



Indian Institute of Science (IISc)
Bangalore – 560012 (www.iisc.ac.in)

NOTICE INVITING TENDER

under the two-cover bid format

for

Supply of Multifunctional Signal Source Analyzer at DESE, IISc Bangalore

Tender No: DESE/LU/AP/8/2023-24

Date: 19.06.2023

The Chair
Department of Electronic Systems and Engineering
Indian Institute of Science
Bangalore 560012

Email: aruppolley@iisc.ac.in, office.esse@iisc.ac.in

This is a Request for Quote (RFQ) from domestic (India-based) vendors for the supply of a Optical Spectrum Analyzer with Accessories at DESE, IISc Bangalore.

Section 1 - Bid Schedule

1	Tender No	
2	Tender Date	19th June 2023
3	Item Description	Supply of Multifunctional Signal Source Analyzer at DESE, IISc Bangalore
4	Tender Type	Two bid system (i) Technical Bid (Part A) (ii) Commercial Bid (Part B)
5	Place of tender submission	Chairperson Office First Floor Department of Electronic Systems Engineering, Indian Institute of Science, Bangalore 560012
6	Last Date & Time for submission of tender	18th July 2023
7	For further clarification	Prof. Arup Polley Department of Electronic Systems Engineering, Indian Institute of Science, Bangalore 560012 Email: aruppolley@iisc.ac.in

Section 2 – Eligibility Criteria

Prequalification criteria:

1. The Bidder's firm should have existed for at least 5 years. Bidders should enclose the 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. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
4. The quotations should be on FOR-IISc Bangalore basis in INR only.
5. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
6. Purchase preference as defined by the recent edits to GFR (within the "margin of purchase preference") will be given to the Class-1 supplier.
7. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
8. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per -Annexure 4.
9. 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. Tenders should be submitted in two envelopes (a two-bid system).
 - 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 instrument specifications 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 column 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 responses of previous columns, 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 the tender**, and other commercial terms and conditions.
3. The technical bid and price bid should be placed in **separate sealed covers**, superscribing on both the envelopes the tender description, 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 should reach the Chairperson Office, Department of Electronic Systems Engineering, Indian Institute of Science, Bangalore – 560012, India, on or before the due date mentioned in the tender notice. If the due date is a holiday, the tender will be accepted 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., should be indicated separately. The BIDDER should mention GST Registration and PAN in the tender document.
 7. If the price is not quoted in the Commercial Bid as per the format provided in the tender document, the bid is liable to be rejected.
 8. The purchase committee reserves the right to accept or reject any bid and 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.

B) Cancellation of Tender:

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

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

C) Validity of the Offer:

The offer shall be valid 30 Days from the commercial bid's opening date.

D) Evaluation of Offer:

1. The technical bid (Part A) will be opened first and evaluated.
2. Bidders meeting the required eligibility criteria 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 the due date and time 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 has accepted the clauses as of the tender, and no further claim will be entertained.
7. No revision of 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 the basic equipment along with accessories selected for installation, operation, preprocessing and post-processing, optional items, recommended spares, warranty, and annual maintenance contract. The purchase committee is looking for the most cost-effective solution for obtaining a new tool. Vendors are encouraged to propose all avenues, including but not limited to buy back of the existing tool, turnkey upgrade of existing to, 1 or purchase of a new tool.

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 warranty for a minimum period of 3 years (year-wise breakup value should be shown in the commercial bid). The vendor should include the cost of any spares expected to be needed during the warranty period, including electronics, subcomponents, and software. If the instrument is defective, it has to be replaced or rectified at the bidder's cost within 30 days from receipt of written communications from IISc, Bangalore. If there is any delay in replacement or rectification, the warranty period should be extended.

G) Annual Maintenance Contract:

An annual maintenance contract for at least 3 years post-warranty should be provided as an essential, optional item upon completion of the warranty period.

The AMC costs will not be considered for classifying the vendor's domestic nature (class 1 or class 2) (see eligibility criteria in section 2).

H) SPARES:

Vendors must provide a detailed list of spares and a user manual with a detailed Bill of Materials for all Parts. It should include the Spares Column with the Manufacturer part Number, Qty, and availability of stock after 3 Years.

I) Purchase Order:

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.

If the product and service quality is not found satisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

J) 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 120 days from receipt of purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and the inspection of all the items and features/capabilities tested by the IISc, Bangalore. **For acceptance, the vendor must demonstrate the technical specifications mentioned in the tender.** 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.

K) Payment Terms:

100% payments (except AMC) will be released after completion delivery, satisfactory installation, and qualification, 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 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.

L) 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.

M) Disputes and Jurisdiction:

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

N) General:

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

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

Section 4 – Technical Specifications

The specifications have to be demonstrated during system installation and acceptance.

Multifunctional Signal Source Analyzer

SL.No	Parameter	Specifications
1	Benchtop multi-functional analyzer with measurement capabilities in Single- box solution	i) Phase Noise analyzer for Continuous wave signals
		ii) Additive Phase noise for Amplifiers upto 18 GHz
		iii) Spectrum Analyzer
		iv) VCO Characterization Analyzer
2	Frequency Range	1 MHz to 50 GHz
3	Frequency Resolution	0.01 Hz
4	Reference Frequency	10 MHz & 100 MHz
5	Aging/year	$\pm 3 \times 10^{-8}$
	Inbuilt Full-fledged Spectrum Analyzer	
6	Maximum RF input level	+20 dBm
7	Frequency Range	1 MHz to 50 GHz
8	Display Average Noise Level (RF attenuation = 0 dB, termination = 50 Ω , normalized to 1 Hz RBW with Pre-Amplifier = ON)	-155 dBm upto 40 GHz -145 dBm @ 50 GHz
9	Third Order Intercept point (Pre-Amplifier= off, Full Frequency range))	> +8 dBm
10	SSB Phase Noise	Carrier Frequency = 1 GHz, carrier offset
		10 Hz < -95 dBc/Hz
		100 Hz < -105 dBc/Hz
		1 kHz < -125 dBc /Hz
		10 kHz < -132 dBc/Hz
100 kHz < -135 dBc/Hz		
11	Sweep Time	
a)	Span = 0Hz	1 μ s to 10000 s
b)	Span =>10Hz	1 ms to 10000 s
12	Bandwidth	i) RBW: 1 Hz to 10 MHz in steps ii) VBW: 1 Hz to 10 MHz in variable steps iii) Analysis Bandwidth: Up to 320 MHz
13	Attenuator setting range up to 50 GHz	0 dB to 75 dB, in 5 dB steps or better
14	Measurement Uncertainty (Full frequency range)	± 2.5 dB
15	Trace Functions	Clear/Write, Max Hold, Min Hold, Average
16	Trace Detector	Max Peak, Min Peak, Auto Peak, Sample, RMS, Average
17	Trigger Source	free run, video, external, IF power, RF power

18	Future extendable upto 110GHz with external frequency converters. Base instrument supporting the external mixer connection with the required hardware (like LO/IF Ports connections) to be included.	
Phase Noise Analyzer		
19	Cross Correlation Hardware	Should be inbuilt
20	Offset Range	0.01 Hz to 1 MHz
21	Input level range	-20 dBm to +20 dBm
22	Phase noise Sensitivity	Cross Correlation =1
a)	Carrier Frequency of 10 MHz	-115 dBc/Hz @ offset =1 Hz -160 dBc/Hz @ offset =1 KHz
b)	Carrier Frequency of 100 MHz	-95 dBc/Hz @ offset =1 Hz -165 dBc/Hz @ offset =1 KHz
c)	Carrier Frequency of 1 GHz	-75 dBc/Hz @ offset =1 Hz -150 dBc/Hz @ offset =1 KHz
d)	Carrier Frequency of 10 GHz	-55 dBc/Hz @ offset =1 Hz -135 dBc/Hz @ offset =1 KHz
e)	Carrier Frequency of 26 GHz	-47 dBc/Hz @ offset =1 Hz -125 dBc/Hz @ offset =1 KHz
f)	Carrier Frequency of 50 GHz	-42 dBc/Hz @ offset =1 Hz -120 dBc/Hz @ offset =1 KHz
23	Measurements results	SSB phase noise, spurious signals, integrated RMS phase deviation, residual FM, time jitter
24	Allan deviation Measurement display	
a)	Measurement range (τ)	1 s to 1000 s
b)	Display	Display of Phase Noise and Allan deviation in single window
Additive Phase Noise Analyzer		
25	Built-In Signal Source	Frequency Range : 10 MHz to 18 GHz Output power range : -50 dBm to +10 dBm
26	Measurement range	Offset range : 1 Hz to 1 MHz
VCO Analyzer		
27	VCO Characterization	Measurement parameters of Oscillators: Frequency, RF Power, DC supply current, tuning sensitivity.
28	RF Level range	-15dBm to +20dBm
29	Built in DC supplies for Vtune, Vsupply	Vtune power source : -10V to +28V Vsupply power source : DC to 16V Supply Current setting range : 10mA to 2A
General Requirement		
30	Remote Control interfaces	GPIO (IEEE 488.2), LAN
31	External Reference input	10 MHz, required

32	Windows	Windows 10 OS with >50 GB HDD
33	Operating temperature	+5 °C to +50 °C
34	Display	Built-in display
35	Power Supply	100 - 240VAC, 50Hz
36	EMC	IEC/EN 61326-1
37	Weight	<25 Kgs
38	Warranty	3 Years
39	Calibration Certificate with Calibration values	To be provided
40	Future Upgradable	Pulse Phase Noise Analysis

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 Chairperson,
Attn: Prof. Arup Polley
Department of Electronic Systems Engineering
Indian Institute of Science
Bangalore – 560012, India

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 an attested copy of the Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/Trade License (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:

Annexure-2:

Declaration regarding experience

To,
The Chairperson,
Department of Electronic Systems Engineering,
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No:
XXXXXXXXXX Dated:
XXXXXX

Dear Sir/Madam

I have carefully reviewed the Terms & Conditions in the above-referred tender. I hereby declare that my company/firm has-----years of experience in supplying and installing the proposed equipment.

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

Annexure-3:

Declaration regarding track record

To,
The Chairperson,
Department of Electronic Systems Engineering
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXXXX

Dated: XXXXXX

Dear Sir/Madam,

I have carefully reviewed the Terms & Conditions 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 am 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

(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:

Annexure – 4:

Declaration for acceptance of terms and conditions

To,
The Chairperson,
Department of Electronic Systems Engineering
Indian Institute of Science,
Bangalore – 560012, India

Ref: Tender No: XXXXXX

Dated: XXXX

Dear Sir/Madam,

I have carefully reviewed the Terms & Conditions 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 am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal

Date:

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.

Section 6 – Commercial Bid

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

Addressed to

The Chairperson,
Attn: Prof. Arup Polley
Department of Electronic Systems Engineering
Indian Institute of Science
Bangalore – 560012, India

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 (3 years)				
6.	AMC 3 years beyond warranty				
7.	Cost of Insurance and Airfreight				
8.	FOR IISc, Bengaluru				

Any additional items, such as Spares and Hardware/PCBs Likely to go obsolete after the next 3 Years

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

Section 7 – Checklist

(This should be enclosed with a 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 description, 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.