



भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान मोहाली

शिक्षा मंत्रालय, भारत सरकार द्वारा स्थापित
सैक्टर 81, नॉलेज सिटी, प. ओ. मनोली, एस. ए. एस. नगर, मोहाली, पंजाब 140306
INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH MOHALI
(Established by Ministry of Education, Govt. of India)
Sector-81, Knowledge city, PO-Manauli, SAS Nagar Mohali-140306, Punjab
PAN No. - AAAAI1781K GSTIN – 03AAAAI1781K2ZS

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CPPP/Institute Website

IISERM (1479)21/22-Pur

Dated: 25th June 2021

NOTICE INVITING E-TENDER

Online tenders are invited on behalf of the Director, IISER Mohali in **TWO BID SYSTEM** for the **Supply and Installation of Microwave frequency Arbitrary wave form Generator upto 10 GHz and accessories as per specification** as per technical specification and details given below and BOQ list from the original manufacturer/supplier at CPPP i.e. <https://eprocure.gov.in/eprocure/app>. Tender documents may please be downloaded from the E-procurement portal website <https://eprocure.gov.in/eprocure/app> & Institute website www.iisermohali.ac.in.

-Sd-
Assistant Registrar (P&S)

NOTE: This is a domestic Tender according to the DPIIT Order dated 15/07/2017 and subsequent amendments to the order for Public Procurement Preference & PROVISION FOR LOCAL SUPPLIERS TOWARDS PREFERENCE TO MAKE IN INDIA. The bidder required to declare on the letter head the percentage of Local content for the quoted instrument and submit with the Technical Bid. Bidder should also give details of the location(s) at which the local value addition is made



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E-TENDER NOTICE

Tender Ref.- IISERM(1479)21/22-Pur	Dated : 25 th June 2021
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Critical Date Sections

Sr.	Description	Date	Time
1.	Tender Publishing Date and time	25 th June 2021	6:00pm
2.	Tender Document download start Date & Time	25 th June 2021	6:00pm
3.	Bid Submission start Date & Time	25 th June 2021	6:00pm
4.	Bid Submission End date and Time	24 th July 2021	Upto 11:00am
5.	Tender opening Date and Time	26 th July 2021	At 11:30am

Online tenders are invited on behalf of the Director, IISER Mohali in **TWO BID SYSTEM** for following item(s) from the original manufacturer/supplier at CPPP i.e. <https://eprocure.gov.in/eprocure/app>. Tender documents may please be downloaded from the E-procurement portal website <https://eprocure.gov.in/eprocure/app> & Institute website www.iisermohali.ac.in. Tender fee in shape of Demand Draft of Rs 590/- (Non-refundable) should be submitted by bidder in favour of the Registrar, IISER Mohali payable at Mohali or through Online mode in Institute Account (Canara Bank Saving Account Number 4790101001912 and IFSC Code CNRB0004790) However, scanned copy of the Tender fee should be uploaded on website along with technical bid. The hard copy of the same in original to be sent to the address mentioned below duly superscribing the supply/work name and reference/tender ID on the envelope and same must reach before opening of the bid and if not received before due date the bid will be summarily rejected. **Micro & MSME/NSIC and Firms registered and the firms registered with concerned Ministries/ Departments, the bidders are exempted from payment of Tender Fee/EMD as per GOI notifications/GFR (2017) and Ministry of Finance OM No. F.9/4/2020-PPD dated 12 November 2020.**

Bidders will also be required to execute bond/undertaking Bid Security Declaration Form attached as ANNEXURE-I for availing exemption to submit EMD.

The Original Tender Fee should be sent to:

Assistant Registrar (P&S)
Indian Institute of Science Education and Research Mohali
Sector-81, Knowledge City, SAS Nagar, Mohali, Punjab,
India, Pin: 140306

Non-receipt of original Tender Fee will lead to rejection of tender.

ITEM WISE DETAILS

Sr. No.	Description	Qty. (in units)
1.	Supply and Installation of Microwave frequency Arbitrary wave form Generator upto 10 GHz and accessories	01
	1. Number of Channels: 2 Analog outputs with 50 ohm output impedance	
	2. Output amplitude: 500 mV to 1 V range with 1mv resolution	
	3. Auxiliary Differential outputs: Differential outputs must be synchronous with 180 deg out of phase with 2 channels	
	4. Effective Frequency Output: DC to 10GHz	
	5. DAC Variable Sampling rate: Minimum 5 KSa/s to Maximum 25 GSa/s	
	6. DAC Resolution: 10 Bits or better	
	7. Analog Bandwidth (-3dB): 10 GHz	
	8. Waveform Memory: 2 Giga Samples on both channels	
	9. Wave Granularity: 1 point	
	10. Pulse width and repetition rate: high frequency Pulses as narrow as 30 to 60 pS and repetition rates of 160 pS or lower.	
	11. Rise time /fall Time: < 22 ps or better	
	12. Max Output Amplitude: 500 mVpp in Single ended	
	13. Random Jitter (Typical)- RMS: < 300fs or better	
	14. Spurious Free Dynamic Range: -40 dBc @ 10 GHz	
	15. 3rd Harmonic Distortion: ≤ -40 dBc or better	
	16. Phase Noise @ 10 GHz & 1KHz offset: -86 dBc/Hz or better	
	17. Flatness of the generated Signal: +0.8 dB to -1.5 dB or better	
	18. Channel to Channel skew: ±5 ps	
	19. Wave form Generation Capabilities (IQ & RF Waveforms): It should create Pulse Train. Each Pulse Train can have its own Carrier Frequency, Amplitude and Phase offset from other Trains. Each Pulse train is made of multiple pulse groups [Pulse waveform, Dead time, and Combined Pulse Groups (Pulses groups added in time)]. Pulse Shapes – Gaussian, Lorentzian , Rectangular, Trapezoidal, Raised Cosine, Exponential, Sawtooth & Custom Shape Modulation Support: Chirp Sequence: Sequence of Chirps, used in Automotive Radar Piece wise LFM: Within a Pulse, multiple Chirps with different slopes can be defined Non-Linear FM (NLFM) with Taylor weighted Symmetrical and Non- Symmetrical functions Digitally Modulations: QPSK and BPSK with Rectangular/Raised Cosine/Root Raised Cosine filters Define transition/rise time with linear or Cosine profile when switching frequency/ Phase Pulse Parameters including Start Time, Rise Time, Off Time, Fall Time, Pulse Width, and impairments like Droop, Overshoot, and Ripple, Ripple frequency. Create Combined Pulse Group Waveforms as Sequence. Inter and Intra pulse hopping should be defined. Staggered PRI & constant, Stepped, or user defined Amplitude, Frequency and Phase Change from Pulse to Pulse in a Pulse Group. Adding Edge Jitter/Width & provision to add Noise. Antenna Scan – Horizontal Scan, Circular Scan with Horizontal and Vertical Target Location, Beam width in both Azimuth and Elevation.	
	20. Pulse Creation Software: It should be available with parameters like Rise Time, Fall Time, Pulse Width etc...	
	21. External clock out / in: 50Ω, AC Coupled	
	22. Display Characteristics: Built in LED display with touch screen (only remote USB or ethernet units will not be accepted)	

23. Operating System: Windows 10 or later with HDD to store signals.
24. Interface: LAN, USB, VGA with Matlab, Labview drivers also or general VISA programming tools.
25. Operating Temp. Range: 15 °C to +45 °C
26. Mains Supply: 230V, 50 Hz (Nominal)
27. Warranty: 3 Years
28. Accessories:
Cables 0.5 m 4 pcs: 2.92 mm male-male cable hand formable with 0.085" outer dia 50 ohms (give female if port has male connector) minicircuits or microcoax or equivalent. Interconnect grade not VNA grade armoured precision test grade.
Cables 2.5m 4 pcs: 2.92 mm male-male cable hand formable with 0.085" outer dia 50 ohms (give female if port has male connector) minicircuits or microcoax or equivalent. Interconnect grade not VNA grade armoured precision test grade.
Torque wrench: Torque wrench for 2.92 mm connectors
Adapters: If any adapters are needed please quote.
Finance bid: In finance bid quote for accessories and main unit separately.
29. Make in India
Class I and Class II: Provide documents for class II or Class I supplier. In case of OEM not quoting we need statement from OEM and Local collaborator for class II or Class I supplier.
Service /calibration centre: OEM must have a NABL accredited service/calibration facility in India
Repairs: For repairs during warranty manufacturer/local supplier must give Bank Guarantee. For repairs outside warranty local office of OEM or local supplier should give Indemnity bond to take instrument for repairs.
*The attached ANNEXURE-II must be filled by the bidder duly stamped and signed.

A) IMPORTANT NOTES:-

- I. **This is a domestic Tender according to the DPIIT Order dated 15/07/2017 and subsequent amendements to the order for Public Procurement Preference & PROVISION FOR LOCAL SUPPLIERS TOWARDS PREFERENCE TO MAKE IN INDIA. Bidders should also give details of Localtions(s) ;at which the local value addition is made.**
- II. **The online updated Price BOO is in INR format. Bidders quoting in other currencies must mention the currency details in technical/commercial bids.**
- III. **The Online bids should be submitted directly by the original manufacturer/supplier. If quotation is submitted/filled by any representative/agent/dealer then they must upload a authority certificate from the principal company.**
- IV. **All MSME/NSIC/Startup Units shall be considered as per provisions/rules prescribed by Govt of India.**
- V. **Auto-extension of last date for E-Tenders has been activated by CPP Portal which has participation 2 bids or less.**
- VI. **Warranty: One year, if not specified above.**

B) SUBMISSION OF TENDER

- I. All bid/ tender documents are to be uploaded online at Central Public Procurement portal i.e. <https://eprocure.gov.in/eprocure/app> only and in the designated cover/ part on the website against tender ID. Tenders/ bids shall be accepted only through online mode and no manual submission of the same shall be entertained except tender fee and EMD. Late tenders will not be accepted.

- II. The online bids shall be opened at the office of the Assistant Registrar (P&S), IISER Mohali, on above given date and time. If the tender opening date happens to be on a holiday or non-working day due to any other valid reason, the tender opening process will be attended on the next working day at same time and place. IISER Mohali will not be responsible for any error like missing of schedule data while downloading by the Bidder.
- III. The bidder shall upload the tender documents duly filled in and stamped by the authorized signatory on each and every page. Tender not submitted/uploaded in the prescribed form and as per the tender terms and conditions shall be liable for rejection.
- IV. The bidder shall upload scanned copy of the PAN Card, GST number duly signed and stamped. **Also bidders applying against ‘MSME/NSIC Certificate’ issued by appropriate Authority, should ensure that the certificate attached is relevant to the area of service/supply. For example, If the tender is for “supply & installation of Desktop” the certificate should be issued for activity/area of “Computer supply and services activities etc” otherwise bid will be REJECTED without notice.**
- V. E-procurement system ensures locking on the scheduled date and time. The system will not accept any bid after the scheduled date and time of submission of bid.

C) INSTRUCTIONS

1. The Online bids should be submitted directly by the original manufacturer/supplier, If quotation is submitted/filled by any representative/agent/dealer then they must upload a authority certificate from the principal company for quoting the price otherwise such quotation will be rejected.
2. The quantity mentioned in this inquiry is and shall be deemed to be only approximate and will not in any manner be binding on the Institute. Before the deadline for submission of the online bid, IISER Mohali reserves the right to modify the tender document terms and conditions. Such amendment/modification will be notified on website against said tender ID.
3. The rates offered should be FOR Chandigarh/Mohali in case of firms situated outside Chandigarh/Mohali, and free delivery at the Institute premises in case of local firms. Supplier from outside India should mention the Ex-works/FOB/FCA/CIF/CIP price clearly. Conditional tenders will be summarily rejected.
4. In case of Ex-godown terms the amount of packaging forwarding freight etc. should clearly be indicated by percentage or lump sum amount. Institute has policy not to make any advance payments towards any purchase, Letter of credit can be opened if required.
5. THE INSTITUTE IS EXEMPTED FROM CUSTOM DUTY under notification no- TU/V/RG/-CDE(1062)/201 CUSTOM DT.30.08.2016.
6. Tax: This Institute is not exempted from the payment of GST. The current rate (i.e. percentage of GST should be clearly indicated included or excluded) wherever chargeable. Please also provide/upload the copy of PAN card, GST number duly self-attested.
7. Concessional GST is applicable for all the items purchased for Research labs vide Ministry of Finance, notification no. 45/22017 dated 14.11.2017 and 47/2017 dated 14.11.2017.
8. Bidder/s quoting in currency other than **Indian Rupee (INR)** should explicitly mention the currency in which tender quoted wherever applicable in Technical Bid along the tender documents.
9. The delivery period should be specifically stated. Earlier delivery will be preferred.
10. The firms are requested to provide/upload detailed description and specifications together with the detailed drawings, printed leaflets and literature of the article quoted. The name of the manufactures and country of manufacture should also invariably be stated. In the absence of these particulars, the quotation is liable for rejection.
11. Validity of offer: 90 days.
12. The warranty period after satisfactory installation should be mentioned and firm should replace all manufacturing defect parts/ whole item under warranty without any extra cost including clearance, freight, taxes. Security deposit/ Bank Performance Guarantee @ 3% of the value of supply order, in terms of *Ministry of Finance, DoE, GOI, OM. No. F.9/42020-PPD dated 12-11-2020* and as per norms may be sought from the firms.
13. The right to reject all or any of the quotation and to split up the requirements for itemized L-1 or relax any or all the above conditions without assigning any reason is reserved by the IISER Mohali. For any corrigendum and addendum please be checked the website <https://eprocure.gov.in/eprocure/app> and <http://www.iisermohali.ac.in>
14. Disputes, if any, shall be subject to jurisdiction in the court of Mohali only.

–Sd–
Assistant Registrar (P&S)

ANNEXURE-I

Bid Securing Declaration Form

Date: _____ E-Tender No. _____ E-Tender ID _____

To (insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

a) have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or

b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders. I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown)
in the capacity of (insert legal capacity of person signing the Bid Securing Declaration)

Name: (insert complete name of person signing the Bid Securing Declaration)
Duly authorized to sign the bid for an on behalf of (insert complete name of Bidder)

Dated on _____ day of _____ (insert date of signing)
Corporate Seal (where appropriate)

(Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

PS: *Furnish the above in original stationary/letter head with signed and sealed.*

ANNEXURE-II

Microwave frequency Arbitrary wave form Generator upto 10 GHz

The unit must be a standalone unit with user interface as well as software interfaces with the following specifications

Sr. No.	Parameters	Specifications	Compliance (compliance must also be supported by brochures, Data Sheets and application notes in bid)
1	Number of Channels	2 Analog outputs with 50 ohm output impedance	
2	Output amplitude	500 mV to 1 V range with 1mv resolution	
3	Auxiliary Differential outputs	Differential outputs must be synchronous with 180 deg out of phase with 2 channels	
4	Effective Frequency Output	DC to 10GHz	
5	DAC Variable Sampling rate	Minimum 5 KSa/s to Maximum 25 GSa/s	
6	DAC Resolution	10 Bits or better	
7	Analog Bandwidth (-3dB)	10 GHz	
8	Waveform Memory	2 Giga Samples on both channels	
9	Wave Granularity	1 point	
10	Pulse width and repetition rate	high frequency Pulses as narrow as 30 to 60 pS and repetition rates of 160 pS or lower.	
11	Rise time /fall Time	< 22 ps or better	
12	Max Output Amplitude	500 mVpp in Single ended	

13	Random Jitter (Typical)- RMS	< 300fs or better	
14	Spurious Free Dynamic Range	-40 dBc @ 10 GHz	
15	3 rd Harmonic Distortion	≤ -40 dBc or better	
16	Phase Noise @ 10 GHz & 1KHz offset	-86 dBc/Hz or better	
17	Flatness of the generated Signal	+0.8 dB to -1.5 dB or better	
18	Channel to Channel skew	±5 ps	
19	Wave form Generation Capabilities (IQ & RF Waveforms)	<p>It should create Pulse Train. Each Pulse Train can have its own Carrier Frequency, Amplitude and Phase offset from other Trains. Each Pulse train is made of multiple pulse groups [Pulse waveform, Dead time, and Combined Pulse Groups (Pulses groups added in time)].</p> <p>Pulse Shapes – Gaussian, Lorentzian, Rectangular, Trapezoidal, Raised Cosine, Exponential, Sawtooth & Custom Shape</p> <p>Modulation Support:</p> <p>Chirp Sequence: Sequence of Chirps, used in Automotive Radar</p> <p>Piece wise LFM: Within a Pulse, multiple Chirps with different slopes can be defined</p> <p>Non-Linear FM (NLFM) with Taylor weighted Symmetrical and Non- Symmetrical functions</p> <p>Digitally Modulations: QPSK and BPSK with Rectangular/Raised Cosine/Root Raised Cosine filters</p> <p>Define transition/rise time with linear or Cosine profile when switching frequency/ Phase</p> <p>Pulse Parameters including Start Time, Rise Time, Off Time, Fall Time, Pulse Width, and impairments like Droop, Overshoot, and Ripple, Ripple frequency.</p> <p>Create Combined Pulse Group Waveforms as Sequence.</p> <p>Inter and Intra pulse hopping should be defined.</p> <p>Staggered PRI & constant, Stepped, or user defined Amplitude, Frequency and Phase</p> <p>Change from Pulse to Pulse in a Pulse Group.</p> <p>Adding Edge Jitter/Width & provision to add Noise.</p> <p>Antenna Scan – Horizontal Scan, Circular Scan with Horizontal and Vertical Target Location, Beam width in both Azimuth and Elevation.</p>	

20	Pulse Creation Software	It should be available with parameters like Rise Time, Fall Time, Pulse Width etc...	
21	External clock out / in	50Ω, AC Coupled	
22	Display Characteristics	Built in LED display with touch screen (only remote USB or ethernet units will not be accepted)	
23	Operating System	Windows 10 or later with HDD to store signals.	
24	Interface	LAN, USB, VGA with Matlab , Labview drivers also or general VISA programming tools.	
25	Operating Temp. Range	15 °C to +45 °C	
26	Mains Supply	230V, 50 Hz (Nominal)	
27	Warranty	3 Years	
28	Accessories		
	Cables 0.5 m 4 pcs	2.92 mm male-male cable hand formable with 0.085" outer dia 50 ohms (give female if port has male connector) minicircuits or microcoax or equivalent. Interconnect grade not VNA grade armoured precision test grade.	
	Cables 2.5m 4 pcs	2.92 mm male-male cable hand formable with 0.085" outer dia 50 ohms (give female if port has male connector) minicircuits or microcoax or equivalent. Interconnect grade not VNA grade armoured precision test grade.	
	Torque wrench	Torque wrench for 2.92 mm connectors	
	Adapters	If any adapters are needed please quote.	
	Finance bid	In finance bid quote for accessories and main unit separately.	
29			
	Make in India		
	Class I and Class II	Provide documents for class II or Class I supplier. In case of OEM not quoting we need statement from OEM and Local collaborator for class II or Class I supplier. Purchase section may ask for more details in tender documents or while evaluating tender.	
	Service /calibration centre	OEM must have a NABL accredited service/calibration facility in India	
	Repairs	For repairs during warranty manufacturer/local supplier must give Bank Gaurantee . For repairs outside warranty local office of OEM or local supplier should give Indemnity bond to take instrument for repairs.	