



भारतीय प्रौद्योगिकी संस्थान तिरुपति

Indian Institute of Technology Tirupati

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Tender No. IITT/ ELE/2022-23/06

25<sup>th</sup> April 2022.

**NOTICE INVITING TENDER FOR SUPPLY, INSTALLATION, TESTING AND  
COMMISSIONING OF IMPEDANCE ANALYSER**

**(E-PROCUREMENT MODE ONLY)**

Indian Institute of Technology Tirupati (IIT Tirupati) invites online bids (e-tender) in Two bid system from eligible Class-I & Class-II in line with Government Public Procurement order No.P-45021/2/2017-BE-II dated: 04.06.2020 for the following:

Item Description	Quantity (approx.)	Tender Fee (Inclusive of all taxes in Rs.)
Supply, installation, testing and commissioning of Impedance Analyser as per the specifications of the tender documents	01 Unit	500/-
<b>Total</b>		<b>500/-</b>

The Tender Document can be downloaded from Central Public Procurement (CPP) Portal <http://eprocure.gov.in/eprocure/app> and bid is to be submitted online only through the same portal up to the last date and time of submission of tender.

**Critical Dates of Tender:**

1	Date and time of Online Publication/Download of Tenders	25.04.2022	18.00 hrs
2	Bid submission start date & time	25.04.2022	18.00 hrs
3	Bid submission close date & time	17.05.2022	15.00 hrs
4	Closing date & time for submission of EMD/Tender fee	17.05.2022	15.00 hrs
5	Opening of Technical bids	18.05.2022	15.00 hrs

## 1. About IIT TIRUPATI:

Indian Institute of Technology Tirupati (IIT Tirupati) is an Autonomous Institute under Ministry of Education, Govt. of India.

## 2. Technical Specifications: Schedule of requirement

S.No	Item Description with Specifications	
1	<b><u>Technical Specifications</u></b>	
	<b>Item name:</b> Impedance Analyser	
	<b>Item Description:</b> Impedance analyser with lock-in amplifier functionality suitable for DLTS (Deep Level Transient Spectroscopy) studies of semiconductor devices.	
	<b>Quantity: 01 Unit.</b>	
	<b><u>Specifications:</u></b>	
<b>Basic features</b>		
<b>S.No</b>	<b>Parameter</b>	<b>Specification/capabilities</b>
1	Frequency range	Basic: 1 mHz to 500KHZ with upgrade: upto 5MHz With the above upgrade, the frequency range of interest is 1 mHz to 5 MHz
2	Frequency resolution	1 $\mu$ Hz or better
3	Basic accuracy	0.05% or better
4	Basic temp. stability	Upto 200 ppm/K
5	Test signal level	0 V to 2.1 V <sub>rms</sub> ; incl. monitoring
6	Demodulator bandwidth	276 $\mu$ Hz to 206 kHz
7	DC bias signal level	For 2T: $\pm 10$ V and for 4T: $\pm 3$ V
8	Lock-in amplifier	Capabilities to work as a lock-in amplifier
9	Compensation	SO, SOL, LLL, SL, L and OL
<b>Measurement parameters, range and typ. accuracy</b>		
1	Impedance Z	1 m $\Omega$ to 1 T $\Omega$ , 0.05% accuracy
2	Admittance Y	1 pS to 1 kS, 0.05% accuracy
3	Voltage V	0 V to 3 V, 1% accuracy
4	Current I	0 mA to 10 mA, 2% accuracy
5	Phases $\Theta_Z, \Theta_Y, \Theta_V, \Theta_I$	$\pm 180$ deg, 10 $\mu$ deg res.
6	Resistance $R_S, R_P^1$	1 m $\Omega$ to 1 T $\Omega$ , max(10 $\mu$ Ohm, 0.05%)
7	Capacitance $C_S, C_P^1$	10 fF to 1 F, max(10 fF, 0.05%)
8	Inductance $L_S, L_P^1$	100 nH to 1 H, max(10 nH, 0.05%)
9	DC Resistance $R_{DC}$	1 m $\Omega$ to 10 G $\Omega$ , 2%

10	Reactance X	1 mΩ to 1 TΩ, 0.05%
11	Conductance G, Susceptance B	1 nS to 1 kS, max(100 nS, 0.05%)
12	Loss coefficient D	10 <sup>-4</sup> to 10000
13	Q factor	10 <sup>-4</sup> to 10000
<b>Sweeping measurements</b>		
1	Sweep parameters	Frequency, test signal amplitude, bias voltage, etc.
2	Sweep points	2 to 100000
3	Sweep resolution	Arbitrary, defined by start value, stop value, number of sweep points
4	Display parameters	Z <sub>X</sub> , Z <sub>Y</sub> , Z, Z <sub>θ</sub> , V <sub>X</sub> , V <sub>Y</sub> , V <sub>R</sub> , V <sub>θ</sub> , I <sub>X</sub> , I <sub>Y</sub> , I <sub>R</sub> , I <sub>θ</sub> , model parameter 1/2, frequency, auxiliary input
5	Display options	Single plot, dual plot (e.g., Bode plot), multi-trace
6	Application modes	Impedance, frequency response analyzer, 3-omega, etc.
7	Sweep modes	Sequential, binary, bidirectional, reverse
8	Sweep step modes	Linear, logarithmic
9	Sweep speed	20 ms/pt for f > 10 kHz
<b>Digitizer Operation Mode</b>		
1	Shot/Triggered operation	Yes , 60 MSa/s per channel
2	Dual signal acquisition	Yes (Simultaneously at 60 MSa/s)
3	Input signal	Voltage Input, Current Input, Aux Input 1-2, Ref/Trigger 1-2, Demodulators 1-4, Signal Output, Oscillator phase of Demodulators 2 and 4
4	Maximum number of shots	Up to 1024
5	SFDR	75 dB
6	SNR	69 dB
7	Trigger modes & Sources	Rising, falling, gated trigger and Channel, external triggering
<b>Additional tools and features</b>		
1	Toolset	Numerical, FFT Spectrum Analyzer, Plotter, SW Trigger, Scope
2	APIs	C, .NET, MATLAB, LabVIEW, Python
3	Modes	2-terminal, 4-terminal
4	Confidence Indicator	Suppression, compensation, overflow, underflow
5	Input range control	Auto, impedance, manual
6	Test signal amplitude	Auto, manual

7	Bandwidth control	Auto, manual
8	Replacement circuit models	$R_p    C_p, R_s + C_s, R_s + L_s, G-B, D-C_s, Q-C_s, D-L_s, Q-L_s$
9	DCR measurements	Yes
10	Test fixture compatibility	Yes
<b>Test Fixture compatible with the above impedance analyser</b>		
1	Frequency range	From DC to 10 MHz
2	Max voltage	Upto $\pm 40V$ (AC and DC)
3	Terminal connector	4-terminal pair, BNC, 22 mm spacing
4	Parasitics	$< 8fF$ or better
<b>Other information</b>		
1	Warranty	1 year
2	Extended Warranty (optional)	2 years
3	Additional requirements	<ul style="list-style-type: none"> <li>Order copy/customer satisfaction report of similar item supplied to atleast 5 organizations should be produced.</li> <li>Contact details of the customers along with email IDs and phone numbers should be provided.</li> <li>On-site customer support is required.</li> </ul>
<b>Spares and service availability:</b> Minimum 5 Years		

**All offered products technical Specifications and Brochures are to be submitted along with the Technical Bid.**

### **3. TENDER FEE & BID SECURITY DECLARATION DETAILS:**

**3.1 Tender Fee of Rs. 500/- (Rupees five hundred only)** should be submitted through ECS (Bank transfer / NEFT / RTGS) in favour of Indian Institute of Technology Tirupati.

**3.2 Bank A/c Details for crediting Tender Fee:**

**Name :** Indian institute of Technology Tirupati Main Account  
**Bank :** State Bank of India  
**Account No :** 35523338208  
**IFSC Code :** SBIN0006677

**3.3 Tender Fee and Bid Security Exemption:**

I) **Micro and Small Enterprises (MSEs):**

Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) **for goods produced and services rendered**, are exempted from Tender fee and Bid Security. However, they have to enclose **valid self-attested registration certificate(s)** along with the tender to this effect.

Accordingly, MSEs shall be required to submit valid **Udyam Registration Certificate** for availing benefit under MSE Procurement Policy.

**The benefit as above to MSEs shall be available only for Goods produced and services rendered by MSEs. However, traders are excluded from the purview of MSE Procurement Policy.**

II) **Startup(s):**

Startup(s) as recognized by **Department for Promotion of Industry and Internal Trade (DPIIT)**, Govt. of India, are exempted from Tender fee and Bid Security. However, they have to enclose *valid self-attested registration certificate(s)* along with the tender to this effect.

**Eligible MSE and startup bidders who seeks exemption from Tender fee/Bid Security as per clause no. (c) above, if they withdraw or modify their bids during the period of validity, or if they are awarded the contract and they fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, they will be suspended for the period of three years or as decided by the competent authority from being eligible to submit bids for contracts with the entity that invited the bids.**

**3.4** The Bidders will have to upload scanned copy of Payment details towards tender fee and the same will be accepted only on verification and confirmation by the Institute. Any delay in credit will not be entertained by the Institute. **(As per the format attached in Annexure – I)**

**3.5 Other than eligible MSE and Startup bidders, Bid Security Declaration:**

**Bidders should have to submit the Bid Security Declaration (As per the format attached in annexure-II) in duly filled and signed condition.**

**4. ELIGIBILITY CRITERIA**

**4.1 Other Important Documents (OIDs)**

**Firm Incorporation Certificate, PAN details, GST details are to be provided.**

**4.2. Statutory Documents:**

- I) The Bidder should give self-declaration certificate for acceptance of all terms & conditions of tender documents. A duly completed certificate to this effect is to be submitted as per the Annexure-I.
- II) The firm should not be in the active debarred list by any Central / State Government / Public Undertaking / Institute and no criminal case registered / pending against the firm or its owner / partners anywhere in India. A duly completed certificate to this effect is to be submitted as per Annexure-III.

III) **Experience and Past Performance:**

The bidder/OEM should have supplied similar system to at least 5 organizations during past five years in India to Central / State Govt / PSU/ CPSEs/ Educational R&D Institutions. Vendor should provide order copy/ customer satisfaction report with product details as proof with customer contacts email and phone number and as per the **Annexure-IV**.

- IV) The Annual Turnover should be at least Rs. 5 Lakhs and be profitable during each of the previous three financial years **i.e. during 2017-18 to 2019-20 or 2018-19 to 2020-21**. Audited financial Statements or Financial Statements showing turnover duly signed by a Chartered Accountant are to be submitted as per the **Annexure-V**.
- V) **In case the bidder is a Class-I / Class-II in line with the Public Procurement (Preference to Make in India) Order 2017 No. P-45021/2/2017-PP (BE-II) dated 04 Jun 2020 as amended from time to time. A Self-Declaration Certificate regarding “Class-I/Class-II Supplier” for the tendered items as per the Annexure-VI is to be submitted.**

**As per the OM of Department of Promotion for Industry and Internal Trade No. P-45021/102/2019-BE-II-Part(1) dated: 04.03.2021. The bidders can't claim themselves as Class-I local suppliers/Class-II local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training and after sales service support like AMC/CMC etc. as local value addition.**

- a. 'Local Content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.
- b. 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50% as defined under this order.
- c. 'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has minimum local content of 20% but less than 50%, as defined under this order.

- d. 'Non-local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%, as defined under this order.
- e. Complaint redressal mechanism: In case any complaint received by the procuring agency or the concerned Ministry/Department against the claim of a bidder regarding local content/domestic value addition in an electronic product, the same shall be referred to STQC.
- f. The bidder shall be required to furnish the necessary documentation in support of the domestic value addition claimed in an electronic product to STQC. If no information is furnished by the bidder, such laboratories may take further necessary action, to establish the bonafides of the claim.
- g. A complaint fee of Rs. 2 lakh or 1% of the value of the domestically manufactured products being procured (subject to a maximum of Rs.5 lakh), whichever is higher, to be paid by Demand Draft to be deposited with STQC. In case, the complaint is found to be incorrect, the complaint fee shall be forfeited. In case, the complaint is upheld and found to be substantially correct, deposited fee of the complainant would be refunded without any interest.
- h. False declarations will be in breach of the Code of Integrity under Rule 175 (1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

VI) The bidder should be OEM or OEM authorized Dealers / Channel partners / Distributors of reputed brand having authorization for sales and after sales support. Valid OEM authorization letter is required to participate in this tender.

**VII) Prior Registration and / or Screening of bidders:**

Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder registered with the competent authority. **The concerned bidder(s) are required to attach the relevant valid Registration Certificate along with the bid for consideration.**

“Bidder” (including the term ‘tenderer’, consultant or service provider in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

“Bidder from a country which shares a land border with India” for the purpose of this Order means :-

- An entity incorporated, established or registered in such a country; or

- A subsidiary of an entity incorporated, established or registered in such a country or
- An entity substantially controlled through entities incorporated, established or registered in such a country; or
- An entity whose beneficial owner is situated in such a country; or
- An Indian (or other) agent of such an entity; or
- A natural person who is a citizen of such a country; or
- A consortium of joint venture where any member of the consortium or joint venture falls under any of the above.

The detailed terms & conditions issued from time to time in this regard by Government of India will be applicable.

#### VIII) **Authorized Representatives:**

Bids of bidders quoting as authorised representative of a principal manufacturer would also be considered to be qualified, provided:

- (i) Their principal manufacturer meets all the criteria above without exemption, and
- ii) The principal manufacturer furnishes a legally enforceable tender-specific authorisation assuring full guarantee and warranty obligations as per the general and special conditions of contract;  
and
- iii) The bidder himself should have been associated, as authorised representative of the Principal Manufacturer for same set of services as in present bid (supply, installation, satisfactorily commissioning, after sales service as the case may be) for same or similar item for past three years ending on bid opening date.

### 4.3 TECHNICAL CRITERIA

Bidders should comply the specification of the tendered item in all respect. The detailed format is attached at Annexure-VII. The bidder is to complete the same in all respect and submit accordingly

### 5. FINANCIAL BID DETAILS

5.1 Financial bid i.e. BOQ given with tender (in **Excel format**) to be downloaded first and uploaded after filling all relevant information strictly as per the format failing which the offer is liable for rejection. Kindly quote your offer on FOR IIT Tirupati (inclusive of all taxes and charges). **Vendor should quote prices in BOQ only, offers indicating rates anywhere else shall be liable for rejection.**

5.2 Concessional Custom Duty / Concessional GST is applicable to IIT Tirupati as a Research Institution. Necessary Certificate to this effect shall be provided by IIT Tirupati to the supplier.



## 6. TIME SCHEDULE:

S. No.	Particulars	Date	Time
a.	Date of Online Publication of Tender	25.04.2022	18.00 hrs
b.	Bid Submission Start Date	25.04.2022	18.00 hrs
c.	Bid Submission Close Date	17.05.2022	15.00 hrs
d.	Closing Date & Time for Submission of EMD & Tender Fee	17.05.2022	15.00 hrs
e.	Opening of Technical Bids	18.05.2022	15.00 hrs

## 7. AVAILABILITY OF TENDER

The tender document can be downloaded from <http://eprocure.gov.in/eprocure/app> and be submitted only through the same website.

## 8. BID VALIDITY PERIOD

The bid will remain valid for 90 days from the date of opening as prescribed by IIT Tirupati. A bid valid for a shorter period shall be rejected, being non-responsive.

## 9. BID SUBMISSION

### 9.1 Instruction to Bidder

- I) Bidders are required to enrol on the e-Procurement module of the **Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>)** by clicking on the link "**Online Bidder Enrolment**" on the CPP Portal. **The registration is completely free of charge.**
- II) Possession of a valid Class II/III DSC in the form of smart card / e-token is a prerequisite for registration and participating in the bid submission activities. DSCs can be obtained from the authorised certifying agencies recognized by CCA India (e.g. Sify/TCS/nCode/eMudhra etc).
- III) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.
- IV) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.

- V) The Bidders are required to log in to the site through the secured log-in by entering their respective user ID / password and the password of the DSC.
- VI) The CPP portal also has user manuals with detailed guidelines on enrolment and participation in the online bidding process. The user manuals can be downloaded for reference.

## 9.2 TENDER CLARIFICATION

- I) In case the bidders require any clarification regarding the tender documents, they are requested to contact our office Ph. no: 0877-2503572, Email ID: [purchase@iittp.ac.in](mailto:purchase@iittp.ac.in) on or before due date.
- II) Technical and Specifications related Clarifications contact our office No : 0877 2503256 Email ID: [nnmurty@iittp.ac.in](mailto:nnmurty@iittp.ac.in) on or before due date.
- III) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk.

## 9.3 ONLINE BID SUBMISSION PROCEDURE

**Cover-1:** The file should be saved in a PDF version numbered sequentially and should comprise of the following items:

**Packet-1:**

Duly Completed Scanned PDF copy of, PAN, GST, Firm Registration certificate and Annexure-I to VIII with relevant supporting documents

**Only the relevant documents as per the tender clauses are to be uploaded along with duly completed checklist as per the annexure-IX. Uploading of other than the required documents may liable for rejection of the bid.**

**Cover-2:**

A standard BOQ format has been provided in excel format. Bidders are required to download the BOQ excel file and fill their financial offer on the same BOQ format. After filling the same, submit it online in excel format, without changing the financial template format.

**Note:**

If the bid is incomplete and / or non-responsive it will be rejected during technical evaluation. The bidder may not be approached for clarifications during the technical evaluation. So, the bidders are requested to ensure that they provide all necessary details in the submitted bids.

## 10. BID OPENING

10.1 Technical Bids will be opened on 18.05.2022 @ **15.00 Hrs.**

10.2 Financial Bids of the eligible bidders will be opened on a later date. The date and time for opening of Financial Bids will be announced later.

10.3 **Bids should be summarily rejected, if tender is submitted other than through online or original tender fee/Bid security declaration are not submitted within stipulated date / time.**

## 11. BID EVALUATION

Based on results of the Technical evaluation IIT Tirupati evaluates the Commercial Bid of those Bidders who gets qualify in the Technical evaluation. The Commercial Bid with the lowest price will be the highest evaluated bid.

### 11.1 Purchase Preference

#### I) Micro and Small Enterprises (MSEs):

Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) **for goods produced and services rendered**, may be provided following purchase preference:

Item wise Quantity	Price Quoted by MSE	How the tender shall be finalized
Cannot be split	L1	Full Order on MSE
Cannot be split	Not L1 but within L1 + 15%	Full Order on MSE subject to matching L1 Price

#### II) Preference to Make in India

a) In procurement goods or works which are covered under by para 3(b) of the extant Public Procurement (Preference to Make in India) Order 2017 dated 04 June 2020 and which are **divisible** in nature, the “Class-I Local Supplier” shall get purchase preference over “Class-II Local Supplier” as well as “Non-Local Supplier” as per following procedure:

- i) **Among all qualified bids, the lowest bid will be termed as L1. If L1 is “Class-I Local Supplier”, the contract for full quantity will be awarded to L1.**
- ii) **If L1 bid is not a “Class-I Local Supplier”, 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the “Class-I Local Supplier” will be invited to match L1 price for the remaining 50% quantity subject to the Class-I Local Supplier’s quoted price falling within the margin of L1 + 20%, and contract for that quantity shall be awarded to such “Class-I Local Supplier” subject to matching the L1 price. In case such lowest eligible “Class-I Local Supplier” fails to match L1 price**

or accepts less than the offered quantity, the next higher “Class-I Local Supplier” within the margin of L1 + 20% shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such quantity may be ordered on the L1 bidder.

- b) In procurement goods or works which are covered under by para 3(b) of the extant Public Procurement (Preference to Make in India) Order 2017 dated 04 June 2020 and which are **not divisible** in nature, and in procurement of services where the bid is evaluated on price alone, the “Class-I Local Supplier” shall get purchase preference over “Class-II Local Supplier” as well as “Non-Local Supplier” as per following procedure:
- i) **Among all qualified bids, the lowest bid will be termed as L1.**  
**If L1 is “Class-I Local Supplier”,** the contract will be awarded to L1.
  - ii) **If L1 is not a “Class-I Local Supplier”,** the lowest bidder among the Class-I Local Supplier, will be invited to match the L1 price subject to Class-I Local Supplier’s quoted price falling within the margin of L1 + 20%, the contract shall be awarded to such Class-I Supplier subject to matching the L1 price.
  - iii) **In case such lowest eligible Class-I Local Supplier fails to match the L1 price, the “Class-I Local Supplier”** with the next higher bid within the margin of L1 + 20% shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the of Class-I Local Supplier within the margin of L1 + 20%, the contract may be awarded to the L1 bidder.
  - iv) **Class-II Local Supplier will not get purchase preference.**

## 12. PAYMENT TERMS

No advance payment will be made in any case. Bills in Duplicate should be sent and the payment shall be released generally within 30 days, only after it is ensured that the items / quality of the items supplied are to the entire satisfaction of IIT Tirupati and completed the entire work within the stipulated delivery schedule. If any item is found defective, or not of the desired quality etc., the same should be replaced by the firm(s) immediately for which no extra payment shall be made.

## 13. WARRANTY OF QUALITY AND QUANTITY

- 13.1 The awardee shall give Minimum **1-year Onsite warranty** on successful completion of supply, and acceptance of supplied items. **2 years' additional Onsite warranty** after completion of OEM standard warranty may be quoted as an optional.
- 13.2 The awardee shall give warranty that all items are as per specification(s), conforming to the specified design and there are no defects in the process of manufacturing, packaging, transportation and delivery.
- 13.3 Upon receipt of notice from IIT Tirupati for defective material, the firm shall **within 15 days** of receipt of the notice, replace the defective material, free of cost at the destination. The firm shall take over the defective material at the time of their replacement. No claim whatsoever shall lie on IIT Tirupati for the replaced goods thereafter. If the firm fails to replace the defective goods within a reasonable period, IIT Tirupati may proceed to take such remedial actions as may be necessary, at the company's risk and expense.

#### **14. LIQUIDATED DAMAGES**

In case of delay in Supply by the stipulated date, IIT Tirupati reserves the right of imposing penalty @0.5% per week on the value of the undelivered items subject to maximum 10% of the cost of undelivered items.

#### **15. DELIVERY SCHEDULE**

- 15.1 The successful bidder should execute the order successfully i.e. Supply, Installation of ordered item within **10 weeks** at IIT Tirupati transit campus, Venkatagiri Road, Yerpedu Post, Tirupati, Chittoor District from the date of issue of the purchase order. In case of any damage/Broken/Expired items found, the item(s) should be replaced **within 15 days** at IIT Tirupati. The bidder has to make own arrangement for unloading and positioning of items at the desired location of IIT Tirupati.

#### **16. PERFORMANCE SECURITY DETAILS**

- 16.1 The successful tenderer will have to deposit the performance security valid for **15 Months** in the form of DD / TDR / FDR / Bank Guarantee @**03% of the total order value** at the earliest from the date of issue of the award letter. No interest will be paid by IIT Tirupati on the deposit.
- 16.2 Performance Security will be refunded to the supplier, after it duly performs and completes the contract/warranty period in all respects.
- 16.3 Performance Security will be forfeited if the firm fails to perform/abide by any of the terms or conditions of the contract.

- 16.4 In case, the firm fails to execute the order successfully, within specified delivery period, the same goods/items will be procured from open market and the difference of cost, if any, will be recovered from Performance Security or from pending bill(s) of the defaulting firm or from both in case the recoverable amount exceeds the amount of Performance Security.

## **17. TERMS AND CONDITIONS**

### **17.1 Termination for Insolvency**

- I) The IIT Tirupati may at any time terminate the Contract by giving a written notice to the awarding firm, without compensation to the firm, if the firm becomes bankrupt or otherwise insolvent as declared by the competent Court, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the department.
- II) IIT Tirupati and/or the firm are entitled to withdraw/cancel the rate contract by serving one-month notice on each other. However, once a purchase order is placed on the supplier for supply of a definite quantity in terms of the rate contract during the validity of the rate contract, that purchase order becomes a valid and binding contract.
- III) The courts of Tirupati alone will have the jurisdiction to try any matter, dispute or reference between the parties arising out of this purchase. It is specifically agreed that no court outside and other than Tirupati Court shall have jurisdiction in the matter

### **17.2 Force Majeure**

- I) Should any force majeure circumstances arise, each of the contracting parties be excused for the non-fulfilment or for the delayed fulfilment of any of its contractual obligations, if the affected party within 15 days of its occurrence informs in a written form the other party.
- II) Force Majeure shall mean fire, flood, natural disaster or other acts such as war, turmoil, sabotage, explosions, epidemics, quarantine restriction, strikes, and lockouts i.e. beyond the control of either party.

### **17.3 Arbitration**

- I) All disputes of any kind arising out in connection with the executing the order shall be referred by either party (IIT TIRUPATI or the bidder) after issuance of 30 days' notice in writing to the other party clearly mentioning the nature of dispute to a single arbitrator acceptable to both the parties. The venue for arbitration shall be IIT TIRUPATI India. The jurisdiction of the courts shall be Tirupati, Andhra Pradesh, India.

## 17.4 Other Conditions

- I) The bidder has to upload the relevant & readable files only as indicated in the tender documents. In case of any irrelevant or non-readable files, the bid may be rejected.
- II) IIT Tirupati will not be liable for any obligation or supplies made unless the Official Purchase Order has been placed by the Purchase Department.
- III) IIT Tirupati reserves the right to accept or reject any or all the tenders in part or in full or may cancel the tender, without assigning any reason thereof.
- IV) IIT Tirupati reserves the right to relax / amend / withdraw any of the terms and conditions contained in the Tender Document without assigning any reason thereof. Any inquiry after submission of the quotation will not be entertained.
- V) IIT Tirupati reserves the right to modify/change/delete/add any further terms and conditions prior to issue of purchase order.
- VI) In case the bidders/successful bidder(s) are found in breach of any condition(s) at any stage of the tender, Performance Security shall be forfeited.
- VII) False declaration/documents will be in breach of the Code of Integrity under Rule 175(1) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.
- VIII) Repeat Order: IIT Tirupati reserves the right to place repeat order up to 100% of the quantities within a period of 12 months from the date of successful completion of purchase order at the same rates and terms subject to the condition that there is no downward trend in prices.  
**To take care of any change in the requirement during the currency of the contract, a plus/minus option clause for 25 per cent is incorporated in the tender document, reserving purchaser's right to increase or decrease the quantity of the required goods up to that limit without any change in the terms and conditions and prices quoted by the tenderers.**
- IX) Conditional tenders will not be considered in any case.
- X) In case of doubt in material, the expenditure on testing of equipment will be borne by the tenderer.
- XI) Institute reserve the right to increase/decrease the order quantity at any period of times during the validity of the contract.
- XII) **IIT Tirupati may issue amendment/corrigendum to tender documents before due date of submission of bid. Any amendment/corrigendum to the tender document if any, issued by IIT Tirupati will be posted on CPP Portal. For the bidders, submitting bids on downloaded tender document, it is 'bidders' responsibility to check for any amendment/corrigendum on the website of IIT Tirupati or check for the same CPP Portal before submitting their duly completed bids.**

## UNDERTAKING

To  
**The Registrar,**  
 Indian Institute of Technology  
 Tirupati-Renigunta Road, Settipalli post,  
 Tirupati 517506.

Tender No. IITT/ ELE/2022-23/06 dated: 25-04-2022.

**Name of the Tender/Supply:** Notice Inviting Tender for Supply, installation, testing and Commissioning of Impedance Analyser.

Sir,

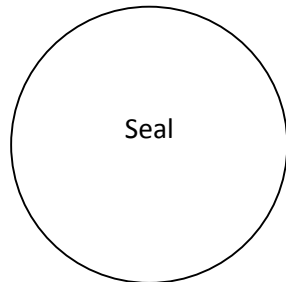
I /we hereby submit our bid for Supply, installation, testing and Commissioning of Impedance Analyser.

I/ We enclosed here with the following in favor of Indian Institute of Technology Tirupati towards Tender Fee.

Particular	Amount	Payment Reference Details	Payment Date
Tender Fee (Including Tax)	500/-		

1. I / We hereby reconfirm and declare that I / We have carefully read, understood & complying the above referred tender document including instructions, terms & conditions, scope of work, schedule of quantities and all the contents stated therein. I / We also confirm that the rates quoted by me / us are inclusive of all taxes, duties etc., applicable as on date.
2. I /we have gone through all terms and conditions of the tender document before submitting the same.

**Date:**  
**Place:**



**Authorized Signatory**

**Name:**

**Designation:**  
**Contact No:**



**On Company Letter Head**

**Bid Security Declaration**

To  
**The Registrar,**  
Indian Institute of Technology  
Tirupati-Renigunta Road, Settipalli post,  
Tirupati 517506.

Tender No. IITT/ ELE/2022-23/06 dated: 25-04-2022.

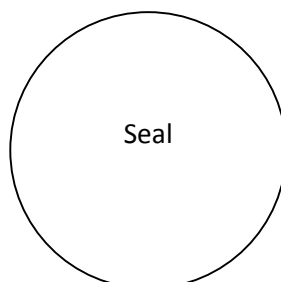
**Name of the Tender/Supply :** Notice Inviting Tender for Supply, installation, testing and Commissioning of Impedance Analyser.

Sir,

We, the undersigned declare that

1. We understood that, according to the tender conditions, bids must be supported by a Bid Security Declaration.
2. We accept that we will automatically be suspended from being eligible for bidding in any contract with the Institute for the period of **3 years** starting from the bid closing date, if we are in breach of our obligation(s) under the bid conditions, because we;
  - (a) have withdrawn our bid during the period of bid validity specified in the letter of bid; or
  - (b) having been notified of the acceptance of our bid by the institute during the period of bid validity, (i) fail or refuse to execute the contract, if required, or (ii) fail or refuse to furnish the performance security, in accordance with the tender conditions.

**Date:**  
**Place:**



**Authorized Signatory**

**Name:**

**Designation:**

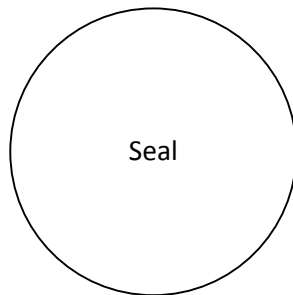
**Contact No :**

**CERTIFICATE  
(To be provided on letter head of the firm)**

I hereby certify that the above firm is not in the active debarred list by any Central/State Government/Public Undertaking/Institute nor is any criminal case registered / pending against the firm or its owner / partners anywhere in India.

I also certify that the above information is true and correct in every respect and in any case at a later date it is found that any details provided above are incorrect, any contract given to the above firm may be summarily terminated and the firm may be blacklisted.

**Date:**



**Place:**

**Authorized Signatory**

**Name:**

**Designation:**

**Contact No.:**

**ANNEXURE – IV**

**a) Experience: (As per tender Clause No.4.2 (III))**

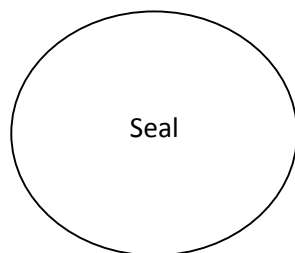
<b>Year</b>	<b>Name of the Item with Specification (Technical specification brochure to be attached)</b>	<b>Purchase Order No. &amp; Date (Copy of the Orders to be attached)</b>	<b>Date of successfully completion of SITC of ordered Item (copy of Installation report from client to be attached)</b>	<b>Contact Details of Client</b>
2017				
2018				
2019				
2020				
2021				

**b) Past Performance: (As per tender Clause No.4.2 (III))**

<b>Year</b>	<b>Purchase Order No. &amp; Date (Copy of the Orders to be attached)</b>	<b>Quantity</b>	<b>Date of successfully completion of SITC of ordered Item (copy of report from client to be attached)</b>	<b>Whether supplied item(s) is in successful operation for at least one year (Certificate from client to be attached)</b>	<b>Contact Details of Client [email and phone no]</b>
2017					
2018					
2019					
2020					
2021					

Date :

Place :



Authorized Signatory

Name:

Designation:

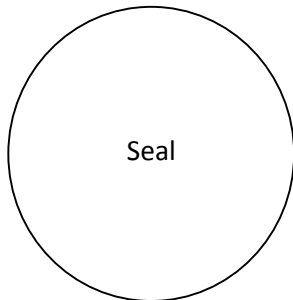
Contact No.:

**ANNEXURE – V**

**Annual Turnover and Profit Details:**

<b>Evaluation Criteria</b>				<b>Remark</b>	<b>Specific page no. where the proof of documents are enclosed</b>
<b>Bidder's Annual Turnover and Profit for last three financial years</b>	<b>Financial Year</b>	<b>Turnover in Rs.</b>	<b>Annual Profit in Rs.</b>	-	
	<b>2020-21</b>			<b>Supporting Documents are to be attached along with the Annexure-V [i.e. Audited financial Statements or Financial Statements showing turnover duly signed by a Chartered Accountant are to be submitted]</b>	
	<b>2019-20</b>				
	<b>2018-19</b>				
	<b>2017-18</b>				

Date:



Place:

Authorized Signatory:

Name:

Designation:

Contact No.:

**Format for Self-Declaration under preference to make in India order**

In line with Government Public Procurement Order No. P-45021/2/2017-BE-II date. 15.06.2017 & P-45021/2/2017-PP (BE-II) dated: 04 June 2020. We hereby certify that we M/s. \_\_\_\_\_ (supplier name) are **CLASS-I/Class-II (Please specify clearly)** supplier meeting the requirement of local content more than 20% as defined in above orders for the material against Enquiry No. IITT/ ELE/2022-23/06 dated: 25-04-2022.

Details of location at which local value addition will be made as follows: (Complete address to be mentioned)

\_\_\_\_\_  
\_\_\_\_\_

Percentage of Local Content: \_\_\_\_\_

*(As per the OM of Department of Promotion for Industry and Internal Trade No. P-45021/102/2019-BE-II-Part(1) dated: 04.03.2021. The bidders can't claim themselves as Class-I local suppliers/Class-II local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training and after sales service support like AMC/CMC etc. as local value addition)*

We also understand, false declarations will be in breach of the Code of Integrity under rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.

Seal and signature of Supplier

Date :

Place :

## Technical Compliance statement

Description			Compl ied (Yes/ No)	Remar ks, if any	Offere d Make & Model	% of Local Content as per Tender Clause No.4.2( V)	Coun try of Origi n																																				
<b><u>Technical Specifications</u></b>																																											
<p><b>Item Name:</b> Impedance Analyser</p> <p><b>Item Description:</b> Impedance analyser with lock-in amplifier functionality suitable for DLTS (Deep Level Transient Spectroscopy) studies of semiconductor devices.</p> <p><b>Quantity:</b> 01 unit.</p> <p><b><u>Specifications:</u></b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Basic features</th> </tr> <tr> <th>S.No</th> <th>Parameter</th> <th>Specification/capabilities</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Frequency range</td> <td>Basic: 1 mHz to 500KHZ with upgrade: upto 5MHz With the above upgrade, the frequency range of interest is 1 mHz to 5 MHz</td> </tr> <tr> <td>2</td> <td>Frequency resolution</td> <td>1 <math>\mu</math>Hz or better</td> </tr> <tr> <td>3</td> <td>Basic accuracy</td> <td>0.05% or better</td> </tr> <tr> <td>4</td> <td>Basic temp. stability</td> <td>Upto 200 ppm/K</td> </tr> <tr> <td>5</td> <td>Test signal level</td> <td>0 V to 2.1 V<sub>rms</sub>; incl. monitoring</td> </tr> <tr> <td>6</td> <td>Demodulator bandwidth</td> <td>276 <math>\mu</math>Hz to 206 kHz</td> </tr> <tr> <td>7</td> <td>DC bias signal level</td> <td>For 2T: <math>\pm</math>10 V and for 4T: <math>\pm</math>3 V</td> </tr> <tr> <td>8</td> <td>Lock-in amplifier</td> <td>Capabilities to work as a lock-in amplifier</td> </tr> <tr> <td>9</td> <td>Compensation</td> <td>SO, SOL, LLL, SL, L and OL</td> </tr> </tbody> </table> <p><b>Measurement parameters, range and typ. accuracy</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td>1</td> <td>Impedance Z</td> <td>1 m<math>\Omega</math> to 1 T<math>\Omega</math>, 0.05% accuracy</td> </tr> </tbody> </table>			Basic features			S.No	Parameter	Specification/capabilities	1	Frequency range	Basic: 1 mHz to 500KHZ with upgrade: upto 5MHz With the above upgrade, the frequency range of interest is 1 mHz to 5 MHz	2	Frequency resolution	1 $\mu$ Hz or better	3	Basic accuracy	0.05% or better	4	Basic temp. stability	Upto 200 ppm/K	5	Test signal level	0 V to 2.1 V <sub>rms</sub> ; incl. monitoring	6	Demodulator bandwidth	276 $\mu$ Hz to 206 kHz	7	DC bias signal level	For 2T: $\pm$ 10 V and for 4T: $\pm$ 3 V	8	Lock-in amplifier	Capabilities to work as a lock-in amplifier	9	Compensation	SO, SOL, LLL, SL, L and OL	1	Impedance Z	1 m $\Omega$ to 1 T $\Omega$ , 0.05% accuracy					
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2	Admittance Y	1 pS to 1 kS, 0.05% accuracy				
3	Voltage V	0 V to 3 V, 1% accuracy				
4	Current I	0 mA to 10 mA, 2% accuracy				
5	Phases $\Theta_Z, \Theta_Y, \Theta_V, \Theta_I$	$\pm 180$ deg, 10 $\mu$ deg res.				
6	Resistance $R_S, R_P^1$	1 m $\Omega$ to 1 T $\Omega$ , max(10 $\mu$ Ohm, 0.05%)				
7	Capacitance $C_S, C_P^1$	10 fF to 1 F, max(10 fF, 0.05%)				
8	Inductance $L_S, L_P^1$	100 nH to 1 H, max(10 nH, 0.05%)				
9	DC Resistance $R_{DC}$	1 m $\Omega$ to 10 G $\Omega$ , 2%				
10	Reactance X	1 m $\Omega$ to 1 T $\Omega$ , 0.05%				
11	Conductance G, Susceptance B	1 nS to 1 kS, max(100 nS, 0.05%)				
12	Loss coefficient D	$10^{-4}$ to 10000				
13	Q factor	$10^{-4}$ to 10000				
<b>Sweeping measurements</b>						
1	Sweep parameters	Frequency, test signal amplitude, bias voltage, etc.				
2	Sweep points	2 to 100000				
3	Sweep resolution	Arbitrary, defined by start value, stop value, number of sweep points				
4	Display parameters	$Z_X, Z_Y, Z, Z_\Theta, V_X, V_Y, V_R, V_\Theta, I_X, I_Y, I_R, I_\Theta$ , model parameter 1/2, frequency, auxiliary input				
5	Display options	Single plot, dual plot (e.g., Bode plot), multi-trace				
6	Application modes	Impedance, frequency response analyzer, 3-omega, etc.				
7	Sweep modes	Sequential, binary, bidirectional, reverse				
8	Sweep step modes	Linear, logarithmic				
9	Sweep speed	20 ms/pt for $f > 10$ kHz				
<b>Digitizer Operation Mode</b>						
1	Shot/Triggered operation	Yes, 60 MSa/s per channel				
2	Dual signal acquisition	Yes (Simultaneously at 60 MSa/s)				
3	Input signal	Voltage Input, Current Input, Aux Input 1-2, Ref/Trigger 1-2, Demodulators 1-4,				

		Signal Output, Oscillator phase of Demodulators 2 and 4				
4	Maximum number of shots	Up to 1024				
5	SFDR	75 dB				
6	SNR	69 dB				
7	Trigger modes & Sources	Rising, falling, gated trigger and Channel, external triggering				
<b>Additional tools and features</b>						
1	Toolset	Numerical, FFT Spectrum Analyzer, Plotter, SW Trigger, Scope				
2	APIs	C, .NET, MATLAB, LabVIEW, Python				
3	Modes	2-terminal, 4-terminal				
4	Confidence Indicator	Suppression, compensation, overflow, underflow				
5	Input range control	Auto, impedance, manual				
6	Test signal amplitude	Auto, manual				
7	Bandwidth control	Auto, manual				
8	Replacement circuit models	$R_p    C_p, R_s + C_s, R_s + L_s, G-B, D-C_s, Q-C_s, D-L_s, Q-L_s$				
9	DCR measurements	Yes				
10	Test fixture compatibility	Yes				
<b>Test Fixture compatible with the above impedance analyser</b>						
1	Frequency range	From DC to 10 MHz				
2	Max voltage	Upto $\pm 40V$ (AC and DC)				
3	Terminal connector	4-terminal pair, BNC, 22 mm spacing				
4	Parasitics	< 8fF or better				
<b>Other information</b>						
1	Warranty	1 year				
2	Extended Warranty (optional)	2 years				
3	Specify Scope of warranty:					
4	Additional requirements	<ul style="list-style-type: none"> <li>Order copy/customer satisfaction report of similar item supplied to at least 5</li> </ul>				



		<p>organizations should be produced.</p> <ul style="list-style-type: none"> <li>• Contact details of the customers along with email IDs and phone numbers should be provided.</li> <li>• On-site customer support is required.</li> </ul>					
<p><b>Spares and service availability:</b> Minimum 5 years</p>							

## COMPANY DETAILS

<b>Name of the bidder</b>		
<b>Date of Incorporation / Registration details</b>		
<b>PAN Number</b>		
<b>GST Registration Number</b>		
<b>Bidder's Bidding Capacity for the tendered items (As a Manufacturer/ Trader/ dealer / channel partner / system integrator, etc.)</b>		
<b>Bank Details</b>	<b>Account Number</b>	
	<b>IFS Code</b>	
	<b>Bank Name</b>	
	<b>Branch Name</b>	
<b>Registered Office Address</b>		
<b>Authorized Signatory Details (Company/Firm Authorization by the competent authority, to be attached)</b>	<b>Name</b>	
	<b>Designation</b>	
	<b>Email</b>	
	<b>Phone</b>	
<b>Details of Contact other than Authorized Signatory</b>	<b>Name</b>	
	<b>Designation</b>	
	<b>Email</b>	
	<b>Phone</b>	

Date:

Signature and Seal of the Tenderer:

Place:

Name in Block Letter:

Designation:

Contact no.

**CHECKLIST FOR BIDDERS TO BE SUBMITTED IN DULY FILLED AND SIGNED**

Tender Clause No.	Name of the Document	Document Particulars	Submitted (Yes/No)	Page No. of the attached Document
3.1	Tender Fee			
3.4	Bid security Declaration (Annexure-II)			
3.3	Valid Tender Fee / EMD Exemption Certificate			
4.1.	PAN Card			
	Incorporation/Registration certificate of company			
	GST Registration copy			
4.2.(I)	Tender acceptance letter (Annexure I)			
4.2.(II)	Non-Blacklisting undertaking (Annexure III)			
4.2.(III)	The bidder/OEM should have supplied similar system to at least 5 organizations during past five years in India to Central / State Govt / PSU/ CPSEs/ Educational R&D Institutions. Vendor should provide order copy/ customer satisfaction report with product details as proof with customer contacts email and phone number and as per the Annexure-IV.			
4.2.(IV)	The Annual Turnover should be at least Rs. 5 Lakhs and be profitable during each of the previous three financial years <b>i.e. during 2017-18 to 2019-20 or 2018-19 to 2020-21.</b> Audited financial Statements or Financial Statements showing turnover duly signed by a Chartered Accountant are to be submitted as per the Annexure-V.			
4.2.(V)	The bidder should be a <u>Class-I/ Class</u> in line with the Public Procurement (Preference to Make in India) Order 2017 No. P-45021/2/2017-PP (BE-II) dated 04 Jun 2020. A Self-Declaration Certificate regarding “Class-I & Class-II Supplier” for the tendered items as per the Annexure-VI is to be submitted.			
4.2.(VI)	The bidder should be OEM or OEM authorized Dealers / Channel partners / Distributors of reputed brand having authorization for sales and after sales support. Valid OEM authorization letter is required to participate in this tender.			
4.2.(VII)	Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder registered with the competent authority. <b>The concerned bidder(s) are required to attach the relevant valid Registration Certificate along with the bid for consideration.</b>			
4.3	Technical Compliance Statement : Annexure-VII.			
11.1 (I)	Purchase Preference: (if applicable) Micro and Small Enterprises (MSEs):			

11.2 (II)	Purchase Preference: Make in India			
12	Payment Term: Within 30 days after SITC.			
13	<b>Onsite Warranty: Minimum 01 Year onsite warranty</b> <ul style="list-style-type: none"> <li>• <b>2 years extended Onsite warranty</b> may be quoted as an optional in the BoQ.</li> </ul>			
2.1	<b>Spares and service support:</b> Minimum 5 years from the date of supply			
15	Delivery: FOR IIT Tirupati within <b>10 weeks</b>			
8	Bid validity: 90 days from the date of opening of the tender			
	Company details : Annexure-VIII			

**Note:**

- 1) **Submission of tender without the above mentioned documents will lead to rejection/disqualification of the tender.**
- 2) **It is mandatory for the bidder to assign page numbers to the tender documents and the same has to be mentioned in the above checklist.**

Signature of the bidder with stamp