



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

**Advertised Tender Enquiry**

**Department: Electronics and Communication Engineering**

**Tender Notice No: NITR/PW-SR/EC/2019/145**

**Date: 16/09/2019**

**IMPORTANT DATES**

**To**

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

<b>Event</b>	<b>Date</b>	<b>Time</b>
Last date of submission of bid	<b>16/10/2019</b>	<b>11:00 AM</b>
Date of opening of techno-commercial bid	<b>17/10/2019</b>	<b>11:00 AM</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>2-Port Hand-Held Vector Network Analyzer with Spectrum Analyzer (Up to 6 GHz or higher frequency) with all Accessories</b>	<b>1 piece</b>
2.	<b>Channel Scanner (Adds on Feature)</b>	<b>1 piece</b>
3.	<b>Time-domain measurement</b>	<b>1 piece</b>
4.	<b>Additional battery for extra power backup for the instrument</b>	<b>1 piece</b>
5.	<b>Extension of Warranty for Two years</b>	<b>1 piece</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>16/10/2019</b>	Time:	<b>11:00 AM</b>
iii.	Date of opening of techno- commercial bid	Date:	<b>17/10/2019</b>	Time:	<b>11:00 AM</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;** Attention: HOD(EC) **on or before 17/10/2019 at 11:00 AM.**

10. **Bid Security/EMD:** Bid Security/EMD in the shape of **Demand Draft** for **INR 24,000/- (Rupees Twenty-four 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;** Attention: HOD(EC) **on or before 17/10/2019 at 11:00 AM.**

**11. Performance Security: INR 60,000/- (Rupees Sixty Thousand 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 and 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. The OEM should have NABL accredited calibration Lab in India. A valid NABL certificate should be submitted along with bid.
- IV. 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.
- V. Web references must be provided along with the technical bid.
- VI. Point wise technical compliance along with any deviation of the mentioned specifications (**Annexure-I**) must be indicated along with technical documents.
- VII. Make and model no. should be mentioned in the technical bid.
- VIII. Adds on features (item no. 35 in Annexure I) are not essential to qualify for the technical bids

**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 and 1.04 in BOQ.
  2. Adds on features (item no. 35 in Annexure I), and Additional two years warranty would be purchased based on the availability of fund.
- 15.** For technical details, you may contact

<p><b>Dr. Subrata Maiti (Assistant Professor)</b> <b>Department of Electronics and Communication Engg.</b> <b>National Institute of Technology, Rourkela – 769 008</b> <b>Phone: 0661 – 2462468</b> <b>Fax: 0661 – 2462999</b> <b>E-mail: <a href="mailto:smaiti@nitrkl.ac.in">smaiti@nitrkl.ac.in</a></b></p>
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**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.

**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 excluding 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- Central Tax (Rate) Dt. 14.11.2017[vid Registration No.: TU/V/RG-CDE(227)/2016,dated:13.11.2018]**

- 2.4** 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.
- 2.5** 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.
- 2.6** Conditional discount, if any, offered by the bidder shall not be considered at the time of evaluation.
- 2.7** The goods offered should strictly conform to the specification and technical details as mentioned in schedule of requirements in the tender documents.
- 2.8** The Institute may like to conduct pre-dispatch inspection of goods, where applicable.
- 2.9** Period of guarantee/warranty, where applicable, should be specified in the bid.
- 2.10** 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.
- 2.11** The successful bidder may be required to execute a contract, where applicable.
- 2.12** The bidder has to furnish up to date GST and Income Tax Clearance Certificate along with the bid.
- 2.13** 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.
- 2.14** 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.
- 2.15** The bid document/resultant contract will be interpreted under Indian Laws.

**DETAILED TECHNICAL SPECIFICATION**

**2-Port Hand-Held Vector Network Analyzer with Spectrum Analyzer (Up to 6 GHz or higher frequency) with all Accessories.**

Sealed tender bids are invited from reputed / authorized vendors / companies for 2-Port Hand Held Vector Network Analyzer (Up to 6 GHz or higher frequency) *with all required accessories.*

<b>S.NO</b>	<b>Parameter</b>	<b>Final Tender Specification</b>
<b>Standard Features:</b>		
1.	Frequency Range	100 kHz to 6 GHz or higher
2.	Number of Test Ports	2 Ports
3.	Modes	Network Analyzer, Spectrum Analyzer
4.	Impedance, Connector	50 $\Omega$ , Type-N(F)
5.	Aging rate	$\pm 1 \times 10^{-6}$ /year
6.	Interfaces	USB, LAN
7.	Remote control of instrument	Remote control via USB or LAN application
8.	Display	Built-in type
9.	Power Supply	Instrument Should operate on Battery & suitable Adapter must be provided.
10.	Built-in Battery backup required	3 Hrs with standard Li-ion battery. Additional battery for extra 3 Hrs. backup must be quoted separately.
11.	Accessories	Li-Ion Battery Pack, USB & LAN Cable, other required standard accessories for instrument operation must be provided.
12.	Frequency Accuracy	$2.5 \times 10^{-6}$ or better
<b>Network Analyzer</b>		
13.	Measurement parameters	S Parameter (Full 2 port S-Parameters i.e. S11, S21, S12, S22)
14.	Test port output power range	Minimum -25 dBm, Maximum -3 dBm or better in 300 KHz to 6 GHz frequency range.
15.	Dynamic Range (2 MHz to 6 GHz at 10 Hz IF Bandwidth)	>90 dB Typical
16.	Directivity	>36 dB
17.	Frequency Resolution	10 Hz or better
18.	IF Bandwidth	100 Hz to 100 kHz or better
19.	Input Damage Level	+23 dBm
20.	Data points	$\geq 1201$
21.	Format	Log magnitude, phase, VSWR, reflection coefficient, Smith chart, Group delay
22.	Cal Kit	a. N Type b. SMA/ K/3.5 mm type
23.	RF Cables	Phase stable cable compatible with SMA/K/3.5mm type Cal kit should be provided.

<b>Spectrum Analyzer:</b>		
24.	Frequency Range	100 KHz to 6 GHz or higher
25.	Frequency Span	0 Hz,10 Hz to Maximum range of the instruments
26.	Resolution	1 Hz
27.	Phase Noise @ 0.5/1 GHz	-100 dBc/Hz @ 100 KHz Offset or better
28.	RBW & VBW	10 Hz to 3 MHz or Better
29.	Displayed Average Noise Level (DANL)	-135 dBm at 1 GHz (RBW 1 Hz, 0 dB attenuation, reference level -20dBm) or better
30.	Maximum Input level	20 dBm
31.	Trace Detectors	Peak, Sample, RMS
32.	Measurement Functions	Spectrum analysis
33.	Pre-Amplifier	Must be available

<b>Various features on VNA/Spectrum Analyzer:</b>		
34.	Essential features	Channel Power, Adjacent channel power leakage ratio, Occupied bandwidth, Harmonic Distortion, Spectrogram, Power meter, Vector voltmeter, Built-in variable voltage bias Tee, Distance to cable fault measurement, GPS receiver with all accessories.
35.	Adds on features	1) Channel Scanner, 2) Time-domain measurement. These are optional features, required to be quoted separately in case they are available.

<b>General:</b>		
36.	software	Equipment shall be provided with all necessary software. i.e. Operating software, calibration etc. (bidder should provide full details.)
37.	Language	Display and instructions should be in English language only.
38.	Calibration certificate / Manufacturer's Test Certificate	Calibration certificate/ Manufacturer's Test Certificate should be provided.
39.	Operating temperature and Humidity	Operating temperature & humidity: Equipment shall be able to operate up from 5 to 40°C temperature and Relative Humidity: 85% at + 25°C /40°C

<b>Other Requirements</b>	
<b>Demonstration of instrument performance.</b>	The supplier should demonstrate the standard measurement parameter values as well as facility available in the in the instrument such as Dynamic Range, Noise Floor, S Parameter measurement, and so on at the time of acceptance. Vendor should provide the standard samples for testing and calibrating the instruments at any time for the demonstration of the performance of equipment. 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 VNA.
<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 price for 02 Years extension of warranty must be optionally quoted. The Original End Manufacturer (OEM) should have Calibration and other maintenance support facility located in India. The OEM Should have NABL accredited 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 machine for 10-15 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 3-5 years from date of installation (please provide list with the details).
All sample handling tool-kits/consumables should be provided. Wherever, consumables and other items required to handle the system while operating all measurement options, must be quoted separately for enough quantity.



Quote separately for all optional items/accessories, optical components and consumables, which are not explicitly, specified above however required for smooth functioning of the machines.

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.

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