

# Indian Institute of Technology Delhi

## Centre for Applied Research in Electronics

August 15, 2013

Sealed quotations in *separate envelops of technical and commercial bid* kept in a one sealed outer envelope are invited for purchase of 6 GHz Handheld Vector Network Analyzer as per specifications given below. Your sealed quotation should reach latest by 5 PM on 30<sup>th</sup> August 2013 to **Dr. Mahesh P. Abegaonkar, CARE, III-324, Indian Institute of Technology – Delhi (IIT Delhi), Hauz Khas, New Delhi - 110016**. Your quotation should be superscribed “Purchase of 6GHz Handheld Vector Network Analyzer due on 30th August 2013”.

1. Frequency range: 2 MHz to 6 GHz.
2. Connector type: Type-N (female)
3. Input impedance: 50 Ohm
4. Directivity: 42 dB
5. Source match: 36 dB
6. Reflection tracking:  $\pm 0.06$  dB
7. Output power range: +5dBm to -40dBm
8. Trace noise: 0.008 dB rms (300 Hz IFBW)
9. Temp stability: 0.01 dB/deg C
10. Traces: 4
11. Guided Cal. Wizard: Yes
12. Transmission tracking: 0.02 dB
13. Reflection tracking: 0.06 dB
14.  $|S_{21}|$  uncertainty: 0.04 dB
15.  $|S_{21}|$  phase uncertainty: 0.3 degrees
16.  $|S_{11}|$  uncertainty: 0.3 dB
17.  $|S_{11}|$  phase uncertainty: 2 degrees
18. Maximum input level: +23 dBm
19. Maximum input DC voltage:  $\pm 50$  VDC (RF Out port)
20. Following measurements should be possible:
  - Return Loss, VSWR,DTF, RL/DTF
  - Cable loss (1-port)
  - Insertion loss/Gain (2-ports).
21. Calibration types: Quick cal, T-Calibration kit, 3-in-1, open, short, load, DC to 6 GHz, Type-N(f), 50 Ohm & Normalization, OSL, Quickcal and Calready options are required for easier and quicker calibration.
22. Dynamic Range: 90 dB  
Number of points: 101, 201, 401, 601, 801, 1001 10,001 with SCPI
23. Reflection dynamic range: 104 dB (typical ) receiver dynamic range
24. Display: Log, linear, phase, VSWR, Smith chart with scaling feature, Polar plot, group delay
25. IF bandwidth selections: 300 Hz to 30 kHz
26. Cable and Antenna Analyzer: Cable and Antenna Analyzer, with Rugged phase-stable cable 2 nos should be provided
27. **Other Capabilities:**
  - Should have material measurement capability for material measurements.
  - External reference Input type: BNC female
  - Battery operating time : ~4 hours
28. **Warranty:** 3 years NABL accredited Calibration facility and up to 30 parameters (as per NABL)

## **TERMS AND CONDITIONS:**

1. Please quote prices at FOB New Delhi, inclusive of installation charges. CIP charges should be quoted separately.
2. The quotations should be in the currency of the country of origin as well as Indian Rupees wherever possible and should be valid for at least three months.
3. Please attach all the technical literature and a list of similar installations done in India.
4. Standard warranty details (minimum 3 years) should be provided.
5. Payment should be through irrevocable letter of credit.
6. If the quote is being submitted by the representative of the Principals/manufacturer themselves, a valid Agency ship/Dealership Certificate authorizing the agent to quote to IIT Delhi on behalf of the Principals should be enclosed.
7. Complete set of manuals for the operation of equipment should be given.
8. Clearly specify the installation requirements—such as space, power, frequency, environment (Temperature and humidity) etc.
9. If the items quoted are proprietary in nature, please enclose proprietary certificate from the principals stating “certified that \_\_\_\_\_ is a proprietary item M/s. \_\_\_\_\_ and no other manufacturer makes these items”.
10. If the bidder is an Indian agent, the agency certificate should be enclosed.
11. Please produce compliance certificate for the specification.
12. Training should be provided free of cost.
13. Delivery period should be specifically mentioned and should be as small as possible.
14. The products will be used for educational purposes. Hence any applicable institutional discounts should be offered and stated.
15. SALES TAX: This Institute is not exempted from the payment of Sales Tax/Service Tax/VAT. The rate (i.e. percentage of Sales Tax should be clearly indicated included or excluded) wherever chargeable.
16. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof.