

 IIT PALAKKAD	भारतीय प्रौद्योगिकी संस्थान पालक्काड Indian Institute of Technology Palakkad अहलिआ एकीकृत कैम्पस, कोज्हिपारा Ahalia Integrated Campus, Kozhipara पालक्काड- 678557 Palakkad – 678 557	दूरभाषसंख्या/ Phone no:04923 226300/586 ईमेल/Email: purchase@iitpkd.ac.in
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TENDER FOR INVITING QUOTATIONS

TENDER NO: IITPKD/ELE/AA/114/2017

DATE: 30.01.2018

DUE DATE OF THE TENDER: 14.02.2018 AT 3.30 PM

Sir,

On Behalf of Indian Institute of Technology Palakkad quotations are invited for “[Solar Simulator for Photovoltaic Testing](#)” 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 bid and the Financial 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. Firms 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 should be supplied carriage paid and insured. 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. **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. **Please indicate actual product cost + Taxes separately**. No advance payment will be made. The Tenderer have to furnish the bank details along with tender like Account No, Account Name, IFSC Code 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 226 300/ 590/586** , Email : purchase@iitpkd.ac.in
12. **Delivery Period:** **The Item to be supplied within 3 weeks from the date of purchase order**. In case there is any deviation in the delivery schedule, liquidated damages may be enforced or penalty for the delayed supply period may be levied.
13. **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.
14. **Warranty:** Five years on- site warranty must be provided. For detailed description see the technical specification.
15. **Acceptance and Rejection:** I.I.T 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,

REGISTRAR, IIT PALAKKAD

Technical Specifications for Solar Simulator

A solar simulator is a device that provides illumination approximating natural sunlight. The purpose of the solar simulator is to provide a controllable indoor test facility under laboratory conditions used for the testing of solar cells. IIT Palakkad requires ONE solar simulator with the following specifications :

Sl. No.	Item	Specification
1	Simulator Type	(a) Continuous Mode.
		(b) Must provide downward directional illumination. Appropriate beam turning assembly should be included (if required).
2	Simulator Class	(a) Class AAA Solar simulator according to IEC/ASTM/JIS standards.
		(b) Certificate of Class AAA compliance with IEC 60904-9, or ASTM E927 or JIS C 8912 must be furnished.
3	Construction	Must allow for easy change of filters.
4	Typical Output Power	100mW/cm ² (1 Sun). Output power must be adjustable upto maximum limit in steps.
5	Beam size (minimum)	[2.5 cm x 2.5 cm] at 1 Sun. System must satisfy Class AAA operation under this condition.
6	Filters	AM1.5G must be included as standard
7	Spectral Range	(a) Mandatory : Class A compliance required for 400 nm to 1100 nm. Spectral plot of output from proposed system overlaid with standard solar spectrum needs to be provided.
		(b) Optional : Additional accessories for extending Class A compliance upto 1700 nm. These must be quoted as an optional item with a separate price.
8	Non-uniformity of irradiance	≤ 2% or better
9	Temporal Instability	≤ 2% or better
10	Collimation Angle	(half angle) < +/- 1 deg
11	Working distance	Within 5" of the exit port
12	Lamp Wattage	(a) 300 W (or higher) Xenon Lamp with at least 1000 hours rated lifetime.
		(b) One spare Xenon lamp must be quoted.
13	Cooling	Forced air cooling
14	Shutter	(a) Mandatory : Manual shutter option
		(b) Optional : Electronically controllable shutter can be

		quoted as an optional item with a separate price.
15	Power Supply	(a) Must be compatible with Indian plug 220V, 50 Hz
		(b) Must supply power for lamp, cooling and have capability to control electronic shutter.
		(c) Must support RS232 / USB interface with computer.
16	Probes	Four Gold-plated spring-tip probes to provide contacts to the top electrode of the solar cell under test.
17	Chuck	(a) Vacuum hold-on compatible chuck for front-side illuminated solar cells upto 2in x 2in size.
		(b) Must have either gold-plated or conductive tin-plated plate to provide backside contact.
		(c) Must have an integrated thermoelectric controller to control the temperature of the solar cell at least between 20 deg C to 60 deg C.
		(d) Optional : Vacuum pump must be quoted as an optional item with a separate price.
18	I-V Source-Measure Compatibility	No I-V source-measure unit needs to be quoted. However, the solar simulator must be compatible with standard source-measure units from manufactures such as Keysight, Keithley or Yokogawa.
19	Calibrated Reference cell (optional item. Price must be quoted as a separate item)	(a) Standard silicon monocrystalline cell in a metal enclosure with protective quartz window.
		(b) Certification of the reference cell traceable to NIST or NREL must be provided.
20	Warranty	At least one year warranty

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 Class AAA Solar Simulators or should be an authorized representative (provide documentary proof) of an OEM.
2. Either the bidder can bid on behalf of the Principal/OEM or Principal/OEM itself can bid, but both cannot simultaneously bid for the same item. Also, if the bidder submits a bid on behalf of a particular Principal/OEM, the same bidder cannot submit another bid on behalf of another Principal/OEM in the same tender for the same item. However, the bidder can submit bids for multiple items from the same Principal/OEM.
3. 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.
4. The bidder must have a registered office in Karnataka/TamilNadu/Telangana/Andhra Pradesh/Maharashtra or Kerala. Certificate of registration for the offices to be provided.
5. The bidder must also have a service center in Karnataka/Tamil Nadu/ Telangana/Andhra Pradesh/Maharashtra or Kerala. Certificate of registration for the centers to be provided. Details about scope of service activities provided by the service centres must be provided. The contact details of the service engineers must be provided.
6. The bidder must be in existence in the business of Class AAA Solar Simulators for a minimum period of 3 previous financial years (before or since 01 April 2014). Documentary evidences of experience must be provided.
7. The bidder should have implemented orders of Class AAA Solar Simulators worth exceeding INR **5 Lakh** 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.
8. The bidder should have documentary evidence of having supplied **at least two numbers** of Class AAA Solar Simulators to a Centrally Funded Technical Institution (e.g., IIT, NIT, IISc, IISER, etc.) in the recent past. The bidder must provide a certificate of satisfactory performance of the supplied equipment from the institute to which they have recently supplied. Contact details of the faculty-in-charge of the installed setup must also be provided.
9. 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.
- 10. Compliance sheet for the technical specification and OEM Brochure have to be attached along with the Technical bid. Vendor has to fill the compliance sheet and mention page number or reference number in OEM brochure. Unfilled / partially filled sheets lead to disqualification.**
- 11. Service and warranty for a minimum period of one year for the equipment must be provided.**