

NOTICE INVITING TENDER

Supply of RF Spectrum Analyser



Instrumentation and Applied Physics,
Indian Institute of Science, Bangalore

JUNE 11, 2021
QUANTUM TECHNOLOGIES LAB, IAP
Bangalore 560012

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This is an invited global tender

Section 1 - Bid Schedule

| | | |
|---|---|--|
| 1 | Tender No | IAP/07/BS/OPSA/0006/2021. |
| 2 | Tender Date | 11-06-2021 |
| 3 | Item Description | Supply of RF Spectrum Analyser |
| 4 | Tender Type | Two bid system (i) Technical Bid (Part A) (ii) Commercial Bid (Part B) |
| 5 | Place of tender submission | The IAP office Ground Floor Instrumentation and Applied Physics Indian Institute of Science, Bangalore 560012 |
| 6 | Last Date & Time for submission of tender | 05 .07.2021 |
| 7 | For further clarification | Dr. Baladitya Suri Room No: A103, Quantum Technologies Laboratory Instrumentation and Applied Phycs Annexe Bldg Indian Institute of Science, Bangalore 560012 Email: surib@iisc.ac.in Phone: +91-80-2293-2269 |

Section 2 – Eligibility Criteria

Prequalification criteria:

1. The Bidder's firm should have existence for a minimum of 3 years. (Enclose Company Registration Certificate)
2. MSME can seek exemption to some qualification criteria. IISc follows GFR2017 for such details
3. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per -Annexure 4.
4. 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.
5. **The Bidder should have supplied similar equipment in Central Universities preferably in centrally Funded Technical Institutes (IITs, IISc, IISER, NIT) . Please provide the details and contact informations.**

Section 3 – Terms and Conditions

A) Submission of Tender:

1. All documentations in the tender should be in English.
2. Tender should be submitted in two envelopes (two bid system).
 - a. Technical Bid (Part-A) – Technical bid consisting of all technical details and check list 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 column 2 and column 3 are consistent.
 - iv. The fourth column should state the reasons/explanations/context/justifications 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.
 - 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 superscripting tender number / due date & should reach Chairperson Office, Instrumentation and Applied Physics, Indian Institute of Science, Bangalore – 560012, India on or before due date mentioned in the tender notice. In case due date happens to be 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. If price is not quoted in Commercial Bid as per the format provided in tender document the bid is liable to be rejected.
7. 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 contract, without there by

incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.

8. Incomplete bids will be summarily rejected.

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 decision in this regard shall be binding on the bidders.
4. The award of 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, preprocessing and post processing, optional items, recommended spares, warranty, 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 warranty period of minimum 3 years (year wise breakup value should be shown in the commercial bid) including 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 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). In the bid AMC charge should also be provided.

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 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 purchase order. The system should be delivered, installed and made functional **within 90 days** from the date of receipt of 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

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 to the local facility technologists and users.

J) Payment Terms:

The payment will be made 100% in advance through wire transfer against proforma invoice after an approved purchase order is released to the successful bidder. 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 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 extension, 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 Specifications

Quantity: 1 unit

Technical specification of the RF Spectrum Analyser. All the specifications assume a 50 Ohm load, and port impedance, unless explicitly stated.

Technical Specifications for the RF spectrum analyser unit

| S.No | Parameter | Specification |
|---------------------------------------|--|---|
| 1 | Frequency Range | Min freq <=10 kHz (lower than 10kHz is acceptable) , Max frequency = 13.6 GHz |
| 2 | Frequency Resolution | 0.01Hz |
| Reference frequency Parameters | | |
| 3 | Aging per year | 1 x 10 ⁻⁶ / year |
| 4 | Temperature Stability (0 °C to +50 °C) | 1 x 10 ⁻⁶ |
| 5 | Reference frequency output | 10 MHz, 0 dBm, 50 Ω, BNC Female |
| 6 | External Reference frequency input | 10 MHz, 0 dBm, 50 Ω, BNC Female |
| Bandwidth Parameters | | |
| 7 | Resolution Bandwidth | 1 Hz to 8 MHz |
| 8 | Video Bandwidths | 1 Hz to 8 MHz |
| 9 | Internal Analysis Bandwidth | >= 125 MHz, internally upgradable at a later stage to at least 160 MHz. |
| Sweep & Span Parameters | | |
| 10 | Span | Zero Span, 10kHz to 13.6 GHz |
| 11 | Sweep time range | span = 0 Hz: 1 μs to 4000 s span ≥ 10 Hz: 5 ms to 4000 s |
| 12 | Number of sweep points | 101 to 100001 |
| 13 | Sweep Trigger | Free run, External, Video |
| Spectral Parameters | | |
| 14 | Phase Noise at CF = 1 GHz for offsets | 1 KHz: <-101 dBc/Hz |
| | | 10 KHz: <-107 dBc/Hz |
| | | 1 MHz: <-135 dBc/Hz |
| 15 | Displayed Average Noise Level | Preamp Off: 10 MHz to 13 GHz: <-140 dBm/Hz Preamp On: 10 MHz to 13 GHz: <-157 dBm/Hz |
| 16 | Trace Detectors | Normal, Peak, Sample, RMS, Average |
| 17 | Microwave Preselector Bypass | Should be available |
| Dynamic range Parameters | | |
| 18 | 1 dB input Mixer Compression @ CF=13 GHz | >= + 4 dBm |
| 19 | LO spurs @ Cf<13.6 GHz @ offset 10 KHz | <-60 dBc |
| Amplitude Parameters | | |
| 20 | Amplitude Measurement range | DANL to +30 dBm |
| 21 | Maximum RF Input level | +30 dBm |
| 22 | Attenuator Range | 0 dB to 70 dB, in 2 dB steps |
| 23 | Amplitude Accuracy (Incl.Frequency response) | <= 2 dB |
| Measurement Capability | | |
| 24 | Spectrum Measurement | Carrier to Noise Ratio, Adjacent Channel power ratio, Harmonics |
| 25 | Pulse Analysis | Rise time, Period, Pulse width, Pulse ON power, etc., |
| IQ Capture | | |
| 25 | IQ Capture length | At least 512 MSample I & Q |

| | | |
|-----------------------------|----------------------------|---|
| 26 | Sampling rate | 100 Hz up to 512 MHz |
| Interface Parameters | | |
| 26 | RF Input Connector | RF port 50 Ω adapter with 3.5 mm Male. |
| 27 | Interface | LAN RJ45, USB, DVI-D |
| 28 | Display | At least 10 inch LCD color display |
| General Parameters | | |
| 29 | Power Supply | 230V AC, 50 Hz |
| 30 | EMI/EMC should be complied | EMC directive of EU 2004/108/EC EN61326 or equivalent |
| 31 | Warranty | 3 Years |

Section 5- Technical Bid

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

The Chair,
Instrumentation and Applied Physics,
Indian Institute of Science
Bangalore – 560012, India

Attn: Dr. Baladitya Suri

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 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 Chair,
Instrumentation and Applied Physics,
Indian Institute of Science
Bangalore – 560012, India

Ref: Tender No: XXXXXXXXXX

Dated: XXXXX

Supply of an RF Spectrum Analyser for Quantum Technologies Laboratory , IAP 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 RF and microwave equipment.

(Signature of the Bidder)

Printed Name

Designation, Seal Date:

Annexure-3:

Declaration regarding track record

To,
The Chair,
Instrumentation and Applied Physics,
Indian Institute of Science
Bangalore – 560012, India

Ref: Tender No: XXXXXXXX
Dated: XXXXX

Supply of RF Spectrum Analyser for Quantum Technologies Laboratory , IAP 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 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 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 Chair,
Instrumentation and Applied Physics,
Indian Institute of Science
Bangalore – 560012, India

Ref: Tender No: XXXXXX
Dated: XXXX

Supply of RF Spectrum Analyser for Quantum Technologies Laboratory , IAP 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:

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 technical bid.
3. Bidder should
4. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document in a clear tabular format. If there is a deviation from the specifications in the tender document, the bidder may explain the extent of deviation and any justification for the deviation. The tabular format must contain the following columns besides any additional columns that the bidder may choose to include.

| Tender Specification | Compliance (Yes/No) | If NO, the extent of deviation and justification for the deviation. |
|----------------------|---------------------|---|
|----------------------|---------------------|---|

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 (3 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: Dr. Baladitya Suri
 Instrumentation and Applied Physics,
 Indian Institute of Science
 Bangalore – 560012, India

Section 7 – Checklist

(This should be enclosed with 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 Envelop “B”: Commercial Bid

Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) super scribing 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.