



INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH PUNE

CLARIFICATION ON TENDER NUMBER - IISER-PUR-0307-20

ITEM DESCRIPTION- PROCUREMENT OF ELECTRON SPIN RESONANCE SPECTROMETER

Refer IISER Pune Global tender notice number IISER/S&P/02/21-22 dated 19/5/2021 for procurement of Electron Spin Resonance Spectrometer published in Indian Express, Pune, and Mumbai and New Delhi editions.

The detailed tender published on Institute website www.iiserpune.ac.in and on CPP Portal on 19th May, 2021.

Pre-Bid meeting was held on June 01st , 2021 at 4.00 PM via video conferencing and minutes of meeting is as under:

At the outset, the Assistant Registrar (S&P) welcomed all the Members and the representative of the Prospective Bidders and briefed in general the scope of the tender. Later on indenting Officer read out the clarification sought by the Prospective Bidders and replied thereto as detailed in Annexure -II

The representatives present were satisfied with the replies given and it was informed that the corrections / additons / clarifications given, as discussed during the Pre-Bid Conference would be hosted on the website of IISER Pune and all the Prospective Bidders are required to take cognizance of the proceedings of the Pre-Bid Conference before submitting their bids as stipulated in the Bidding Documents.

The other terms & conditions of the notice issued on our IISER website [www.iiserpune.ac .in](http://www.iiserpune.ac.in) will remain unchanged. No more correspondence in this regard will be entertained

The meeting ended with vote of thanks to the Chair

1.6.2021

Sd/-
Assistant Registrar (S&P)



IISER PUNE

TECHNICAL QUERIES AND CLARIFICATION FOR THE PROCUREMENT OF ELECTRON SPIN RESONANCE SPECTROMETER

| S.No | Query/Clarification Sought | Clarification / Amendment |
|------|---|--|
| 1 | <p>1: Magnet Max magnetic field strength with 13KW Power supply</p> <p>13 kG weight <1060 kg, water cooled version</p> <p>6 Ohm Impedance</p> <p>Solid state power supply with 13 kW output power</p> <p>Resolution 7 mG at 10 KHz or 23 mG at 100 kHz or better</p> | <p>Amended as minimum magnetic field strength of 12 KW power supply.</p> <p>Amended as 13 kG weight<1100 kg, water cooled version</p> <p>No changes</p> <p>Solid state power supply with minimum 13 kW output power</p> <p>Resolution or 23 mG at 100 kHz or better</p> |
| 2 | <p>2: Microwave Bridge X Band Frequency range: 9.3 to 9.65 GHz</p> | <p>Amended suitably to: X Band Frequency range: 9.3 to 9.65 GHz</p> |
| 3 | <p>4: Frequency Tuning AFC stability 10^{-6}</p> | <p>No changes, retained AFC stability as 10^{-8}</p> |

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| 4 | 6: Signal Amplifier Low noise preamplifier, 20Hz to 200kHz | Amended suitably to: 20Hz to 200 kHz or better |
| 5 | 10: Magnetic Field Control Field accuracy typically better than 500 mG / ± 5 mT, or $\pm 0.1\%$ or better | Modified suitably to: 500 mG / ± 5 mT, or $\pm 0.1\%$ or better |
| 6 | 11: Signal Channel Frequency range: 25 kHz, 50 kHz, 100 kHz or 10kHz to 100kHz High linearity Modulation amp module 25 kHz, 50 kHz, 100 kHz or 500 Hz to 120 kHz | Modified suitably |
| 7 | 12: High Sensitivity probe head Sensitivity weak pitch 1250:1 or better Absolute no. of detectable spins: 5×10^9 spins/G (mention the line width) | No change in tender specifications |
| 8 | 13: Temperature control systems Nitrogen VT unit: Console plug-in digital temperature control unit for variable temperature using liquid/gaseous nitrogen (103-400K) (optional up to 600K with cooling side plates). Storage Dewar 25-30 lit. (~113K - 473K) with thermocouple/heater assembly | Modified suitably |
| 9 | 16: EPR Software package XSophe and SimFonia, Xenon Linux EPR programs are dedicated to one particular vendor. Hence, we request you to kindly remove this point. | Accepted and omitted |
| 10 | 17: Accessories We request you kindly the spec as below: 15 sample tubes 2 mm o.d CFQ quality We request you kindly the spec as below: 10 sample tubes 1.6 mm o.d CFQ quality We request you kindly the spec as below: 100 sample tubes 1 mm o.d CFQ quality | Modified suitably |
| | Optional | |

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| 11 | <p>2: Spectrometer should be compatible for upgrade to employ Q-band frequency</p> <p>Signal bandwidth: 30 Hz-200 kHz Frequency counter: Integrated We request you to kindly remove this point</p> <p>Resonator: For VT from 83 K to 373K (Liquid Nitrogen)</p> <p>Optical access: 12 mm optical window at Q band We request you to kindly remove is point.</p> <p>Modulation frequencies: 4 kHz to 100 kHz, full range of signal channel Modulation frequencies: 25 kHz, 50 kHz, 100 kHz or 4 kHz to 100 kHz, full range of signal channel</p> <p>Sensitivity: Absolute $1 \cdot 10^9$ spins/G Sensitivity: Absolute $5 \cdot 10^9$ spins/G</p> <p>O2 in air 200: 1 Our Q-band sensitivity is evaluated by Tempol signal. Hence, We request you to kindly remove this point.</p> | <p>Modified suitably</p> <p>No changes but requested explanation</p> <p>No changes since liquid He temperature is required</p> <p>No changes</p> <p>Modified suitably</p> <p>No change</p> <p>Modified accordingly</p> |
| 12 | <p>BoQ for local items do not have provision to quote, as it lists only EPR spectrometer. As the local items are not manufactured by Bruker, we need to provide such local items via third party vendors.</p> | <p>Accepted , Refer clarification under point no - 2 in Commercial query - Annexure - III</p> |
| 13 | <p>Accessories in item 17 - Sample tubes come in pack of 10, so please amend accordingly. As the EPR spectrometer is manufacture in Germany and imported to India, we will be quoting as non-local supplier.</p> | <p>Accepted</p> |



IISER PUNE

COMMERICAL QUERIES AND CLARIFICATION FOR THE PROCUREMENT OF ELECTRON SPIN RESONANCE SPECTROMETER

TENDER NUMBER - IISER/PUR/0307/20

DATE : 1-6.21

| S.No | Query/Clarification Sought | Clarification / Amendment |
|------|---|---|
| 1. | <p>Warranty</p> <p>All hardware and software should be quoted with 3/5 years warranty (24 X 7 with six hrs. telephonic response)</p> <p>We request you to kindly confirm whether you require three years warranty or five years warranty.</p> | <p>Warranty</p> <p>Warranty is required for 1 + 4 years</p> |
| 2. | <p>The BoQ which is in tender has option to quote for EPR only. However, there are local items.</p> <p>Requested like UPS, chiller etc which cannot be quoted in INR. Kindly provide a modified BoQ.</p> | <p>To include optional and auxiliary item bidder may attach the quote in pdf format along with the price schedule of excel BOQ.</p> <p>While determining L1 the total price in excel BOQ and pdf will be taken into consideration.</p> |
| 3 | <p>Delivery and installation of EPR spectrometer within 120 days is not possible according to our factory as it is a customized and specialized instrument. The delivery will take atleast 6 months after PO and successful opening of L/C (one month before shipment).</p> | <p>The delivery and installation of EPR spectrometer is amendment to 120 days after successful opening of Letter of Credit.</p> |

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| 4 | Security deposit of 3% will be provided in the form of bank guarantee. This can be extended as performance bank guarantee for the total warranty period. | Accepted |
| 5 | Delivery terms is CIP (nearest airport)- Mumbai airport. Additional charges like customs clearance, duty, insurance, transport to IISER etc will be on IISER's account. If customs duty is applicable, then IISER need to pay such duty directly to customs. | The custom clearance, duty, transport to IISER Pune will be on IISER's account. However, supplier has to arrange Insurance on warehouse-to-warehouse basis i.e Company warehouse to IISER Pune warehouse. |
| 6 | Liquidated damages or Demurrage will not be applicable as IISER needs to provide directly all documents for customs clearance through their nominated agents. The total maximum liquidated damages payable shall not exceed 3% of the order value. | <u>Liquidated damage clause</u> No change in Tender clause <u>Demurrage -</u> CIF/CIP shipments - IISER Pune will provide all necessary documents for custom clearance with nominated Custom House Agent subject to provide the PRE ALERT documents well in advance. FCA/FOB shipment -IISER Pune will arrange for pick up from FCA airport/FOB seaport. |
| 7 | Installation of instrument within 15 days of arrival of spectrometer is not possible, due to export control restrictions; also this installation will be done by our foreign engineer whose visit depends on his committed schedule, passport, visa validity etc. | Installation of instrument is amended to 45 days of arrival of spectrometer |
| 8 | Clause 14 on page 15 says import will be done by your freight forwarder, if so, then we will quote on FCA basis. | Please quote the rates on FCA and CIF basis in BOQ. The detail break up of price should be quoted in pdf format of price bid. |
| 9 | 100% Letter of credit for order value can be opened where 90% payments to be released a month before shipment and 10% balance can be released | No Change in payment terms. Refer page no 15 and point no 15 (b) for import |

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| | after installation and demo of instrument. | payment term |
| 10 | Demo/physical inspection of instrument is not possible at factory site due to our factory restrictions. | Accepted |
| 11 | IISER terms and conditions will be evaluated and has to be approved by our legal and corporate finance for conditions which are not aligning with global policies. If any deviations, then such clauses will be brought to the notice of IISER authorities. A separate letter is attached from our legal team which is included with this letter. - Our legal team has suggested to remove the clause 5 (iv), clause 6.1, in pre-contract integrity pact. | No change in pre-contract integrity pact. This is the document prescribed by Government of India |

IISER Pune Technical specification for EPR Spectrometer:

1. Magnet

- 9.5" double yoke electromagnet, (mention air gap)
- Min magnetic field strength with 12KW Power supply
- 13 kG weight <1100 kg, water cooled version
- 3 Ohm Impedance
- Solid state power supply with minimum 12 kW output power
- Resolution 23 mG at 100 KHz or better

2. Microwave Bridge

- Solid state microwave source
- X Band Frequency range: 9.3 to 9.65 GHz
- Maximum source output: 200mW

3. EPR-X band generator

- Should be compatible for room, liquid nitrogen and liquid helium temperatures

4. Frequency Tuning

- AFC lock range: 4 MHz
- AFC stability: 10^{-8}

5. Microwave Power Setting

- Attenuation: 63 dB max

6. Signal Amplifier

- Low noise preamplifier, 20Hz to 200kHz or better
- Two 50 Ohm signal outputs

7. Resonator Tuning and Matching

- With "auto tuning" and "auto matching"

8. Microwave frequency counter

- 1kHz resolution

9. Q-factor Display

- The system should evaluate the probe head (resonator) and display the loaded Q-Factor.
- All parameters of the bridge to be software controlled

10. Magnetic Field Control

- Operating range: 13kG or its equivalent
- Field accuracy typically better than 500 mG \pm 0.1% or better
- Magnet sweep over full magnet field range

11. Signal Channel

- Frequency range: 25kHz, 50 kHz, 100 kHz or 10kHz to 100kHz, settable in 10Hz to 100kHz steps
- Source: synthesizer
- Harmonic: first and second
- Modulation phase: 0/90 with simultaneous detection
- ADC integrating type time constant settable: 1ms to 5sec
- High linearity Modulation amp module 25kHz, 50kHz, 100 kHz or 500 Hz to 120 kHz

12. High sensitivity probe head

- Standard resonator for high sensitivity CW-EPR
- 10 mm sample access
- 10-20 G at 100kHz maximum modulation amplitude automatic iris control with optical window for light (laser) access compatible for high and low temp work unloaded $Q > 15000$
- Sensitivity weak pitch 1500:1 or better
- Absolute no. of detectable spins: 2×10^{19} spins/G (mention the line width)

13. Temperature control systems

- Nitrogen VT unit: Console plug-in digital temperature control unit for variable temperature using liquid/gaseous nitrogen (105 K – 400 K) (optional up to 600K with cooling side plates)
 - Mention air gap
 - Optical access: Optical grid window at X-band
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- Dewar for X band resonator
 - Cavity for room and nitrogen temperature
 - Storage Dewar 25-30 lit. (~113 K – 480 K) with thermocouple/heater assembly
 - Dewar should have Dewar insert holder; transfer dewar; nitrogen evaporator, glass version digital control unit
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14. Chiller

- Chiller system (local chiller quoted in INR preferred) for 12 kW (for magnet, microwave bridge etc)
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15. Personal Computer

- Pentium Color display 21.5" flat screen monitor
 - Operating System installation package, Windows /Linux
 - LaserJet color Printer or equivalent
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16. EPR Software package

- Acquisition Program for field sweeps, time sweeps, 2D power sweeps, 2D goniometer sweeps, 2D temperature sweeps.
 - Full software control of all external devices via System Ethernet Network, Spectra Manipulation and Analysis Program, featuring baseline correction (up to 9th order), single and double integration, differentiation, smoothing, add and subtract of spectra, peak picking, cursor read-out for position, amplitude and distance, line, dot and cross display, file handling and printing.
 - Spectra Simulation Program for liquids and powders with isotropic, axial and rhombic symmetry.
 - A simulation suite to perform EPR simulation with the following possibilities full matrix diagonalization for liquids, powders and single crystals including g-tensors, hyperfine interaction, D and E parameters
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17. Accessories

Calibration set up (strong pitch, weak pitch)
Single line reference marker for quantitative EPR with g factor = 1.98
Aqueous solution cell and cell holder
Accessory for recording spectrum in organic solvents
Tissue cell
Finger Dewar
One-axis Goniometer for resonator and low temperature equipment
10 sample tubes 4 mm i.d/ 5 mm o.d CFQ quality
10 sample tubes minimum of 2 mm o.d CFQ quality
10 sample tubes minimum of 1.6 mm od CFQ quality
100 sample tubes 1 mm i.d/ 1.6 mm o.d Quartz one end beaded

Optional

1. Helium VT unit

Suitable for variable temperature experiments with liquid Helium (3.8K to 300K)
Mention the necessary requirements

2. The spectrometer should be compatible for upgrade to employ Q-band frequency
Operating frequency: 34 GHz
Microwave power: 50 mW
Signal bandwidth: 30 Hz–200 kHz or better
Power attenuation range: 50 dB in 1 dB steps
Frequency counter: Integrated (or if manual, provide details)
AFC Stability: 10^{-6}
Resonator: For VT from 4 K to 400K (Liquid/Gaseous Nitrogen or Helium)
Optical access: 12 mm optical window at Q band
Modulation frequencies: either 25 kHz, 50 kHz, 100 kHz or 4 kHz to 100 kHz, full range of signal channel
Sensitivity: Absolute 1×10^9 spins/G
O₂ in air 200 : 1 or its equivalent with respect to Tempo Signal
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UPS

3. A branded UPS for two-hour backup. (**local UPS quoted in INR preferred**)
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Terms and Conditions

4. Bidder can quote both in INR & DOLLAR. Taxes, duties, etc to be clearly mentioned. It is mandatory to quote all the components listed and partial quotation will not be accepted. Also quotation should provide individual price for all the components quoted.
 5. Complete installation and commission of the instrument to be done by the bidder. The quotations should be submitted with clear Scope of Work.
 6. Bidders should be Reputed OEMS or Authorized Partners. If Bidder is the Authorized Partner/SI; they should submit valid Manufacturer Authorization Letter in their quotation for this specific bid.
 7. Details of the Power requirements for the proposed systems should be submitted. Power socket details should be provided. Space requirement in terms of minimum square feet required to host the instruments including the chillers etc should mentioned.
 8. The load bearing capacity required for flooring needs to be detailed
 9. A detailed compliance sheet has to be submitted in accordance with the above specifications. Any deviations has to be highlighted and details to be mentioned.
 10. The quotation should also consist of all the necessary datasheets and brochures
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11. Any deviations from the above points the bidder will be disqualified and their bids will not be considered.

12. The quotation in foreign currency should be on CIF/CIP, Mumbai, India.

13. The bid must include all details of technical specifications of the equipment along with commercial terms and conditions. The bill of materials, printed technical brochure and any other document which will help in the evaluation of bids.

14. Time

- Validity of offer for three months
 - Delivery Time to be mentioned
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15. Warranty

- Will start from the date of installation and acceptance by the buyer
 - All hardware and software should be quoted with 5 years warranty (24 X 7 within six hrs telephonic response)
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16. Installation and Training

- The costs for the installation (travel expenses, labor costs etc.) and detailed application training for two weeks should be included
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17. Documentation:

- All necessary documentation (technical as well as for system operation) should be an integral part of the system. This information should be in the English language and is provided either digitally or on paper
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Eligibility Criteria for Bidders

18. The bid must include all details of technical specifications of the equipment along with commercial terms and conditions. The bill of materials, printed technical brochure and any other document which will help in the evaluation of bids.

19. The bidder must have experience of executing similar orders earlier in India. The bidder must enclose documentary evidence of supplying and integrating minimum of two orders of their own or of an OEM.

20. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.

Support

21. The vendor should provide complete turnkey solution.

22. The vendor shall be responsible for round-the-clock operation and comprehensive maintenance for five years from date of start of operation and shall provide an undertaking for the same at the time of submitting the tender.

23. All equipment / components should carry an onsite replacement warranty of five years.

24. The installation should be done by certified and trained engineers followed by comprehensive application (hardware and software) training immediately after installation.
