

 IIT PALAKKAD	भारतीय प्रौद्योगिकी संस्थान पालक्काड Indian Institute of Technology Palakkad अहलिआ एकीकृत कैम्पस, कोझिपारा Ahalia Integrated Campus, Kozhipara पालक्काड- 678557 Palakkad – 678 557	दूरभाषसंख्या/ Phone no: 04923 – 226300/590/586 ईमेल/ Email : purchase@iitpkd.ac.in
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Tender No : IITPKD/ELE/SS/ 116/2017

Date: 02.02.2018

Due Date of the tender: 16.02.2018 @ 3 PM

TENDER FOR INVITING QUOTATIONS

Dear Sirs,

On Behalf of Indian Institute of Technology Palakkad quotations are invited for “**VARIOUS RADIO FREQUENCY COMPONENTS**” confirming to the specification in the Annexure.

- 1. Preparation of Bids:** - The tenders should be submitted **under two-bid system** (i.e.) Technical bid and Financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. No prices should be included in technical bid. Financial Bid should indicate item – wise prices for the items mentioned in the technical bid. The technical and the financial bids should be put in separate cover and sealed. Both sealed covers should be put into a bigger cover.
- 2.** The Quotations duly sealed and superscribed on the envelope **with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. Fax and Email quotation are not acceptable.**
- 3.** The price should be quoted per unit and packing and delivery charges should be indicated separately. The offer/bids should be exclusive of Taxes and Duties, which will be paid by the purchaser as applicable. However the percentage and of taxes and duties as on date should be clearly indicated.
- 4.** The Quotations should be valid for **sixty days** from the due date and the period of delivery required should also be clearly indicated.
- 5. Local Firms:** Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
- 6.** Outside Palakkad: Quotations should be for **F.O.R. at IIT Palakkad**. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
- 7.** Goods shall not be supplied without an official supply order.
- 8. Custom Duty:** Custom Duty which will be paid at a concessional rate against duty exemption certificate.
- 9. Concessional GST :** Concessional GST@ 5% will be paid extra as per GOI Notification no. 47/2017, Dated 14.11.2017

- 10. Payment:** Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later. No advance payment will be made. The Tenderer have to furnish the bank details along with tender like Account No, Account Name, IFSC Code, Bank address etc.
- 11. Submission of Bids:** Quotation should be sent to the following address “**The Registrar, Indian Institute of Technology Palakkad, Ahalia Integrated Campus, Kozhipara, Palakkad -678 557, Kerala**”, Phone No: 04923 226 586/590, Email: purchase@iitpkd.ac.in.
- 12. Delivery Period:** The quotation should indicate clearly when delivery and installation to be made.
- 13. Delay in Supply or Liquidate damages:** If the supplier fails to deliver the stores within the time specified in the purchase order, the purchaser will recover from the supplier as liquidated damages a sum of one- half of one percent (0.5%) of the P.O value of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed five percent (5%) of the P.O price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time, the stores will be considered as delayed until such time as the missing parts are delivered.
- 14. Late offer:** The quotation received after due date will not be considered. Please ensure that your offer is sent well in advance to reach the Institute by the due date.
- 15. Loading and unloading charges will be borne by the supplier.**
- 16. Warranty:** Warranty Clause should be indicated clearly.
- 17. Acceptance and Rejection:** IIT Palakkad has the right to accept the whole or any parts of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully,

Encl: Specifications

Registrar, IIT Palakkad

VARIOUS RADIO FREQUENCY COMPONENTS

Part A

Low Power Divider

Quantity	1
Parameter	Specifications
Frequency Range	8 GHz (or lower) to 12 GHz (or higher)
Impedance	50 Ohms
Number of output ports	4-way
Number of input Ports	1
Maximum power	>5 W
Insertion loss	<1.55 dB
Input VSWR	Better than 2:1
Isolation	>15 dB
Operating temperature	0 to 50 oC
Connector Type	SMA or appropriate connector

Part B

High Power Combiner

Quantity	1
Parameter	Specifications
Frequency Range	8 GHz (or lower) to 12 GHz (or higher)
Impedance	50 Ohms
Number of output ports	1
Number of input Ports	4 way
Maximum power	>20 W
Insertion loss	<1.55 dB
Input VSWR	Better than 2:1
Output VSWR	Better than 2:1
Isolation	>15 dB
Operating temperature	0 to 50 oC
Connector Type	SMA or appropriate connector

Part C

Low frequency power splitter

Quantity	2
Parameter	Specifications
Frequency range	1 (or lower) to 3 GHz (or higher)
Impedance	50 Ohms
Number of output ports	2-way
Number of input Ports	1
Maximum power	0.25 W or more
Insertion loss	<4.2 dB
Input VSWR	Better than 1.5:1
Output VSWR	Better than 1.5:1
Isolation	>15 dB
Operating temperature	0 to 50 oC

Connector Type	SMA or appropriate connector
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Part D

High Frequency Voltage Controlled Oscillator

Quantity	1
Parameter	Specifications
Frequency	8 GHz (or lower) to 12.5 GHz (or higher)
Output power	10 dBm or more
Phase noise at 10 kHz offset	<-70 dBc/Hz
Operating temperature	0 to 50 oC
Connector type	SMA
Tuning Voltage	0-15 Vdc
Output return loss	better than 15 dB
Connector Type	SMA or appropriate connector
Part E	

Medium Frequency Voltage Controlled Oscillator

Quantity	2
Parameter	Specifications
Frequency	5.5 GHz (or lower) to 6.4 GHz (or higher)
Output power	10 dBm or more
Phase noise at 10 kHz offset	<-70 dBc/Hz
Output return loss	better than 15 dB
Operating temperature	0 to 50 oC
Connector Type	SMA or appropriate connector
Tuning Voltage	0-20 Vdc

Part F

Low Frequency Voltage controlled Oscillator

Quantity	1
Parameter	Specifications
Frequency	1.5 GHz (or lower) to 2.5 GHz (or higher)
Output power	10 dBm or more
Phase noise at 10 kHz offset	<-70 dBc/Hz
Operating temperature	0 to 50 oC
Connector Type	SMA or appropriate connector
Tuning Voltage	0-20 Vdc

Part G

Low Frequency Mixer

Quantity	5
Parameter	Specifications
Minimum RF/LO Frequency	100 MHz or lower
Maximum RF/LO Frequency	2.5 GHz or more
Minimum IF Frequency	DC
Maximum IF Frequency	1 GHz

Impedance	50 ohm
Conversion Loss	less than 8 dB
Isolation RF to LO	20 dB or more
Isolation RF to LO	18 dB or more
Connector Type	SMA or appropriate connector
Operating temperature	0 to 50 oC

Part H

Low Frequency Low Noise Amplifier

Quantity	3
Parameter	Specifications
Frequency Range	1 GHz (or lower) to 3 GHz (or higher)
Gain	>20 dB
Noise figure	<2 dB
Maximum RF input power	10 dBm
Operating temperature	0 to 50 oC
Connector Type	SMA or appropriate connector
Gain flatness	Better than 0.9 dB

Part I

Low Pass Filter

Quantity	6
Parameter	Specifications
Frequency Range	0 to 1 GHz (or higher)
Insertion loss	<1 dB
Maximum RF input power	5 W
Rejection at 3 Ghz	>40 dB
Operating temperature	0 to 50 oC
Connector Type	SMA or appropriate connector

Part J

Fixed attenuators

Quantity	8
Parameter	Specifications
Frequency range	DC to 12.4 GHz
Attenuation	10 dB
Impedance	50 Ohm
Connector type	SMA
Operating temperature	0 to 50 oC
Packaging	Connectorised

Part K

Isolator

Quantity	3
Parameter	Specifications
Frequency Range	8 (or lower) to 12 GHz (or higher)

Maximum power	>1 W
Insertion loss	<1 dB
VSWR	<1.5:1
Impedance	50 Ohm
Operating temperature	0 to 50 oC
Packaging	Connectorised

The bidder may quote for one or more parts (Part A, Part B, Part C, Part D, Part E, Part F, Part G, Part H, Part I, Part J and Part K). Technical and Financial bid for each part must be enclosed in separate envelopes. EMD for each part should be enclosed in the respective financial bid. All the financial and technical bids must be put in one big envelope and delivered to the purchase section. The evaluation will be done for each part separately and purchase order will be given to the technically qualified bidder, who quotes the lowest price for the respective part. For each of the parts the technical evaluation will be done based on the mandatory requirements for that part mentioned in the specifications.

Who can participate in the bid?

Only those bidders fulfilling the following criteria should respond to the tender.

1. The bidder should be either an Original Equipment Manufacturer (OEM) of microwave components (power amplifier or low noise amplifier or circulators etc) or should be an authorized representative (provide documentary proof) of an OEM.
2. The bidder should be a company registered under the Companies Act, 1956/2013 OR a Limited Liability Partnership /a registered partnership firm OR a sole-proprietorship entity. Appropriate Registration incorporation certificate must be submitted.
3. The bidder must have a registered office in Karnataka/Tamil Nadu/Telangana/Andhra Pradesh/Maharashtra or Kerala. Certificate of registration for the offices to be provided.
4. The bidder must be in existence in the business of microwave components (power amplifier or low noise amplifier or circulators etc) or allied fields for a minimum period of 3 previous financial years (before or since 01 April 2014). Documentary evidences of experience must be provided.
6. The bidder should have implemented orders of microwave components (power amplifier or low noise amplifier or circulators etc) worth exceeding INR 3 lakhs during previous three financial years (01 April 2014 – 31 March 2017). Copies of the most recent purchase orders and certificates of successful implementation must be included. Copies of financial statements or evidence of turnover must be furnished.
7. The bidder should have documentary evidence of having supplied at least 10 No. of microwave components (power amplifier or low noise amplifier or circulators etc) to a Centrally Funded Technical Institution (e.g., IIT, NIT, IISc, IISER, etc.) or ISRO, DRDO in the last three and half years (01 April 2014 – 31 Oct 2017). The bidder must provide a certificate of satisfactory performance of the supplied component from the institute to which they have recently supplied. Contact details of the faculty-in-charge of the installed setup must also be provided.
8. The bidder must provide detailed specification of each equipment/item. Model numbers, data sheets and brochures must be included for each quoted equipment/accessories/item. Specifications corresponding to quoted model number must be available publicly via OEM's website for scrutiny. If not, bid can be disqualified on technical grounds.