



**National Institute of Technology
Rourkela-769008, Odisha**

TENDER NOTIFICATION

No: NITR/PW/EC/2017/12

Date: 16.10.2017

Name of the Component : **4 Port Vector Network Analyzer
(Benchtop, Up to 20 GHz or higher frequency) with
accessories and features mentioned in technical
specification at Annexure I.**

Quantity required : **01 No.
(With all information's provided in technical specification)**

EMD Amount : **Rs. 1,00,000/-**

Delivery : **Within 3 months (90 days) from the date of purchase order**

Last Date of Submission of Tender : 15.11.2017 at 3:00 PM

Address for Submission of Tender : **The Registrar,
National Institute of Technology
Rourkela – 769 008, Odisha, INDIA**

With Kind Attention to: Prof. Subrata Maiti
Through H.O.D, Department of ECE,
National Institute of Technology,
Rourkela – 769 008, Odisha, INDIA

Date of Opening of Technical Bid : 16.11.2017 at 4:00 PM

Date of opening of Financial/Commercial bid: 17.11.2017 at 5:00 PM

TENDER NOTIFICATION

for

Procurement & Installation of 4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency) with accessories

at

Director, National Institute of Technology (NIT) Rourkela, Odisha invites tender for supply, delivery and installation of **4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency) with accessories** as per specifications given in the **Annexure-I** attached to the Tender form. All offers should be made in English and should be written in both figures and words.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. The Director, NIT Rourkela, reserves the right to select the item (in single or multiple units) or to reject any quotation wholly or partly without assigning any reason. Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

The Bidders are requested to give detailed tender in their own forms in two Bids i.e.

Part : I- Technical Bid.

Part : II- Financial/Commercial Bid.

Terms and Conditions:

1. The technical and financial bids **should be quoted** and put in sealed envelopes marked “**Technical bid**” and “**Financial/Commercial bid**” separately as applicable. The bidder should also submit an undertaking to abide by all the terms and conditions laid down in the tender document along with the technical bid. These separate bids envelopes are to be put in an outer envelope which should also be sealed.
2. The Vendors who have earlier supplied the equipments to any of the NITs, IITs, IISc, IISERs and other Scientific Institutes/Universities of National Repute may only tender. The details of such institutions and the cost with the name of equipment may also be supplied with the bids.
3. The technical and financial bids should be submitted in original. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.
4. Each individual sealed envelope as well as the outer envelope should be marked with the **Tender Notice No.: No: NITR/PW/EC/2017/12, Date: 16.10.2017**
5. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.
6. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.
7. Any bids received after due **date and time** shall not be considered.

8. The bids will be opened on specified date and time. However, financial bids will be opened for only technically qualified bidders.
9. **While sending rates, the firm shall give an undertaking to the effect that “the terms/conditions mentioned in the Tender Notice against which the rates are being given are acceptable to the firm.” In case the firms do not give this undertaking, their bids will not be considered.**
10. If the supplier/firm is original equipment manufacturer (OEM)/authorized dealer/sole distributor of the item are only eligible to submit the bids and the certificate to this effect should be attached.
11. The quantity shown against the items is approximate and may vary as per demand of the Institute at the time of placing order.
12. All tender documents should have to be sent through courier, speed post or registered post or to drop in the drop box available in dispatch section. All tender documents received after the specified date and time shall not be considered. The postal address for sending the sealed bids is:

**The Registrar
National Institute of Technology,
Rourkela-769008, Odisha, INDIA**

With Kind Attention to: Prof. Subrata Maiti
Through H.O.D, Department of ECE,
National Institute of Technology, Rourkela – 769 008,
Odisha, INDIA

13. In the event of any dispute or difference(s) between the vendee Institute (NIT Rourkela) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to “The Director, NIT Rourkela, who may decide the matter himself or may appoint arbitrator(s) under the arbitration and conciliation Act. The decision of the arbitrator shall be final and binding on both the parties.
14. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.
15. All disputes shall be subject to Rourkela Jurisdiction only.
16. All tenders in which any of the prescribed conditions is not fulfilled or any condition is put forth by the tenderer shall be summarily rejected.
17. The bidders or their authorized representatives may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Note: Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. In exceptional situations, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract.

18. Clarifications:

In case the bidder requires any clarification regarding the tender documents, they are requested to contact our office (e-mail: purchase@nitrkl.ac.in, hod-ec@nitrkl.ac.in & smaiti@nitrkl.ac.in).

19. Earnest Money Deposit (EMD):

A refundable amount of EMD @ **Rs. 1,00,000/-** as earnest money deposit (EMD) in the shape of DD from any of the scheduled banks of India should accompany the bid documents. The DD should be drawn in favour of “The Director, NIT Rourkela payable at Rourkela should accompany the bid documents. The EMD should be kept in a separate sealed envelope, should be marked clearly and put in the outer envelope that contains the technical and financial bid envelopes. The bidders should enclose a pre-receipted bill for the EMD to enable us to return the EMD of unsuccessful bidders. Failure to deposit **Earnest Money** will lead to rejection of tender.

20. Pre – Qualification Criteria:

- a. Bidders should be the manufacturer/authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.
- b. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.
- c. OEM should be internationally reputed Branded Company.
- d. Non-compliance of tender terms, non-submission of required documents, lack of clarity of the specifications, contradiction between bidder specification and supporting documents etc. may lead to rejection of the bid. Furnishing of wrong/ambiguous information in the compliance statement may lead to rejection of bid and further black listing of the bidder, if prima-facie it appears that the information in the compliance statement was given with a malafide/fraudulent intent.**

21. Prices:

- a) The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (NIT Rourkela). NIT Rourkela is registered with DSIR, Govt. of India and is exempted from Custom / Excise Duty. Exemption Certificate to this effect will be issued by NIT Rourkela. **Hence, Customs/Excise Duty exempted price should be quoted.** The rates shall be firm and final. The price quoted shall be considered firm and no price escalation will be permitted at any time subsequently. **In the price bid/financial bid, the vendor should clearly mention the final price breakup i.e. ex-works price/FCA price, FOB price, CIP/CIF price & NIT Rourkela Campus price, as applicable in their bid.**
- b) In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. For imported equipments, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

- c) The cost for the adds on features 37-40 mentioned in the tender specification document at Annexure I should be separately quoted. NIT Rourkela may or may not consider these adds on features into L1 (lowest price) calculations.

Please provide GSTIN of the firm along with the allotted by the Concerned authorities in your quotation.

22. Validity:

The bid should be valid for acceptance up to a period of 90 Days (Except for the adds on features 37-40 mentioned in the technical specification document at Annexure-I. Here price quoted must be valid for two years).

23. Delivery:

All the equipments are to be delivered at NIT Rourkela, Odisha. The Equipment should be delivered within the period as specified in the purchase order. If the bidder fails to deliver and place any or all the Equipments or perform the service by the specified date, penalty at the rate of 1% per month of the total order value subject to the maximum of 5% of total order value will be deducted.

24. Installation and Training:

After successful delivery, the bidders are required to provide the technical experts for installation. Bidders need to provide adequate training to the nominated persons of NIT Rourkela at their cost. NIT Rourkela will not bear any training expenditure. During installation those experts will also train few Faculty, technical assistant, and students of NIT Rourkela. Installation certificate will be signed after satisfactory observation of the performance of the installed system after complete installation. Upgradation of the software for the next 10 years free of cost.

25. Warranty Declaration:

Bidders must give the comprehensive onsite warranty as required from the date of successful installation of Equipment against any manufacturing defects and also give the warranty declaration that “everything to be supplied by us here under shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document. Any deviation in the material, and the specifications from the accepted terms is liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction of NIT Rourkela and as per specifications specified in the order/contract and demonstrate it at the their own cost.

26. Performance Bank Guarantee:

A performance bank guarantee from a scheduled bank of India for an amount equal to 5% of the price for duration of two months beyond the expiry of warranty period will be taken from the supplier or Indian agent.

27. Terms of Payment:

Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. of the equipments and submission of a performance bank guarantee for 5% of the order value from a nationalized bank, valid for 2 months beyond the expiry of the warranty. **This must be specified in the tender/quotation.**

28. Tender expenses and documents:

All costs incurred by the bidder in the preparation of the tender shall be at the entire expenses of the bidder.

29. Tender Evaluation Criteria:

The technical bids will be opened and evaluated by a duly constituted committee. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

30. Return of EMD:

The earnest money of unsuccessful bidders will be returned to them without any interest within 30 working days after awarding the purchase order.

31. Manual and documentation:

All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

32. Corrupt or Fraudulent Practices

NIT Rourkela requires that the bidders who wish to bid for this project have highest standards of ethics. NIT Rourkela will reject a bid if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices while competing for this contract. NIT Rourkela may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the execution of contract.

33. Indemnity

The vendor shall indemnify, protect and save NIT Rourkela against all claims, losses, costs, damages, expenses, action suits and other proceeding, resulting from infringement of any law pertaining to patent, trademarks, copyrights etc. or such other statutory infringements in respect of all the equipment's supplied by him.

34. Insurance:

The equipment's to be supplied will be insured by the vendor against all risks of loss or damage from the date of shipment till such time it is delivered at NIT, Rourkela site in case of Rupee/Foreign currency transaction.

35. Interpretation of the clauses in the Tender Document / Contract Document:

In case of any ambiguity / dispute in the interpretation of any of the clauses in this Tender Document, Director, NIT Rourkela's interpretation of the clauses shall be final and binding on all Parties.

Bidders should go through the tender terms, conditions and specifications carefully and fill in the NIT Rourkela attached compliance statement accurately and unambiguously. They should ensure that all the required documents are furnished along with the bid.

BID PARTICULARS

To be used by the bidder for submission of the bid

1. Name and Model of **4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency) with accessories:**
(As mentioned in technical specifications)
2. Currency and Price of the **4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency) with accessories:**
3. Name of the Supplier
4. Taxes and other charges :
 - (i) Specify the type of taxes and duties in percentages and also in figures
 - (ii) Specify other charges in figures:
5. Warranty period should be mentioned in Technical :
6. Delivery Schedule:
7. Name and address of the firm for placing purchase order:
8. Name and address of Indian authorized agent (in case of imports only):

Signature of the Bidder:

Name and Designation:

Business Address:

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Telephone No. :

Fax No. :

Mobile No :

Email :

Web

Place :

Date :

Seal of the Bidder's Firm

DECLARATION

I/we have not tampered/modified the tender forms in any manner. In case, if the same is found to be tampered/modified, I/we understand that my/our tender will be summarily rejected and full Earnest Money Deposit (EMD) will be forfeited and I/we am/are liable to be banned from doing business with NIT, Rourkela and /or prosecuted.

Signature of the Bidder:

Name and Designation:

Business Address:

Telephone No. :

Fax No. :

Mobile No :

Email :

Web

Place :

Date :

Seal of the Bidder's Firm

Any other details required may be obtained from the contact person given in the notice inviting tender during the office hours.

Compliance statement for 4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency) with all required Accessories

Required Indent Specifications	
Is Tender fees attached? Tender cost enclosed	Yes/No (If Yes D.D.No. and Bank Name)
Is EMD attached? (if applicable)	Yes/No (If Yes D.D.No. and Bank Name)
Is the bidder original equipment manufacturer (OEM)/authorized dealer?	Yes/No
If authorized dealer, recent dated certificate to this effect from OEM, attached or not ?	Yes/No
Undertaking from OEM regarding technical support & extended warranty present.	Yes/No
Undertaking from bidder regarding acceptance of tender terms & Conditions	Yes/No
List of reputed users for the past three years specific to the Instrument.	Yes/No
Whether special educational discount for NIT Rourkela is given	Yes/No
Whether three days of training of operator and research students without any charge offered.	Yes/No(Duration)
No. of trained engineers stationed near to Rourkela, Odisha.	Yes/No(with numbers)

DETAILED TECHNICAL SPECIFICATION**4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency)
with all Accessories.**

Sealed tender bids are invited from reputed / authorized vendors / companies for 4 Port Vector Network Analyzer (Benchtop, Up to 20 GHz or higher frequency) *with all required accessories.*

S.NO	Parameter	Final Tender Specification
1.	Frequency Range	10MHz to 20GHz or higher
2.	Number of Test Ports	4 Ports
3.	No. of independent Sources	Dual Sources or higher
4.	Test port Output power range	Typical -40 dBm to +10 dBm or better
5.	Frequency Resolution	1 Hz
6.	Frequency Accuracy	8×10^{-6} or better
7.	Directivity	>36 dB
8.	Transmission Tracking @ 20GHz	< 0.1 dB, typ. 0.02 dB
9.	Reflection Tracking @ 20GHz	< 0.1 dB, typ. 0.02 dB
Corrected System Performance		
10.	IF Bandwidth	1 Hz to 1 MHz, Further upgradable in nature For Future Radar Pulse application
11.	Dynamic Range (10 MHz to 20 GHz at 10 Hz IF Bandwidth)	>125dB typical
12.	Noise Floor (700 MHz to 20 GHz at 10 Hz IF Bandwidth and at -10 dBm port power)	noise floor -105 dBm, or better
13.	Channel and traces	≥ 16 channels. Each channel should support ≥ 15 data traces.
14.	Data points	2 to 25001 test points per trace or better
15.	Measurement Time	<3.5 micro second per point
16.	Supply Voltage	230V, 50Hz Operation
17.	Damage input power level	+27dBm
18.	Interfaces	USB, LAN, GPIB
Standard Features:		
19.	Measurement parameters	S Parameter (All 4 port S-Parameters i.e. S11, S21, S31, S41, S12, S22, S32, S42, S13, S23, S33, S43, S14, S24, S34, S44 and user defined wave quantities & ratios)
20.	Noise figure measurement (In build/ extra option?)	Noise Figure Measurement Optional & future Upgradable.
21.	Domains	Time domain, frequency domain
22.	Graph Types	Log Magnitude and Phase, Smith Chart (Impedance and Admittance), Polar, Log Polar, Group delay, Linear Magnitude and Phase, Real, and Imaginary, SWR
23.	IF Bandwidth	1Hz to 1 MHz in suitable steps,

24.	Display	Built in 10.4" LCD with minimum 800×600 Resolution, key pad and mouse.
25.	Storage Memory	More than 10 GB.
26.	Operating System	Window 7, or recent version of Windows, anti-virus software with three years warranty
27.	Scale Resolution (Better than or equal to)	1. Log Magnitude 0.001 dB 3. Phase 0.01° 4. Group Delay 0.001 ps 8. Power 0.01 dB
28.	Markers	Normal markers and delta markers with Mean, Standard Deviation, Minimum, Maximum, Peak search facility.
29.	Time Domain Measurement	Time Domain Measurement facility should be available with time gating. It should be possible to employ the standard windowing function or functions with side lobe suppression level of -45dB or better.
30.	Material measurement option	Material measurement capability like ' μ_r ', ' ϵ_r ', loss tangent ($\tan\delta$), Cole –Cole for semi solid, liquid materials can be with Proper sample holders and calibration kit must be provided, quoted. Probe method of testing only. <ul style="list-style-type: none"> • Frequency 200MHz to 20GHz • Dielectric Probe • Calibration kit for Probe • 1 high-precision cable (PC3.5 F connectors, 1 m long) • Probe stand • Measurement software and license
Method/ Technique of calibration:		
31.	Mechanical calibration kit	SMA 3.5 mm and equivalent K type should be quoted. Both Male & Female type N type up to 18GHz must be optionally quoted.
32.	Measurement Cable	Flexible phase stable cable 2 set (4 numbers) ≥ 60 cm. 4 pieces of 18 GHz Flexible Phase stable VNA compatible Cables with N Type at DUT end with length 2 meter each must be optionally quoted.
General:		
33.	software	Equipment shall be provided with all necessary software. i.e. Operating software, calibration etc. (bidder should provide full details.)
34.	Language	Display and instructions should be in English language only.
35.	Calibration certificate / Manufacturer's Test Certificate	Calibration certificate/ Manufacturer's Test Certificate should be provided.
36.	Operating temperature and Humidity	Operating temperature & humidity: Equipment shall be able to operate up from 5 to 40°C temperature and Relative Humidity: 5% to 95% at +40°C

Adds on features:		
37.	Intermodulation measurement	This feature should be available.
38.	Gain compression measurement	This feature should be available.
39.	Source & Receiver Attenuators	Variable source Attenuator of ≥ 65 dB & receiver attenuator of ≥ 35 dB at all the ports, with Minimum settable power of -95 dBm over full frequency range.
40.	Internal Bias Tee Damage voltage & Current	≥ 30 V, 200mA. This option should be available.

Other Requirements	
Demonstration of instrument performance.	The supplier should demonstrate the standard measurement parameter values as well as facility available in the instrument such as Dynamic Range, Noise Floor, S Parameter measurement, Time Gating, Graph Type, Scale Resolution, IF Bandwidth, Windowing, accuracy of material 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.
Manuals	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.
Installation	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.
Training	Supplier should provide a comprehensive and free training to NIT Rourkela engineers for at least 3 working days on operation and preventive maintenance of the VNA.
Warranty	3 year on-site warranty (give details including scope, no. of visits, etc.) Any part(s) that are not covered under warranty should be mentioned clearly. The price for extension of warranty must be optionally quoted. The supplier should have Calibration and other maintenance support facility located 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.