

14/10/2022

To Whom It May Concern

Tender for a Vector Network Analyzer

This is an RFQ (Request for Quote) for procurement of a Vector Network Analyzer for Electrical Communication Engineering (ECE) at IISc, Bangalore. This is an RFQ from domestic (India-based) manufacturers.

1	Section 1	Bid Schedule	
2	Section 2	Eligibility Criteria	As specified by IISc
3	Section 3	Terms and Conditions	As specified by IISc
4	Section 4	Specifications	Technical specifications
5	Section 5	Technical Bid	Annexure 1: Bidder details
			Annexure 2: Declaration regarding the experience of the bidder
			Annexure 3: Declaration regarding the clean track record of the bidder
			Annexure 4: Declaration of acceptance of tender
			Annexure 5: Terms and conditions. Details of the item quoted
6	Section 6	Commercial bid	Quotation with Price, Technical specifications of the equipment
7	Section 7	Check List	

Section 1 - Bid Schedule

1	Tender No	
2	Tender Date	14/10/2022
3	Item Description	Procurement of Vector Network Analyzer
4	Tender Type	Two bid system (i) Technical Bid (Part A) (ii) Commercial Bid (Part B)
5	Place of tender submission	Chairperson Office Ground Floor Electrical Communication Engineering Department Indian Institute of Science, Bangalore 560012
6	Last Date & Time for submission of tender	15/11/2022
7	For further clarification	Debdeep Sarkar Assistant Professor Room. 126, Microelectronics Building Department of Electrical Communication Engineering Indian Institute of Science, Bangalore, India 560012. E-mail: debdeep@iisc.ac.in

Section 2 – Eligibility Criteria

Prequalification criteria:

1. The Bidder's firm should have existed for a minimum of 3 years. (Enclose Company Registration Certificate)
2. The Bidder should belong to either class 1 or class 2 suppliers distinguished by their "local content" as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter.
 - a) Class 1 supplier: Goods and services should have local content of equal to or more than 50%.
 - b) Class 2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
3. Purchase preference as defined by the recent edits to GFR (within the "margin of purchase preference") will be given to the Class-1 supplier.
4. MSME can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details
5. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per -Annexure 4.
6. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 3.

Section 3 – Terms and Conditions

A) Submission of Tender:

1. All documentation in the tender should be in English.
2. Tender should be submitted in two envelopes (two bid systems).
 - a. Technical Bid (Part-A) – Technical bid consisting of all technical details and checklist for conformance to technical specifications.

The technical proposal should contain a technical compliance table with 5 columns.

 - i. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
 - ii. The second column should provide specifications of the instrument against the requirement. Please provide quantitative responses wherever possible.
 - iii. The third column should describe your compliance with a “Yes” or “No” only. Ensure that the entries in columns 2 and column 3 are consistent.
 - iv. The fourth column should state the reasons/explanations/context for deviations if any.
 - v. The fifth column can contain additional remarks from the OEM. You can use this opportunity to highlight technical features, qualify response of previous columns, or provide additional details, compare your solution with that of your competitors or provide details as requested in the technical requirements table below.
 - b. Commercial Bid (Part-B) – Indicating item-wise price for the items mentioned in the technical bid, as per the format of quotation provided in tender, and other commercial terms and conditions.
3. The technical bid and price bid should each be placed in separate sealed covers, superscripting on both the envelopes the tender no. and the due date. Both these sealed covers are to be placed in a bigger cover which should also be sealed and duly superscripted with the Tender No, Tender Description & Due Date.
4. The SEALED COVER superscribing tender number / due date & should reach the Chairperson Office, Department of Electrical Communication Engineering, Indian Institute of Science, Bangalore – 560012, India on or before the due date mentioned in the tender notice. In case the due date happens to be a holiday the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.

5. All queries are to be addressed to the person identified in “Section 1 – Bid Schedule” of the tender notice.
6. GST/other taxes, levies, etc., are to be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document (Indian Bidders only).
7. If the price is not quoted in Commercial Bid as per the format provided in the tender document the bid is liable to be rejected.
8. The Institute reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to the award of the contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.
9. Incomplete bids will be summarily rejected.
10. The technical proposal must include references of 3 previous installations in India. Please provide the names and contact addresses of the referees, so that the committee can contact them independently.
11. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
12. The quotations should be on FOR-IISc Bangalore basis in INR only.

B) Cancellation of Tender:

Notwithstanding anything specified in this tender document, IISc Bangalore, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:

- a. To accept OR reject lowest tender or any other tender or all the tenders.
- b. To accept any tender in full or in part.
- c. To reject the tender, offer not confirming to the tender terms.

C) Validity of the Offer:

The offer shall be valid 90 Days from the date of opening of the commercial bid.

D) Evaluation of Offer:

1. The technical bid (Part A) will be opened first and evaluated.
2. Bidders meeting the required eligibility criteria as stated in Section 2 of this document shall only be considered for Commercial Bid (Part B) opening. Further, agencies not furnishing the documentary evidence as required will not be considered.
3. Pre-qualification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or during commercial evaluation. The decision in regard to acceptance and/or rejection of any offer in part or full shall be the sole discretion of IISc Bangalore, and the decision in this regard shall be binding on the bidders.
4. The award of the contract will be subject to acceptance of the terms and conditions stated in this tender.
5. Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:
 - a. Non-submission of complete offers.
 - b. Receipt of bids after due date and time and or by email/fax (unless specified otherwise).
 - c. Receipt of bids in open conditions.
6. In case any BIDDER is silent on any clauses mentioned in these tender documents, IISc Bangalore shall construe that the BIDDER had accepted the clauses as of the tender and no further claim will be entertained.
7. No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.
8. Lowest bid will be calculated based on the total price of all items tendered for Basic equipment along with accessories selected for installation, operation, pre-processing and post-processing, optional items, recommended spares, warranty, and annual maintenance contract.

E) Pre-requisites:

The bidder will provide the prerequisite installation requirement of the equipment along with the technical bid.

F) Warranty:

The complete system is to be under the warranty period of a minimum 1 year (year-wise breakup value should be shown in the commercial bid) including a free supply of consumables, spare parts, and data analysis software from the date of functional installation. If the instrument is found to be defective, it has to be replaced or rectified at the cost of the bidder within 30 days from the date of receipt of written communications from IISc, Bangalore. If there is any delay in replacement or rectification, the warranty period should be correspondingly extended.

G) Annual Maintenance Contract:

An annual maintenance contract for a period of at least 2 years post warranty should be provided on completion of the warranty period. The AMC costs will not be considered towards classifying the domestic nature (class 1 or class 2) of the vendor (see eligibility criteria in section 2). Net pricing calculation = Price of the system + 10*AMC

H) Purchase Order:

1. The order will be placed on the bidder whose bid is accepted by IISc based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in the tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.
3. If the quality of the product and service provided is not found satisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

I) Delivery, Installation and Training:

The bidder shall provide the lead time to delivery, installation, and made functional at IISc, Bangalore from the date of receipt of the purchase order. The system should be delivered, installed, and made functional within 90 days from the date of receipt of the purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and inspection of all the items and features/capabilities tested by the IISc, Bangalore. After successful installation and

inspection, the date of taking over of the entire system by the IISc, Bangalore shall be taken as the start of the warranty period. No partial shipment is allowed.

The bidder should also arrange for technical training for the local facility technologists and users.

J) Payment Terms:

100% payments (except AMC) will be released after completion delivery and satisfactory installation subject to TDS as per rules. AMC cost (if ordered), after completion of the warranty period) will be released on a half-yearly basis at the end of each six months subject to satisfactory services. The AMC will be comprehensive. Price basis must be on FOR-IISc Bangalore basis only. As per GFR, no advance payment can be made to domestic vendors unless an equal amount of bank guarantee is provided.

K) Statutory Variation:

Any statutory increase in the taxes and duties subsequent to the bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore subject to the claim being supported by documentary evidence. However, if any decrease takes place the advantage will have to be passed on to IISc, Bangalore. **L)**

Disputes and Jurisdiction:

Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Bangalore, India.

M) General:

1. All amendments, time extensions, clarifications, etc., within the period of submission of the tender will be communicated electronically. No extension in the bid due date/time shall be considered on account of delay in receipt of any document(s) by mail.
2. The bidder may furnish any additional information, which is necessary to establish capabilities to successfully complete the envisaged work. It is, however, advised not to furnish superfluous information.
3. The bidder may visit the installation site before submission of tender, with prior intimation.

4. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from tendering/taking up of work in IISc, Bangalore.

Section 4 - Technical Requirements

S. No	Parameter	Specification
1	Frequency range	LF: 1 MHz to HF: 32 GHz
2	Frequency Resolution	20 Hz
3	System Impedance	50 Ohms
4	No. of test ports with source	At least 2
5	System Dynamic Range (Typical)	≥ 95 dB across full frequency range of operation
6	Source power level	≥ 10 MHz to 6 GHz: 5 dBm ≥ 6 GHz to 32 GHz: 2 dBm
7	Output power range	High (should not be less than 27 dBm), low, and manual (1dB step)
8	Maximum Input Power Level	+20 dBm, ± 35 VDC
9	Directivity	>25 dB up to 32 GHz
10	Source match	>22 dB up to 32 GHz
11	Load match	>20 dB up to 32 GHz
12	Minimum settable power	≤ -45 dBm
13	Trace Noise Magnitude (300 Hz IF BW)	From 1 MHz to 32 GHz: Less than 0.004 dB rms
14	Trace Noise Phase (300 Hz IF BW)	From 1 MHz to 32 GHz: ≤ 0.0500 deg rms
15	IF Bandwidth range	30 Hz to 100 KHz selectable (should be capable of controlling noise floor at least below -95 dB)
16	No. of Points	10000 or more
17	Markers	Minimum no of Traces 04; Delta (D) markers; Minimum/ Peak, Peak Left/ Peak Right, Next Peak.
18	Test port connectors	2.4 mm (male), 50 Ohm
19	Reference In & Out	Must be available
20	Display	6" color Display or better
21	Form Factor	Handheld (Preferred)

22	Battery	Lithium Ion Battery minimum 6A-h 10V
23	Accessories	1. Test port cables – at least 2 nos 2. Mechanical cal kit with female (F) connectors
24	Automation Software Support	Automation Software should be capable of accessing and setting test parameters remotely. The parameters should include setting the measurement trace, start and stop frequency, IFBW, number of sweep points, save the active data and save the image file.
25	Demonstration	During the technical evaluation, vendors should be able to do a demo of their measurement setup if required.
26	Future upgrades must be supported by the instrument.	Spectrum analyzer Real-time spectrum analyzer (RTSA) I/Q analyzer Pulse measurements Noise figure measurements Over the air 5G TF measurements Indoor and outdoor mapping Real-Time Bandwidth: 100 MHz EMF Measurement TDR Cable Measurements Time Domain Measurement

Upgrade Option

1. Pulse measurements
2. Phase noise measurements
3. Nonlinear VNA measurements
4. Mixer measurements
5. Noise Figure measurements

Training and demonstration

Training on the usage of the machine (hardware and software) must be demonstrated by the successful bidder at the bidder's cost to the end users at IISc, Bangalore. Vendor should have prior experience of installation and service in India for at least 5 years, and

DEBDEEP SARKAR
Assistant Professor

E debdeep@iisc.ac.in

<https://ece.iisc.ac.in/~debdeeps/>



at least 3 experienced agents attending for service in India. We will also independently seek references.

Section 5 - Technical Bid

The technical bid should furnish all requirements of the tender along with all annexures in this section and be submitted to

The Chairman, Department of ECE, IISc
Attn: Debdeep Sarkar
Assistant Professor
Room. 126, Microelectronics Building
Department of Electrical Communication Engineering
Indian Institute of Science, Bangalore, India 560012.
E-mail: debdeep@iisc.ac.in

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in

**DEBDEEP
SARKAR**

Assistant
Professor

T +91 93824 41539
E debdeep@iisc.ac.in

www.ece.iisc.ac.in/debdeep-sarkar



DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in

Annexure-1:

Details of the Bidder

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Details of the Bidder

Sl. No Items Details

1. Name of the Bidder
2. Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)
3. Registration No/ Trade LiECE, (attach attested copy)
4. Registered Office Address
5. Address for communication
6. Contact person- Name and Designation
7. Telephone No
8. Email ID
9. Website
10. PAN No. (attach copy)
11. GST No. (attach copy)

Signature of the Bidder

Name

Designation, Seal

Date:

DEBDEEP SARKAR
Assistant Professor

T +91 93824 41539
E debdeep@iisc.ac.in
www.ece.iisc.ac.in/debdeep-sarkar



Annexure-2:

Declaration regarding experience

To,
The Chairman, Department of ECE, IISc
Department of Electrical Communication Engineering,
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXXXXXXXX

Dated: XXXXX

Supply and installation of Vector Network Analyzer at iDARE (Laboratory for Innovation and Development in Antennas, Radars, and Electromagnetics) Lab, ECE, IISc Bangalore.

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has ---- years of experience in supplying and installing -----

(Signature of the Bidder)

Printed Name

Designation, Seal Date:

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in

DEBDEEP SARKAR
Assistant Professor

T +91 93824 41539
E debdeep@iisc.ac.in
www.ece.iisc.ac.in/debdeep-sarkar



Annexure-3:

Declaration regarding track record

To,
The Chairman, Department of ECE, IISc
Department of Electrical Communication Engineering,
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXXXX
Dated: XXXXX

Supply and installation of Vector Network Analyzer at iDARE (Laboratory for Innovation and Development in Antennas, Radars, and Electromagnetics), ECE, IISc Bangalore.

Sir,
I've carefully gone through the Terms & Conditions contained in the above-referred tender. I hereby declare that my company/ firm is not currently debarred/blacklisted by any Government / Semi-Government organizations/institutions in India or abroad. I further certify that I'm a competent officer in my company/firm to make this declaration.

Or

I declare the following Sl.No
Country in which the
company is Debarred
/blacklisted / case is
Pending Blacklisted/debarred by
Government / Semi
Government/Organizations
/Institutions
Reason Since when and
for how long

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING
Indian Institute of Science, Bangalore 560012, India
T +91 80 2293 2276
F +91 80 2360 0563
www.ece.iisc.ac.in

DEBDEEP SARKAR
Assistant Professor

T +91 93824 41539
E debdeep@iisc.ac.in
www.ece.iisc.ac.in/debdeep-sarkar



(NOTE: In case the company/firm was blacklisted previously, please provide the details regarding the period for which the company/firm was blacklisted and the reason/s for the same).

Yours faithfully
(Signature of the Bidder)
Name
Designation, Seal Date:

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in

DEBDEEP SARKAR
Assistant Professor

T +91 93824 41539
E debdeep@iisc.ac.in
www.ece.iisc.ac.in/debdeep-sarkar



Annexure – 4:
Declaration for acceptance of terms and conditions

To,
The Chairman, Department of ECE, IISc
Department of Electrical Communication Engineering,
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXX
Dated: XXXX

Supply and installation of Vector Network Analyzer at iDARE (Laboratory for Innovation and Development in Antennas, Radars, and Electromagnetics) Lab, ECE, IISc Bangalore.

Sir,

I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal

Date:

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in

DEBDEEP SARKAR
Assistant Professor

T +91 93824 41539
E debdeep@iisc.ac.in
www.ece.iisc.ac.in/debdeep-sarkar



Annexure – 5:
Details of items quoted:

- a. Company Name
- b. Product Name
- c. Part / Catalogue number
- d. Product description / main features
- e. Detailed technical specifications
- f. Remarks

Instructions to bidders:

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with the technical bid.
3. Bidders should clearly indicate compliance or non-compliance with the technical specifications provided in the tender document.

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in

Section 6 – Commercial Bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Essential items noted in the technical specification				
	1.a ... (details of essential items)				
	1.b ...				
2.	Optional items noted in the technical specification				
	2.a ... (details of essential items)				
	2.b ...				
3.	Accessories for operation and installation				
4.	All Consumables, spares and software to be supplied locally				
5.	Warranty (1 years)				
6.	AMC 2 years beyond warranty				
7.	Cost of Insurance and Airfreight				
8.	CIP/CIF IISc, Bengaluru				

Any additional items

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
------	-------------	-------------	----------	------------	-----------

Addressed to

The Chairperson,
Attn: Debdeep Sarkar
Assistant Professor
Room. MP 1.26, Microelectronics Building
Department of Electrical Communication Engineering
Indian Institute of Science, Bangalore, India 560012.
E-mail: debdeep@iisc.ac.in

Section 7 – Checklist

(This should be enclosed with the technical bid- Part A)

The following items must be checked before the Bid is submitted:

1. Sealed Envelope “A”: Technical Bid

1. Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:

- a. Annexure 1: Bidders details
- b. Annexure 2: Declaration regarding experience
- c. Annexure 3: Declaration regarding clean track record
- d. Annexure 4: Declaration for acceptance of terms and conditions
- e. Annexure 5: Details of items quoted

2. Copy of this tender document duly signed by the authorized signatory on every page and sealed.

2. Sealed Envelope “B”: Commercial Bid

Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) superscribing on both the envelopes with Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.

Thanking you,
Debdeep Sarkar
Assistant Professor
Room. MP 1.26, Microelectronics Building
Department of Electrical Communication Engineering
Indian Institute of Science, Bangalore, India 560012.
E-mail: debdeep@iisc.ac.in

DEBDEEP SARKAR
Assistant Professor

T +91 93824 41539
E debdeep@iisc.ac.in
www.ece.iisc.ac.in/debdeep-sarkar



Approval of Tender Document from the Purchase Committee (PC)

Kausik Majumdar

Prof. Kausik Majumdar
(Chairman of PC)

K. J. Vinoy

Prof. K. J. Vinoy

T. V. Prabhakar

Prof. T. V. Prabhakar

Prosenjit Sen

Prof. Prosenjit Sen

Aparna Kandi

Aparna Kandi, Purchase and Stores,
Vigilance Officer

DEPARTMENT OF ELECTRICAL COMMUNICATION ENGINEERING

Indian Institute of Science, Bangalore 560012, India

T +91 80 2293 2276

F +91 80 2360 0563

www.ece.iisc.ac.in