



**NATIONAL INSTITUTE OF TECHNOLOGY  
ROURKELA – 769 008, ODISHA**

**Advertised Tender Enquiry**

**Department: Electronics and Communication Engineering**

**Tender Notice No: NITR/PW-SR/EC/2019/186**

**Date: 24/12/2019**

**IMPORTANT DATES**

**To**

**Through  
CPP Portal  
(e- Procurement)**

<b>Event</b>	<b>Date</b>	<b>Time</b>
Pre-bid conference	<b>NA</b>	<b>NA</b>
Last date of submission of bid	<b>14/01/2020</b>	<b>03:00 PM</b>
Date of opening of techno-commercial bid	<b>15/01/2020</b>	<b>03:00 PM</b>

Dear Sir,

We intend to purchase the commodities specified below and invite quotations in accordance with the terms and conditions detailed in the bid document. If you are interested, kindly send, your offer with prices and complete terms within the time mentioned above.

For any clarification:

Yours sincerely,

**Attention:**  
**Dr. Subrata Maiti (Assistant Professor)**  
**Department of Electronics and Communication Engg.**  
**National Institute of Technology,**  
**Rourkela – 769 008**  
**Phone: 0661 – 2462468**  
**Fax:- 0661 – 2462999**  
**E-mail: [smaiti@nitrkl.ac.in](mailto:smaiti@nitrkl.ac.in)**

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Dr.Subrata Maiti  
(Assistant Professor)  
Electronics and Communication Engineering  
PID: - SR/19/EC/002 GPR Lab

**Encl:**

- 1) Schedule of requirement, specifications, dates etc.**
- 2) Bid document containing detail terms and conditions.**

## 1. Schedule of requirements

SL.NO	Description of Goods/Service	Quantity
1.	<b>Software Defined Radio Module with all Accessories</b>	<b>2 pieces</b>

2. Specifications and allied Technical Details: As per the specification attached in the **Annexure-I**
3. Format of Quotation (tick appropriate box)  
It is a two-part with separate techno-commercial and price bids.
4. The bid should be submitted through <https://eprocure.gov.in/eprocure/app>
5. Quotations should be valid for a period of **90 days** from the date of opening of techno-commercial bid.
6. Some important dates:

i.	Pre-bid Conference	Date:	<b>NA</b>	Time:	<b>NA</b>
ii.	Last date for submission of bid	Date:	<b>14/01/2020</b>	Time:	<b>03:00 PM</b>
iii.	Date of opening of techno- commercial bid	Date:	<b>15/01/2020</b>	Time:	<b>03:00 PM</b>

7. **Warranty:** Three years standard warranty.
8. **GST:** GST should be charge according to applicable rates.
9. **Tender Fee:** Tender cost (Non- refundable) in the shape of **Demand Draft** for **INR 1000/- (Rupees One Thousand only)** in favor of "**Director, NIT Rourkela**" Payable at Rourkela from any Scheduled Commercial Bank except Co-operative and Gramin bank. Tender Cost should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela- 769008, Odisha; on or before 15/01/2020 at 03:00 PM**
10. **Bid Security/EMD:** Bid Security/EMD in the shape of **Demand Draft** for **INR 40,000/- (Rupees Forty Thousand only)** in favor of "**Director, NIT Rourkela**" Payable at Rourkela from any Scheduled Commercial Bank except Co-operative and Gramin bank. And DD for the Bid security/EMD should remain valid for a period of 45 days beyond the bid validity period from the date of opening of bids. Bid security/EMD of unsuccessful bidders should be return to them at the earliest and latest on or before the 30th day after the award of the contract. Bid Security/EMD should reach physically through speed post/ register post/courier, containing in an envelope & superscripted with subject, tender reference number addressing to **Registrar, NIT Rourkela- 769008, Odisha; on or before 15/01/2020 at 03:00 PM**
11. **Performance Security: INR 1, 00,000/- (Rupees One Lakh Only)** in shape of Demand Draft (DD)/Bank Guarantee in favor of Director, NIT Rourkela and payable at Rourkela. And Performance security should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the suppliers including warranty obligation And EMD (Earnest Money Deposit) amount of successful bidder will be return after the receipt of performance security in case of award of contract to successful bidder.
12. Please go through the enclosed "bid document" carefully for other bidding instructions.
13. Please send your quotations through: <https://eprocure.gov.in/eprocure/app>

#### **14. Technical Bid Evaluation Criteria:**

- I. At least 3 Purchase Orders from IIT/ NIT/IISER/reputed Indian institute/Govt. R&D organizations must be provided where the above equipment with accessories (**Annexure-I**) have been supplied in last five years. Scan copies of the minimum three purchase orders of the above equipment and accessories (**Annexure-I**) must be enclosed along with the technical bid.
- II. The Original Equipment Manufacturer (OEM) should have own service centre in India. The bidders must enclose details of their infrastructure with reference to locations and technical manpower, availability of inventory spares etc. A valid GST registration certificate of OEM should be submitted along with bid.
- III. Scanned copies of the technical brochure of the above equipment and accessories (**Annexure-I**) given in the quotation must be included in the technical bid.
- IV. Web references must be provided along with the technical bid.
- V. Point wise technical compliance along with any deviation of the mentioned specifications (**Annexure-I**) must be indicated along with technical documents.
- VI. Make and model no. should be mentioned in the technical bid.

#### **Financial Bid Evaluation Criteria:**

1. Final Price comparison for the award of contract to decide Lowest price (L1) will be made based on the prices quoted for item no. 1.01 in BOQ.

#### **15. For technical details, you may contact**

**Dr. Subrata Maiti (Assistant Professor)**  
**Department of Electronics and Communication Engg.**  
**National Institute of Technology, Rourkela – 769 008**  
**Phone: 0661 – 2462468**  
**Fax: 0661 – 2462999**  
**E-mail: [smaiti@nitrkl.ac.in](mailto:smaiti@nitrkl.ac.in)**

**NB: Please furnish your Dealership Certificate (must) and Proprietary Nature Certificate (If applicable).**



# NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA – 769 008, ODISHA

## **BID DOCUMENT**

### **1. Instructions to the bidders**

- 1.1** Bids are invited on behalf of the Director, National Institute of Technology (NIT), Rourkela– 769008, Odisha, from the intending bidders for supply of the goods/stores/equipment for the Institute as detailed in the enquiry letter.
- 1.2** The bidders should quote their offer/rates in **BOQ** in clear terms without ambiguity.
- 1.3** The last date for receipt of the bid is marked in the tender document.
- 1.4** The bids should be uploaded in <https://eprocure.gov.in/eprocure/app>. **Please follow the guidelines of the site.**
- 1.5** If a prospective bidder requires any clarification in regard to the bidding documents, s/he may make a request the concerned officer or faculty member at least 15 days before the deadline for receipt of bids.
- 1.6** Each bidder shall submit only one bid. A bidder, who submits more than one bid, shall be disqualified and considered non-responsive.
- 1.7** (In respect of high value plant, machinery etc. of a complex and technical nature). The bids may be submitted in two parts, viz., techno-commercial bid and financial bid.
- 1.8** The bidder has to sign in full at all pages of the scanned part of the bidding document. No over- writing in those pages is acceptable.
- 1.9** Bidders registered with any of the following agencies/ bodies as per Public procurement policy for Micro & Small Enterprises (MSE) order 2012 are exempted categories from payment of EMD provided that the registration Certificate issued by any one of these below mentioned agencies must be valid as on close date of tender. Micro small or medium enterprises who have applied for registration or renewal of registration with any of these agencies/bodies but have not obtained the valid Certificate as on close date of tender are not eligible for exemption.
  - i) Khadi and Village Industries Commission (KVIC)
  - ii) National Small Industries Corporation (NSIC)
  - iii) Any other body specified by Ministry of MSME/GOI

### **2. Conditions of the bid**

- 2.1** The rates quoted should preferably be net, inclusive of packing, forwarding, freight, Insurance and all other incidental charges including taxes. In case these charges are quoted extra in addition to the quoted rates, the amount thereof or ad-valorem rate must be specified. Packing, forwarding, freight, etc., when quotes separately are reimbursable at actuals. If external agencies are employed, their receipts must be enclosed with the invoice.
- 2.2** Duties and Taxes are to be quoted separately. Ad-valorem rates thereof should be clearly indicated with reference to the relevant Acts and Rules.

**It may be noted that the Institute is availing custom duty exemption in terms of Notification No. 51/96 – Customs dt. 23.07.1996, Notification No. - 47/2017- Integrated Tax (Rate) dt. 14.11.2017 and Notification No-45/2017 – Integrated tax (Rate) dt. 14/11/2017 & Notification No. - 45/2017- Central tax (Rate) dt. 14.11.2017, Notification No. - 45/2017- Union Territory Tax (Rate) dt. 14/11/2017 [Vide DSIR, Ministry of Science and Technology, Government of India, Registration No.: TU/V/RG- CDE (227)/2016, dated: 13.11.2018]**

- 2.3** The goods are required to be delivered at the indenting Department of NIT, Rourkela, and must be reached within **90 days** from the date of placement of the supply of order under the risk and arrangement of the bidder and offers with delivery beyond the above period shall be treated as unresponsive. In case the delivery time is higher, the same must be mentioned clearly in the quotation.
- 2.4** The bid should remain valid for a period of **90 days** from the date of opening. In case your offer has a different validity period that should be clearly mentioned in the quotation.
- 2.5** Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.
- 2.6** The goods offered should strictly conform to the specification and technical details as mentioned in schedule of requirements in the tender documents.
- 2.7** The Institute may like to conduct pre-dispatch inspection of goods, where applicable.
- 2.8** Period of guarantee/warranty, where applicable, should be specified in the bid.
- 2.9** If the successful bidder, on receipt of the supply order, fails to execute the order within the stipulated period, in full or part, it will be open to the Director, NIT, Rourkela to recover liquidated damage from the firm at the rate of 1 percent of the value of undelivered goods per month or part thereof, subject to a maximum of 5 percent of the value of undelivered goods. Alternatively, it will also be opened to the Director, to arrange procurement of the required goods from any other source at the risk and expenses of the bidder.
- 2.10** The successful bidder may be required to execute a contract, where applicable.
- 2.11** The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.
- 2.12** Payment (*100 percent*) will be made by Account Payee Cheque/Bank Draft, within 30 days from the date of receipt of the goods in good condition or receipt of the bill, commissioning of the equipment, where applicable, whichever is later/latest.
- 2.13** In the event of any dispute arising out of the bid or from the resultant contract, the decision of the Director, NIT, and Rourkela shall be final.
- 2.14** The bid document/resultant contract will be interpreted under Indian Laws.

**DETAILED TECHNICAL SPECIFICATION****Specifications for Single Software Defined Radio Module with Accessories:**

Sealed tender bids are invited from reputed/authorized vendors/companies for Software Defined Radio Module with following tender specifications.

<b>Sl. No.</b>	<b>Item</b>	<b>Details</b>
<b>1.</b>	<b>RF Front End</b>	
1.1	Frequency Range	10MHz – 6GHz or better
1.2	Total No. of Channels	4 channels or 2 RF Front End Modules with each having 2 channels.
1.3	Independent Tx and Rx	2×2 MIMO, independent two TXs and two RXs
1.4	Bandwidth of Tx or Rx	>=160 MHz
1.5	Rx Noise Figure	<7 dB
1.6	Rx IIP3 (max)	>=4 dBm
1.7	Rx/Tx IQ Imbalance	<-30 dBc
1.8	Tx Power	>= 7 dBm @ 5-6 GHz
<b>2.</b>	<b>SDR Baseband</b>	
2.1	No. of Channels	4
2.2	Frequency Range	DC-6 GHz or better
2.3	ADC	Dual, 14 bit, 200MS/s or better
2.4	DAC	Dual, 16 bit, 800MS/s or better
2.6	Gigabit Streaming	200 MS/s or above
2.7	Fully Coherent MIMO capability	Coherent MIMO Capability should be present
2.8	FPGA	Kintex 7 or better
2.9	Auxiliary Analog and Digital Channel	Auxiliary Analog and Digital Channels should be provided
2.10	GPS Synchronization Option	Should be compatible with a GPS synchronization module
2.11	Interface	Ethernet 1G, 10G, PCIe x4
<b>3.</b>	<b>Other features</b>	
3.1	Accessories	All accessories like power adapters, clock synchronizations modules, 10 Gigabit Ethernet PCIe Adapter Card for desktop, etc. are to be provided for programming/ controlling the SDR with PC
3.2	Software Interface	Matlab/ Python/ C++
3.3	Operating Temperature	0-40°C
3.4	Antenna	Log periodic antenna/ planner antenna covering frequency range of 900 MHz to 6 GHz freq. band

**Other Requirements****Demonstration of instrument performance.**

The supplier should demonstrate the standard measurement parameter values as well as basic features available in the in the instrument such working with GNU Radio, transmit-Receive of FM, transmission and reception of known waveforms using GNU radio and SDR at different frequencies across the BW, and so on at the time of acceptance. The acceptance would be subject to meeting the required criterion.

<b>Manuals</b>	1 set of detailed operation, servicing and Programming manual should be provided in both soft form as well as Hard copy. Language should be English only.
<b>Installation</b>	The satisfactory installation to the full specifications of the machine with all accessories at NIT Rourkela campus. Any additional equipment/accessory for the installation of the system should be quoted invariably. NIT Rourkela will provide only space and electrical connection.
<b>Training</b>	Supplier should provide a comprehensive and free training to NIT Rourkela engineers for at least 1 working days on operation and preventive maintenance of the SDR modules.
<b>Warranty</b>	03 Year Standard Warranty (Front line service to be done at customer place & if any cards/modules are to be replaced can be taken to service center & back to bench service charges to be borne by Bidder). The Original End Manufacturer (OEM) should have Calibration and other maintenance support facility located in India. The OEM Should have certified calibration Lab in India.
The complete system should be compatible to 220-230V AC 50Hz, single-phase power supply. The vendor should specify the power requirements for all the components in the technical quotation.	
Vendor should provide the tools and Spare part for smooth functioning of the instrument for 5 years.	

#### **Guarantee / Warranty and after sales technical support**

The tender must be quoted with three years on-site comprehensive Warranty/Guarantee commencing from the date of complete and satisfactory installation of the equipment against the defect of any manufacturing, workmanship and poor quality of the components. The bidder also must agree and issue a certificate stating that technical query will be responded within 7 working days and the support will be provided within 21 working days from the date of reporting of the technical failure for down time free operation of the instrument.

Operation and service manual in English (electronic and hard copy) should be provided with all the equipment and components.

In the technical details, specify clearly about the kind of service/maintenance required for the system. Also mention that whether the service has to be carried out by a company engineer or it can be carried by trained service personnel within India.

The complete training of all measurement options should be free for NIT Rourkela user staff/students members, onsite.

Enclose pre-installation guide for the details on electrical power, space and other for all components and essential accessories.

Bid should include all other essential auxiliary equipment and spares for its smooth operation for 5 years from date of installation (please provide list with the details).

A list of institutes (with details) in India where the similar equipment (with all options in this tender) has been sold or is under operation should be provided. Prospective vendor should clearly mention the type of measurement options (along with the main system) supplied to these institutes.

The manufacturer has to stand guarantee for the relocation of the system from the present campus of NIT Rourkela to any other place if any in future.