393168	RAWE	Χ
	17661614	WOLF	Χ
	329878216	LOWTHER	Χ
	662117807	Canton	Χ
	1867581229	OGRIS	Χ
	1230549673	HOWES	Χ
	1311063987	MIDDLETO	Χ
	1964316479	ALLEGRA	Χ
	28320786	Richmond	Χ
	1296802387	DESK	Χ
	94440462	Semple	Χ
	1652903865	DESK	Χ

NETWORK 337112132242 HYMAN

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Calibration Protocol DMC IIe 230 – 23522



Camera Calibration Certificate No: DMC IIe 230 – 23522



For

Richard Crouse & Associates

467 Aviation Way Frederick, MD 21701

USA

DMC IIe 230 Calibration

Protocol

Camera:

DMC IIe 230

Manufacturer:

Z/I Imaging GmbH, D-73431 Aalen, Germany

Reference:

PAN

Serial Number:

00123118 (PAN Head)

Date of Calibration: 20. November 2014

Date of Report:

26. November 2014

Number of Pages: 43

Calibration performed at: Carl Zeiss Jena, Carl-Zeiss-Promenade 10, 07745 Jena, Germany.

This camera system is certified by Z/I Imaging and is fully functional within its specifications and tolerances.

Date of Calibration: November 2014

Jusa lepul

Date of Certification: November 2014

Jürgen Hefele, Senior Software Developer

Dipl.Ing. Zoltan Poth, Workflow Support Engineer

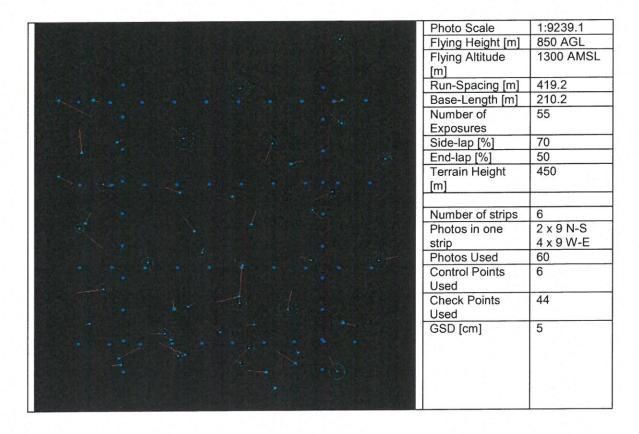
Zollan Poth

Camera Serial Numbers and Burn-In flight

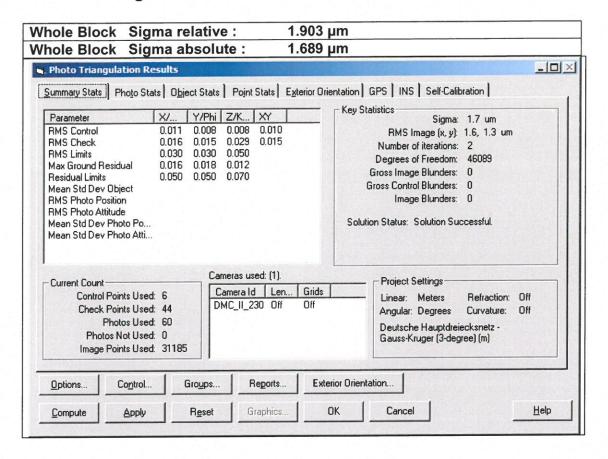
Camera Head	Serial Number	Calib. Date
PAN (reference)	00123118	20.11.2014
MS1 (NIR)	00118804	20.11.2014
MS2 (Blue)	00124736	20.11.2014
MS3 (Red)	00124693	20.11.2014
MS4 (Green)	00124739	20.11.2014

Burn-In flight performed: 03. October 2014

Test block configuration



Aerial triangulation statistic results:



The results of the aerial triangulation were generated with ImageStation Automatic Triangulation (ISAT), Version 2014, from Intergraph Z/I Imaging. The maximum RMS in check points is ≤ 0.5 GSD in x,y and ≤ 0.7 GSD in z.

Aerial Triangulation performed by

Dipl. Ing. Z. Poth

26.11.2014

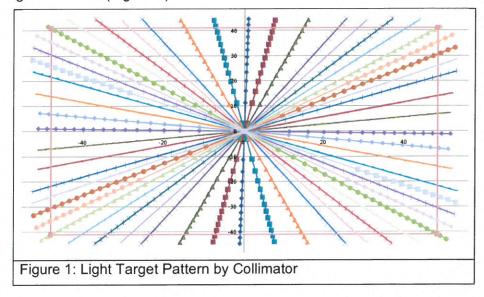
Geometric Calibration

The output image geometry is based on the Pan Camera head (reference head = master camera). All other camera heads are registered and aligned to this head. Aerial triangulation checks overall system performance based on.

Output image

Reference Camera	PAN	
Serial Number	00123118	
Number of rows/columns [pixels]	15552 x 14144	
Pixel Size [μm]	5.600 x 5.600	
Image Size [mm]	87.0912 x 79.2064	
Focal Length [mm]	92.0064 mm	+ /- 0.002 mm
Principal Point [mm]	X= 0.0005 mm	+ /- 0.002 mm
	Y= -0.0032 mm	

The geometric calibration takes place at Carl Zeiss Jena on a certified test stand. More than 800 "light targets", projected on 28 lines that are distributed diagonally on the focal plane, are automatically measured by finding their centers light with a precision of less than 1/10 of a pixel. The light targets are projected from the "infinity" by using a collimator (Figure 1).



Geometric Calibration

Image Residuals

Figure 2 shows the image residuals, split in radial and tangential directions after the calibration adjustment. The maximum residuals are less than or equal to 1.5 microns and the RMSE values are below 0.5 microns.

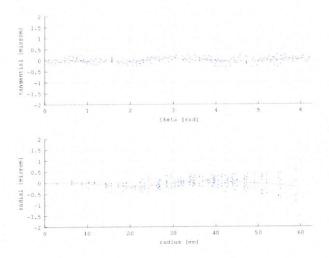


Figure 2: Tangential/Radial Distortion Residuals



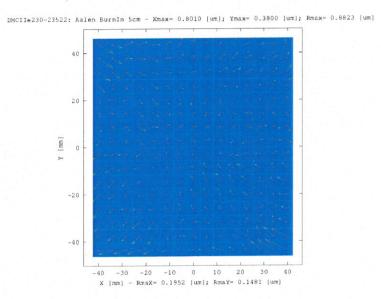


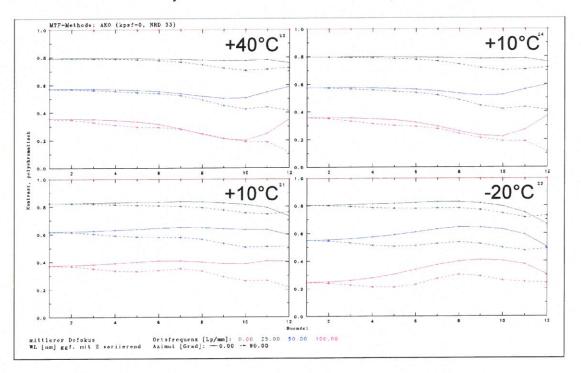
Figure 3: 2-D Image Residuals.

RMS < 0.20 um (maximum 0.88 microns)

Optical System

Modulation Transfer Function, MTF of PAN Camera (Reference)

DMC IIe PAN - MTF Polychromatic F/5.6; 92 mm - Temperature Stability

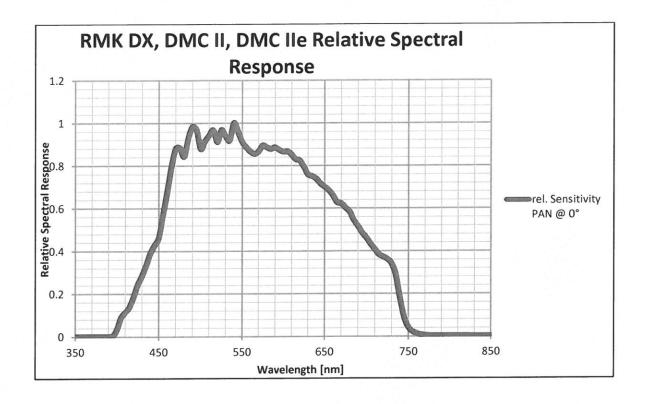


The MTF measurement is camera type specific and shows variation of the MTF within the specified temperature range.

This is a camera type specific measurement.

Radiometric Calibration

Sensitivity of PAN camera (Reference)



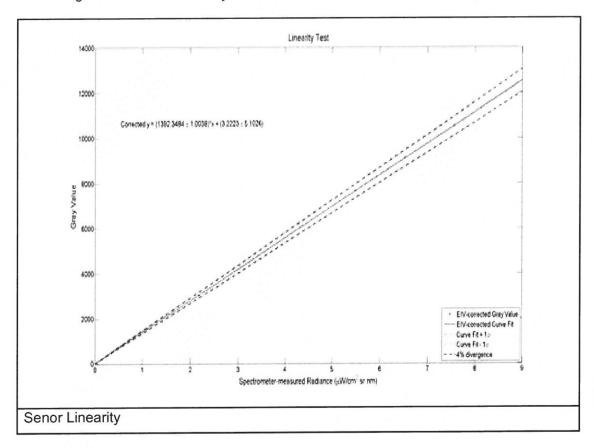
The sensitivity shows the spectral response curve of the single camera head including the optical system (optics, filter) and the sensor response. The DMC IIe 250 is calibrated with respect to the absolute spectrometer. This allows computing pixel radiance values from pixels digital numbers and is a camera type specific calibration.

This is a camera type specific measurement.

Sensor Linearity (Reference)

The sensor linearity is measured in the Lab with calibrated spectrometer. This is a camera type specific calibration.

Below figure shows the linearity of the raw sensor and after flat fielding:

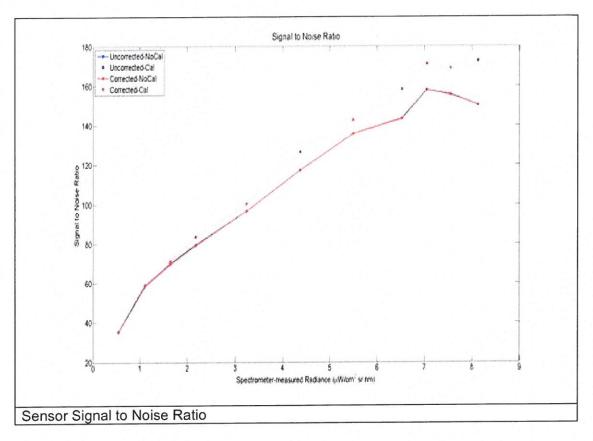


The deviation from the linearity is below 1%.

This is a camera type specific measurement.

Sensor Noise (Reference)

Sensor noise shows image noise with respect to the image center measured at an aperture of 16 with exposure time of 16msec.

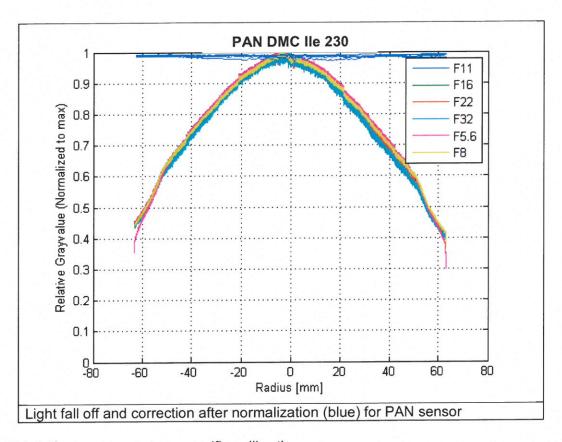


This is from a camera type specific calibration.

Aperture Correction (Reference)

Camera PAN (00123118)

The light fall off to the border due the influence of the optics depends on the aperture used. Therefore this calibration approach delivers individual calibration images for each aperture (Full F-Stop). In general the light fall off is a function of the image height (radial distance from center). The figure below shows the profile from the upper left corner to the lower right corner of the calibration images. Compensation of the light fall off can be measured after normalization and is within $\pm 2.5\%$ of the dynamic range.



This is from a camera type specific calibration.

Defect Pixel

Camera PAN (00123118)

Defect pixels are detected during radiometric calibration and will be corrected during radiometric processing of the images. The quantity and cumulative percentage and specification of defects is described in Appendix "Defect Pixel Recognition".

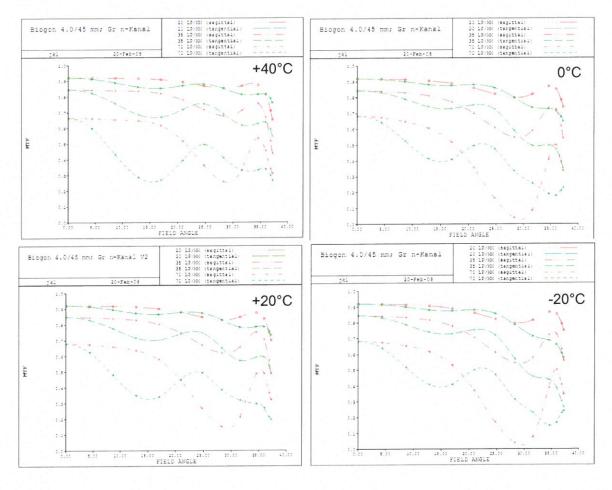
Revision of calibration: CCDRevision: Date Number: Date:		ation:	131073 1 1407315066		
			1407313066		
Numbe	Number of defect pixels: Number of defect clusters: Number of defect columns:		118 0 0		
Nr	Row	Column			
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	2159 2158 2159 2157 2156 2157 2157 12217 12218 12219 12220 12217 12218 12219 12221 12218 12219 12220 4621 12908 5697 11154 11155 11156 11157 11154 11155	93 94 94 95 96 96 96 97 131 131 132 132 133 133 134 134 134 134 193 250 293 751 752 752 752 752 753 753			
31 32 33 34 35 36 37 38 39 40 41 42 43 44	11156 11157 11154 11156 11157 11154 11155 11156 11154 11155 11154 11155 11155	753 753 754 754 754 755 755 755 755 756 756 757 757			

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1269
45
         9279
46
         5123
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47
         5124
                  2255
48
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50
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51
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                  2257
52
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53
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55
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56
         68
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57
                  3934
58
         13817
                  4119
59
         10453
                  5815
60
         10455
                  5816
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         10452
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         1181
                  8221
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         13832
                 8952
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         13832
                 8953
                 9003
67
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                 9385
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         4099
                 9839
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         1795
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         13968
                  10057
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         7581
                  10337
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74
                  11219
         3857
         3857
                  11220
                  12030
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         10078
                 12177
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                  12530
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79
         285
                 12530
80
         12861
                 12642
81
         720
                  12813
82
         721
                 12813
83
         718
                 12814
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                 15656
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                 16207
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                 16208
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                 16442
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         12112
                 16711
110
         13160
                 16972
        13604
                 16981
111
         13605
                 16981
112
         13605
                 16982
113
114
         5025
                 17151
115
         5025
                 17152
         10037
                 17182
116
117
         10036
                 17183
Defect Column RowStart ColumnStart RowEnd ColumnEnd
```

Optical System

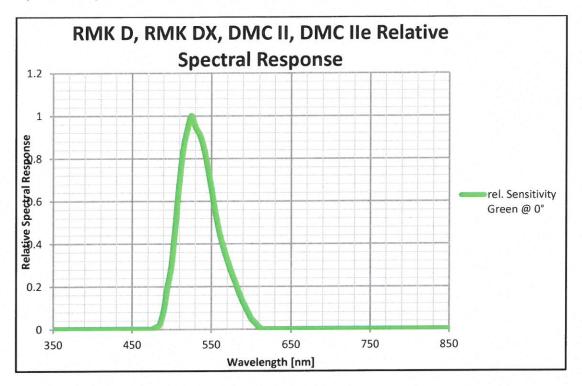
Modulation Transfer Function, MTF of Green camera

RMK D / RMK DX / DMC II / DMC IIe MS Green – MTF F/4.0 ; 45 mm– Temperature Stability



Sensitivity of Green camera

Spectral response curve of the single camera head.

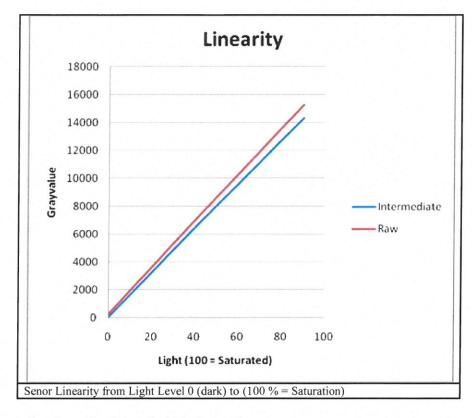


The sensitivity shows the spectral response curve of the single camera head including the optical system (optics, filter) and the sensor response. The DMC IIe 230 is calibrated with respect to the absolute spectrometer. This allows computing pixel radiance values from pixels digital numbers and is a camera type specific calibration.

Sensor Linearity (Reference)

The sensor linearity is measured in the Lab with calibrated spectrometer. This is a camera type specific calibration.

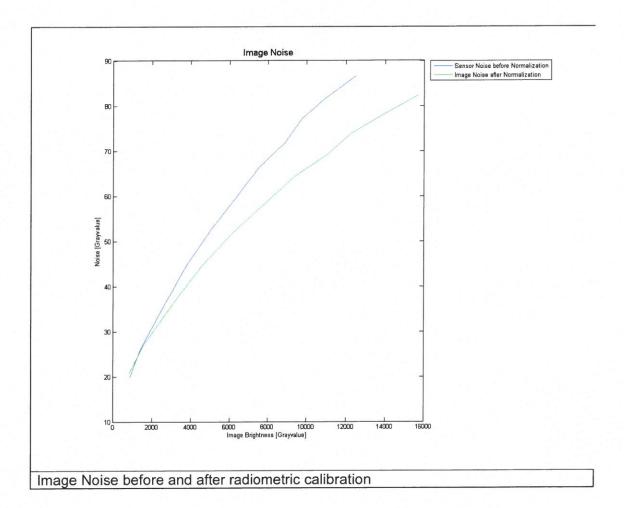
Below figure shows the linearity of the raw sensor and after flat fielding:



The deviation from the linearity is below 1%.

Sensor Noise (Reference)

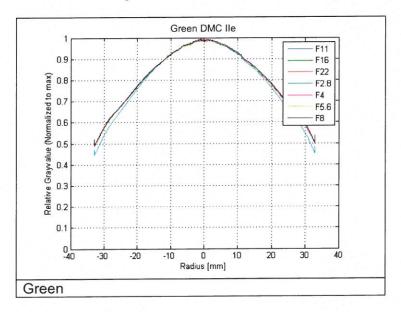
Sensor noise shows image noise with respect to the image center measured at an aperture of 8 with exposure time of 22msec. Sensor noise after calibration shall be less or equal 0.5% of radiometric resolution. At 14bit radiometric resolution 0.5% (of 16384) is equal to 82 gray values. This is a camera type specific calibration.



Aperture Correction

Green (00124739)

The light fall off to the border due the influence of the optics depends on the aperture used. Therefore this calibration approach delivers individual calibration images for each aperture (Full F-Stop). In general the light fall off is a function of the image height (radial distance from center). The figure below shows the profile from the upper left corner to the lower right corner of the calibration images.



This is a camera type specific calibration.

Defect Pixel

Green (00124739)

Defect pixels are detected during radiometric calibration and will be corrected during radiometric processing of the images. The quantity and cumulative percentage and specification of defects is described in Appendix "Defect Pixel Recognition".

Revision of calibration: 131073 CCDRevision: 1 Date Number: 1412091251 Date: 140930

Number of defect pixels: 2 Number of defect clusters: 0 Number of defect columns: 0

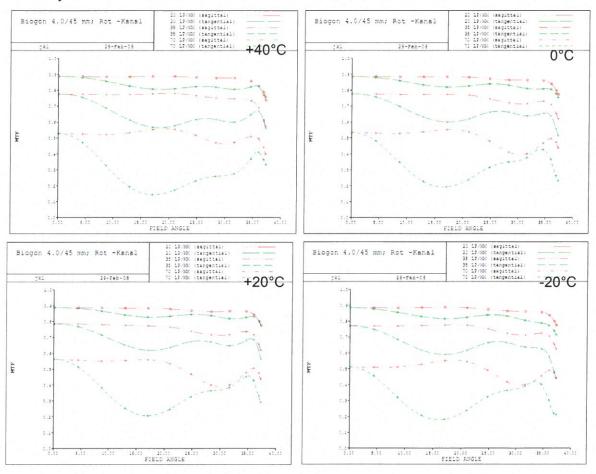
Nr Row Column
0 2233 1176
1 4612 4473

Defect Column RowStart ColumnStart RowEnd ColumnEnd

Optical System

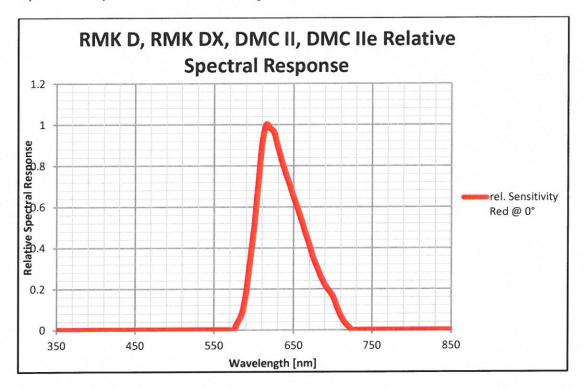
Modulation Transfer Function, MTF of Red camera

RMK D / RMK DX / DMC II / DMC IIe MS Red – MTF F/4.0 ; 45 mm– Temperature Stability



Sensitivity of Red camera

Spectral Response Curves of the single camera head.

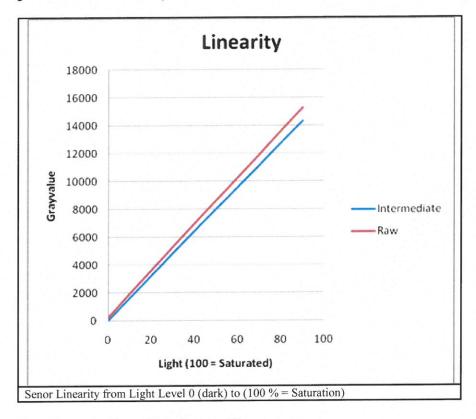


The sensitivity shows the spectral response curve of the single camera head including the optical system (optics, filter) and the sensor response. The DMC IIe 230 is calibrated with respect to the absolute spectrometer. This allows computing pixel radiance values from pixels digital numbers and is a camera type specific calibration.

Sensor Linearity (Reference)

The sensor linearity is measured in the Lab with calibrated spectrometer. This is a camera type specific calibration.

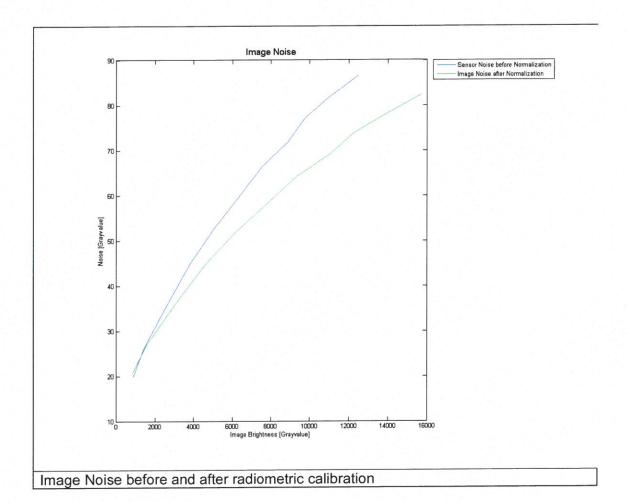
Below figure shows the linearity of the raw sensor and after flat fielding:



The deviation from the linearity is below 1%.

Sensor Noise (Reference)

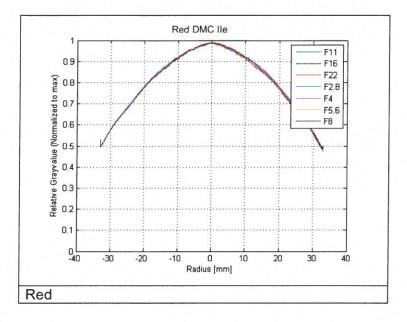
Sensor noise shows image noise with respect to the image center measured at an aperture of 8 with exposure time of 22msec. Sensor noise after calibration shall be less or equal 0.5% of radiometric resolution. At 14bit radiometric resolution 0.5% (of 16384) is equal to 82 gray values. This is a camera type specific calibration.



Aperture Correction

Red (00124693)

The light fall off to the border due the influence of the optics depends on the used aperture. Therefore this calibration approach has for each aperture (Full F-Stop) its own calibration image. In general the light fall off is a function of the image radius. In this calibration approach instead of function the real measured values in the image is used. The figure below shows the profile from the upper left corner to the lower right corner of each of this calibration images to give a feeling on the amount of correction.



This is a camera type specific calibration.

Defect Pixel

Red (00124693)

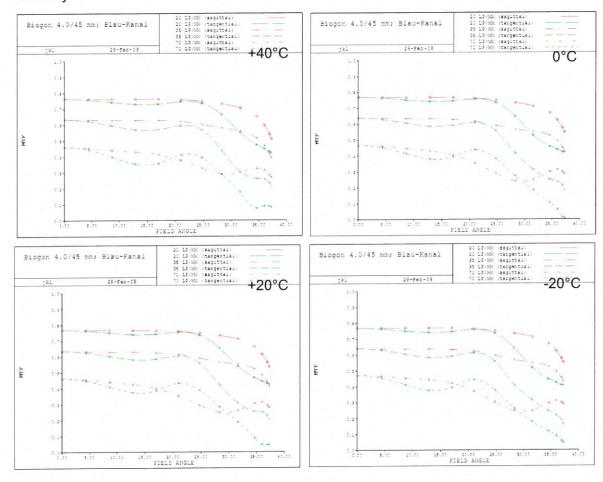
Defect pixels are detected during radiometric calibration and will be corrected during radiometric processing of the images. The quantity and cumulative percentage and specification of defects is described in Appendix "Defect Pixel Recognition".

Revision of calibration: CCDRevision: Date Number: Date:			1412093373 140930
of defect	pixels:	4	
of defect	clusters:	0	
of defect	columns:	0	
Row	Column		
69	1905		
68	1906		
716	2008		
110			
	of defect of defect of defect Row	of defect pixels: of defect clusters: of defect columns: Row Column 69 1905	of defect pixels: 4 of defect clusters: 0 of defect columns: 0 Row Column 69 1905

Optical System

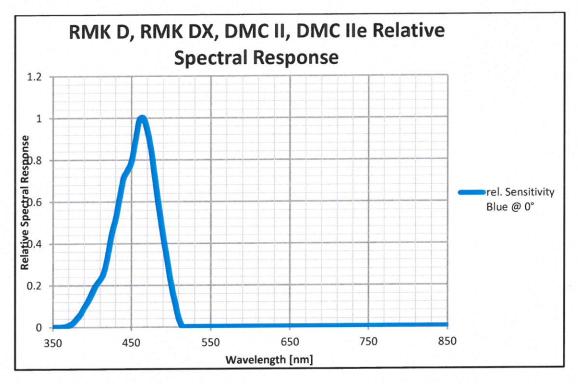
Modulation Transfer Function, MTF of Blue camera

RMK D / RMK DX / DMC II / DMC IIe MS Blue – MTF F/4.0 ; 45 mm– Temperature Stability



Sensitivity of Blue camera

Spectral Response Curves of the single camera head.

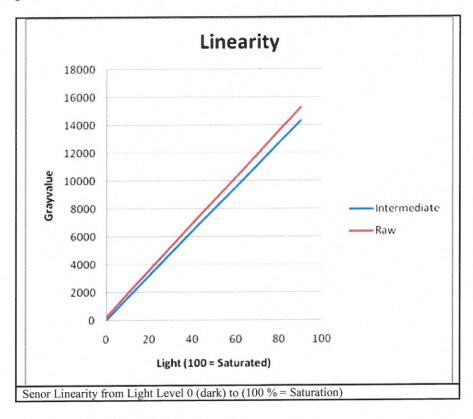


The sensitivity shows the spectral response curve of the single camera head including the optical system (optics, filter) and the sensor response. The DMC IIe 230 is calibrated with respect to the absolute spectrometer. This allows computing pixel radiance values from pixels digital numbers and is a camera type specific calibration.

Sensor Linearity (Reference)

The sensor linearity is measured in the Lab with calibrated spectrometer. This is a camera type specific calibration.

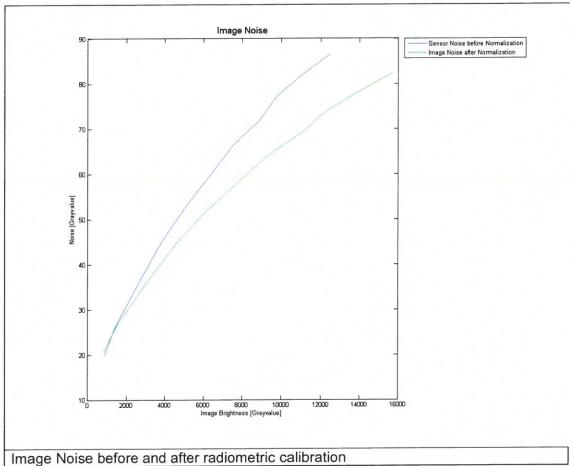
Below figure shows the linearity of the raw sensor and after flat fielding:



The deviation from the linearity is below 1%.

Sensor Noise (Reference)

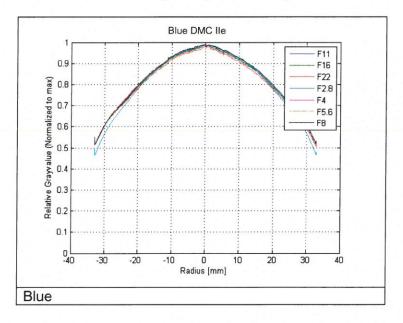
Sensor noise shows image noise with respect to the image center measured at an aperture of 8 with exposure time of 22msec. Sensor noise after calibration shall be less or equal 0.5% of radiometric resolution. At 14bit radiometric resolution 0.5% (of 16384) is equal to 82 gray values. This is a camera type specific calibration.



Aperture Correction

Blue (00124736)

The light fall off to the border due the influence of the optics depends on the used aperture. Therefore this calibration approach has for each aperture (Full F-Stop) its own calibration image. In general the light fall off is a function of the image radius. In this calibration approach instead of function the real measured values in the image is used. The figure below shows the profile from the upper left corner to the lower right corner of each of this calibration images to give a feeling on the amount of correction.



This is a camera type specific calibration.

Defect Pixel

Blue (00124736)

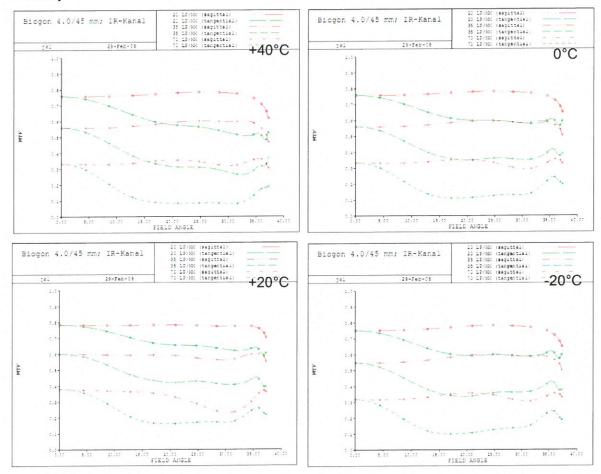
Defect pixels are detected during radiometric calibration and will be corrected during radiometric processing of the images. The quantity and cumulative percentage and specification of defects is described in Appendix "Defect Pixel Recognition".

Revision of calibration: 131073 CCDRevision: 1412092319 Date Number: 140930 Date: Number of defect pixels: Number of defect clusters: Number of defect columns: Nr Row Column 5491 104 5492 104 541 2 3577 541 3 3578 6030 6134 6135 6030 Defect Column RowStart ColumnStart RowEnd ColumnEnd

Optical System

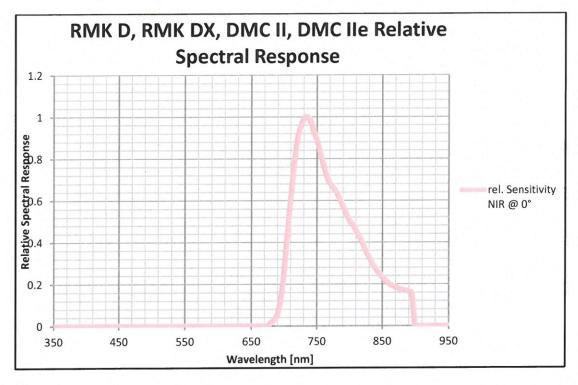
Modulation Transfer Function, MTF of IR camera

 $RMK\ D\ /\ RMK\ DX\ /\ DMC\ II\ /\ DMC\ IIe\ MS\ IR\ -\ MTF\ F/4.0\ ;\ 45\ mm-$ Temperature Stability



Sensitivity of NIR camera

Spectral Response Curves of the single camera head.

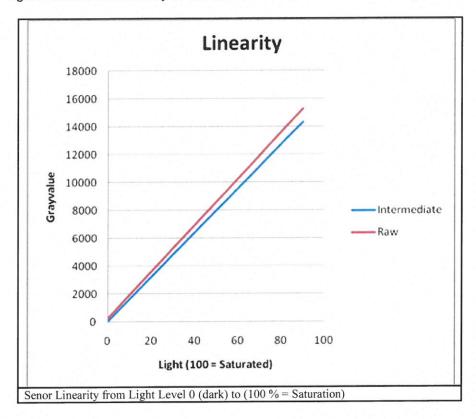


The sensitivity shows the spectral response curve of the single camera head including the optical system (optics, filter) and the sensor response. The DMC IIe 230 is calibrated with respect to the absolute spectrometer. This allows computing pixel radiance values from pixels digital numbers and is a camera type specific calibration.

Sensor Linearity (Reference)

The sensor linearity is measured in the Lab with calibrated spectrometer. This is a camera type specific calibration.

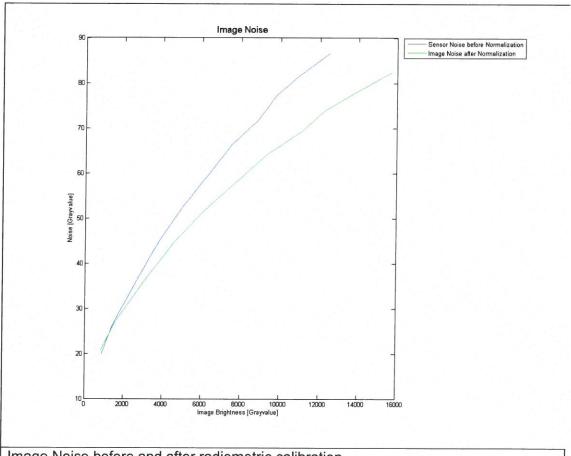
Below figure shows the linearity of the raw sensor and after flat fielding:



The deviation from the linearity is below 1%.

Sensor Noise (Reference)

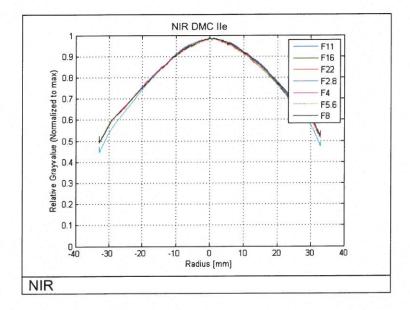
Sensor noise shows image noise with respect to the image center measured at an aperture of 8 with exposure time of 22msec. Sensor noise after calibration shall be less or equal 0.5% of radiometric resolution. At 14bit radiometric resolution 0.5% (of 16384) is equal to 82 gray values. This is a camera type specific calibration.



Aperture Correction

NIR (00118804)

The light fall off to the border due the influence of the optics depends on the used aperture. Therefore this calibration approach has for each aperture (Full F-Stop) its own calibration image. In general the light fall off is a function of the image radius. In this calibration approach instead of function the real measured values in the image is used. The figure below shows the profile from the upper left corner to the lower right corner of each of this calibration images to give a feeling on the amount of correction.



This is a camera type specific calibration.

Defect Pixel

NIR (00118804)

Defect pixels are detected during radiometric calibration and will be corrected during radiometric processing of the images. The quantity and cumulative percentage and specification of defects is described in Appendix "Defect Pixel Recognition".

Revision of calib CCDRevision: Date Number: Date:	ration:	131073 1	1418230290 141210
Number of defect Number of defect Number of defect	t clusters:	236 0 0	
Nr Row	Column		
Nr Row 0 2516 1 30 2 81 3 99 4 100 5 160 6 161 7 319 8 377 9 409 10 411 11 634 12 658 13 695 14 775 15 918 16 1024 17 1184 18 1189 19 1213 20 1226 21 1231 22 1282 23 1282 24 1298 25 1350 26 1455 27 1458 28 1458 29 1519 30 1589 31 1613 32 1614 33 1636 34 1706 35 1736 36 1767 37 1776 38 1784 39 1852 40 1855	4988 773 5346 2568 4557 3924 3154 3355 617 5164 5155 4946 302 5362 5479 4606 1833 1331 5350 1381 3741 830 5470 4383 1852 2496 4483 1475 2528 1174 5290 2570 2566 5967 5005 4601 4569 5934 3836 6059 4146		
41 1892 42 1902 43 1957	1566 3591 2926		

44 2012 1083 45 2015 6080 46 2043 4346 47 2123 750 48 2124 791 49 2151 3473 50 2162 4454 51 2205 1068 52 2295 476 53 2327 5169 54 2354 4722 55 2524 2030 56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3381 3580 77 3381 3580 77 3381 3580 78 3416 1723 79 3490 725 80 3963 5317 83 3665 2889 82 3391 5317 83 3665 2889 82 3391 5317 83 3665 2889 82 3391 5317 83 3665 2889 84 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3896 3165 60 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3896 3069 91 3896 5055 92 3954 4639 93 3402 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 110 4645 2274 111 4655 2144 110 4655 2144 110 4655 2144 110 4656 2144 111 4655 2144 110 4655 2144 111 4655 2144 110 4656 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4655 2144 111 4704 3645 111 4704 3645 111 4704 3645 111 4703 3645 111 4704 3645				
46 2043 4346 47 2123 750 48 2124 791 49 2151 3473 50 2162 4454 51 2205 1068 52 2295 476 53 2327 5169 54 2354 4722 55 2524 2030 56 2567 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3350 1101 76 3376 4158 77 3381 3580 78 3416 1723 79 3490 725 80 3563 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 910 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 101 4401 4766 105 4438 6056 106 4442 2374 107 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 100 4476 5080 101 4401 4766 105 4438 6056 106 4442 2374 107 4476 5080 100 4477 1371 113 4701 335 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 110 4771 3479 117 4737 2332 118 4749 5879 119 4752 1342	200			
47 2123 750 48 2124 791 49 2151 3473 50 2162 4454 51 2205 1068 52 2295 476 53 2327 5169 54 2354 4722 55 2524 2030 56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250	20.000			
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50 2162 4454 51 2205 1068 52 2295 476 53 2327 5169 54 2354 4722 55 2524 2030 56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 68 3037 2915 68 3037 2915 68 3037 2915 68 3037 2915 69 3096 3155 70 3199	100000			
52 2295 476 53 2327 5169 54 2354 4722 55 2524 2030 56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3351 101 76 3376				
53 2327 5169 54 2354 4722 55 2524 2030 56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3350 1101 76 376 4158 80 3553			V///	
54 2354 4722 55 2524 2030 56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3370 317 74 3320 4513 75 3350 1101 76 3376 4158 77 3381 3580 80 3553	1000000			
56 2567 2606 57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3350 1101 76 3376 4158 77 381 3580 78 3416 1723 79 3490 725 80 3535		2354	4722	
57 2804 4915 58 2806 4258 59 2817 2693 60 2829 5095 61 2830 5019 62 2859 1877 63 2878 3616 64 2885 971 65 2888 4685 66 2927 3534 67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3350 1101 76 3376 4158 77 3381 3580 78 3416 1723 79 3490 725 80 3553 6054 81 3564				
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67 3018 5347 68 3037 2915 69 3096 3155 70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3350 1101 76 3376 4158 77 3381 3580 78 3416 1723 79 3490 725 80 3553 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342	850718			
69	67	3018	5347	
70 3199 5615 71 3250 5987 72 3251 5987 73 3270 317 74 3320 4513 75 3350 1101 76 3376 4158 77 3381 3580 78 3416 1723 79 3490 725 80 3553 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028				
72	70			
73 3270 317 74 3320 4513 75 3350 1101 76 3376 4158 77 3381 3580 78 3416 1723 79 3490 725 80 3553 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342	200.000			
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76 3376 4158 77 3381 3580 78 3416 1723 79 3490 725 80 3553 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102	1 5 55			
77 3381 3580 78 3416 1723 79 3490 725 80 3553 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342				
79			3580	
80 3553 6054 81 3565 2889 82 3591 5317 83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107				
82	80	3553	6054	
83 3639 5841 84 3645 4247 85 3646 4513 86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 <td></td> <td></td> <td></td> <td></td>				
85	83	3639	5841	
86 3646 4549 87 3757 6090 88 3783 532 89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112				
88	86			
89 3870 3159 90 3889 3980 91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 <td< td=""><td></td><td></td><td></td><td></td></td<>				
91 3896 5055 92 3954 4639 93 4022 3409 94 4028 4660 95 4123 5622 96 4164 5004 97 4165 3110 98 4167 1878 99 4178 337 100 4275 4660 101 4301 5494 102 4363 3689 103 4387 4723 104 4404 4766 105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342				
92				
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97		0.000		
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105 4438 6056 106 4442 2374 107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 17 4737 2332 118 4749 5879 119 4752 1342				
107 4476 5080 108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342	105	4438	6056	
108 4489 3059 109 4627 4233 110 4645 4259 111 4655 2144 112 4670 5171 113 4701 335 114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342				
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114 4704 3645 115 4712 3499 116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342				
116 4731 1731 117 4737 2332 118 4749 5879 119 4752 1342				
117 4737 2332 118 4749 5879 119 4752 1342				
118 4749 5879 119 4752 1342				
	118		5879	

121	4777	3462	
122 123	4790 4805	5196 2251	
124	4826	1827	
125 126	4853	4011	
127	4859 5075	2488 2739	
128	5108	3954	
129	5110	3865	
130 131	5138 5142	1019 2654	
132	5142	5974	
133	5233	2227	
134 135	5243 5284	902 2860	
136	5289	869	
137 138	5294 5314	2742 5077	
139	5373	4781	
140	5397	2013	
141 142	5408 5436	2335 238	
143	5442	1958	
144	5443	1957	
145 146	5481 5495	793 5489	
147	5540	1759	
148	5595	5447 4827	
149 150	5602 5622	5112	
151	5637	6013	
152 153	5670 5676	4639 2638	
154	5731	4110	
155	5741	4712	
156 157	5830 5832	5779 5196	
158	5835	1188	
159	5836	2627	
160 161	5849 5856	2492 1032	
162	5863	5554	
163 164	5863 5876	3874 1355	
165	5930	5414	1
166	5959	4501	
167 168	5962 5964	5895 5230	
169	5966	3821	1
170	5969	3867	
171 172	5975 5977	3793 5705	
173	5983	3889	
174 175	5990 6023	3832 4699	
176	6082	2916	
177	6086	4173	
178 179	6121 6126	3006 4280	
180	6128	2954	
181	6142 6142	2260	
182 183	6146	4551 4412	
184	6153	3309	
185 186	6156 6220	4577 5917	
187	6221	3046	
188	6232	5835	
189 190	6240 6245	732 3335	
191	6255	5783	
192	6263	4349	
193 194	6275 6279	179 4157	
195	6280	549	
196 197	6285 6332	3469 3355	
131	0002	0000	

Protocol

400	2000	
198	6332	3355
199	6333	3134
200	6340	3102
201	6351	5669
202	6351	5454
203	6369	5918
204	6389	5248
205	6417	4218
206	6422	5892
207	6424	4681
208	6434	683
209	6436	2044
210	6442	3310
211	6451	5294
212	6452	1295
213	6464	2809
214	6467	4938
215	6484	3303
216	6549	3861
217	6554	5988
218	6572	3970
219	6600	3817
220	6608	667
221	6646	5523
222	6657	3102
223	6735	1753
224	6761	5934
225	6765	4628
226	6770	4055
227	6772	2680
228	6786	5345
229	6788	4513
230	6799	5611
231	6803	206
232	6809	4615
233	6819	1407
234	6832	296
235	6835	3973
		owStart ColumnStart RowEnd ColumnEnd

Sensor Geometric Accuracy

Large area CCD imagers are composed (stitched) from several blocks. Stitching on wafer with semiconductor lithographic equipment results in geometric accuracy better than 0.1 μ m (Stoldt, H. (2010).

Therefore the geometric accuracy of individual pixels within a block can be assumed as better or equal the stitching accuracy.

Defect Pixel Recognition

The table below shows the maximal allowed physical defects on the CCD Sensor and its definitions.

	Description	CCD Spec
	Bright image	Pixel whose signal, at nominal light (illumination at 50% of the linear range), deviates more than ±30% from its neighboring pixels.
Pixel	Dark image	Pixel whose signal, in dark, deviates more than 6mV from its neighboring pixels (about 1% of nominal light).
	Max Count	PAN ≤ 3500 MS <500

Description		CCD Spec	
Column	Definition	A column which has more than 8 pixel defects in 1 1x 12 kernel Column defects must be horizontally separated by 5 columns for single line defects and 10 for double line defects	
Colu	Recognition (bright and dark)	Same as defect pixel recognition	
	Max Single column	PAN ≤ 140 MS ≤ 20	
	Max double Column	PAN ≤ 40 MS ≤ 6	

The Post-Processing-Software is correcting following pixel and columns:

	PPS Correction
Pixel	Pixel whose gray value in a 16 x16 kernel differs from the median more than 30%

	PPS Correction
Column	Pixel whose gray value in a 16 x16 kernel differs from the median more than 5% and more than 15 defects in one column

Bibliography

Brown D. C. Close-Range Camera Calibration, Photogrammetric Engineering 37(8) 1971

Dörstel C., Jacobsen K., Stallmann D. (2003): DMC – Photogrammetric accuracy – Calibration aspects and Generation of synthetic DMC images, Eds. M. Baltsavias / A.Grün, Optical 3D Sensor Workshop, Zürich

Fraser C., Digital Camera sel-f calibration. ISPRS Journal of Photogrammetry and Remote Sensing, (997, 5284): 149-159

Zeitler W., Dörstel C., Jacobsen K. (2002): Geometric calibration of the DMC: Method and Results, Proceedings ASPRS, Denver, USA.

Ryan R., Pagnutti M. (2009): Enhanced Absolute and Relative Radiometric Calibration for Digital Aerial Cameras, in: Fritsch D. (Ed.), Photogrammetric Week 2009, Wichmann-Verlag, pp. 81-90.

Doering D., Hildebrand J., Diete N. (2009): Advantages of customized optical design for aerial survey cameras, in: Fritsch D. (Ed.), Photogrammetric Week 2009, Wichmann-Verlag, pp. 69-80.

Stoldt, H. (2010): DALSA Ultra large CCD technology Customized for Aerial Photogrammetry. At: ASPRS 2010, San Diego, USA, p. 15.

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

DIVISIO	If will make the determination of the vendor Freierenes, i approache.				
1.	Application is made for 2.5% vendor preference for the reason checked: Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or, Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or, Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,				
2./	Application is made for 2.5% vendor preference for the reason checked: Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,				
3.	Application is made for 2.5% vendor preference for the reason checked: Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,				
4.	Application is made for 5% vendor preference for the reason checked: Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,				
5.	Application is made for 3.5% vendor preference who is a veteran for the reason checked: Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,				
6.	Application is made for 3.5% vendor preference who is a veteran for the reason checked: Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.				
7.	Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with West Virginia Code §5A-3-59 and West Virginia Code of State Rules. Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.				
Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.					
By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.					
Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.					
	The state of the s				

RFQ No. 160000000 17

STATE OF WEST VIRGINIA Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: 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:

OFFICIAL SEAL

"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 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: The Thrasher Group, Inc.	
Authorized Signature:Buller	Date: 10/28/2015
State of West Vicyinia	
County of Harrisun, to-wit:	
Taken, subscribed, and sworn to before me this 2 tday of	, 20/5.
My Commission exploses south noise number of Ala. , 20 20.	
Clarksburg, WV 26301 Clarksburg, WV 26301	Purchasing Affidavit (Revised 07/01/2012)

CERTIFICATIONAND SIGNATURE PAGE

By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained 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.

(Company)

Chad Bella, PTC
(Authorized Signature) (Representative Name, Title)

301-U24-4108 301-U24-7831 10/28/2015 (Phone Number) (Pax Number) (Date)

ADDENDUM ACKNOWLEDGEMENT FORM SOLICITATION NO.: 14000000017

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)					
[]	1	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.					
The Thrasher Group, Inc.					The Thrasher Group, Inc.
Company					Company
Chadbeller					
				Authorized Signature	
	10/28/2015				
					Date

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

Revised 6/8/2012

CERTIFICATE OF Authorization

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

The West Virginia State Board of Registration for Professional Engineers having verified the person in responsible charge is registered in West Virginia as a professional engineer for the noted firm, hereby certifies

THE THRASHER GROUP, INC. C00517-00

Engineer in Responsible Charge: H. WOOD THRASHER - WV PE 009478

has complied with section §30-13-17 of the West Virginia Code governing the issuance of a Certificate of Authorization. The Board hereby notifies you of its certification with issuance of this Certification of Authorization for the period of:

July 1, 2014 - June 30, 2015

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE, PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.

IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA UNDER ITS SEAL, AND SIGNED BY THE PRESIDENT OF SAID BOARD.

BOARD PRESIDENT



WEST VIRGINIA BOARD OF PROFESSIONAL SURVEYORS

Certificate of Authorization
ISSUED TO:

2015

THE THRASHER GROUP, INC.

Bridgeport, West Virginia

CERTIFICATE OF AUTHORIZATION No. 15-5433

This certificate is issued by the West Virginia Board of Professional Surveyors in accordance with West Virginia Code § 30-13A-20

The person or organization identified on this certificate is licensed to conduct professional surveying and mapping services in the State of West Virginia for the period

January 1, 2015 through December 31, 2015

This certificate is not transferrable and must be displayed at the office location for which issued.

In witness whereof I have put my hand, this 18th day of November, 2014

ROY E. SHREWSBURY, II, Chairman

MARK H. HORNISH

R. MICHAEL SHEPP

Telam & Daughor

NELSON B. DOUGLASS, Secretary

ANTHONY J. SPARACINO