केन्द्रीय इलेक्ट्रॉनिकी अभियान्त्रिकी अनुसंधान संस्थान
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No. SPO/EOI/MWT/10-Pur/2024/02/E-10 **Date:18.07.2024**

EXPRESSION OF INTEREST FOR PROCUREMENT OF THE FOLLOWING RF COMPONENTS.

List of RF passive Components	
Sl. No.	**Item Description**
1.	Item: **Waveguide to Coax Adapter** Frequency Range: 75 to 110 GHz, Insertion Loss: 0.8-1.2dB(Typical) VSWR: 1.8:1 (Typical), Configuration: Right angle (90^o) Type, Waveguide Port: WR-10 Waveguide with UG-387/U-M Flange, Coaxial Port: 1.00mm Female.
2.	Item: **Waveguide to Coax Adapter** Frequency Range: 75 to 110 GHz, Insertion Loss: 0.8-1.2dB(Typical) VSWR: 1.8:1(Typical), Configuration: Straight Type, Waveguide Port: WR-10Waveguide with UG-387/U-M Flange, Coaxial Port: 1.00mm Female.
3.	Item: **Tapered Transition** Frequency Range Port 1:75 to 110GHz Frequency Range Port 2.90 to 140GHz Port1:WR-10Waveguid with UG-387/UM Flange Port2:WR-08 Waveguide with UG-387/U-M Flange
4.	Item: **90-Degree E-plane Bend** Frequency Range: 90 to 140GHz, Dimensions: 1x1inch Bend radius: 1.0", Finish: Gold-plated Ports: WR-08 Waveguide with IG-387/U-M Flanges
5.	Item: **Directional Coupler** Frequency Range: 90 to 140GHz, Coupling:20dB (Nom), 10dB (Nom) Coupling Flatness: ±1.5dB(Typical), Directivity: 25dB(Typical) Main Line VSWR: 1.10:1(Typical) Aux Line VSWR: 1.17:1(Typical) Ports: WR-08 Waveguide with UG-387/U-M Flanges Couple port configuration: E-Plane bend.
6.	Item: **Waveguide Straight section** Frequency Range: 90 to 140 GHz, Length: 6.00 Inches, VSWR: 1.06:1 (Typical) Ports: WR-08 Waveguide with UG-387/U-M Flanges, Insertion Loss: 0.44(Typical) Include waveguide screws.
7.	Item: **High Power Termination** Frequency Range: 90 to 140GHz, VSWR: 1.06:1(Typical) Average Power: 5Watts (Max) Port: WR-05 Waveguide with UG-387/U-M Flange
8.	Item: **90^o (RH) Twist** Frequency Range: 90 to 140 GHz Rotation 90^o Orientation: Right-hand, Ports: WR-08 Waveguide with UG-387/U-M Flanges, Include waveguide screws.

9.	Item: **45^{o} (RH) Twist** Frequency Range: 90 to 140 GHz, Rotation: 90^{o} Orientation: Right-hand, Ports: WR-08 Waveguide with UG-387/U-M Flanges, Include waveguide screws.
10.	Item: **Dial Type Attenuator** Frequency Range: 90 to 140 GHz, Attenuation range: 0-25 dB (Nom) Insertion Loss@0dB setting: 0.5 dB(Typical), Power Handling: 0.5 watts. Ports: WR-08 Waveguide with UG-387/U-M Flange.
11.	Item: **Direct Reading Attenuator** Frequency Range: 90-140 GHz, Attenuation Range: 0-60dB (Nom) Insertion Loss: 3.4 dB(Typical), VSWR:1.25:1(Typical) Power Handling: 0.1 Watts (Max), Ports: WR-08 Waveguide with UG-387/U-M Flanges
12	Item: **Termination load** Frequency Range: 75 to 110 GHz, VSWR: 1.06:1(Typical) Power Handling: 0.4 Watts (Max), Port: WR-10 Waveguide with uG-387/U-M Flange.

List of RF Co-axial cable connector adapter and RF matched termination		
Category	**Type**	**Specifications**
RF CO-Axial Cable	1 mm(M) to 1mm (M) Flexible RF Co-Axial Cable, 6inches	Length: 6 inches, Frequency Range: DC to 110 GHz, Connector Type 1mm Male Co-Axial connector both side, Impedance = 50 Ohm with tolerance of 1Ohm, Return Loss more than 15 dB for entire range of frequency, VSWR less than 1.4:1 for entire frequency range,, Insertion Loss: less than or equal to 3dB for entire range of frequency, Power Handling capacity more than 2 W(CW). Bending radius not less than 0.25 Inches (7mm).
	1mm(M) to 1mm(M) Flexible RF Co-Axial Cable, 40 inches.	Length: 40 inches, Frequency Range, DC to 110 GHz, Connector type 1mm Male Co-Axial connector both side, Impedance = 50 Ohm, Return Loss more than 15 dB for entire range of frequency, VSWR less than 1.4:1 for entire frequency range, Insertion Loss: less than or equal to 25 dB for entire range of frequency, Power Handling capacity more than 2 W (CW). Bending radius not less than 0.25 Inches (7mm).
	1mm (M) to 1mm(M) Flexible RF Co-Axial Cable, 40 inches.	Length: 60 inches, Frequency Range: DC to 110 GHz, Connector Type: 1mm Male Co-Axial connector both side, Impedance = 50 Ohm, Return Loss more than 15 dB for entire range of frequency, VSWR less than 1.4:1 for entire frequency range, Insertion Loss: less than or equal to 20 dB for entire range of frequency, Power Handling capacity more than 2 W (CW). Bending radius not less than 0.25 Inches (7mm).
RF Co-Axial Connectors	1mm (Female) End launch Connector (Solder less, Removable)	Frequency range: DC to 110 GHz, Connector Type: 1 mm (Female) standard the read in end launch, Impedance: 50 Ohm, Return Loss more than 15 dB and VSWR less than 1.4:1 for entire range of frequency, Insertion Loss: less than or equal to 5dB for entire range of frequency.
	1mm (Female) Vertical launch Connector (Solder less, Removable)	Frequency range: DC to 110 GHz Connector Type 1 mm (Female) standard the read in Vertical launch Two screw hole, Impedance: 50 Ohm, Return Loss more than 15 dB and VSWR less than 1.4:1for entire range of frequency, Insertion Loss: less than or equal to 5 dB for entire range of frequency.

	0.8mm (Female)Vertical launch Connector (Solderless, Removable)	Frequency range: DC to 140 GHz, Connector type: 0.8 mm (Female) standard the read in Vertical lunch Two screw hole, Impendence: 50 Ohm, Return Loss more than 15 dB and VSWR less than 1.4:1 for entire range of frequency. Insertion Loss: less than or equal to 10 dB for entire range of frequency.
RF Co-Axial Adaptors	1 mm (Female) to 1 mm (female) RF Adapter	Frequency range: DC 110 GHz, Connector type: 1 mm (Female) to 1 mm (Female) standard the read in Impedance 50 Ohm, Return Loss more than 12 dB and VSWR less than 1.5:1 for entire range of frequency, Insertion Loss: less than or equal to 1 dB for entire range of frequency.
	1 mm (Female) to 1mm (male) RF Adapter	Frequency range: DC to 110 GHz, Connector Type: 1 mm (Female) to 1 mm (Male) standard the read in, Impedance: 50 Ohm, Return Loss more than 12 dB and VSWR less than 1.5:1 for entire range of frequency, Insertion Loss: less than or equal to 1 dB for entire range of frequency.
RF Matched Termination	1mm (Male) RF Matched Termination	Frequency range: DC t 110 GHz, Connector Type:1 mm (Male) standard thread, Impedance:50 ohm, Return Loss more than 15dB and VSWR less than1.4:1forentire range off frequency.

Category	**Type**	**Specifications**
Antenna	Horn Antenna	VSWR less than 1.2:1 dB, Frequency 75GHz to 110GHz, gain 15 dBi, Side lobe level (E plane and H plane) 20dB approximately.
Power Amplifier	Solid state	15 – 20 GHz, 1dB Output Power: +32 dBm, Gain: 26 dB, 50ohm Matched Input / Output.
VCO	Solid state	10 – 20 GHz, Pout: +3 dBm, Low SSB Phase Noise: -90 dBc/Hz @100 kHz, Single Positive Supply: +5V @ 70 mA
Mixer	Solid state	5 – 30 GHz, conversion loss (down converter): 7 dB typical at 15 GHz to 30 GHz, Input IP3 (down converter): 27 dBm typical at 15 GHz to 30 GHz, Input IP2 (up converter): 50 dBm typical at 15 GHz to 30 GHz, Input 1 dB compression point (down converter): 17 dBm typical, LO to RF isolation: 40 dB typical , LO to IF isolation: 50 dB typical at 15 GHz to 30 GHz , RF to IF isolation: 25 dB typical at 15 GHz to 30 GHz
Frequency Multiplier	Solid state	75 – 110 GHz Multiplier Factor 6, Input Frequency 12.5-18.33 GHz, Output Power Range 12-14 dBm1, Input Power 5 dBm, Output Connector or Waveguide WR10.
RF Matched Termination	1mm (Male) RF Matched Termination	Frequency range: DC t 110 GHz, Connector Type:1 mm (Male) standard thread, Impedance: 50Ohm, Return Loss more than 15dB and VSWR less than1.4:1for entire range off frequency.

CSIR- Central Electronics Engineering Research Institute, (CSIR-CEERI), Pilani, (Rajasthan) INDIA is an institute of Council of Scientific and Industrial Research, an autonomous body under Department of Scientific and Industrial Research (Government of India), New Delhi.

CSIR-CEERI is interested in procuring the above mentioned scientific RF Components for R&D activity and invites prospective manufacturers/ Class – I Local Supplier and Class – II Local Supplier to discuss with the Technical Committee about the specifications and also demonstration / technical presentation of above mentioned components by interested manufacturer's/ Class – Local Suppliers and Class – II Local Suppliers. **Meeting will be held through MS Team or another similar platform. The date of meeting will be informed along with MS Team link after opening the Technical Proposal.**

Please mention the below reference for submitting the Technical Proposal of the RF passive cinoibebts against EOI			
Sl. No.	File Number	Description of Item	Date, Time and Place
1.	**SPO/EOI/MWT/10-Pur/2024/02/E-10**	RF passive components, RF Co-axial cable, connector, adapters and RF matched termination.	**Will be informed by CSIR-CEERI after opening the Technical Proposal.**

1. The address for submission of document and for obtaining further information:

   Stores & Purchase Officer
   Purchase Section
   CSIR- Central Electronics Engineering Research Institute,
   CEERI Campus, Pilani – 333031,
   Dist. – Jhunjhunu (Rajasthan), INDIA.

   Telephone No. 01596 – 252428
   Email: spo@ceeri.res.in

2. The Bidding document can be downloaded free of cost directly from Central Public Procurement Portal (CPPP) of Government of India website https://etenders.gov.in and CSIR-CEERI website https://www.ceeri.res.in

3. Schedule for submission: The schedule of submission of Technical proposals, Technical leaflet/ literature and other Technical supporting documents and opening of proposals is as follows:

Date and Time of Submission of proposals for Consumables and Equipments.		**Date and Time of Opening of proposals of Consumables and Equipments.**	
Date	**Time**	**Date**	**Time**
06.08.2024	**2.30 P.M.**	**07.08.2024**	**3.30 P.M.**

4. Date and Time for receipt of proposals: Technical Proposal, Technical leaflet/ literature and other Technical supporting documents may be submitted through CPP Portal or through email before due date and time to CSIR-CEERI, Pilani – 333031 (Rajasthan), on or before date and time mentioned in point No.3, for submission of Technical proposals. Late / delayed proposals will not be considered. In case the last date and time is declared a holiday at a later date, then the due date and time for receipt, opening will be shifted to the next working date and time automatically. No corrigendum will be issued in this regard.

5. Pre Indent conference: The date and time of pre indent conference of above mentioned R&D Components will be informed to vendors along with **MS Team link through email.** Interested bidders are requested to email their willingness for making their presentation/ demonstration to spo@ceeri.res.in, on or before 05.08.2024 at 5.00 P.M.. Bidders will be allotted time slots to make presentations on their, products profile, detailed specifications and technical capabilities etc.

6. Eligibility Criteria: The bidders representatives who attend the pre indent conference should possess all the technical details of the R&D equipments its capability, complete information of the company, previous experience, various technologies involved available in India and financial capabilities etc. The representatives should be capable enough to answer all queries of the Technical Sub Committee. An example of EOI eligibility criteria is mentioned in Table 1.

Table 1: An example of EOI eligibility criteria

Sr. No.	Criteria	Sub-criteria	Weightage*	Break-up of Weightage
01	Past experience of the firm with similar requirements		20	
02	Financial strength and Sales of R&D RF Componentss and Consumables	Turnover figures of the last three years	10	One Crore Per Year.
		RF Components sold in last three years	20	40-50 Components Per Year
03	Quality accreditations, licensing requirements.	ISO companies, BIS standard, if available	10	
04	Manufacturing capabilities		40	
05	After-sales support infrastructure		Note required as the items are of consumable in nature.	
06	Product support		--	

Minimum Qualified Marks: 60 Marks.

*Weightage (out of 100) should be pre-decided and in EOI documents by the Competent Authority based on assessment of the required profiles of the potential bidders. The marking/grading scheme for allotting marks (out of 100) for various parameters should also be laid down.

Evaluation of EOI: The bidders should be evaluated for short-listing, inter-alia, based on their past experience of performance in a similar context, financial strength and technical capabilities, among others. Each bidder should be assigned scores based on the sum of marks obtained for each parameter multiplied by the weightage assigned to that parameter. All bidders who secure the minimum required marks (normally 60 (sixty) per cent) should be shortlisted. The minimum qualifying marks should be specified in the EOI document may specify a ‘fail-pass criteria” with the minimum qualifying requirement for each of the criteria,

such as minimum years of experience, minimum number of assignments executed and minimum turnover. Under such circumstances, all bidders who meet the minimum requirement, as specified, should be shortlisted. In two stage bidding the Technical bids should be first analyzed/ scrutinized by the Technical Sub Committee.

7. The technical committee shall finalize the specifications after knowing/obtaining details about relevant/available technology in the market suiting to the requirement and needs of our Laboratory/ Institute.

8. The tender document and contract will be finalized based on past experience of performance in a similar context, financial strength and technical capabilities and other allied technical services. Contract will be awarded to the lowest evaluated bidder after a separate bidding process based on two bid system.

9. For evaluating the responses, CSIR-CEERI may call for further presentations of their case in person or presentation can be considered via Skype/Video Conferencing also.

10. The Director, CSIR-Central Electronics Engineering Research Institute, Pilani – 333031 (Rajasthan), INDIA reserves the right to accept or reject any or all EOI Notification/ tenders/offers or withdraw the Notice at any stage of processing without assigning any reason whatsoever, such an event would not cause obligation of any kind to CSIR-CEERI.

Stores & Purchase Officer

1. INTRODUCTION

CSIR-CEERI is interested in purchasing various R&D Components which will be utilized in R&D activities.

2. OBJECTIVE

The objective this EOI is to indentify prospective supplier to supply the required components. Eligibility criteria for bidders are mentioned in the tender document etc. A separate tender will be floated for the supply of RF Components on the recommendations of Technical Sub Committee, after EOI.

3. SCOPE OF SUPPLY

Various RF Components are required for on-going R&D mission project and activities.

4. Eligibility Criteria

Technical

1. Indian Manufacturers, Class – I Local Supplier and Class – II Local Suppliers are eligible for supply of RF Components.

Eligibility of Class – I Local Supplier / Class – II Local Supplier/ Non-local suppliers for different types of procurement.

(a) In procurement of all goods, services or works in respect of which the Nodal Ministry/ Department has communicated that there is sufficient local capacity and local competition, only Class – I local suppliers, as defined under the Order, shall be eligible to bid irrespective of purchase value.

(b) In procurement of all goods, services or works, not covered by sub-para (a) above, and with estimated value of purchases less than Rs. 200 Crore, in accordance with Rule 161(iv) of GFR, 2017, Global tender enquiry shall not be issued except with the approval of competent authority as designated by Department of Expenditure. Only Class –I local supplier and class – II local supplier, as defined under the Order, shall be eligible to bid in procurements undertaken by procuring entities, except when Global tender enquiry has been issued. In global tender enquires, Non-local suppliers shall also be eligible to bid along with Class – I local suppliers and Class –II local suppliers.

(c) For the purpose of this Order, works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

Commercial

1. The bidder should not have been black listed / holiday listed by any other CSIR laboratory, or by any other R&D organization or by Government of India. A self declaratory letter in this regard must be enclosed.

5. Proposals

Technical

a) Detailed specifications of the RF Components supported by technical brochures/ data sheets in English. The Bidder shall provide the complete technical information .
b) Detailed brochure / datasheets on the technologies / techniques involved.
c) Other utilities if any.

Bidder Information

a) Company information – Status of bidder, registration certificate, and detailed write up about bidder history.
b) Details of Personnel – Details of all key technical, commercial and service personnel.
c) Location of factory involved in production of RF Components.
d) Details of financial information about company in the last 3 years, like turnover, copies of audited balance sheet etc.
e) Details of their offices setup in India.
f) Self certified letter about holiday listing / black listing in bidder letter head.
g) Code of Integrity and conflict of interest duly signed by the authorized representative must be enclosed.
h) Copies of Purchase orders / contracts of similar RF Components supplied in the last 3 years and the performance certificate from the respective clients.
i) The Bidder shall indicate the timelines necessary for supply
j) Vendors must submit the Certificate on their Letter Head that they are Class – I Local Supplier or Class – II Local Supplier and also mentioned the percentage of local contents which are manufacturing in India.

Sl. No.	Name of the Buyer with location	Date and Reference Number of Purchase order (if available)	Date of Compulsion	Performance Certificate

6. Other terms

Purchase of EOI Document

The Expression of Interest document shall be downloaded from Central Public Procurement Portal (CPPP) website http://etenders.gov.in and CSIR-CEERI Website www.ceeri.res.in free of cost.

Clarifications of the EOI Document

Any clarification in the EOI document may be sent in writing to the following through email: Stores & Purchase Officer, email: spo@ceeri.res.in

However, no extension of the time or date of EOI submitted will be provided on the ground that CSIR-CEERI has not responded to any query/clarification raised by any Prospective Bidder.

Amendment of Terms and Conditions of EOI

1. CSIR-CEERI may at its discretion or as a result of query, suggestion or comment of Bidder, may modify the EOI document by issuing an amendment or a corrigendum at any time before opening the EOI. Any such addendum or corrigendum will be uploaded on CPP Portal http://etenders.gov.in and CSIR-CEERI Website www.ceeri.res.in and the same will be binding on all the Bidders, as the case may be.

2. CSIR-CEERI at its discretion may extend the due date of submission of EOI and the decision of CSIR-CEERI in this respect would be final and binding on the respondents. In the event of changes in the time schedule. CSIR-CEERI website www.ceeri.res.in . Interested Bidders are advised to check the above website regularly for corrigendum / addendum, if any, which will be published only in the website.

3. No oral modification or interpretation of any provisions of this EOI shall be valid. Written communication shall be issued by CSIR-CEERI when changes, clarifications or amendments to the EOI document are deemed necessary by CSIR-CEERI at its sole discretion.

4. EOI submission should be in English language, EOI response should be free from correction, over writing, errors or omissions etc. Duly authorized representative of the prospective bidder shall sign on each page of the EOI documents. EOI documents should be prepared in such a way so as to provide a straight forward, concise description of the RF Components bidder and capabilities to satisfy the requirements of this EOI.

5. EOI that are incomplete in any respect or those that nor consistent with the requirements as specified in this document may be considered non-responsive and may be liable for rejection and no further correspondence will be entertained with such Bidders.

6. If at any time during the examination, evaluation and comparison of EOI, CSIR-CEERI its discretion can ask the Bidder for the clarification of its EOI. The request for clarification and the response shall be in writing. However, no post submission of EOI, clarification at the initiative of the Bidder shall be entertained.

7. Canvassing by bidders in any form, including unsolicited letters on EOI, submitted or post corrections shall render their EOI response liable for summarily rejection.

8. The cost of charges incurred in preparation and submission of EOI response shall not be entitled by any bidder.

9. Conditional offers will be summarily rejected. EOI which is found to be incomplete in content and / or attachments and / or authentication etc. is liable to be rejected.

10. CSIR-CEERI is not responsible for any firm/ agency expression of representing to express himself/ themselves to be the agent or third party representing CSIR-CEERI in this process.

11. Disregard of any instruction may result in offer being ignored.

12. All cost and expenses associated with submission of EOI shall be borne by the Bidder while submitting the EOI. CSIR-CEERI shall have no liability, in any manner in this regard, or if it decides to terminate the process of short listing for any reason whatsoever.

Stores & Purchase Officer

Annexure–5C

Bidder Information Form

(Refer para 5.1.2 (ix)(a) of the CSIR Manual)

(a) The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letter head of the firm]

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

Tender No.: *[insert number from Invitation for bids]*

Page 1 of_____ pages

01.	Bidder's Legal Name *[insert Bidder's legal name]*
02.	In case of JV, legal name of each party: *[insert legal name of each party in JV]*
03.	Bidder's actual or intended Country of Registration: *[insert actual or intended Country of Registration]*
04.	Bidder's Year of Registration: *[insert Bidder's year of registration]*
05.	Bidder's Legal Address in Country of Registration: *[insert Bidder's legal address in country of registration]*
06.	Bidder's Authorized Representative Information Name: *[insert Authorized Representative's name]* Address: *[insert Authorized Representative's Address]* Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]* Email Address: *[insert Authorized Representative's email address]*
07.	Attached are copies of original documents of: *[check the box(es) of the attached original documents]* Articles of Incorporation or Registration of firm named in 1, above.

Signature of Bidder _____

Name _____

Business Address _____

Annexure–5O

Format for declaration by the Bidder for Code of Integrity & conflict of interest
(Refer para 3.2.1 & 5.1.2 (ix)(m) of the CSIR Manual)

(On the Letter Head of the Bidder)

Ref. No: _____ **Date** _____

To,
_____
_____
(Name & address of the Purchaser)

Sir,

With reference to your Tender No._____ dated _____ I/We hereby declare that we shall abide by the Code of Integrity for Public Procurement as mentioned under Para 1.3.0 of ITB of your Tender document and have no conflict of interest.

The details of any previous transgressions of the code of integrity with any entity in any country during the last three years or of being debarred by any other Procuring Entity are as under:

a
b
c

We undertake that we shall be liable for any punitive action in case of transgression/ contravention of this code.

Thanking you,

Yours sincerely,

Signature
(Name of the Authorized Signatory)
Company Seal