



State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Solicitation

NUMBER
AGR1341

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
GUY NISBET 304-558-8802

RFQ COPY
TYPE NAME/ADDRESS HERE

Jim Eckert
Shim Adyu
7102 Riverwood Dr.
Columbia MD
21046

DEPARTMENT OF AGRICULTURE
JOBSITE
SEE SPECIFICATIONS

DATE PRINTED
08/12/2013

BID OPENING DATE: 08/20/2013

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
ADDENDUM NO. 01						
ADDENDUM ISSUED TO PUBLISH VENDOR SUBMITTED QUESTIONS, AND AGENCY RESPONSES TO QUESTIONS, PER THE ATTACHED DOCUMENTATION.						
NO OTHER CHANGES.						
0001	1	LS		493-69		
OPTICAL EMISSION SPECTROMETER						
***** THIS IS THE END OF RFQ AGR1341 ***** TOTAL:						<u>\$79,722.00</u>
RECEIVED						
2013 AUG 16 AM 9:05						
WV PURCHASING DIVISION						

SIGNATURE <i>Jim Eckert</i>	TELEPHONE 703-217-1310	DATE 8/15/13
TITLE Field Sales Engineer	FEIN 52-1035956	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

SOLICITATION NUMBER: AGR1341
Addendum Number: No. 01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☐ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☒ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

Description of Modification to Solicitation:

Addendum issued to publish vendor submitted questions and agency responses to these questions. No other changes to solicitation.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: AGR1341

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

[☒] Addendum No. 1

[☒] Addendum No. 6

[☒] Addendum No. 2

[☒] Addendum No. 7

[☒] Addendum No. 3

[☒] Addendum No. 8

[☒] Addendum No. 4

[☒] Addendum No. 9

[☒] Addendum No. 5

[☒] Addendum No. 10

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

Shimadzu
Company

[Signature]
Authorized Signature

8/15/13
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

August 15, 2013

Guy Nisbet
State of West Virginia
AGR 1341 ICP

Dear Mr Nisbet,

I am writing in response to your ICP Spectrometer bid AGR 1341. Shimadzu appreciates your consideration of our ICP. By choosing Shimadzu, the West Virginia Department of Agriculture at Moorefield can look forward to having a comprehensive team and the tools necessary to be completely successful in your laboratory. Feel comfortable knowing you are investing in a technology leader that will make you successful with today and future analytical needs.

The Shimadzu ICPE-9000 can provide an instrument similar in performance to the Optima 8300. Please see the following page for a more detailed explanation of our rationale.

Thank you in advance for reviewing this proposal in its entirety. If you have any follow-up questions, I am happy to answer them.

Best regards,

Jim Eckert
Field Sales Engineer
703-217-1310

Shimadzu ICPE-9000 Rationale for the West Virginia Department of Agriculture Consideration

Dual View Technology – The Shimadzu ICPE-9000 has dual view technology.

Resolution – The ICPE-9000 has 20% better resolution at <5 picometers and typically 4.2 picometers. This means less spectral interferences from neighboring lines with superior dispersion as seen in Figure 1.

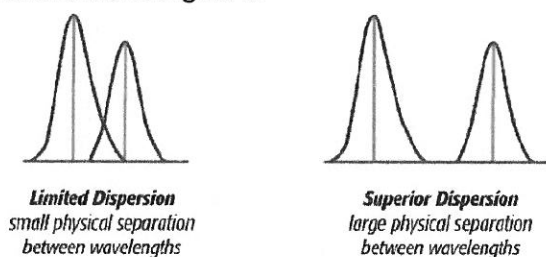


Figure 1. Example taken from Teledyne Leeman ICP Brochure

Argon Gas Flows Control – The Shimadzu ICPE-9000 has computer control for nebulizer, auxiliary, and plasma gases

Argon Gas Flows – The Shimadzu ICPE-9000 has a “Mini-Torch” as standard, which uses less than half the Argon of the full torch. This would be similar to the Perkin Elmer Optional “Flat Plate Plasma Technology.”

Shear Gas – The Shimadzu ICPE-9000 sampling orifice design eliminates the needs for shear gas, which requires 25 L/minute on the 8300. The 8300 needs the shear gas to remove unwanted components.

Vacuum Spectrometer – The ICPE-9000 ICP is a vacuum spectrometer with a pirani gauge. There are three main benefits to this. Since the ICPE-9000 is not purged, it will consume about 50% less Argon than the 8300. Also, with the pirani gauge, the exact pressure of the optics are known, so we know when the measurements can begin. Finally, because there is no air in the optics, the ICPE-9000 has much better sensitivity and reproducibility, especially for the lither elements like Na and K.

Detector Type – The ICPE-9000 uses a CCD type 1024 x 1024 pixels of a total with greater 1,000,000 pixels which supports up to 110,000 wavelengths simultaneously. The 8300 is limited to 6000 wavelengths, and expansion of other wavelengths is not permitted; the user must use preset ones. The detector is also segmented or SCD-type, which has small detectors at select locations.

Detection Limits & Detector Dimensions – The ICPE-9000 uses 1 x 1 inch detector as well as large pixels (20 μ m x 20 μ m) for high light throughput and improved detection limits. Table 1 shows an example of the first 8 elements in the period table comparing detection limits. The 8300 uses a ½ x ¾ inch detector for limited light throughput.

Detection Limit of Light Element for ICPE-9000 vs Optima 8300			
Element	Shimadzu ICPE-9000	Perkin Elmer Optima 8300	DL Improvement Factor for ICPE-9000
Li (3)	0.1	0.3	3
Be (4)	0.02	0.09	4.5
Na (11)	0.3	0.5	1.7
Mg (12)	0.005	0.04	8
Al (13)	0.5	1	2
Si (14)	0.5	10	20
P (15)	5	4	0.8
S(16)	5	10	2
			Average = 5.3

Table 1.

Detector Mapping Wavelength and Wave Order on Detectors (2 Dimensional Image) – The ICPE-9000 uses 18 naturally occurring Argon, Carbon, and Nitrogen wavelengths and wave order lines which are present under normal plasma operation conditions to map the 2 dimension “picture.” The 8300 requires a Mercury pen lamp at just a few wavelengths. The lamp can be misaligned and will need replaced over time.

Detector Anti-blooming Technology – The ICPE-9000 uses a two side method of the detector for collecting light on the backside while eliminate blooming on the front side with special drains. The system permits maximum sensitivity and prevents blooming.

Detector 5: Cooling Technology – The ICPE-9000: uses Peltier cooling at minus 15°. The lower the temperature, the lower the dark current for improved detection limits as seen above in Table 1. The 8300 uses Peltier cooling at minus 8°.

RF Generator – The ICPE-9000 uses a 27 MHz system which would typically be believed to have reduced sensitivity compared to 40 MHz systems. However as can be seen in Table 1 above, this is not the case because of the superior design of the optical bench. The true advantage of the 27 MHz system is the hot central plasma which minimizes interferences. Also a 27 MHz system has a wider band width then 40 MHz and enabling the system to compensate for much large load fluctuations a seen in Figure 2 below. 40 MHz systems are prone to higher interferences.

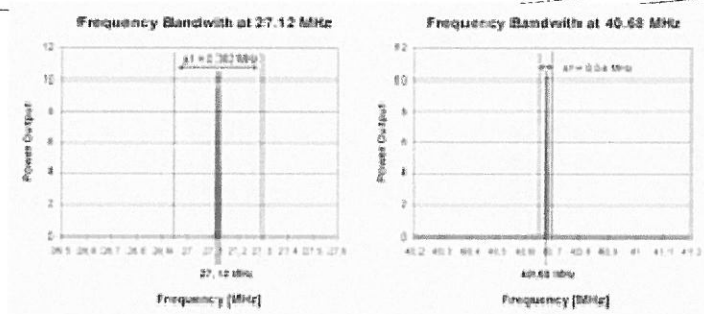


Figure 2. Example taken from Ametek Spectro ICP brochure

Thermal Stability of the Optical Bench – The ICPE-9000 optical bench is thermally stabilized at 38°.

Chiller – The ICPE-9000 also utilizes a chiller.

Peristaltic Pump – The ICPE-9000 does not require a peristaltic pump for aqueous samples, but a 4 channel peristaltic pump was quoted in keeping with the bid request. The 8300 comes standard with a 3 channel peristaltic pump.

Torch Orientation - The ICPE-9000 has a vertical torch configuration that permits higher solids to be analyzed without affecting the auxiliary and plasma gases due to gravity as seen below in Figure 3. In horizontal torch configurations like the 8300, gravity pulls down particulates that then interfere with auxiliary and plasma gases affecting stability of instrument.

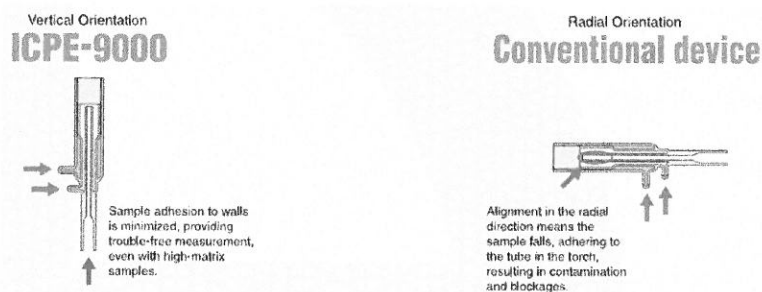


Figure 3. Example taken from Shimadzu ICPE-9000 brochure

Support - Shimadzu has two Field Service Engineers, a Field Sales Engineer, and a Field Technical Support person all in the greater Pittsburgh area. Shimadzu offers free onsite training for as long as your users need to feel comfortable using the system. Future re-trainings can be scheduled at no charge when new employees join NETL. In addition to this superior onsite support, Shimadzu also offers free telephone technical support. Regardless of warranty or service coverage, users who call can talk to a human to get support, and no PO is needed.

Analytical Instrument: Multiple-type ICPE-9000 Spectrometer

Detection limits**Shimadzu Manufacturing****Element detection limit**

Ag	0.20
Al	0.50
As	4.00
Au	1.00
B	0.20
Ba	0.01
Be	0.02
Bi	2.00
Ca	0.005
Cd	0.10
Ce	2.00
Co	0.30
Cr	0.30
Cu	0.50
Fe	0.10
K	0.40
Li	0.10
Mg	0.005

Element detection limit

Mn	0.03
Mo	0.50
Na	0.30
Ni	0.30
P	5.00
Pb	2.00
S	5.00
Sb	3.00
Se	4.00
Si	0.50
Sr	0.01
Sn	1.00
Ti	0.10
Tl	3.00
V	0.20
W	2.00
Zn	0.20
Zr	0.10

Unit: µg/L

ICPE-9000

Top 10 Reasons to Buy a Shimadzu ICPE-9000

1. **Mini-torch**, low gas flow, can save up to 50% of the cost of operation compared to conventional ICPs.
2. **Vacuum Spectrometer** reduces startup time, saves money as no purge gas is required, and provides long-term stability.
3. **Method Development Assistant** software automatically selects the appropriate wavelength for samples from a database of 110,000 wavelengths, selects ideal conditions based on physical, ionization and spectral interferences, and selects the appropriate background correction.
4. **Method Diagnostic Assistant** software automatically corrects for interferences based on a post-run analysis, saving the analyst time.
5. **Large-scale CCD** (1 inch x 1 inch) has over 1 million pixels for all wavelengths. Many competitors have between 70,000 and 256,000 pixels, a range 4 to 14 times less than the ICPE-9000, which means some wavelength and wave orders are not available.
6. **Dual View** allows an increased linear dynamic range by viewing the plasma in both axial (standard) and radial (optional) views in the same sample run for improved productivity.
7. **Vertical-torch** design reduces downtime by minimizing blockage and contamination when analyzing high-matrix samples.
8. **Semi-Quantitative Mode** allows unknown samples to be analyzed without standards. The results give an identification of the elements in the unknown plus an approximated concentration, thus making method development easy.
9. **Automatic Wavelength Calibration** at 20 different wavelengths. Competitive instruments require external sources which can burn out, become mis-aligned, and require maintenance.
10. Knowing you are getting over **130 years of experience** by purchasing from Shimadzu.

QUOTE DESCRIPTION:

West Virginia department of Agriculture Moorefield ICP
AGR 1341

Guy Nisbet
State of West Virginia
PO Box 50130
2019 Washington Street East
Charleston, WV 25305
Phone: (304) 558-8802
Fax:
E-mail: guy.l.nisbet@wv.gov

Effective Date	8/13/2013	Proposed Ship Date	30 Days/ARO
Expiration Date	9/12/2013	FOB	COLUMBIA
Ship Method	BEST WAY	Shipping Terms	PREPAID & ADD
Inco Terms			

PLEASE SEE ATTACHED TERMS AND CONDITIONS

For questions or modifications about this quote, please contact your sales representative. If you are a tax exempt customer, please contact Customer Service and send a copy of your exemption certificate in with your order. The exemption certificate can also be faxed to 410-381-1222

Salesperson: James Eckert MAT Regional Office
Phone: 800-388-6996 Ext. 1658 7102 Riverwood Drive
E-mail: jreckert@shimadzu.com Columbia, MD 21046-2502

ADDITIONAL INFORMATION:***THANK YOU FOR YOUR INTEREST IN SHIMADZU SCIENTIFIC INSTRUMENTS*****Authorization Signature**

ESTIMATE ONLY

Date: 8/14/2013**For Order Placement:**

Reference Quotation Number on Purchase Order
Shimadzu Scientific Instruments
7102 Riverwood Drive
Columbia MD 21046
Toll Free: 800-477-1227
Phone: 410-381-1227
Fax: 410-381-6781
E-mail: customer.service@shimadzu.com
Int'l Fax 410-309-6130
Int'l Email icsc@shimadzu.com

Line #	Product Number	Product Name	Qty	List Price	Ext'd Price
Primary					
1	220-95324-52	ICPE-9000 WITH ASC-6100 AND DUAL VIEW	1	\$96,170.00	\$67,319.00
ICPE-9000 Auto Aqueous Simultaneous Emission Spectrometer with Dual View					
ICPE-9000 is an auto aqueous high throughput simultaneous inductively coupled plasma emission spectrometer. The ICP utilizes an Echelle grating system under vacuum conditions with a large 1" x 1" liquid cooled CCD detector. Vacuum conditions of the optical bench allows determinations in the vacuum UV region for elements like Phosphorous and Sulfur. The 1 mega pixel CCD enables better sensitivity as more light can be focused onto the detector. The ICPE-9000 uses a vertical mini torch with an axial, or radial, view controlled electronically by PC. The mini torch reduces Argon consumption up to 40% with no sacrifice of sensitivity. Vertically mounted torches are not susceptible to clogging or buildup as conventional horizontally mounted torches. ICPEsolution software features easy to use software which includes a method development assistant, automatic correction for overlapping wavelengths, and a wavelength data base with 110,000 emission lines. Package includes ICPE-9000 instrument, ICPEsolution software (P/N 211-44263-92), Radial View Unit (211-86200-91), Auto Sampler (ASC-6100F), CCD Cooling Water valve kit and crossover cable.					
2	046-00092-12	NEBULIZER, SEA SPRAY HIGH SOLIDS TYPE FOR ICPE-9000	1	\$850.00	\$680.00
SeaSpray High Solids Nebulizer					
Concentric borosilicate glass. High physical reproducibility ~ 1%, TDS tolerance, typically up to 20%, High tolerance to particulates, typically up to 75um, Low RSD's due to highly accurate construction. SeaSpray with EzyFit uptake=2ml/min with 1,500mm tubing.					
3	204-74323-00	TORCH, HIGH CONCENTRATION SALT SAMPLE	1	\$700.00	\$560.00
HIGH SALTS TORCH					
4	211-81448-00	MINI TORCH	1	\$596.00	\$476.80
5	211-43740-00	ORIFICE ASSY FOR ICPE-9000 STANDARD TORCH	1	\$230.00	\$184.00
6	044-01813-01	CA-1115A, COOLING WATER CIRCULATOR, AA & ICP	1	\$4,800.00	\$3,840.00
CA-1115 COOLING WATER CIRCULATOR FOR ICPE-9000 AND GFA-7000, GFA-EX7I					
7	211-86152-91	COOLING WATER VALVE KIT FOR PLASMA STAND	1	\$800.00	\$640.00
Cooling Water Valve Kit for Plasma Stand					
8	220-95370-02	ESI's Peristaltic Pump, 4-Channel, Controlled by ICPE-9000	1	\$3,034.00	\$2,427.20
Precision low-flow complete stand-alone 4-channel micro peristaltic pump for Shimadzu ICPE-9000. Includes ICP driven communications cable and power supply. Includes 4 each of orange-green (flared PVC), black-black (flared PVC), grey-grey (santoprene) pump tubing.					
9	220-95363-30	Internal Standard Addition Kit for MP2 Pump	1	\$460.00	\$368.00
Internal Standard Addition Kit for ESI-MP2					
This kit automates the process of applying Internal Standard Correction to samples. Kit requires ESI MP2 Pump.					
10	220-95357-04	ICP Setup Standards	1	\$320.00	\$256.00
11	220-95357-03	ICP & AA MULTIELEMENT STANDARDS IN 50 ML BOTTLE w/ HNO3-CONTAINS	1	\$250.00	\$200.00
12	220-95248-02	Regulator, Argon or Nitrogen, CGA-580	1	\$400.00	\$320.00
13	220-97318-20	Standard Workstation PC- Win 7 Pro 32-bit	1	\$2,210.00	\$2,099.50
Dell Standard Workstation PC – Windows 7 Pro 32bit(Quad Core Intel Xeon Processor)					

Line #	Product Number	Product Name	Qty	List Price	Ext'd Price
<p>Operating systems include Windows® 7 PRO (installed). System incorporates 2GB DDR3 UDIMM 1600, NECC memory (expandable to 24GB), 250GB SATA hard drive, 16X DVD+/-RW Drive.</p> <p>Included are USB keyboard, Optical Wheel mouse, 512 MB NVIDIA Quadro NVS 300, Dual Monitor Graphics Card, Intel Integrated Gigabit 10/100/1000 network connection, Two PCI slots, two x16 PCI Express Slots, one PCI-Express x1, one Serial Port (RS-232), one Parallel Port, 11 USB 2.0 ports (2 front, 6 back 3 Internal), Integrated High Definition Audio (no speakers).</p> <p>Warranty: Three year limited warranty with three years standard next business day (NBD) onsite parts replacement and three years NBD onsite labor through Dell Corporation.</p>					
14	220-97320-10	DELL P2210, 22INCH PROFESSIONAL WIDESCREEN, FLAT PANEL	1	\$370.00	\$351.50
DELL P2210, 22inch LCD Widescreen, Flat Panel Monitor					
15	I&F	INSTALLATION AND CUSTOMER FAMILIARIZATION	1	\$0.00	\$0.00
16	1YW	1 YEAR WARRANTY	1	\$0.00	\$0.00

NOTE: Taxes are not included in the quoted amount

Total List Price	\$111,190.00
Total Line Item Discounts	\$31,468.00
Subtotal	\$79,722.00
Total Amount	\$79,722.00

Terms and Conditions

Shimadzu Scientific Instruments, Inc. - GENERAL TERMS AND CONDITIONS OF SALE

SALES AGREEMENT

The sales agreement ("Sales Agreement"), as referenced hereinbelow, shall mean and refer to these General Terms and Conditions of Sale ("General Terms and Conditions of Sale"), together with such other documents concerning the purchase of equipment and/or Products designed and/or manufactured by Shimadzu Scientific Instruments, Inc. ("Products"), which documents have been or will be executed by and between Shimadzu Scientific Instruments, Inc. ("SSI") and the individual or entity identified therein as the purchaser of said Products ("Buyer"). The documents that comprise the Sales Agreement may include, but are not limited to: these General Terms and Conditions of Sale; price quote provided by SSI; purchase order issued by Buyer as modified and accepted by SSI; bill of sale for Products; bill of lading issued for the shipment of Products; and product invoice. All Products shall be for research use only and not for use in the diagnosis of disease or other conditions, including a determination of the state of health, in order to cure, mitigate, treat or prevent disease or its sequelae ("Diagnostic Purposes").

PRICES

The prices set forth in the Sales Agreement:

(i) are SSI's domestic prices based upon manufacture of the quality and type of Product(s) ordered for shipment to and end use within the United States and Canada only - all Products shipped for end use outside the United States and Canada shall be subject to SSI's international pricing; (ii) are subject to revision when interruption, engineering changes or changes in quantity or quality a re-caused or requested by Buyer; and (iii) unless otherwise specified, do not include warranty service or installation outside the United States and Canada. Errors in Product pricing or related terms by SSI which may, in SSI's sole discretion, be deemed clerical errors are subject to correction by SSI at any time.

SPECIFICATIONS

Weights and dimensions set forth in Product related sales literature ("Sales Literature") are not guaranteed unless previously certified in writing. SSI may, without affecting the obligations under the Sales Agreement, make what SSI regards in its sole discretion as minor changes to the specifications of the Product or Products delivered under the Sales Agreement from those contained in Sales Literature.

TERMS OF PRODUCT USE

Buyer represents and warrants that the Products have not been purchased for Diagnostic Purposes and that the Buyer will not at any time use the Products for Diagnostic Purposes. The Buyer acknowledges that use of the Product for Diagnostic

Purposes is cause for Termination of this Agreement, as set forth in the "Contingencies; Force Majeure" section below.

TERMS OF PAYMENT

Subject to credit approval by SSI, terms of payment on the Sales Agreement are net thirty (30) days from date of the invoice unless otherwise specifically stated on the invoice. Invoices are payable at par on date due at any place of collection designated by SSI in funds bankable at par. Payment made beyond terms will be subject to simple interest of 1 -1/2% per month on the outstanding balance. All orders are accepted and SSI's obligation to make deliveries are subject to SSI's right to either: (i) require Buyer to make payment of all or any part of the purchase price in advance of delivery of Product(s), or (ii) make shipment of Product(s) to Buyer payable C.O.D.

If Buyer fails to make advance payment when requested to do so by SSI or if Buyer is or becomes delinquent in the payment of any sum of any kind due SSI or refuses to accept C.O.D. shipments (whether or not arising out of the Sales Agreement), then SSI shall have the right, in addition to any other remedy to which it may be entitled in law or in equity, to cancel the Sales Agreement, refuse to make further deliveries, and declare immediately due and payable all unpaid amounts for Products and services previously delivered to or performed for Buyer. Each shipment shall be considered a separate and independent transaction and payment therefor shall be made accordingly. Buyer must notify SSI within fifteen (15) days from the invoice date if Buyer has not received the Product(s).

REPOSSESSION

In the event of nonpayment, either of the entire purchase price or a portion thereof, Buyer expressly consents to the right of SSI to reclaim by repossession of any and all Products delivered to Buyer pursuant to the Sales Agreement for which payment has not been made within (90) days of invoice. In the event that SSI elects to exercise its right to reclaim Products by repossessing the same, said election shall be deemed to be in the alternative and not to the exclusion of any other remedy to which SSI may be entitled, at law or in equity. To the extent that SSI successfully reclaims Products, it shall credit Buyer's account for the value of the same, as determined by SSI in its sole discretion. No Products may be reclaimed by repossession unless and until Buyer is provided with prior notice of SSI's intention to elect such remedy. Such notice shall state the date, time and location that Products shall be available for repossession. Such notice shall also provide Buyer with a final opportunity to cure the default of nonpayment within five (5) days of notice to avoid the execution of the remedy of repossession. The costs of repossession, including legal fees and costs of collection, shall be added to Buyer's account.

SECURITY INTEREST

In addition to any other remedies hereunder or otherwise provided at law or in equity, SSI shall have the right, and Buyer hereby grants SSI the right, without further notice to or consent from Buyer, to secure any and all payment obligations of Buyer by recordation of a security interest in the Products that are the subject of the Sales Agreement. Said security interest shall be in the form of a UCC Financing Statement (UCC Form 1) or other form prescribed by contract or applicable law. No UCC Financing Statement recorded for the benefit of SSI will be released unless and until all financial obligations to SSI incurred by Buyer with respect to the Products have been fully satisfied.

SHIPMENTS

(i) The cost of packaging for domestic shipments is included in the quoted price unless otherwise provided. For international shipments or where special packaging is specified or necessary, a charge will be made to cover such expense. (ii) For shipments to and from places within the United States, all shipments, unless otherwise agreed in writing, shall be FOB point of shipment and title and risk of loss or damage shall pass to Buyer at the point of shipment. The cost of transportation and insurance (if requested by Buyer) shall be borne by Buyer. (iii) For shipments from the United States to ports and or places outside the United States all shipments are, unless otherwise agreed in writing, FOB Columbia, MD. SSI's obligation to affect shipment of the Products purchased by Buyer shall be fully discharged, and beneficial ownership, legal title and all risk of loss or damage shall pass to Buyer when the Products are made available for shipment to a carrier at the designated FOB location. If shipped FOB Destination, upon arrival Buyer shall be entitled to conduct a reasonable investigation of the Products purchased by it, but all claims for losses due to loss or damage to Products while in transit shall be waived unless made immediately in writing by Buyer to SSI, but not more than (30) thirty days after arrival. If Buyer shall fail or refuse to accept delivery of any of the Products for unverifiable claims for loss or damage to Products occurring while in transit, all sums paid on deposit shall be retained by SSI as liquidated damages, provided, however, that SSI may recover in full its actual damage from Buyer in the event that actual damages exceed the amount retained as liquidated damages. (iv) All claims for damage or loss of insured shipments shall be immediately communicated, when possible, to SSI at

Shimadzu Scientific Instruments, Inc. 7102 Riverwood Drive, Columbia, Maryland 21046-2502 Attn: Customer Service Phone: (410) 381-1227.

Buyer shall immediately notify delivering carrier of loss or damage to the shipment and SSI will cooperate with Buyer in the adjustment of all claims. Buyer agrees to permit SSI or SSI's representative to inspect damaged Products.

TERMINATION

Upon any termination or cancellation of the Sales Agreement by Buyer (if otherwise specifically permitted by the terms of the Sales Agreement), either in whole or in part, Buyer agrees to promptly pay appropriate termination or cancellation charges invoiced by SSI. At SSI's sole discretion, the termination charge shall be not less than twenty percent (20%) of the total amount of the Sales Agreement.

RETURNED PRODUCTS

All returns must be pre-authorized by SSI and a Return Goods Authorization ("RGA") number must appear on the face of the package. Returned Products will be subject to a restocking charge. If deemed appropriate at SSI's sole discretion, the restocking charge shall be not less than twenty percent (20%) of the total amount of the Sales Agreement.

ALLOCATION OF PRODUCTS

If SSI is unable for any reason to supply the total demands for Products specified in Buyer's order, SSI may allocate its viable supply among any or all buyers, including Buyer, on such basis as SSI may deem fair and practical, without liability for any failure of performance which may result therefrom.

DELIVERY

The scheduled shipping or delivery date shown on the face hereof is SSI's best estimate of the time the Product order will be shipped and SSI assumes no liability for loss, general damages, or special or consequential damages due to delays.

TAXES AND OTHER CHARGES

All taxes on Products, goods and/or services sold under the Sales Agreement, including but not limited to federal, state and local excise, sales or use taxes, shall be borne solely by Buyer. Buyer shall be obligated to pay all taxes set forth on invoices, in accordance with the terms of payment, provided that SSI shall not invoice taxes when within 30 days of placing the order. Buyer has furnished SSI with written proof of exemption from tax in the form of a certificate of exemption or an equivalent document which Buyer represents and warrants is properly completed and validly executed. If, notwithstanding the foregoing, any taxing authority attempts to assess taxes, Buyer shall indemnify and hold harmless SSI from any loss, damage, claim or cause of action, including, but not limited to, tax, interest, penalties and professional fees, related to such attempted assessment and shall make payment to SSI for any such costs paid by SSI and invoiced to Buyer in accordance with the terms of payment.

PATENTS

SSI shall defend any suit or proceeding brought against Buyer so far as based upon an assertion that any Product furnished under the Sales Agreement constitutes a direct infringement of any United States patent having a claim of claims covering solely the Product itself, if notified promptly in writing and given authority, information and assistance (at SSI's expense) for the defense of same, and SSI shall pay all damages and costs awarded therein against Buyer. In the event said Product in such suit is held to constitute infringement and the use of said Product is enjoined, SSI shall, at its own option and at its own expense, either:

(i) procure for Buyer the right to continue using said Product, (ii) replace the same with a non-infringing Product, (iii) modify it so it becomes non-infringing, or (iv) remove said Product and refund the purchase price and transportation costs thereof. The foregoing obligations of SSI shall not apply to any infringement claim based upon: (i) any use of any Product sold hereunder in any process or in conjunction with any other product, (ii) any Product manufactured to Buyer's design or any Product having a design arising from SSI's compliance with Buyer's specifications; or (iii) use of any Product sold hereunder, if the Product has been modified or customized by Buyer.

The foregoing sets forth the entire liability of SSI for patent infringement by said Product. If any suit or proceeding is brought against SSI based on claims that the goods manufactured by SSI in compliance with Buyer's specifications and supplied to Buyer directly infringe any fully issued United States patent, then the patent indemnity obligations herein stated with respect to SSI shall reciprocally apply with respect to Buyer.

WARRANTY

Subject to the exceptions and upon the conditions stated below, SSI warrants that the Products sold under the Sales Agreement shall be free from defects in workmanship and materials for one year after shipment of the Products to the original Buyer by SSI (the "Warranty"), and if any such Products should prove to be defective within such one year period, SSI's sole liability (and Buyer's sole and exclusive remedy) shall be, at its option, either (i) to correct by repair or, at SSI election, by replacement with equivalent product any such defective Product, provided that investigation and factory inspection discloses that such defect developed under normal and proper use, or (ii) to refund the purchase price. The exceptions and conditions mentioned above are as follows: (i) Components or accessories manufactured by SSI which by their nature are not intended to and will not function for one year are warranted only to give reasonable service for a reasonable time; what constitutes reasonable time and reasonable service shall be determined solely by SSI. A complete list of such components and accessories is maintained at the factory; (ii) SSI makes no warranty with respect to components or accessories not manufactured by it, in the event of defect in any such component or accessory SSI will give reasonable assistance to Buyer in obtaining from the respective manufacturer whatever adjustment is authorized by the manufacturer's own warranty;

(iii) any Product claimed to be defective must, if required by SSI, be returned to the factory, transportation charges prepaid, and will be returned to Buyer with transportation charges collect unless the Product is found to be defective, in which case SSI will pay all transportation charges; (iv) if the Product is a reagent or the like, it is warranted only to conform to the quantity and content and for the period (but not in excess of one year) stated on the label at the time of delivery; (vi) SSI may from time to time produce a special printed warranty with respect to a certain Product, and where applicable, such warranty shall be deemed incorporated herein by reference;

(vii) SSI shall be released from all obligations under all warranties, whether expressed or implied, if any Product covered hereby is repaired or modified by persons other than its own authorized service personnel unless such repair by others is made with the written consent of SSI; and (viii) SSI's obligations pursuant to all warranties, either express or implied, shall be expressly conditioned upon payment in full by Buyer for the Products covered by the warranties. In the event of non-payment, whether for the entire purchase price or a part thereof, SSI shall be released from all obligations under all warranties, either express or implied.

IT IS EXPRESSLY AGREED THAT THIS WARRANTY SHALL BE IN LIEU OF ALL WARRANTIES OR WARRANTY OF ANY NATURE WHATSOEVER, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF FITNESS AND MERCHANTABILITY, AND THAT NEITHER BUYER NOR SSI SHALL HAVE ANY LIABILITY FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR CAUSE WHATSOEVER, INCLUDING, BUT NOT LIMITED TO LOSS OF USE, LOSS OF DATA, LOSS OF PRODUCTIVITY, LOSS OF BUSINESS, LOSS OF PROFIT, LOSS OF PLANT, EQUIPMENT OR PRODUCTION. THE LIMITATION OF LIABILITY FOR SUCH DAMAGES SHALL BE APPLICABLE EVEN IF SSI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING OUT OF THE MANUFACTURE, USE, SALE, HANDLING, REPAIR, MAINTENANCE OR REPLACEMENT OF ANY OF THE PRODUCTS SOLD UNDER THE SALES AGREEMENT.

If an SSI Special Warranty (covering a designated item or items) is contained in the manual or is otherwise shipped with such designated item or items, the terms and conditions specified therein are incorporated herein by reference and shall supplement the foregoing warranty. In the event of a conflict between the terms and conditions specified herein and those specified in such Special Warranty, the terms and conditions specified herein shall control. SSI's warranties made in connection with this sale shall not be effective if SSI has determined, in its sole discretion, that Buyer has misused the Products in any manner, has failed to use the Products in accordance with industry standards and practices, or has failed to use the Products in accordance with instructions, if any, furnished by SSI.

Representations and warranties made by any person, including dealers and representatives of SSI, which are inconsistent or in conflict with the terms of this warranty, shall not be binding upon SSI unless expressly assumed in a writing that is approved and signed by an authorized officer of SSI. By signing the Sales Agreement, the Buyer specifically acknowledges that no representations or warranties were made by any person, including dealers and representatives of SSI, that the Product may be used for Diagnostic Purposes.

CONTINGENCIES; FORCE MAJEURE

SSI shall be entitled to cancel or rescind the Sales Agreement, without liability for loss or damage resulting therefrom, if: (i) any Product covered by the Sales Agreement is purchased for end use outside the United States or Canada; (ii) the Buyer breaches any of its representations or warranties found in this Agreement; or (iii) the performance of SSI's obligations under the Sales Agreement is in any way adversely affected by the occurrence of any contingency beyond the control of either SSI or SSI's suppliers, including but not limited to: (a) war (whether an actual declaration thereof is made or not), sabotage, insurrection, riot, act of a public enemy, or other act of civil disobedience; (b) failure or delay in transportation; (c) act of any government, government agency or subdivision of any government, or any judicial action affecting the terms of the Sales Agreement; (d) labor dispute, shortage of labor, fuel, raw material or technical or yield failure where SSI has exercised ordinary care in the prevention thereof; and (e) accident, fire, explosion, flood, storm or other act of God.

U.S. GOVERNMENT CONTRACTS

If the Products to be furnished under the Sales Agreement are to be used in the performance of a U.S. Government contract or subcontract, and a U.S. Government contract number shall appear on Buyer's order, those clauses of the applicable U.S. Government procurement regulations that are required to be included in U.S. Government contracts and subcontracts shall be incorporated herein by reference, including, without limitation, the Federal Acquisition Regulations and the Fair Labor Standards Act of 1938, as amended.

INDEMNIFICATION: Buyer shall at its own expense apply for and obtain any permits and inspections required for the installation and/or use of the Products. SSI makes no promise or representation that the Products or related services will conform to any federal, state or local laws, ordinances, regulations, codes or standards, except as particularly specified and agreed upon in writing by an authorized representative of SSI. SSI's Products are not for use in or with any nuclear facility unless specifically so stated by SSI in writing. SSI's Products are not for use for Diagnostic Purposes. SSI shall not be responsible for any losses or damages sustained by Buyer or any other person as a result of improper installation or misapplication of the Products. Buyer shall defend, indemnify and hold harmless SSI and its agents and employees against any loss, damage, claim, suit, liability, judgment or expense (including, without limitation, attorney's fees) arising out of or in connection with any injury, disease or death of persons (including, without limitation, Buyer's employees and agents) or damage to or loss of any property or the environment, or violation of any applicable laws or regulations resulting from or in connection with the sale, transportation, installation, use, or repair of the Products by Buyer or of the information, designs, services or other work supplied to Buyer, whether caused by the concurrent and/or contributory negligence of Buyer, SSI, or any of their agents, employees or suppliers. The obligations, indemnities and covenants contained in this paragraph shall survive the consummation or termination of this transaction.

CONFIDENTIAL INFORMATION

Except as required by law, neither party shall use (except for purposes connected with the performance of its obligations hereunder), divulge or communicate to any third party any information of the other it reasonably knows to be confidential.

FDA REQUIREMENTS

If any Product sold by SSI to Buyer is subject to regulation by the Food and Drug Administration as a device, then as to any such Product, sale and delivery is contingent upon successful completion and processing of a 510(k) notice. If such a 510(k) notice cannot be obtained by SSI, SSI shall have no obligation to deliver the Product.

COMPLIANCE WITH LAWS

Buyer agrees to comply fully with all federal, state, county and local laws, rules and regulations concerning the purchase, sale and use of Products. Without limiting the foregoing, Buyer agrees to comply with any the Export Administration Regulations; Federal Food, Drug & Cosmetics Act; the International Traffic In Arms Regulations of the United States; and the Foreign Corrupt Practices Act of the United States in so far as they apply to the sale of Products. To the extent the Products require license for export, the Products are licensed by the United States for delivery to the ultimate destination as shown on the shipment/invoice address and any contrary diversion may be prohibited by law.

APPLICABLE LAW, JURISDICTION VENUE

The Sales Agreement is made and entered into, and shall be governed, enforced and interpreted in accordance with the laws of the State of Maryland. The Buyer hereby expressly consents to the jurisdiction of the courts of the State of Maryland with regard to all issues and questions of law or fact pertaining to the Sales Agreement. In the event that either party commences litigation to enforce the Sales Agreement, said litigation shall be brought in the courts of Howard County, Maryland. The prevailing party to any such action shall be entitled to an award of all costs and attorney's fees actually incurred.

GENERAL PROVISIONS

The rights and obligations under these General Terms and Conditions of Sale will inure to the benefit of, and be binding upon the parties hereto and their respective heirs, administrators, executors, personal representatives, successors and permitted assigns. No action, failure of action or delay by either party will constitute a waiver of any of its rights or remedies under these General Terms and Conditions of Sale. SSI and Buyer are not, and will not be, joint venturers, partners, agents, servants, or employees or fiduciaries of the other, and do not have the power to bind or obligate the other. The waiver of a breach of any provision does not constitute a waiver of a subsequent breach of the same or different provision. If any of the terms of these General Terms and Conditions of Sale or the Sales Agreement are subsequently or are now illegal, they will be severed without affecting the remaining terms. The section headings are for reference only and will not be considered controlling as to the content and/or interpretation of any section.

ENTIRE AGREEMENT

These General Terms and Conditions of Sale, together with the Sales Agreement, and any attachments, exhibits and supplements specifically referred to in the Sales Agreement, are intended by the parties as a complete and exclusive statement of the terms of their agreement, and supersede all prior agreements, written or oral. No course of prior dealings between the parties and no usage of the trade may be used by Buyer to supplement or explain any term used herein.

END GENERAL TERMS AND CONDITIONS OF SALE

This document contains the number of pages indicated, including all attachments. Authorized signature required on quotation pages

SSI-61098-6M60 Rev. 0

Authorization Signature

ESTIMATE ONLY

Date: 8/14/2013