



# Indian Institute of Technology Madras

I.I.T.P.O., MADRAS-600 036

Department of Electrical Engineering

Telephone: 044 2257 5423

Ref.No.

Date: 2/7/2018

ELE	RADA	2018	Smart Server Racks
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## Under Certificate of Posting

**DUE DATE: 19/07/2018**

Dear Sirs,

1. Quotations are invited in duplicate for the various items shown below / overleaf / Enclosed list.
2. The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
3. The Quotations should be valid for ninety days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms : Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for F.O.R. Madras. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.

9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment : Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is late

Yours faithfully,  
Head/ Project Coordinator

# Smart Rack Units Tender Agreement

**Due Date: 19.07.2018, 3:00pm**

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of the following items.

- 1) **Two units** of smart racks with appropriate accessories for the 5G lab with the technical specifications indicated below (Technical Specification Section).
- 2) Two-bid system (i.e.) Technical bid and Financial bid in two separate sealed envelopes. The technical bid should have a compliance matrix indicating if it has met every specification provided below.
- 3) **Delivery of the tender:** - The tender shall be sent to the below-mentioned addresses either by post or by courier so as to reach the following address before the due date and time specified in our Schedule:

Mr. Jayasankaran  
Room. No: ESB 218/ESB 210D  
c/o EE department Office,  
Dept. of Electrical Engineering,  
IIT Madras-600036.  
Phone number: 044 2257 5423  
Email: admin5G@ee.iitm.ac.in

- 4) **Opening of the tender:** - A committee duly constituted for this purpose will open the offer/Bids. The technical bids will be opened first and a technical committee, which will decide the suitability of the bid as per our specifications and requirements, will examine it.
- 5) **Prices:** - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to the Department. 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, CIF basis indicating the mode of shipment.

The price may be quoted in USD, Euro and/or INR. The prevailing market exchange rate on the day of bid evaluation will be used to compare bids.

- 6) **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.

- 7) **Terms of Delivery:** - The item should be supplied to our Department 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 within three weeks from the date of Purchase Order.
- 8) IIT Madras reserves the full right to accept / reject any tender at stage without assigning any reason.

### **Schedule**

- 1) The due date for the submission of the tender is **Due Date: 19.07.2018, 3:00pm**
- 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.
- 3) 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.
- 4) Documentary proof for the claimed position and repetition accuracies must be obtained from the principals and submitted along with the relevant pages of the standards.
- 5) **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
- 6) **Delivery Schedule:-** The tenderer should indicate clearly the time required for delivery and installation (**less than three weeks** from the date of Purchase Order) 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.
- 7) 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.
- 8) **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**
- 9) **Disputes and Jurisdiction: -**
  - a. **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 proceedings 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..

b. **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.

10) 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 for Smart Rack

We require **two units** of smart racks to host our servers and network equipment. The following specifications have to be met by the server racks. In addition the server racks should be installed and appropriate service and maintenance be provided as per the conditions and scope below.

Please provide a compliance table for

- 1) Technical Specifications
- 2) Installation, testing and commissioning and cleaning procedures

Note: UPS unit is NOT required.

### **Detailed Technical Specifications**

1. All Major component should be single OEM (Cooling and Monitoring System) and the system should be OEM approved. The OEM details should be mentioned.
2. Warranty: At least 1 year
3. Installation should be done within 3 weeks (21 days) of receiving the Purchase order by email.
4. Rack & Accessories Technical Specification:
  - a. 42 U racks of dimension 600 mm x 1000 mm (or bigger), 2 units
  - b. Front glass door & rear plain door for both racks
  - c. Rack is 42 U 19" mounting type with 2000 (Height) x 600 (Width) x 1000 (Depth) (or bigger).
  - d. Rack design is sturdy frame section, corners are stiffened with welded MS die cast.
  - e. Rack frame is, scalable and modular with safe load carrying capacity of 1400 Kg on enclosure frame and 1000 Kg on 19" mounting angles.
  - f. Base plinth with 100 mm height
  - g. Cut outs with rubber grommet on top and bottom plate for cable entry.
  - h. Cable entry provision from top & bottom both.
  - i. Vertical Cable manager on both LHS & RHS on rear side.
  - j. Front Glass door for complete 42U height visibility and rear plane door with stiffener for strength.
  - k. Thermally insulated cold aisle chamber.
  - l. Blanking panels to prevent air mixing.
  - m. Supply and installation of high density IT Rack with containment, having 42U as standard, complete with keyboard tray, cable manager & blanking panels with basic PDU and rack accessories.
5. Monitoring Technical Specification:
  - a. Intelligent Rack environment remote monitoring.

- b. Smoke detectors, water leaks detection system, temperature & humidity sensor, door sensor, and alarm beacon.
  - c. Monitoring system – capable for Email alerts
  - d. Modbus 485 Communications
  - e. SNMP Communication.
  - f. Single window for monitoring all sensors.
  - g. Data and logs of historical information of alarms and notification.
  - h. Temperature & Humidity Sensor, with LCD display and RJ45 connector.
  - i. Door opening sensor with RJ 45 connector.
  - j. Water leak detection sensor with RJ45 connector.
  - k. Smoke detection sensor with RJ45 connector.
  - l. Alarm device with LED flash and sound option.
  - m. Supply and installation of RDU system which, continuously collects critical information from network connected devices, temperature, humidity, door sensors and other dry contact monitoring. Based on pre-set parameters, automated email alerts are sent to the intended recipients.
6. Rack Power Distribution Unit (Socket Strip)
- a. Supply and installation of vertical rack mount power distribution unit (zero U). Each rack shall have two vertical PDU's having IEC C13 x 12 nos. C-19 x 04 nos. Sockets with 32 Amp MCB with indicator.
7. Electrical System (POD Device):
- a. 19" rack mountable Power Output Device with essential breakers to be mounted in the rack. Consumes only 3U space of rack height.
  - b. Main Incomer- 80 Amp 4 Pole MCB with suitable provision of terminal blocks for connections.
  - c. UPS I/P - 2 nos. of 50 Amp SP MCB for UPS Supply.
  - d. Cooling I/P - 2 nos. of 16 Amp 4P MCB for Cooling Unit Supply.
  - e. Spares -1 no. of 32 Amp MCB for spares.
  - f. All input supply cables from POD unit to equipment's are connected with industrial socket (male - female) with suitable rating.
  - g. Electrical system and wiring with essential MCB for Cooling unit input supply
8. Fire Suppression Unit
- a. Fire suppression Novec 1230 Gas based fire suppression system as per NFPA guidelines.
  - b. The Gas cylinder and the gas has to be provided and installed.
9. Rack Mount Air Conditioning System Units designed specifically for high sensible heat ratio with cooling techniques to match the low latent loads of systems to be installed in the integrated cabinet for effective and uniform distribution of cooling.
- a. Rack Mount Air conditioner with fixed scroll compressor, of capacity 7 kW (2 Tr.) 02 nos. to cater IT load approximately 7 kW each rack total 2 rack.
  - b. Cold air will be supplied to the cold aisle containment of the integrated cabinet and the hot air will be taken from the hot aisle containment of the cabinet.
  - c. High sensible cooling unit with 100% duty cycle

- d. Cooling capacity of 7 kW
  - e. Split indoor & Outdoor unit design
  - f. Cooling Unit integrated in rack, 19" mountable not more than 9U
  - g. Scroll compressor for high reliability
  - h. Electronically commutated centrifugal evaporator fan for high energy efficiency
  - i. Air flow suitable to rack equipment from bottom to top discharge in vertical direction
  - j. Thermal insulation on indoor unit
  - k. Under voltage and Overvoltage protection for equipment safety
  - l. High Pressure & Low Pressure protection for safe operation
  - m. Washable filter with 80% efficiency down to 20 micron rating and HDPE media
  - n. Flare type Thermostatic Expansion Valve for easy serviceability
  - o. Refrigerant R22 compatible
  - p. Individual breakers at indoor and outdoor unit for protection
  - q. Flexible Cu piping for easy indoor to outdoor connection at rack level
  - r. ON/OFF switch at indoor unit for emergency purpose
10. Access
- a. Pin type or Biometric access control system which should be controlled by access control panel.
11. Software
- a. Appropriate software and drivers should be provided for the system monitoring and control should be provided
  - b. Any upgrade of the system hardware and associated other software during the warranty period should be supplied at free of charge.

### **Installation, testing and commissioning and cleaning procedures**

#### **Installation:**

1. The entire system shall be installed as per manufacturer's recommendations & instructions including all interconnections for supply & control circuits.
2. All components shall be clearly identified using labels including battery cells individually.
3. Services of authorized representative or manufacturer for supervision of installation, connections, testing, & adjustments shall be provided.
4. Delivery at site, unloading, handling, installation of complete system to the third floor shall be provided.
5. All interconnections shall be done using multi-strand Flexible Copper conductor cables of appropriate sizes.
6. Service backup by engineer till system is fully operational and subsequently training is to be provided to the concerned persons of the Institute.
7. All systems should be tested in factory as per the manufactures recommended procedure for all operating parameters and the test results should be provided during the installation.
8. Operation and service manuals of the systems containing technical / Electronic drawings / circuit diagrams complete in all respects should be supplied



9. Acceptance tests will be carried out after installation and the systems will be taken over only after successful completion of the acceptance tests
10. Installation of the inbuilt Rack Mount Air Conditioning System
  - a. Mounting of RCU (02 nos.) in a rack space (9U + 9U)
  - b. Laying of gas pipe line & water drainage line.
  - c. Outdoor unit location will be provided by customer outside the room or on the top of the terrace and distance between indoor to outdoor unit must not exceed 20 meters.
  - d. Powering the device for indoor as well as outdoor unit along with necessary cable connectivity & insulation material
  - e. Installation, refrigerant charging, testing & commission under vendor scope.

**Testing & Commissioning:**

1. Under supervision of manufacturer's representative all system functions, operations, protective features shall be checked & pre-set to ensure compliance or specifications.
2. Test the system as per recommendations & test listed below using pre-calibrated instruments.
  - a. Load simulation.
  - b. Simulation of malfunctions to verify protective device operations.
  - c. Remote status & alarm tests.
  - d. In case of test any shortfalls / faults, the same shall be rectified & test procedure shall be again repeated to establish satisfactory performance.
3. An installation report and report of the tests (signed and sealed) shall be provided within two weeks of the installation.

**Cleaning:**

1. On completion of installation, testing of the system all components, cabinets etc. shall be cleaned & unwanted material, debris shall be removed from site.
2. Scratches dents if any shall be cleaned & touched up to match the original finish.