

# INTERDISCIPLINARY CENTRE FOR ENERGY RESEARCH

## Indian Institute of Science (IISc), Bangalore, INDIA

### Tender Notice

#### Local Tender (Indian Bidders and OEM manufacturers in located in India)

Tender Notification Ref No.: ICER/ENQ/TNDR/PK/24-25/03 Date: 18<sup>th</sup> June 2024

The *Interdisciplinary Centre for Energy Research*, Indian Institute of Science Bangalore, invites tenders for supply of “**Phased array ultrasonic testing (PAUT)**”. This Invitation for Bids is open to all domestic (India based) manufacturers, Indian OEM or its authorized Indian distributors only. All the bidders are requested to follow below mentioned **Detailed Technical Requirements, Terms and Conditions** for submission of bids.

#### 1) Technical Requirements:

Description	Phased Array Ultrasound Technology	Time-of-flight diffraction (UT-TOFD) specifications
<b>General</b>		
1. Multi-scan Quantity	Up to 8 scans	Up to 2 scans
2. Pulsers/Receivers	16:64PR	2PR (4 connectors)
3. Gain Range	80dB	100dB
4. Sampling Frequency	125MHz @12-Bit (Processing 16-Bit)	50/100/200MHz @ 10-Bit
5. System Bandwidth	0.2 to 20 MHz	0.2 to 16 MHz
6. Max Pulse Rate Frequency	50,000 Hz	20,000 Hz
7. Pulse Voltage	100-50V	400-100V
8. Material Thickness range	0.5 to 500 mm	0.5 to 500 mm
9. Focusing Mode	Natural or Constant Depth/Path/Offset/Resolution	n/a
10. Resolution	Up to 0. 1°	n/a
11. L-Scan Resolution	1 element, double resolution	n/a
12. Max PA Beams	Focal laws Up to 4096 beams	n/a
13. Measurement tools	Extraction Box, 4 gates/ A-Scan, TCG, DAC Split-DAC	4 gates/A-Scan, TCG, DGS/ Split-DGS, DAC/Split-DAC
14. Max Points per A-Scan	Up to 8192 points per A-Scan (sub- sampling available to reduce file size)	n/a
15. Data Storage & File Size	≥ 256 Gb SSD	n/a
16. User Template	For improved conformity	n/a
17. Advanced Focal Law Calculator	Sectorial Pulse-Echo, Sectorial Pitch & Catch, Linear Pulse-Echo, Linear Pitch & Catch, Curve surface solution. CIVA and Beam Tool Focal Law Compatible.	n/a
18. Propagation mode	n/a	12 TFM algorithms
19. Fast TFM	n/a	Sparse matrix Capture (SMC)
20. TFM Calibration Wizard	n/a	Velocity and Zero, Time Corrected Gain, Amplitude Fidelity Wizard
21. X-Y axes traverse scanner	600 mm (X) x 600 mm(Y) Motorized and programmable traverse for Automatic scanning	

<b>OPERATING SYSTEM</b>		
22. Onboard Reporting Tools	PDF auto-report, Export data to CSV file, Save screen capture	
23. Onboard Scan Plan Tools	Onboard 3D real time capture	
24. Integrated Online Help	Parameter optimization procedures and reports	
25. Traversing scanner	Automated scanning software to be included	
<b>USER INTERFACE &amp; PORTS</b>		
26. PA & UT Connectors	1 IPEX 128 channels	4 LEMO 1 or 4 BNC
27. Instrument Display	10.4" wide 1024 x 600 LCD, LED Backlight 460cd/m2, Projective Capacitive Touch Panel Anti-glare Surface Treatment, Hardness of interface panel 6H	
28. Encoder Ports	2 axes: Scan, Index or Clicker (LEMO 1)	
29. GPIO Port (TTL)	Start, Stop, Index, Reset, Alarm(s), Trig... (LEMO 1)	
30. Communication Ports	WiFi 802.11n, Ethernet Gigabits & 3 master USB2	
31. Remote Display Ports	WiFi, Ethernet or VGA	
32. Data Transfer Ports	WiFi, Ethernet or USB	
<b>OPERATING TIME, ENCLOSURE &amp; ENVIRONMENTAL</b>		
33. Operating Temperature	- 10°C to 40°C; storage -20°C to 60°C	
34. Power Input	AC 110V/240V @ 50Hz/60Hz	
35. Batteries	Hot swappable with minimum 5 Hrs backup (1 installed + 1 standby with charger)	
36. Weight	<10 kg	
37. Environmental Rating	MIL-STD-461G section 5.21 RS103	
<b>Sensors/Accessories/Software</b>		
38. Sensors and accessories for flaw detection in diffusion bonded stacks and weld flaw detection. For materials such as Stainless steel; Inconel; Aluminum ;Non-Ferrous materials etc		
a. Transducer		
b. Probes		
c. Connecting Cables		
d. Wedges		
e. Clamps		
f. Spare Battery		
g. Software		
h. Charger		

### 3) Pre-Bid requirement

- a) All interested suppliers who meet the technical specifications are mandated to provide a satisfactory demonstration of the product along with necessary accessories at ICER, IISc, Bangalore, to understand the suitability of the product for specific application.
- b) Depending on demonstration for the intended application, bidders must include the required accessories, probes and software as needed.

### 4) Vendors scope of supply for the above Phased array ultrasonic testing (PAUT):

- a) Pre-dispatch inspection and testing report.
- b) Installing commissioning and demonstration of the complete system must be done at IISc, Bengaluru before supply
- c) Training on operation and troubleshooting of the product must be provided at IISc, Bengaluru

**5) Mandatory non-technical requirements:**

- a) The bidders must enclose a client list, contact details, relevant brochures and compliance certificate (Annexure I) with the tender.
- b) The bidders should be well established firm preferably leaders in the application stated above and must have a proven track record.
- c) Authorization from the OEM/ Principals as in Annexure II
- d) The order should be completed within 12-16 weeks from the date of release of the Purchase Order.

**6) Optional requirements**

- a) Extended Warranty: 2 years additional Warranty (Standard: 1 year, Additional: 2 years, Total-3 years) to be provided from the date of delivery at IISc, Bangalore.
- b) AMC for 5 Years

## **TERMS AND CONDITIONS FOR SUBMISSION OF BIDS**

Both the Technical and Commercial bid should be put in separate sealed envelopes and both the envelopes should be put in another cover subscribing “**Phased array ultrasonic testing (PAUT)**” and should reach “*The Chairman, Interdisciplinary centre for Energy Research, IISc, Bangalore-560012* on or before **Tuesday, 9<sup>th</sup> July 2024**.”

### **Tender Summary**

1.	Tender Number	<b>ICER/ENQ/TNDR/PK/24-25/03</b>
2.	Tender Date	<b>18<sup>th</sup> June 2024</b>
3.	Item Description	<b>Phased array ultrasonic testing (PAUT)</b>
4.	Tender Type	Two bid system: (a) Technical Bid (Part A) (b) Commercial Bid (Part B)
5.	Place of tender submission	Prof. Pramod Kumar Interdisciplinary Centre for Energy Research, Indian Institute of Sciences, Bengaluru 560012
6.	Last Date & Time for submission of tender	09 <sup>th</sup> July 2024, 5:00 PM

### **To whom it may concern**

This is a **Request for quote (RFQ)** from **Indian Agencies** for supply and installation of “**Phased Array Ultrasonic Testing (PAUT)**” at the “**Interdisciplinary Centre of Energy Research (ICER), Indian Institute of Science, Bangalore.**”

This Invitation for Bids is open to only domestic (India based) manufacturers, Indian OEM or its authorized Indian distributors. All interested vendors shall submit a response demonstrating their capabilities to produce the requested equipment to the primary point of contact listed below.

With respect to this tender, the rules laid out by the Government of India in order No. P45021/2/2017-pp-BE-II issued by the Public Procurement Section, Department or Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 4<sup>th</sup> June 2020 will be followed. As per the order the government has defined a ‘Class-I local supplier’ as “a

supplier or service provider whose goods, services or work offered for procurement, has local content equal to or more than 50%". A 'Class-II local supplier' is "a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%". **Only Class-I and Class-II local suppliers are eligible to participate** in this open domestic tender. Any "Non-local supplier" i.e. "a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%" is ineligible to participate in this tender.

The deadline for submission of proposals is **09<sup>th</sup> July 2024, 5:00 PM**. Proposals should arrive at the office of **The Chairman, Interdisciplinary Centre of Energy Research (ICER), Indian Institute of Science, Bangalore, Karnataka 560012, India**.

Direct all questions concerning the acquisition to addresses to **Prof. Pramod Kumar** at: [pramod@iisc.ac.in](mailto:pramod@iisc.ac.in)

### **General Terms and Conditions**

1. The bid should be submitted in the two-cover system, i.e. technical bid and commercial bid separately in sealed covers. The technical bid should contain all commercial terms and conditions, except the price.
2. The technical bid must contain a point-by-point technical compliance document. The technical proposal should contain a compliance table that should describe your compliance in a "yes" or "no" response against each of the items in the table listed in this RFQ. If "no" the second column should state, the extent of deviation. The third column should state the reason for the deviation, if any. The fourth column can be used to compare your tool with that of your competitors or provide details as requested in the technical requirement table below.
3. In the commercial bid, the price should be inclusive of all discounts.
4. The quotations should be on FOR-IISc Bangalore basis in INR only. Since IISc is DSIR registered organization, hence it is eligible for GST rate @5% as the equipment is required for research purposes only.
5. The vendor should have qualified technical service personnel for the equipment based in India (preferably in Bangalore).
6. The covering letter should clearly state that whether the vendor is a Class-I or Class-II local supplier. Failing this the bid will be automatically rejected.
7. The vendor to state the percentage of the local content and provide self-certification that the item offered meets the minimum local content requirement. They should also give details of the location(s) at which the local value addition is made.
8. The lead time for the delivery of the equipment should not be more than 3 months from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.
9. All the quotations must be valid for at least 90 days at the time of submission.
10. List of c u s t o m e r s and references: **The Bidder should have supplied similar equipment in Central Universities, preferably in centrally Funded Technical Institutes (IITs, IISc, IISER, NIT, National Labs or any Government Organizations). Please provide the details and contact information.**
11. 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 should be provided.

12. Items in addition to that listed in the technical table that you would like to bring to the attention of the committee, such as data sheets, technical plots etc. can be listed at the end of the compliance table.
13. 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%.
14. 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.
15. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to the Class-1 supplier.
16. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
17. Vendors are encouraged to highlight the advantage of their systems over comparable systems from the competitors.
18. If needed, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.
19. The Institute reserves the right to accept or reject any bid, or to annul the bidding process and reject all bids, at any time prior to the award of contract without thereby incurring any liability of the affected bidder or bidders.
20. Warranty terms and additional warranty options is a must for all the components. Please specify the service plan like whether the local distributor will address the issue or the parent company.
21. Terms and conditions for the annual maintenance contract beyond the warranty period should be mentioned.
22. After the award of purchase order, the vendor must provide an Order Acknowledgement within 30 days from the receipt of the Purchase Order.
23. Please quote the price of each optional line item, separately.

**Technical requirements:** Please note that the requirements listed below are only guidelines. It does not disbar bids that do not meet the criteria listed. Vendors are requested to quote for equipment that meet the criteria to the best extent possible and list deviations. Deviations are NOT an automatic reason for disqualification. They will be discussed by the technical committee prior to making an informed decision.

## Annexure-I

**Note: Compliance Certificate to be enclosed with the Technical Bid**

Description	Phased Array Ultrasound Technology	Time-of-flight diffraction (UT-TOFD) specifications	Comply	Non-Comply	Deviation	Remarks
<b>General</b>						
1. Multi-scan Quantity	Up to 8 scans	Up to 2 scans				
2. Pulsers/Receivers	16:64PR	2PR (4 connectors)				
3. Gain Range	80dB	100dB				
4. Sampling Frequency	125MHz @12-Bit (Processing 16-Bit)	50/100/200MHz @ 10-Bit				
5. System Bandwidth	0.2 to 20 MHz	0.2 to 16 MHz				
6. Max Pulse Rate Frequency	50,000 Hz	20,000 Hz				
7. Pulse Voltage	100-50V	400-100V				
8. Material Thickness range	0.5 to 500 mm	0.5 to 500 mm				
9. Focusing Mode	Natural or Constant Depth/Path/Offset/Resolution	n/a				
10. Resolution	Up to 0. 1°	n/a				
11. L-Scan Resolution	1 element, double resolution	n/a				
12. Max PA Beams	Focal laws Up to 4096 beams	n/a				
13. Measurement tools	Extraction Box, 4 gates/ A-Scan, TCG, DAC Split-DAC	4 gates/A-Scan, TCG, DGS/ Split-DGS, DAC/Split-DAC				
14. Max Points per A-Scan	Up to 8192 points per A-Scan (sub- sampling available to reduce file size)	n/a				
15. Data Storage & File Size	≥ 256 Gb SSD	n/a				
16. User Template	For improved conformity	n/a				
17. Advanced Focal Law Calculator	Sectorial Pulse-Echo, Sectorial Pitch & Catch, Linear Pulse-Echo, Linear Pitch & Catch, Curve surface solution. CIVA and Beam Tool Focal Law Compatible.	n/a				
18. Propagation mode	n/a	12 TFM algorithms				
19. Fast TFM	n/a	Sparse matrix Capture (SMC)				
20. TFM Calibration Wizard	n/a	Velocity and Zero, Time Corrected Gain, Amplitude				

		Fidelity Wizard				
21. X-Y axes traverse scanner	600 mm (X) x 600 mm(Y) Motorized and programmable traverse for Automatic scanning					
<b>OPERATING SYSTEM</b>						
22. Onboard Reporting Tools	PDF auto-report, Export data to CSV file, Save screen capture					
23. Onboard Scan Plan Tools	Onboard 3D real time capture					
24. Integrated Online Help	Parameter optimization procedures and reports					
25. Traversing scanner	Automated scanning software to be included					
<b>USER INTERFACE &amp; PORTS</b>						
26. PA & UT Connectors	1 IPEX 128 channels	4 LEMO 1 or 4 BNC				
27. Instrument Display	10.4" wide 1024 x 600 LCD, LED Backlight 460cd/m2, Projective Capacitive Touch Panel Anti-glare Surface Treatment, Hardness of interface panel 6H					
28. Encoder Ports	2 axes: Scan, Index or Clicker (LEMO 1)					
29. GPIO Port (TTL)	Start, Stop, Index, Reset, Alarm(s), Trig... (LEMO 1)					
30. Communication Ports	WiFi 802.11n, Ethernet Gigabits & 3 master USB2					
31. Remote Display Ports	WiFi, Ethernet or VGA					
32. Data Transfer Ports	WiFi, Ethernet or USB					
<b>OPERATING TIME, ENCLOSURE &amp; ENVIRONMENTAL</b>						
33. Operating Temperature	- 10°C to 40°C; storage -20°C to 60°C					
34. Power Input	AC 110V/240V @ 50Hz/60Hz					
35. Batteries	Hot swappable with minimum 5 Hrs backup (1 installed + 1 standby with charger)					
36. Weight	<10 kg					
37. Environmental Rating	MIL-STD-461G section 5.21 RS103					
<b>Sensors/Accessories/Software</b>						
38. Sensors and accessories for flaw detection in diffusion bonded stacks and weld flaw detection. For materials such as Stainless steel; Inconel; Aluminum ;Non-Ferrous materials etc						
a. Transducer						
b. Probes						
c. Connecting Cables						
d. Wedges						
e. Clamps						
f. Spare Battery						
g. Software						
h. Charger						



## **Annexure-II**

### **MANUFACTURERS' AUTHORIZATION FORM**

*[The bidder shall require the manufacturer to fill in this form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by the person with the proper authority to sign documents that are binding on the Manufacturer.]*

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.: [insert number from Invitation for Bids]

To: **The Chairman, Interdisciplinary Centre for Energy Research, IISc, Bangalore-560012.**

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of [insert full address of Manufacture's factories], do hereby authorize [insert complete name of Bidder] to submit a bid the purpose of which is to provide the following Goods, manufactured by us [insert name and or brief description of the Goods], and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty with respect to the Goods offered by the above firm.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the Manufacturer]

Title: [insert title]

Duly authorized to sign this authorization on behalf of: [insert complete name of Bidder]