
	<p style="text-align: center;"><b>INDIAN INSTITUTE OF TECHNOLOGY MADRAS</b> <b>Chennai 600 036</b></p> <p>Telephone: [044] 2257 9798/9760      FAX: [044] 22570545/8366 E-mail: <a href="mailto:arpp@iitm.ac.in">arpp@iitm.ac.in</a></p>	
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V. Sathyanarayanan  
Senior Manager (Project Purchase)

Ref: **ELE/RADA/080/2019**  
Date: 26.03.2019

**Open Tender No: ELE/RADA/080/2019**

**Due Date: 18.04. 2019, 3PM**

**Pre-Bid meeting: - Not required.**

**Technical Bid opening meeting on 18.04. 2019, 4 PM at Department of Electrical Engineering, IIT-Madras.**

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for “**e-CPRI protocol tester**” 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 addresses mentioned below, 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:

**Senior Manager,  
Project Purchase,  
IC & SR Building 2<sup>nd</sup> 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 will be examined by a technical committee which will decide the suitability of the bids as per our specifications and requirements. All bidders will be invited for opening of technical bids. With respect to opening the financial bid, only technically qualified bidders will be called.

**IV. Prices:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to Department of Electrical Engineering. The offer/bid should be exclusive of taxes and duties. The percentage of tax & duties should be clearly indicated separately. IIT Madras is eligible for concessional GST and relevant certificate will be issued, if applicable.

In case of import supply, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty (not exceeding 5%) and 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 after receipt of the equipment and its satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in the tender document 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 the percentage of payment and it should be included in the basic price quoted originally (if any).

**VI. Terms of Delivery:** - The item should be supplied to the **Departments of Electrical Engineering, IIT Madras** as per the 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 on **18.04.2019**, 4 PM at the **Department of Electrical Engineering, IIT-Madras** and the financial bids of those tenders who are technically qualified will be opened on the same/later date under intimation to them.

**VIII. IIT Madras** reserves the full right to accept / reject any tender at any stage without assigning any reason.

Yours sincerely,

**V. Sathyanarayanan**  
**Senior Manager (Project Purchase)**  
**IC&SR Building, I.I.T. Madras,**  
**Chennai – 600 036.**

## SCHEDULE

### Important Conditions of the tender

1. The due date for the submission of the tender is **18.04.2019, 3 PM.**

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 “**e-CPRI protocol tester**” should be written on the left side of the Outer bigger cover and sealed.

2. **EMD:** - The **EMD in the form of account payee DD for Rs. 2,00,000/- in favor of “The Registrar - IIT Madras” payable at CHENNAI, should be enclosed in the cover containing Technical bid.** Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD. EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME).

3. **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 in India. **The performance security should be furnished within 21 days from the delivery of the purchase order.**

**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.

4. **Indian agent:** 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.

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) as applicable of the quoted model duly signed by the principals must accompany the quotation in the Technical bid.
7. Documentary proof: Please provide data sheets/online links to verify the technical specifications. Please indicate the pages on those documents that refer to specific claims in the technical bid.
8. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
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.  
Normally the delivery should be in 8 weeks from date of PO (or as specified in Annexure 1 whichever is earlier). If there is delay, the penalty will be @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than 10 weeks, the PO would be cancelled and liquidated damages will be enforced.
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. **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.
12. **On-site Installation:** - The equipment or machinery has to be installed and commissioned by the successful bidder within 20 days from the date of receipt of the item at site of IIT Madras (as applicable).
13. **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.
14. **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.
15. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**

**16. Disputes and Jurisdiction:**

**Settlement of Disputes:** Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate one arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai.

- a. **The Applicable Law:** This Purchase Order shall be construed, Interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
- b. 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. 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**

Technical Specifications

We are looking for an e-CPRI tester that tests 10/25G e-CPRI protocol (with enhancements provided by X-RAN/ORAN) over Ethernet for the 5G fronthaul. In addition, this unit should also be able to test CPRI, and JESD204B protocols (with simple software updates)

Quantity: 1 unit

Following are the specifications for the testing unit

1. The technical specification should enclose the following compliance table
2. The vendor should have supported major UE/Network vendors for either LTE/5G on the development of fronthaul solutions.

Hardware/Software specifications

		Complied Yes/No with page number in the data sheet
10/25 Gbps connectors (QSFP interface)	>=4 (for multi frontend testing)	
Aggregate data rate	>=100 Gbps	
SMA (subminiature version A) connectors (for triggering)	> 4	
# of Links	>=4	
Remote accessibility to the tester	Yes (from both Linux and Windows systems)	
Graphical user interface for testing	Yes	
Test scenario editor	Yes	
API (and documentation)	Yes	
Data capture (from e-CPRI) from the DUT	Yes	
Ethernet frame capture and analysis	Yes	
Triggering support for the following events <ol style="list-style-type: none"> <li>1. Start of packet</li> <li>2. End of packet</li> <li>3. Packet error</li> <li>4. Sequence trigger (triggers to specific byte at data or control)</li> <li>5. CRC value (error/correct)</li> <li>6. Input signal in any of available SMA connector (Rising/Falling edge)</li> </ol>	Yes	

7. Trigger to specific ethernet type		
10G line rate XGMII level ethernet with PCAP in/out support	Yes	
25G line rate, XGMII level Ethernet with PCAP in/out support	Yes	
e-CPRI Message types	0, 1, 2	
MAC and e-CPRI level capture triggers (source/destination MAC, faulty CRC)	Yes	
Support for custom vendor-specific message types	Yes	
Capture of dedicated packets with specific payloads	yes	
IQ message type	Yes	
Remote memory access (RMA)	Yes	
X RAN U-Plane	Support for compression	
X RAN C-Plane	Antenna control	
X RAN S-Plane	PTP	
XRAN Other support	TDD pattern, PRACH	
<u>Future upgrades:</u>  Following protocols should be supported (need not be quoted). They can be enabled through software upgrades	CPRI (20 Gbps), JESD204B (20 Gbps),	
Following features should be supported in the future (need not be quoted).	FEC(10 Gbps), e-CPRI v1.2, XRAN- U plane compression methods, XRAN- PTP Slave	
Technical Support	2 years	
Delivery schedule	6 weeks from PO	
Installation and training support	Yes	
Warranty	1 year	