



**NATIONAL INSTITUTE OF TECHNOLOGY  
ROURKELA-769008 (ODISHA)**

An Institute of National Importance under Ministry of HRD, GOI

**NOTICE INVITING TENDER**

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

**Dated: 16/09/2019**

The National Institute of Technology, Rourkela invites bids from the eligible bidders for procurement of **2-Port Hand-Held Vector Network Analyzer with Spectrum Analyzer (Up to 6 GHz or higher frequency) with all Accessories** at NIT Rourkela.

Last date of Submission of Bid : **16/10/2019 at 11:00 AM**

Opening date of techno-commercial Bid : **17/10/2019 at 11:00 AM**

**For Details:** [http://nitrkl.ac.in/OldWebsite/Jobs\\_Tenders/9Equipment/Default.aspx](http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx)

**Contact:** Dr. Subrata Maiti, Department of ECE,

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**Bidding through:** <https://eprocure.gov.in/eprocure/app>

**sd/-  
REGISTRAR**



**NATIONAL INSTITUTE OF TECHNOLOGY  
ROURKELA-769008, ODISHA**

**(OPEN TENDER NOTICE NO.: NITR/PW-SR/EC/2019/145**

**Dated: - 16/09/2019)**

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

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) <i>with all Accessories</i></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>

1. Quantity required : **As mentioned above (All information regarding technical specification provided in the Annexure-I)**
2. Delivery : Within **90 days** from the date of purchase order
3. **Last Date of submission of Bid : 16/10/2019 at 11:00 AM**
4. **Date of opening of techno-commercial bid : 17/10/2019 at 11:00 AM**
5. The firm should not have been black listed at any time.
6. The submission of following bids by the tenderer should be through <https://eprocure.gov.in/eprocure/app>. Please follow the guidelines as per the portal.

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

**(Open Tender Notice No.: NITR/PW-SR/EC/2019/145 Dated: 16/09/2019) Due on 16/10/2019 at 11:00 AM.**

7. **Liquidated damage clause** will be charged for any delay in supply of goods.
8. The validity of the tender shall be **90 days** from the date of opening of the bids.
9. Detailed advertisement including all tender documents is also available in our website at [http://nitrkl.ac.in/OldWebsite/Jobs\\_Tenders/9Equipment/Default.aspx](http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx) .
10. NIT reserves the right to qualify or deny prequalification of any or all applicants without assigning any reasons.

**(REGISTRAR)**  
**NIT, Rourkela**  
**Fax No- 0661-2462022**  
**Ph. No -0661-2462021**

**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.