



भारतीय प्रौद्योगिकी संस्थान इन्दौर

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NIT No.: IITI(MM)/PH/PRJ/1/1A/38/SSE/2017-2018

August 01, 2017

### PREBID REPORT

Notice Inviting Tender for: Integrated High Resolution Raman Microscope with Accessories

The meeting for Pre-bid discussion and presentation was held at IIT-Indore on 26/07/2017 from 11.00 AM onwards. The report of the meeting is as below.

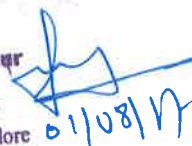
Sl. No.	Reference of the Clause/ Page No. of the Tender Document	Query raised by	Query/Clarification/Deviation sought	Clarification/ Response from IITI	Remarks
<b>TECHNICAL QUERIES &amp; RESPONSES</b>					
1.	Technical Bid Part- II d- Gratings	M/s. Laser Spectra Services India Pvt. Ltd., Bangalore	Please specify the number of grooves for the gratings. We offer 600, 1800, 1200 and 2400 grooves/mm. 2400 grooves/mm grating is used for UV Lasers	All FOUR (UV ready machine is required)	Modified
2.	Technical Bid Part- II r-Laser Power	Representative of M/s. Horiba France, SAS, Franc	The laser power we offer for 633nm He-Ne laser is 17mW	17nW is too low it must be in mW range if not 100mW	Modified
3.	Technical Bid Part- II u		A 50X Long Working Distance objective is required to use with temperature controlled stage.	Considered	Modified
4.	Technical Bid Part- II v	M/s. TechnoS Instruments, Jaipur	The company must have installed 25 equipment of similar specifications in reputed government organizations (academic/ research) in India" is restricting our well established Raman Spectrometer system to participate in the tender.	No relaxation on this	No Change
5.	Technical Bid Part- II g	M/s. Toshniwal Brothers (SR) Private Limited, New Delhi Representative of M/s. WITec GmbH, Germany	We don't use Neutral density filters for controlling laser power, however, the output intensity of all our lasers is controlled by a micrometer screw which enables the user to change the intensity continuously from 0 to the 100% therefore infinite level of control. The system offers both manual controls as standard and as an option control through software.	Provide ND filters	Clarification provided

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6.	Technical Bid Part- II o	M/s. Toshniwal Brothers (SR) Private Limited, New Delhi	<p>All our laser are fiber coupled to the microscope and spectrometer. A very high degree of alignment stability is achieved by fiber coupling between laser and microscope as well as microscope and spectrometer. In the WITec Raman system, every laser is coupled into a single mode fiber with 60-80% coupling efficiency. The single mode fiber only supports a Gaussian beam that can be focused to a diffraction limited spot (perfect point light source) and intervention to change in between wavelength and optics which makes the whole set up significantly more efficient. Resultant also is that we have minimal transmission loss when compared to a set up using multiple set of mirrors and allowing us to work with a much lower powdered lasers still giving us flexibility of having equivalent or higher power of the laser on the sample.</p> <ul style="list-style-type: none"> <li>• If still required we an offer 100mW lasers for all above mentioned wavelengths except 633nm.</li> <li>• Our standard laser source for 532nm excitation is 30mW o 75mW solid state DPSS laser; alternatively we can offer a 100mW solid state laser for the same wavelength</li> <li>• We have two different laser sources for 633nm excitation 35mW output power is He-Ne Laser which can provide good stability throughput and a 50mW output power is a solid state DPSS laser has a better life time and stability too.</li> <li>• Our standard laser source for 785nm excitation is 125mW output power solid state DPSS laser.</li> </ul> <p>Regarding cut-off filters, we have following options to offer for different laser lines. Also we can offer for different laser lines. Also we can offer the low cut-off filters as optional upgrades. Please specify if this is acceptable.</p> <ul style="list-style-type: none"> <li>• Standard cut-off filters: 532nm: starting at 95 cm<sup>-1</sup>, 633nm: starting at 80 cm<sup>-1</sup> and 785 nm: starting at 65 cm<sup>-1</sup></li> <li>• Rayline couplers can achieve 50 cm<sup>-1</sup> for all the above mentioned wavelengths</li> <li>• Raysheild couplers can achieve down to 10 cm<sup>-1</sup> for all the above mentioned wavelengths.</li> </ul> <p>Please confirm if you need Ultra low cut off filters with 10 cm<sup>-1</sup> for all three laser lines.</p>	<p><b>Laser powers are flexible but must be able to do micro as well as macro Raman measurement if desired by the user.</b></p> <p><b>No relaxation on 50cm-1 cut off for all three lasers. And at least one laser with 10cm-1 cut off with stokes and antistokes measurement</b></p> <p><b>&gt;50cm-1 cut off is not acceptable.</b></p>	Clarification provided
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7.	Technical Bid Part- II u	M/s. Toshniwal Brothers (SR) Private Limited, New Delhi Representative of M/s. WITec GmbH, Germany	Kindly clarify the necessity of helium temperature operation in heating and cooling stage. The mentioned temperature (-196 deg C to 600 deg C) can be achieved with liquid nitrogen temperature range and which can be fulfilled our standard stage. If required still then the Helium cooling stage can be offered as optional item	Liquid N2 will be acceptable	Modified
8.	Technical Bid Part- II g	Labindia Instruments Private Limited	Motorized neutral density filters offering 16 different power levels from 0.00005 to 100%.	Acceptable	No Change required
9.	Technical Bid Part- II m		We offer color Video camera	Acceptable with appropriate frames speed to capture good quality still images	No Change
10.	Technical Bid Part- II o		Automated encoder feedback controlled, XYZ mapping sample stage with joystick and software control, to allow scatter, line, and area mapping, and confocal depth profiling. Travel Range: 110mm x 70mm, step size 0.1µm in XY and 16nm in Z. Complete with Renishaw WiRE XYZ Stage and Mapping Control software and Renishaw WiRE FocusTrack software. Our Stage size is bigger with better step size, request to amend.	Acceptable	No change required
11.	Technical Bid Part- II p		No such arrangement available. Customer can place them directly under microscope. Request to Amend accordingly.	Company please make this arrangement.	No change
12.	Technical Bid Part- II r		532nm (100mW), 633nm (17mW), 785nm (300mW). cut off (10 cm-1) are available, we will demonstrate L- cysteine at 15 cm-1. We do not offer built in laser, as built in lasers are the source of heat and vibration and it will severe impact on resolution, effect system optimum performance and results. Hence all the lasers are mounted externally. <b>633nm 17mW</b> <b>785nm 300mW</b> Request to amend accordingly. All the laser are externally mounted, request to amend	Built in laser is not mandatory and laser power flexible	Modified
13.	Technical Bid Part- II x	M/s. Labindia Instruments Private Limited, Mumbai	Pls confirm make and model	Any appropriate	No Change

**Revised Technical Specification after incorporating the modification/clarification/additions is enclosed as part of this prebid report attached as Annexure- I.**

  
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## COMMERCIAL QUERIES & RESPONSES

14.	Note Page No. 4 Sl.No. 1	M/s. Labindia Instru ments Private Limited, Mumbai	Standard Warranty 1 Year, Extended Warranty do not cover Lasers, Optics and Third Party items. ➤ Laser Warranty is 3000 hours' usage or 12 months from date of shipment from UK, whichever occurs first. ➤ Optical Component are dependent upon environmental conditions, Hence One Year against manufacturing defect Third Party items one year from date of shipment	Discussed during pre- bid meeting	Standard onsite warranty of 1 year from the date of acceptance by IITI.  Source of supplies to be shared in the bid  Date of sourcing and order details shall be shared by the successful firm.  Extended warranty per year to be quoted separately
15.	Page No. 14 Sl. No. 3 Overheads		Our terms will are Ex-works Or FCA London Heathrow Or CIP MUMBAI.  Customer to choose one of the mode of the shipment. Any overheads like additional duty (custom duty), taxes, clearance charges, transportation charges etc. upto IIT-Indore will be customers responsibility	Firm may quote on Ex- Works or FCA or CIP or FORD	EX-Works, CIP- Mumbai/Delhi for Import FOR IITI for Indigenious
16.	Page No. 11 Commercial Sl.No. 1		100% through Letter of Credit (LC) with 90% against shipping documents and balance 10% after successful installation.	No Change	No Change
17.	Clarification	Price bid shall be as per tender format, However, Component Break Price shall be attached separately to decide quantity, if required.			

### Revised Schedule:

Submission of Bids(Technical and Price Bid)	August 11, 2017 upto 03.00PM(IST)
Opening of Technical Bids	August 11, 2017 at 03.30PM(IST)

All prospective/willing bidders are requested to take note of this report as part of the Tender document. All other terms and conditions of the tender remain unchanged.

  
01/08/17

Administrative Officer (MM)

सुरेश चन्द्र ठाकुर  
Suresh Chandra Thakur  
प्रशासनिक अधिकारी  
Administrative Officer  
आई आई टी इन्दौर/IIT Indore



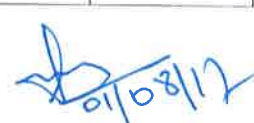
## ANNEXURE- I

### REVISED TECHNICAL SPECIFICATION

Sl. No	Item Description	Qty.	Compliance Yes/No	Deviations, if any
1	<p><b>Integrated Raman spectrometer</b> including a confocal microscope with appropriate optics and movement stages. The complete equipment must be able to perform following measurements:</p> <p>a) Spectral Range: ~ 200–2200nm.</p> <p>b) Spectral resolution: Less than 0.50 cm<sup>-1</sup> (supported by literature)</p> <p>c) Spatial resolution: Laser diameter smaller than 1 micron (minimum) the system should preferably be optimized for 100x objective lens measurement.</p> <p>d) Gratings – Multiple holographic gratings (with 600, 1200, 1800 and 2400 grooves/mm) with mounts interfaced with user friendly software to control the movement. Easy and quick interchange between gratings must be possible without any requirement of realignment.</p> <p>e) Working power: ~220V AC, 50 Hz, Single/triple phase (as appropriate).</p> <p>f) Appropriate interfacing for data transfer preferably with windows based user friendly software and hardware.</p> <p>g) A filter wheel with several computer controlled neutral density filters for decreasing laser power on sample (0.01% to 100%). <b>Similar filters may be considered for reducing the incident laser power only if the original laser spectral profile/quality is not perturbed (necessary document and referrals from prominent scientists must be provided to support the claim regarding the quality)</b></p> <p>h) Laser line filters.</p> <p>i) Capability of recording Stokes and Antistokes Raman spectra with appropriate filter/assembly that should be maintenance free for lasers as mentioned below.</p> <p>j) The equipment should be able to measure Raman spectra from solid as well as liquid sample.</p> <p>k) Bottom stage should be detachable.</p> <p>l) 4 plain-achromatic detachable objective-lenses: 5x, 10x and 100x.</p> <p>m) A USB color TV camera for viewing samples under white light and laser illumination. Video card for digitizing the image of sample, using programmed software.</p> <p>n) The equipment should be able to perform Raman mapping (Imaging) so necessary arrangement for the same must be provided. Must be demonstrated during installation.</p> <p>o) X-Y stage (preferably 75x50 mm) with step-size better than 0.2 microns. Necessary software/hardware and accessories for automatic acquisition of</p>	1 no.	<b>Bidder should submit compliance matrix</b>	<b>To be mentioned along with compliance matrix</b>

Raman maps in conventional and XY scan mode. Micrometric computerized z-axis control: Minimum step size is 0.5 micron.

- p) Arrangement for liquid samples like Cuvette/vial (similar to HPLC or NMR capillary tubes) arrangement.
- q) Air cooled CCD detector with maximum spectral range as described above with optional detectors for complete spectral coverage. At least 1024x256 pixels with good efficiency and low dark noise. Interfacing with USB or as necessary for spectrometer.
- r) **Lasers and Filters: Three lasers with sufficient wattage with wavelengths of 532nm, 633nm and 785 nm. Cut off filter with  $< 50\text{cm}^{-1}$  for all three lasers. Appropriate coupling optics with appropriate filters providing capability to record stokes and Antistokes Raman spectra with low cut off ( $10\text{ cm}^{-1}$ ) for 532 nm wavelength.** Easy operation and quick and fast changing of optics arrangement must be possible. Lasers must be put in a way to quickly choose the laser, filter and optics without any requirement of realignment. (Separately quote the  $10\text{ cm}^{-1}$  cutoff filter as an optional item for all three above-mentioned excitations).
- s) Software should be compatible with Windows and should be supplied with two computer dongles permitting the control of the instrument, data acquisition, and data manipulation including Raman and photoluminescence mapping and storage option. The software should have advanced chemometric and Macro programming capabilities.
- t) A computer with latest configuration, along with TFT monitor.
- u) Temperature controlled stage including temperature controller ( $-196\text{ deg C}$  to  $600\text{ deg C}$ ) and necessary optics and arrangement for this attachment. Necessary arrangements must be available to enable **liquid nitrogen temperature operation. All necessary arrangement with respect to optics, long working distance objective, stage etc. should be included.**
- v) The company must have installed 25 equipment of similar specifications in reputed government organizations (academic/research) in India.
- w) High pressure diamond anvil cell for high pressure studies. (Optional)
- x) Angle-calibrated rotation stage. (Optional)
- y) Power meter working from 400 to 1100 nm (Optional).
- z) Spectrometer should be ready for UV operation along with polarization Raman measurement.**
- aa) **The spectrometer is intended to be used for remote samples. Necessary provisions must be done, if any, in the spectrometer at this stage itself. Quote separately for the remote measurement accessories as an optional item.**
- bb) **Any item supplied by the bidder through third party procurement, the same must be specified against the item along with the details of the third party.**

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