

Tender Specifications for

EPR Spectrometer with X- and Q-Band and CW-ENDOR Operable at variable Temperature for Solid and Liquid Samples

X-Band Microwave unit	
Source	Solid State Gun Diode microwave source for X-Band
Power O/P	Max power O/P of 200 mW
Power Attenuation Range	60dB in 1 dB steps
AFC Stability	10 ⁻⁸ or better; AFC lock range 4 MHz
Frequency Counter	Integrated Frequency counter with 1kHz resolution
High Sensitivity Cavity	with Light irradiation window and Compatible with Liquid Nitrogen VT Wave Guide cavity cryostat with unloaded Q > 15000 with resonator tuning and matching with auto tuning and auto matching for most probe-heads via iris S:N for weak pitch 1000:1 or better

Magnet System	
10" double yoke magnet. Min magnetic Field Strength of 1.3 T at 62 mm air gap; water cooled version; Magnet Power Supply: Solid state power supply suitable to the magnet. Stability class 1 x 10 ⁻⁶	
Hall Probe Range	-1kG to 18 kG
Accuracy	Better than 500mG over full range
Short Term Stability	3 mG
Long Term Stability	5 mG
Setting Resolution center Field	2 mG
Homogeneity	50mG/cm³
Number of Data points	Minimum of 64K

Spectrometer	
Modulation frequencies	10kHz - 100kHz (Preferably Continuous)
Modulation Amplitude	10G at 100kHz
Detection Mode	I /II Derivative spectra including I/II Harmonic with 0 and 90 degree modulation phase simultaneously
Amplification	Up to 10 ⁴ or better
ADC	16 Bit
Time Constant settable	1 ms – 5 sec or better
Software	Complete software package for EPR Spectrometer control; spectral acquisition for Field Sweep, Temp and Time variation; processing of data , display, print out; Simulation, g- value calculation; base line correction, addition, subtraction, expansion and smoothening of spectra including 2D and 3D spectral display. All Programs compatible with Microsoft Windows 7 with the suitable PC and printer

Manuals for operation , Maintenance and Service Diagrams in hard/Soft Copy

All instruments and accessories should work in 220V/50 Hz 1 Ph or 440V/50 Hz 3Ph

Installation, and commissioning by trained engineers at site is required

Training at the Site in operation and maintenance of the spectrometer

For 5 years : Comprehensive warranty and performance guarantee , are preferred

An operator trained in the use of EPR and its Accessories to be deployed at SAIF, IIT Madras by the equipment supplier at no cost to IIT Madras for a period of 5 years from the date of installation are preferred

Optional Accessories:

Q-Band Microwave Bridge	
Operating Frequency	Minimum 34GHz
Microwave Power	80 mW
Power Attenuation Range	60 dB in 1dB steps
AFC Stability	10^{-6} or better

C W-ENDOR System for X- Band consisting of

- ENDOR Cavity for RT/LNT with Q-value of 7000 and operating Frequency of 9.4 GHz
- ENDOR Control Program
- ENDOR Power Supply with O/P power supply of 150 watts

Variable Temperature accessory for both X- and Q-Band (All accessories to be included)

Temperature range	RT-100K (using Liquid Nitrogen) RT- 4.3K (using Liquid Helium)
Compatibility	For X- and Q-Band resonators and cryostats

Goniometer for Crystal Rotation using X-Band:

Manual/Automated Goniometer for crystal Rotation – quote separately

LNT Setup for X-Band measurements only

Large Volume Dewar insert	Quartz Dewar (finger type) 150 mL capacity
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X-Band: Quartz EPR sample Tubes; Quartz Aqueous Flat Cell;

Q-Band: Quartz Capillary Tubes; Quartz Aqueous Flat Cell

Calibration Sample kit :

For checking g-factor/modulation;

Strong pitch and weak pitch sample

Interface kit for attaching the CCR with Cold Head Assembly of Janis model

Recommended Consumable and Spare parts for routine operation

Manuals for operation , Maintenance and Service Diagrams in hard/Soft Copy

All instruments and accessories should work in 220V/50 Hz 1 Ph or 440V/50 Hz 3Ph



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Ref: SAI/11-12/026/DSTX/PLAN

Date: 11.10.2012

Tender No.: SAIF/GKS/017/2012

N.E. Nagaraj
Special Officer (Project Purchase)
IC&SR, I.I.T. Madras

Due Date: 05.11.2012, 3:30pm

Dear Sirs,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of “**Electron Paramagnetic Resonance (EPR) Spectrometer**” conforming to the specifications given in Annexure.

I) Instructions to the Bidder

- (i) **Preparation of Bids:-** The tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid.
- (ii) **Delivery of the tender:-** The tender shall be sent to the below-mentioned addresses either by post or by courier so as to reach our office before the due date and time specified in our Schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule. The tender box is kept in the office of the “Special Officer, Project Purchase” IC & SR Building 2nd floor, I.I.T. Madras, Chennai – 600 036.
- (iii) **Opening of the tender:-** The offer/Bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and it will be examined by a technical committee which will decide the suitability of the bid as per our specifications and requirements. The financial offer/bid will be opened only for the offer/bids which technically meet all our requirements as per the specification. The bidders, if interested, may be present on the financial tender opening Day which will be communicated to you.

- (iv) **Prices:-** The price should be quoted in nett per unit (after breakup) and must include all packing and delivery charges. The offer/bid should be exclusive of taxes and duties, which will be paid by the purchaser as applicable. However the percentage of tax & duties should be clearly indicated.

The price should be quoted without custom duty and excise duty, since I.I.T. Madras is exempt from payment of excise duty, and the custom duty will be paid at concessional rate against duty exemption certificate.

In case of import supply, the price should be quoted on FOB and CIF basis indicating the mode of shipment.

- (v) **Agency Commission:-** Agency commission, if any, will be paid to the Indian agents in Rupees on receipt of the equipment and after satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in Tender even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent.
- (vi) **Terms of Delivery:-** The item should be supplied to our destination in case of local supply. In case of import supply, the item should be shipped only to Chennai Airport. The Installation/Commissioning should be completed as specified in our important conditions.

Yours faithfully,



N.E. Nagaraj
Special Officer (Project Purchase)
IC&SR, I.I.T. Madras.

SCHEDULE

II) Important Conditions of the tender

1. The due date for the submission of the tender is **05.11.2012, 3:30pm.**
2. The offer/bids should be submitted in two bid systems (i.e.) Technical bid and Financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. Financial bid should indicate item-wise price for the items mentioned in the technical bid. The Technical bid and the Financial bid should be put in separate covers and sealed. Both the sealed covers should be put into a bigger cover. The limited tender for supply of **“Electron Paramagnetic Resonance (EPR) Spectrometer”** should be written on the left side of the outer cover.
3. (i) EMD:- Two percent (2%) of the tender value quoted by the company. The EMD should be included in the Financial bid which will not be opened for Technical evaluation. **Enclosing the EMD in the Technical bid will automatically disqualify the tenderer.** EMD should be in the form of DD in favour of “The Registrar, Indian Institute of Technology Madras” and payable at Chennai. The tender without EMD would be considered as UNRESPONSIVE and REJECTED. Photo/FAX copies of the Demand Draft/Banker’s pay orders will not be accepted. The EMD will not be paid any interest and EMD shall be converted as a security deposit of the successful bidder and the same will be returned after the completion of the warranty period.

(ii) The Successful bidder should submit Performance Security an amount of 5% of the value of the contract. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from commercial bank will be an acceptable.

(iii) The Performance Security should be valid for the period of 12 months from the date of Installation.

(iv) The EMD (Bid Security) will be refunded to the Successful bidder on receipt of Performance Security.



4. If an Indian agent is involved, the following documents must be enclosed:
- i) Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.
 - ii) Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
 - iii) The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.
5. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
6. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid. No prices should ever be included in the Technical bid.
7. Documentary proof for the claimed position and reputation accuracies must be obtained from the principals and submitted along with the relevant pages of the standards.
8. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
9. **Delivery Schedule:-** The tenderer should indicate clearly the time required for delivery of the item. In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied.
10. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.



11. **Payment:-** No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation is agreed to wherever the installation is involved. In case of import supplies the payment will be made only through Letter of Credit and 90% payment will be released against delivery and 10% after installation wherever the installation is being done.
12. **On-site Installation:-** The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at Institution of IIT Madras.
13. **Warranty/Guarantee:-** The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately.
14. **Late offer:-** The offers received after the due date and time will not be considered.
15. **Acceptance and Rejection:-** I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.
16. **Disputes and Jurisdiction:-** Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.
17. **Acknowledgement:-** It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.



**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE.**