



Ref:ELE/13-14/264/DSTX/SOUM

Date: 01.04.2016

Tender No: ELE/SOUM/02/2016

Due Date: 22.04.2016, 3:30pm

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers by way of limited tender are invited for the supply of "**Electrical Measurement Unit (Probe station)**" conforming to the specifications given in Annexure.

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 "Assistant Registrar, 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 bidders will be invited for opening of Technical bids. In respect of opening of financial bid, those bidders who are technically qualified only will be called for.
- (iv) **Prices:** - The price should be quoted in nett per unit (after breakup) and must include all packing and delivery charges to various Departments/Centres/Institutions. 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 EX-WORKS and CIP 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. The foreign Principal should indicate about the percentage of payment and it should be included in the originally quoted basic price, if any.
- (vi) **Terms of Delivery:** - The item should be supplied to our various Departments/Institutions as per Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.
- (vii) **Technical Bid Opening:** The technical bid will be opened in Conference room, Department of Electrical Engineering, IIT Madras and the financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.
- (viii) IIT Madras reserves the full right to accept / reject any tender at stage without assigning any reason.

Yours sincerely,



Dr.Soumya Dutta

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is **22.04.2016, 3:30pm**.
2. The offers / bids should be submitted in two bids systems (i.e.) Technical bid and Financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and Financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Open Tender for supply of " _____ " should be written on the left side of the Outer bigger cover and sealed.
3. **EMD:** - EMD should be at 2% (two percent) of the tender value quoted by the bidder. 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. No interest will be paid for the EMD and the EMD (Bid Security) will be refunded to the successful bidder on receipt of Performance Security.
4. **Performance Security:-** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank of India will be an acceptable.

Only after submission of Performance Security, Purchase Order/Work Order will be released / L.C will be opened.

Performance Security in the form of Bank Guarantee:- In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.


The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

5. If an Indian agent is involved, the following documents must be enclosed:
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.
 - ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.
 - ✓ The enlistment of the Indian agent with Director General of Supplies & Disposals under the Compulsory Registration Scheme of Ministry of Finance.
6. 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.
7. 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.
8. 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.
9. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
10. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
11. **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.
12. **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.
13. **Payment:-** No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
14. **Advance Payment:-** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the

Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.

15. **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 site of IIT Madras.
16. **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. (for more details please refer our Technical Specifications).
17. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
18. **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.
19. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**
20. **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.
21. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

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**

Annexure I

Technical Specifications for Electrical Measurement Unit (Probe Station) to be integrated with Solar Simulator and Quantum Efficiency Measurement Units

- The probe station must be capable of making a wide variety of nondestructive and standard electrical device measurements. Four Probe for electro-optical materials characterization with the backside optical access option and compatible optical sample holders. IV, CV, and microwave measurements.
- The probe station should be compatible to be integrated with Solar Simulator and Quantum Efficiency Measurement Unit using optical fibre.

Probe Chamber:

- Six port, Four-arm configuration for four-point probing with TRIAX and Optical Sample Holder should be provided.
- High-stability operation (at least ± 50 mK for liquid Helium or ± 100 mK for liquid Nitrogen) over the full temperature range: 4.2 K to 475 K is required.
- The system should be configured for sensitive, high-impedance DC measurements
- High-precision, micro-manipulated stages for accurate probe tip placement (with travel at least 2 inch, 1 inch, 0.5 inch in x, y, z axes respectively and translational scale up to 20 μm in x-axis and 10 μm in y and z axes each) with thermal radiation shields, stainless steel welded bellows and feedthrough ports such as probe arm and base; probes, probe tips, and cables should be provided. Suitable Probes must be provided.
- Maximum sample size: 51 mm (2 inch) diameter
- Sample backside optical access: min. 5 mm (0.2 inch) diameter.

Cryogenic System:

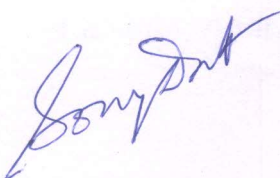
- Cryogenic operation with either liquid nitrogen or liquid helium should be provided.
- The flow cryostat (sample + radiation shield) must be provided.
- Radiation shield should have top viewport surrounds sample.
- The Transfer line for use with nitrogen or helium must be supplied with suitable adapters.

Electrical and Optical Probes:

- Four Ultra-miniature cryogenic coaxial probe cables with SMA plug at probe end to 3-lug triaxial feedthrough should be supplied.
- Suitable Probes with at least two of them having CVT (continuously variable temperature) must be provided.
- DC/RF probes should have better Electrical isolation ($> 100 \text{ M}\Omega$ for normal DC; $> 100 \text{ G}\Omega$ for high impedance DC) and low capacitance ($< 100 \text{ pF}$) for low leakage measurements.

Temperature Controller System:

- The accurate, precise temperature control over the full temperature range (± 100 mK) should be supplied.



Technical Specifications for Electrical Measurement Unit (Probe Station)...

- Suitable programmable PID temperature controller should be provided.
- Sample stage sensor/heater power: DT-670-CU-HT or equivalent calibrated silicon diode/50 W is required.
- Radiation shield sensor/heater power: DT-670C-CU or equivalent silicon diode/100 W should be provided.
- Probe arm: DT-670C-SD or equivalent silicon diode (on one probe arm)/ no active control should be provided.

Microscope & Display Monitor System:

- Microscope vision system must have the following criteria:
 - (i) At least 7:1 zoom optics with a high sensitivity color CCD camera.
 - (ii) Ring and coaxial light.
- Smallest visualized feature ~ 3.5µm or less is required
- High resolution 19-inch monitor should be provided.

Vacuum System:

- Vacuum $< 6 \times 10^{-4}$ Torr (at Room Temp) should be provided.
- Suitable Gas port: 0.25 in NPT with valve and Over pressure safety: 3.5 kPa (0.5 psi) pressure relief valve for the Vacuum chamber must be provided.
- Pump line vibration isolators to minimize vibration from a pump to a probe station must be provided.

Accessories:

- Tool kit: Include tools for standard operation should be provided.
- Spares kit: Include kit for common consumable items should be provided
- Electrical Requirement: 1-phase voltage: 220/240 VAC (+5%, -10%), 50Hz
- Approval: All instruments should be CE marked.
- Warranty: Standard warranty of 1 year must be provided.

Additional Requirements:

- **The probe station unit should be a Tabletop with small footprint.**
- **The probe station unit should be manufactured and integrated by the single vendor.**
- **Post sale service from the single vendor**
- **There should be probe station unit with aforementioned specifications, already installed in other lab in India, maintaining a good track of functioning.**
- **The probe station system should be modular and upgradable.**
- **Light can be feed either from the top or from the bottom or from both sides without breaking vacuum or altering experimental condition (Temperature).**

Optional Requirements:

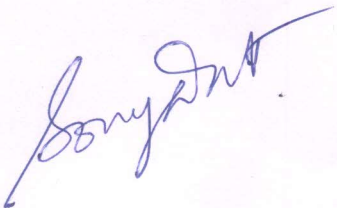
- Suitable Turbo Pumping system with backing pump and accessories (Bellows, O rings, centre ring and clamps) for probe station must be provided optionally.
- Fiber optic probe arm modification to transmit or receive light or IR/UV radiation is optionally required.



Technical Specifications for Electrical Measurement Unit (Probe Station)...

- Fiber optic, terminated with type FC penetrating feedthrough for front illumination is optionally required.
- Microwave probes: Frequency range DC at least up to 67 GHz with electrical isolation $> 1 \text{ M}\Omega$, reflection $< -20 \text{ dB}$ and transmission $< \pm 1 \text{ dB}$.
- Fiber optic probes: for electro-optical measurements with at least -40 dB return are optionally required
- Hermetic feedthrough should be matched to the fiber type for transition from external user fiber to internal probe fiber.

*****END*****

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