



SOLE SOURCE CERTIFICATE AND POSTING NOTICE

In accordance with the authority granted under applicable Florida Law and Regulation UCF-7.130, the following documentation is submitted in support of this request to purchase the product(s) and/or service(s) listed below without first issuing a call for bids or proposals.

Explanation and Instructions **For Completion of a Sole Source Certificate**

The following points must be covered in detail in the certification: Answers to questions 1-3 can be found on page 4 & 5

1. Describe the product(s) and/or service(s) and anticipated use thereof in layman's language.
2. (A) State in detail why only this and no other product(s)/service(s) will satisfy the department's requirements.

(B) State why the product(s) and/or service(s) are available from only one source and how that determination was made. Explain the research conducted to support this claim.

(C) Provide an explanation to support the belief that the price is fair and reasonable.
3. Attach additional pages, as necessary, to document why acquisition of these product(s) and/or service(s) or construction service(s) cannot be procured via open competition.

The purchase requisition can be entered into the UCF Financials at any point during the process set forth herein; however, doing so does not ensure approval of the sole source.

4. The completed sole source must be approved in the following order:
 - UCF Department head (e.g. director or chair)
 - UCF College Dean or Division Vice President
 - Procurement Professional (Buyer)
 - UCF Purchasing Director or designee, who will review and provide a recommendation to approve or disapprove the sole source to:
 - Vice President for Administration and Finance and Chief Financial Officer, who will either directly approve or disapprove the sole source or, forward it to the Provost and Executive Vice President for input prior to making the final decision.
5. Contingent upon the approval of all the offices/individuals listed under paragraph 4 above, the sole source shall be posted on the Purchasing Department's bulletin board for seventy-two (72) business hours. Upon expiration of said posting period, Purchasing will process a purchase order upon receipt of the requisition.

The usual bidding process shall be conducted if sole source approval is not granted.

PART I: DEPARTMENT AND VENDOR INFORMATIONDepartment Name: Florida Space InstituteContact & Phone: Sarah Schermer/ (407) 823-6399

Purchase Request No.: _____

Item/Service Cost: \$221,500Company Name: Photothermal Spectroscopy CorpEmail: jay@photothermal.comContact Person: Jay AndersonTitle: Director of Sales for the AmericasProduct and/or Service: Infrared spectrometerTelephone: +1 (410)739-2901 Facsimile: _____Address: 325 Chapala St City: Santa BarbaraState and Zip: CA, 93101**PART II: SOLE SOURCE JUSTIFICATION****All of the below listed points MUST be fully answered on a separate sheet, which MUST be attached to this form.**

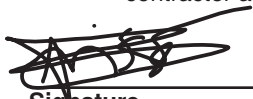
1. Describe the product(s) and/or service(s) and anticipated use thereof in layman's language.
2. (A) State in detail why only this and no other product(s)/service(s) will satisfy the department's requirements.

(B) State why the product(s) and/or service(s) are available from only one source and how that determination was made. Explain the research conducted to support this claim.

(C) Provide an explanation to support the belief that the price is fair and reasonable.

PART III: SOLE SOURCE CERTIFICATIONS

- A. I, the undersigned, certify the justification in Part II to be true to the best of my knowledge and belief.
- B. I, the undersigned, certify that I and/or the user do not have a financial interest in the above named vendor or contractor and that I am unaware of any conflict of interest related to this purchase.


SignatureJulie Brisset
Printed Name and Title (Director or Chair)09/21/2022
Date

I, the undersigned hereby concur with the above justification and authorize the acquisition of the above product(s) and/or service(s) on a sole source basis.

Elizabeth A. Klonoff
Digitally signed by Elizabeth A. Klonoff
Date: 2022.10.03 13:48:59 -04'00'

SignatureElizabeth Klonoff
Printed Name and Title (President/Vice President/Dean)
(Delegations not allowed; email from absent approvers acceptable)10/03/2022
Date

I, the undersigned hereby concur with the above justification and support a sole source approval for the above product(s) and/or service(s).

See below email for approval

Signature

Printed Name and Title (Procurement Specialist)

Date

I, the undersigned hereby concur with the above justification and authorize the acquisition of the above product(s) and/or service(s) on a sole source basis.

See below email for approval

Signature

Printed Name and Title (Purchasing Director/Designee)

Date

I, the undersigned hereby concur with the above justification and authorize the acquisition of the above product(s) and/or service(s) on a sole source basis.

See below email for approval

Signature

Printed Name and Title
(Vice President of Administration and Finance
and Chief Financial Officer)

Date

POSTING NOTICE

11/18/22 11:00 am EST

Date/Time Posted

11/21/22 11:00am EST

Posting End Date

2309

UCF Control No.

Trinh Nguyen

Purchasing Specialist



Accelerating Space Research and Education in Florida

To: Our Procurement Specialist and Budget Director

From: Julie Brisset, PI

Re: Sole Source Justification for the procurement of an optical photothermal infrared spectrometer from Photothermal Spectroscopy Inc.

Date: 09/20/2022

1. Describe the product(s) and/or service(s) and anticipated use thereof in layman's language.

The instrument to be procured is an infrared spectrometer of a new kind based on the optical photothermal effect. The concept of operation of this instrument consists in shining an infrared laser on a (very focused area of a) sample, which expands according to its composition. An optical laser is then used to measure this expansion, which allows to determine the chemical composition of the studied sample area.

The goal of our project is to adapt this instrument technique for planetary science applications, i.e. future space missions. NASA funds us to set up the instrument in our laboratory, then, step-by-step, replacing its core components with smaller, lighter versions, ultimately significantly reducing the size and mass of the instrument. At each step, we will also evaluate the trades associated with the replacement components. At the end of the three-year project, we are expected to deliver a space instrument laboratory prototype to NASA based on the the instrument procured here.

2. (A) State in detail why only this and no other product(s)/service(s) will satisfy the department's requirements.

Our NASA-funded project heavily relies on the unique technology we are purchasing here. The optical photothermal infrared technique has several advantages over conventional infrared spectroscopy, including (1) no complex sample preparation is needed (usually, thin cuts have to be created and polished, a very tedious and time-consuming process); (2) the spatial resolution of the composition determination is not limited by diffraction anymore, only by the size of the infrared laser beam (meaning we will be able to determine composition variation at the sub-micron scale, where conventional infrared spectroscopy is only reaching tens of microns); and (3) no hardware cooling to reduce infrared noise is required (conventional techniques pick-up the blackbody radiation of their own parts, which is usually in the infrared). No other current infrared spectroscopy technique can provide the same advantages for space applications.



Accelerating Space Research and Education in Florida

(B) State why the product(s) and/or service(s) are available from only one source and how that determination was made. Explain the research conducted to support this claim.

The project, now funded by NASA, was developed in close collaboration with Photothermal Spectroscopy (PSC) Inc., the company we are procuring the instrument from. Given the novelty of the technique, there are nationally only two companies providing this type of instrument, and only one (PSC) has the in-house expertise to support our three-year instrument modification plan. The search for a project partner started several years ago, during proposal development. The collaboration with PSC was then decided based on their expertise, and they were named as Co-Investigators of the project when submitted for competitive NASA funding. Upon selection of our project, NASA now expects that we procure the base instrument from PSC, and work with them over the next three years on adapting it to spaceflight.

(C) Provide an explanation to support the belief that the price is fair and reasonable.

The price of the instrument follows a budget that was prepared during the proposal stage of the project. By selecting us for funding, NASA itself deemed the price reasonable as part of our total project budget. For this reason, we also believe the price of the instrument is fair and reasonable.

Dr. Julie Brisset, Principal Investigator, Florida Space Institute

A handwritten signature in black ink, appearing to read "Julie Brisset", is written over a horizontal line.

Signature

From: [Gerald Hector](#)
To: [Joel Levenson](#)
Cc: [Nellie Nido](#); [Trinh Nguyen](#); [Brian Sargent](#)
Subject: Re: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.
Date: Thursday, November 17, 2022 12:01:45 PM
Attachments: [image001.png](#)
[image002.png](#)

Joel:

I approve of this sole source request.

Regards,

Gerald.

From: Joel Levenson <Joel.Levenson@ucf.edu>
Sent: Wednesday, November 16, 2022 5:17 PM
To: Gerald Hector <Gerald.Hector@ucf.edu>
Cc: Nellie Nido <nellie.nido@ucf.edu>; Trinh Nguyen <Trinh.Nguyen@ucf.edu>; Brian Sargent <Brian.Sargent@ucf.edu>
Subject: FW: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Gerald,

I approve of this sole source award as well. Although the equipment and services are not specified in the grant award, they were contemplated while developing the grant in conjunction with NASA. Research into competitors, which is required as the supplier was not mentioned in the award document shows that the only other company identified could not meet the modification needs required by the grant. Specifications of the equipment and the services to be provided are in line with the grant contemplation and as stated with the supplier being a co-PI.

Upon your review, if you agree, reply all and indicate as such. If you have further questions, we're here to help.

From: Nellie Nido <nellie.nido@ucf.edu>
Sent: Wednesday, November 16, 2022 11:39 AM
To: Joel Levenson <Joel.Levenson@ucf.edu>
Cc: Trinh Nguyen <Trinh.Nguyen@ucf.edu>; Brian Sargent <Brian.Sargent@ucf.edu>
Subject: FW: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Joel

I support approving this sole source request.

Please see below and let me know if you have any questions.

Thanks
Nellie

From: Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Sent: Wednesday, November 16, 2022 8:49 AM
To: Nellie Nido <nellie.nido@ucf.edu>; Brian Sargent <Brian.Sargent@ucf.edu>
Subject: RE: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Nellie,

I agree it would make more sense if the equipment was included in the subaward. The PSC equipment was proposed in their grant proposal to NASA but the actual award did not list the equipment by name and supplier and just itemized it as direct costs – equipment with the total cost for the PCS equipment.

Trinh

From: Nellie Nido <nellie.nido@ucf.edu>
Sent: Tuesday, November 15, 2022 4:05 PM
To: Trinh Nguyen <Trinh.Nguyen@ucf.edu>; Brian Sargent <Brian.Sargent@ucf.edu>
Subject: RE: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Trinh

Interesting that the subaward is for the service from PSC but doesn't include the product? Almost wish we could use proprietary exemption in reverse?

From: Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Sent: Tuesday, November 15, 2022 10:20 AM
To: Nellie Nido <nellie.nido@ucf.edu>; Brian Sargent <Brian.Sargent@ucf.edu>
Subject: FW: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Nellie and Brian,

Can one of you please review the below SS. I have reviewed it and can support it with the following reasons.

Vendor: Photothermal Spectroscopy Corp (PSC)
Product: Infrared Spectrometer
Total Amount: \$221,500
Dept: Florida Space Institute

Requirement: The department needs to purchase an optical infrared spectrometer with the below instrument technique requirements for their NASA funded project. The goal is to adapt this instrument technique for planetary science applications by ultimately reducing the size and mass of

the instrument significantly.

- No complex sample preparation is needed with instrument.
- Ability to determine composition variation at the sub-micron scale.
- No hardware cooling to reduce infrared noise is required.

Research Conducted: The PI noted that the purchase of the above instrument must be with PSC due to the supplier is a subaward for the NASA award. The collaboration with this supplier was developed several years ago based on their expertise on software development and hardware miniaturization. A PCS personnel is named as Co-Investigator for the project submitted to NASA for funding. NASA now expects the base instrument is from PSC and to collaborate with the supplier over the next three years on adapting the instrument technique to spaceflight. It was noted that there are only two companies nationally, PCS and Neaspec, that can provide this type of instrument, but only PSC has the in-house expertise to support the team's three-year instrument modification plan. Procuring an equipment from another vendor will not fulfill the tasks for the PSC subaward scope of work due to the difference in hardware, software, and technology along with the cost and time it will take for the team to learn a completely new instrument.

Price is fair and reasonable: It was noted that the price of the instrument follows a budget that was prepared during the proposal stage of the project. NASA deemed the price reasonable as part of the total project budget. For this reason, the team believe the price of the instrument is fair and reasonable.

Thanks,
Trinh

From: Mildred Rodriguez-Solivan <mildred.rodriguez@ucf.edu>
Sent: Monday, November 14, 2022 12:59 PM
To: Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Cc: Lori Desouza <Lori.Desouza@ucf.edu>; Julie Brisset <Julie.Brisset@ucf.edu>
Subject: RE: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Trinh,

As discussed during our call. This is for AWD 00005093. The only other company is Neaspec, which is a German company but with a sales office in the USA.

PSC is a subaward for this award. Our submitted proposal included them as a subaward, and the procurement of the equipment through UCF but from PSC.

This company will be carrying out programmatic activities with the equipment as proposed in the proposal. Among the company's scope is the servicing of such equipment and some technical roles which are funded via subaward agreement. Procuring the equipment from another vendor may affect the subaward's ability to fulfill their scope of work, due to the difference in hardware and technology.

Although the award document does not mention PSC, the document does reference the proposed amounts, and does require the project to obtain prior approval to change any of the proposed scope.

See the first and the last items on the table below. Departing from the proposed scope of work would force us to request approval from NASA.

**SPECIAL CONDITIONS
RESEARCH TERMS AND CONDITIONS (RTC)**

For additional information, go to <https://www.nsf.gov/awards/managing/rtc.jsp> (the National Science Foundation hosts the Federal RTC website).

	Reference	RTC Overlay	NASA
Prior Written Approval (prior approval).	200.407		
Use of grant agreements (including fixed amount awards), cooperative agreements, and contracts	200.407(a)		
Changes in principal investigator (PI), project leader, project partner, or scope of effort.	200.201(b)(5)	Required	Required
Cost sharing or matching	200.407(b)		
Use of unrecovered indirect costs, including indirect costs on cost sharing or matching.	200.306(c)	Waived	Waived
Use of current fair market value to determine the value of non-Federal entity donations of services and property for the purposes of cost sharing or matching.	200.306(d)(2)	Waived	Required
Costs of the fair market value of equipment or other capital assets and fair rental charges for land when the Federal award supports activities that require use of equipment, buildings or land.	200.306(h)(2)	Required	Required
Program Income	200.407(c)		
Use of program income during the period of performance (additive method).	200.307(c)(2)	Waived	Waived ¹
Revision of budget and program plans	200.407(d)		
Change in the scope or the objective of the project or program.	200.308(c)(1)(i)	Required	Required

See equipment line below, as quoted on the proposal from PSC. Subaward funds are within the "other direct costs" line.



NASA Grant and Cooperative Agreement

ITEM NO. (A)	ITEM OR SERVICE (Include Specifications and Special Instructions) (B)	QUANTITY (C)	UNIT (D)	ESTIMATED COST	
				UNIT PRICE (E)	AMOUNT (F)
	Direct Labor Costs: \$493,499.64				
	Direct Costs - Equipment: \$170,000.00				
	Direct Costs - Travel: \$6,458.00				
	Other Direct Costs: \$119,169.00				
	Indirect Costs: \$281,297.64				
	Indirect Rate(s): 52.0%				
	Total Costs: \$1,070,424.28				

Let me know if you need anything else.

Thanks,
Mildred

Mildred Rodriguez Solivan
Contracts and Grants Specialist
Pre and Post Award Manager
Florida Space Institute

University of Central Florida
(407) 823-6397
mildred.rodriguez@ucf.edu

From: Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Sent: Sunday, November 13, 2022 4:30 PM
To: Mildred Rodriguez-Solivan <mildred.rodriguez@ucf.edu>
Cc: Lori Desouza <Lori.Desouza@ucf.edu>
Subject: FW: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Mildred,

Below are the questions that I asked Julie to provide additional information. Let touch base on Monday sometime to discuss so I can get some clarification for my review.

Thanks,
Trinh

From: Trinh Nguyen
Sent: Tuesday, November 8, 2022 8:52 AM
To: Julie Brisset <Julie.Brisset@ucf.edu>; Lori Desouza <Lori.Desouza@ucf.edu>
Subject: RE: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Julie,

Thank you for the additional information below. You mentioned that there is a subaward with PSC outlining the tasks to be completed. Can you please forward me a copy of the subaward for review to see if this can be exempted with a grant award versus a sole source.

Thanks,
Trinh

From: Julie Brisset <Julie.Brisset@ucf.edu>
Sent: Monday, November 7, 2022 5:09 PM
To: Lori Desouza <Lori.Desouza@ucf.edu>; Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Subject: Re: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Trinh and Lori,

Please find below my answers:

1. The SS mentioned that there are only two companies nationally that can provide this type of instrument needed. Please provide the name of the second source and what requirements can't they meet that only PSC can provide.

In order for us to be able to complete the tasks proposed to NASA on this project, we require the company to provide adequate and focused support to the UCF team. In particular, expertise on software development and hardware miniaturization is required. These services are only available at PSC and on PSC hardware. For this reason, PSC personnel (Craig Prater in particular) is a Co-I on the investigation and we have a subaward with them to complete these tasks, in addition to an equipment line in the budget. No other company can support the work funded by NASA on this project.

2. It was mentioned that NASA expects the procurement of the base instrument from PSC. Was this particular product and supplier directed from NASA in the official award document by chance? If so, can you please provide the award document for review.

Cost reasonableness is one of the evaluation criteria of proposals submitted to NASA. For this reason, it is expected that investigators gather quotes during the proposal phase and include them in their project budget. This was done with PSC and the ORIGINS project was awarded with this company as a subawardee. Craig Prater from PSC is Co-I on the project, thus demonstrating the programmatic role of the company to the project. Any change of provider would require prior approval from NASA, showing that NASA expects the project to be conducted with PSC.

Thanks,
Julie

Dr. Julie Brisset
Interim Director
Florida Space Institute
University of Central Florida
(+1) 407-823-6168
julie.brisset@ucf.edu
<https://fsi.ucf.edu/>

From: Lori Desouza <Lori.Desouza@ucf.edu>
Sent: Thursday, November 3, 2022 7:37 AM
To: Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Cc: Julie Brisset <Julie.Brisset@ucf.edu>
Subject: RE: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Trinh
I am looping in Julie Brisset the PI.

Julie
I have attached the Sole Source and the Quote for the Spectroscopy System for reference.

Lori

From: Trinh Nguyen <Trinh.Nguyen@ucf.edu>
Sent: Wednesday, November 2, 2022 4:31 PM
To: Lori Desouza <Lori.Desouza@ucf.edu>
Subject: RQ-UCF-00006800 - SS Photothermal Spectroscopy Corp.

Hi Lori,

Hope all is well. I'm reviewing the above Sole Source and need some additional information from the PI please. Can you please have the below questions answered.

1. The SS mentioned that there are only two companies nationally that can provide this type of instrument needed. Please provide the name of the second source and what requirements can't they meet that only PSC can provide.
2. It was mentioned that NASA expects the procurement of the base instrument from PSC. Was this particular product and supplier directed from NASA in the official award document by chance? If so, can you please provide the award document for review.

Thanks,

Trinh Nguyen
Procurement Services
Knights Experience Team (kNEXT)
 407.823.5889
Trinh.Nguyen@ucf.edu

ucf.edu | kNEXT.ucf.edu | [Workday Help](#)

Please note: Florida has a very broad open records law (F.S. 119). Emails may be subject to public disclosure.

PHOTOTHERMAL SPECTROSCOPY <small>The sub-micron spectroscopy company</small>	325 Chapala Street Santa Barbara, CA 93101 Tel: (805) 845-6568 Fax: (805) 845-6578	Quote #: 2022-6168-Rev 3 Quote Date: 09-07-2022 Quote Validity Date: 60 Days
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Dr. Julie Brisset Florida Space Institute University of Central Florida (+1) 407-823-6168 julie.brisset@ucf.edu	Jay Anderson jay@photothermal.com 410-739-2901
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#	Description	Qty	Price
1	<p><i>mIRage IR base system</i> Model #: mIRage-IR-base</p> <p>Description: The mIRage IR microscope is the latest generation Infrared microscopy and spectroscopy platform from Photothermal Spectroscopy Corporation(PSC). The system uniquely provides sub-micron IR spectroscopy and imaging on a wide variety of sample types. mIRage incorporates a top-down IR sample Illumination scheme with a separate laser based detection system. The system can be connected to a variety of pulsed lasers.</p> <p>The mIRage system includes:</p> <ul style="list-style-type: none"> • Microscope Unit with Integrated optical microscope with Low/High Mag optics, 10X visible and 40X visible/IR objective • 532nm visible laser and detection system • Manual Sample stage • Computer workstation and system electronics • PSC software package for acquisition and control • Test Samples <p>mIRage includes the following key capabilities when connected to appropriate laser sources:</p> <ul style="list-style-type: none"> • Perform IR microscopy & spectroscopy in reflection mode • Export mIRage IR spectra to optional external IR databases for identification of unknown materials • Enables data collection, analysis and processing tools to improve visualization of data collected <p>Optional Spectroscopy features include:</p> <ul style="list-style-type: none"> • Transmission mode spectroscopy option – Contact PSC for details • Heating stage – Contact PSC for details <p>Requirements: Requires purchase of appropriate IR laser sources and suitable vibration isolation system VI-3648M table provided by Photothermal Spectroscopy Corporation(PSC). Photothermal Spectroscopy Corporation must be notified of any customer required safety related certifications prior to purchase order placement. Additional costs may be incurred for field certification.</p>	1	\$174,250

2	<i>mIRage QCL Laser MP</i> : Model #: LS-QCL-MP PSC Enhanced laser for dedicated interface to mIRage MP system <ul style="list-style-type: none"> • Provides IR spectral and imaging capability • Includes 2 Pulsed QCL lasers covering range of 1800 to 1100cm⁻¹ 	1	\$85,000
3	Laser Switch Model #: LS- QCL-OPO Required for the integration of system is equipped with QCL and OPO	1	\$13,000
4	<i>mIRage Automated Stage</i> Model Number: <i>mIRage</i> -MS <ul style="list-style-type: none"> • Motorized X-Y stage of 114mmx75mm (4.48in x 2.95in) • Single line array measurements 		\$19,250
5	<i>mIRage Hyperspectral Imaging</i> Model Number: <i>mIRage</i> -HSI <ul style="list-style-type: none"> • Perform IR imaging at fixed wavenumber of interest • Perform IR hyperspectral imaging used to collect a full spectrum of data for each pixel location • Ratio spectral images at user defined wavenumbers 		\$8,500
6	Installation and training 3 days installation and training Use PSC funds in Grant request of \$6,000 Notes: Photothermal Spectroscopy Corporation must be notified of any customer required safety related certifications prior to purchase order placement. Additional costs may be incurred for field certification.	1	N/C
	Shipping		\$1,500
	Subtotal		\$301,500
	Collaborative Discount		\$(80,000)
	Total		\$221,500
	Options		

INCOTERMS: DAP

50% Net 10 days upon Purchase Order Placement

50% Net 10 days upon shipment

Delivery: 16-18 weeks ARO depending on laser configuration

Please check with Photothermal Spectroscopy Corporation for Freight & shipping terms

Any Payment terms relating to acceptance need to be discussed with the Factory

Thank you for your business.

All sales are subject to the enclosed Photothermal Spectroscopy Corporation(PSC) terms and conditions of quotation and sale. Photothermal Spectroscopy Corporation shall not be bound by any conflicting or additional Terms and Conditions. Standard shipping dates are based on product availability at time of quotation and are subject to change without notice.

**** In light of the COVID-19 pandemic and future natural, created, or manmade disasters, Photothermal Spectroscopy Corporation reserves the right to closely review and assert further terms, conditions, and/or assumptions with respect to performance of any order resulting from this quote. Photothermal Spectroscopy Corporation continues to assess the risk impacts which may materially affect any performance requirements to this program, including cost and schedule impacts of our suppliers and personnel resources as a result of this or futures pandemics or disasters. Photothermal Spectroscopy Corporation expressly reserves the right to revise and update this quote as such impacts from the current pandemic materialize.****

Terms and Conditions:

Customer ("Buyer") and Photothermal Spectroscopy Corporation ("Seller") agree that the purchase and sales of PSC products ("the Products") and services and support (the "Services") are made under these terms and conditions, and that PSC shall not be bound by Customer's additional or different terms. Customer's order and purchase of the Products and Services shall constitute acceptance of these terms and conditions.

1. GENERAL. Orders are accepted by Seller subject to these terms and conditions. In case of a conflict, inconsistency or addition not expressly accepted in writing by Seller, the terms and conditions of sale provided herein shall be considered as superseding the conflicting, inconsistent or additional terms stated in Buyer's purchase order, order form, contract or otherwise. The acceptance of an order will supersede all prior communications and constitute a complete and binding contract between Buyer and Seller, which contract cannot be modified or canceled without the written agreement of both parties.

2. SHIPMENT. Seller shall attempt to comply with, but will not guarantee, shipping date and loading and routing instructions. Seller reserves the right to allow or prorate shipments against all orders whenever, in its judgment, an oversold condition exists as to any particular product manufactured or sold by it. In the event of a default by Buyer, Seller may decline to make further shipments without waiving any of its rights under such order. If, despite such default, Seller elects to continue to make shipment, its action shall not constitute a waiver regarding or otherwise diminish Seller's legal remedies with respect to such default or any future default.

3. TITLE AND DELIVERY. All sales are made FCA factory, Incoterms 2000 and Buyer shall pay all freight, duties, cartage and handling. Title and risk of loss or damage shall pass from Seller to Buyer upon Seller's putting the material purchased hereunder in good condition into the

possession of a common carrier, such carrier acting as Buyer's agent. All claims for damages must be filed with the carrier.

4. PRICES. Irrespective of any prices quoted by Seller or listed on Buyer's order, an order is accepted only at the prices shown on the written quotation. Installation of utilities required for equipment is not included in the specified price.

5. PAYMENT TERMS. Invoices are payable at the place set forth on the written quotation or the invoice. Any exchange charges, any charges for nonpar clearance of checks or collection charges (including reasonable attorneys fees) will be paid by Buyer. Any amounts not paid when due will bear interest at a rate of 18% per annum or, if lower, the maximum rate permissible by law. Terms of payment are subject to change by Seller. All orders are subject to credit approval by Seller. The amount of any credit extended by Seller to Buyer may be changed, and such credit may be withdrawn by Seller. With respect to an order on which credit is not extended by Seller or, if extended, is subsequently withdrawn, shipment or delivery shall be made, at Seller's election, Cash with Order (in whole or in part), C.O.D. or Sight Draft attached to Bill of Lading or other shipping documents, with all costs of collection (plus 18% interest on Sight Drafts not paid at maturity) for the account of Buyer. If, in the judgment of Seller, the financial condition of Buyer does not justify continuation of production or shipment on the terms of payment originally specified, Seller may require full or partial payment in advance. In the event any proceeding is brought by or against Buyer under any bankruptcy or insolvency laws, Seller shall be entitled, in addition to any other remedies at law or in equity, to (i) stop or divert any shipment in transit, (ii) cancel any order then outstanding and/or (iii) receive reimbursement for its cancellation charges. Each shipment shall be considered a separate independent transaction, and payment therefore shall be made accordingly. If for any reason Buyer is not prepared to accept delivery of goods, Seller may store the goods at Buyer's expense and risk in the name of Buyer, and such storage shall constitute shipment and delivery to Buyer.

6. TAXES. Quoted prices do not include federal, state or local excise, sales, use or similar taxes. Accordingly, in addition to the prices specified on the written quotation, the amount of any applicable excise, sales, use and/or similar taxes will appear as separate items on the invoice and will be paid by Buyer unless prior to shipment Seller receives an appropriate tax exemption certificate from Buyer.

7. FORCE MAJEURE. Seller shall not be liable for failure to perform occasioned by strikes, lockouts, labor difficulties, riots, inability or difficulty in obtaining or procuring supplies, labor or transportation, fires, storms, floods, earthquakes, explosions, accidents, acts of God, interference by civil or military authorities, whether legal or de facto, acts of the public enemy, war, rebellion, insurrection, sabotage, embargoes, orders given priority by any public authority or any other cause beyond the reasonable control of Seller.

8. PATENTS. If a third party claims that the purchased equipment infringes that party's patent or copyright, Seller will defend Buyer against that claim and will pay all costs, damages and attorney's fees that a court finally awards, provided that Buyer: (a) promptly notifies Seller in writing of the claim and (b) allows Seller to control, and cooperates with Seller in, the defense and any related settlement negotiations. If such a claim is made or appears likely, Seller, at its option, may obtain a license to enable Buyer to continue to use the product, may modify the product or may replace it with one that is functionally equivalent. If Seller determines that none of these alternatives is reasonably available, Buyer agrees to return the product to Seller upon Seller's written request, in which case Seller will credit Buyer with an amount equal to the price paid for such product less a reasonable amount for depreciation. Seller's liability is limited to

repair, replacement or adjustment as determined by Seller. Seller shall not be liable for any claim based on (i) anything Buyer provides which is incorporated into a product, (ii) Buyer's modification of a product or use thereof other than in its specified operating environment, or (iii) the combination, operation or use of a product with products provided by other manufacturers or other products not provided by Seller as a system. In no event will Seller's liability under this paragraph exceed the purchase price of the respective product. This is the exclusive warranty of Seller with respect to intellectual property matters and is in lieu of all other warranties, express or implied.

Sale of products or parts thereof does not confer on Buyer any license relating to (a) the structure of any devices to which the products or parts may be applied or (b) a process or machine in connection with which they may be used.

9. RESCHEDULING. If one rescheduling is requested, the charges shall be determined as follows and shall be due and payable within ten (10) days of the rescheduling.

Number of Weeks of Rescheduling Requested	Rescheduling Charge
Up to 4 Weeks	No Charge
5 to 12 Weeks	15% Purchase Price
13 to 26 Weeks	35% Purchase Price
27+ Weeks	Order considered canceled

More than one rescheduling of an order will be considered a cancellation of the order. Sixty-six percent (66%) of the rescheduling charge shall be applied against the purchase price if the order is subsequently shipped or against the cancellation charges if the order is subsequently canceled. On any order that is rescheduled and subsequently canceled, cancellation charges will be based upon the time between the originally scheduled delivery date and the date of notice of cancellation.

10. CANCELLATION. In the event of cancellation by Buyer of any order, Buyer shall pay Seller a cancellation and re-stocking charge based upon the timing of the cancellation notice as follows:

Cancellation Notice Given X Days Before Confirmed Shipment Date of Order	Cancellation Fee Equals the Following Percentage of Purchase Price
More than 90 days	35%
61 - 90 days	50%
31 - 60 days	75%
0 - 30 days	100%

Higher cancellation charges, up to the full value of the order, may apply in the case of special, custom or modified equipment.

11. ASSIGNMENT. Buyer shall not assign this order or any portion thereof without the prior

written consent of Seller.

12. WARRANTY. Seller warrants to the original Buyer that new equipment will be free of defects in material and workmanship for a period of 12 months commencing (i) on final acceptance or (ii) 20 calendar days from shipping, whichever occurs first. This warranty covers the cost of parts and labor (including, where applicable, field service labor and travel required to restore the equipment to normal operation).

Seller warrants to the original Buyer that replacement parts will be new or of equal functional quality and warranted for the remaining portion of the original warranty or 90 days, whichever is longer.

Seller warrants to the original Buyer that software will perform in substantial compliance with the written materials accompanying the software. Seller does not warrant uninterrupted or error-free operation.

Seller's obligation under these warranties is limited to repairing or replacing at Seller's option defective non-expendable parts or software. These services will be performed, at Seller's option, at either Seller's facility or Buyer's business location. For repairs performed at Seller's facility, Buyer must contact Seller in advance for authorization to return equipment and must follow Seller's shipping instructions. Freight charges and shipments to Seller are Buyer's responsibility. Seller will return the equipment to Buyer at Seller's expense. All parts used in making warranty repairs will be new or of equal functional quality.

The warranty obligation of Seller shall not extend to defects that do not impair service or to provide warranty service beyond normal business hours, Monday through Friday (excluding Seller holidays). No claim will be allowed for any defect unless Seller shall have received notice of the defect within thirty days following its discovery by Buyer. Also, no claim will be allowed for equipment damaged in shipment sold under standard terms of FCA factory, Incoterms 2000. Within thirty days of Buyer's receipt of equipment, Seller must receive notice of any defect which Buyer could have discovered by prompt inspection. Products shall be considered accepted 30 days following (a) installation, if Seller performs installation, or (b) shipment; unless written notice of rejection is provided to Seller within such 30-day period.

Expendable items, including, but not limited to, filters, lamps, , filaments, fuses,, O-rings and seals ARE SPECIFICALLY EXCLUDED FROM THE FOREGOING WARRANTIES AND ARE NOT WARRANTED. All used equipment is sold 'AS IS, WHERE IS,' WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED.

Specifically excluded from this warranty is all stand-alone computer and data storage equipment not manufactured by Seller (such as computers, monitors, printers and printer buffers). Such equipment will carry only the original manufacturer's warranty.

Seller assumes no liability under the above warranties for equipment or system failures resulting from (1) abuse, misuse, modification or mishandling; (2) damage due to forces external to the machine including, but not limited to, acts of God, flooding, power surges, power failures, defective electrical work, transportation, foreign equipment/attachments or Buyer-supplied replacement parts or utilities or services such as gas; (3) improper operation or maintenance or (4) failure to perform preventive maintenance in accordance with Seller's recommendations (including keeping an accurate log of preventive maintenance). In addition, this warranty does not apply if any equipment or part has been modified without the written permission of Seller or if any Seller serial number has been removed or defaced.

No one is authorized to extend or alter these warranties on Seller's behalf without the written authorization of Seller.

THE ABOVE WARRANTIES ARE EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTIES (INCLUDING THE WARRANTY OF MERCHANTABILITY), AND OF ANY OTHER OBLIGATION ON THE PART OF SELLER. SELLER DOES NOT WARRANT THAT ANY EQUIPMENT OR SYSTEM CAN BE USED FOR ANY PARTICULAR PURPOSE OR WITH ANY PARTICULAR PROCESS OTHER THAN THAT COVERED BY THE APPLICABLE PUBLISHED SPECIFICATIONS

13. NO CONSEQUENTIAL DAMAGES. LIMITATION OF LIABILITY. Seller shall not be liable for consequential damages, for anticipated or lost profits, incidental, indirect, special or punitive damages, loss of time, loss of use, or other losses, even if advised of the possibility of such damages, incurred by Buyer or any third party in connection with the equipment or services provided by Seller. In no event will Seller's liability in connection with the equipment or services provided by Seller exceed the amounts paid to Seller by Buyer hereunder.

14. NONSOLICITATION. Buyer agrees not to solicit the employment of any employee of Seller who has come into contact with Buyer in connection with the products and/or services provided to Buyer hereunder.

15. COMPLIANCE WITH LAWS. All quotations by Seller and all purchase orders are subject to compliance with all applicable laws, including, without limitation, the export control laws of the United States of America.

16. APPLICABLE LAW. The contract created hereby shall be interpreted and construed under the laws of the State of California, without regard to the choice of law provisions thereof and not including the U.N. Convention on Contracts for the International Sale of Goods, if otherwise applicable. Some jurisdictions do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitation or exclusion may not apply to Buyer. This warranty gives Buyer specific legal rights, and Buyer may have other rights which vary from jurisdiction to jurisdiction.