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P.Sarvaharana
Assistant Registrar (Project Purchase)

Ref: DC Panel Light/IIT Madras
Date: 03.07.2015

Tender No: ELE/ASHO/002/2015

Due Date: 27.07.2015, 3.00pm

Dear Sir/Madam,

On behalf of the Indian Institute of Technology, Madras (IITM) tenders are invited for supply of **100,000 numbers of “DC powered DC LED panel light operating at 48V DC and controlled by a specified remote”**, hereinafter referred to in this document and Annexure as **“PRODUCT”**.

1. The technical specifications for the PRODUCT are given in Annexure 1.
2. Annexure 2 gives the Performance table which needs to be filled out and submitted along with the bid (benchmark performance criteria).
3. Annexure 3 gives the list of other technical papers / reports that need to be submitted along with the bid.
4. Annexure 4 gives the Supplier Product Quality Assurance Requirements.
5. Annexure 5 provides the tentative delivery schedule as well as sites where the shipments are to be delivered.
6. Annexure 6 gives the Schedule of Events for this tender.

Pre-bid Meeting: A pre-bid meeting is scheduled to be held at 10:30 AM on July 10, 2015 at CSD Conference Hall, Room No. 308 in the Department of Electrical Engineering, IIT Madras, Chennai 600036, to clarify queries, if any, with respect to this tender. No further queries will be entertained after the pre-bid clarification meeting.

At the pre-bid meeting bidders will be provided with two numbers of the specified remotes, for testing their product samples using the given remotes, prior to submission.

Instructions to the Bidder

1. The tender documents may be downloaded from website or obtained as email attachment from the undersigned. Payment of cost of tender documents of Rs. 1975/- in the form of crossed demand draft in the name of “The Registrar, Indian Institute of Technology, Madras” from any scheduled commercial bank and payable at Chennai shall

be submitted along with the tender. This price is inclusive of the cost of the 2 remotes being provided to the bidder for testing purposes.

2. The due dates for submission of various components of this tender are specified in the "Schedule of Events" given in Annexure 6. The tenders shall be submitted not later than 3.00PM on due date.

3. Bidders Eligibility Criteria:

- 3.1. The bidder has to be a company as defined under the Companies Act.
- 3.2. The bidder should have prior experience in the manufacture of at least 2,000 DC LED Tube lights, and should have deployed at least 1,000 such DC LED tube lights in the field for a period not less than one year.
- 3.3. The PRODUCT, as per specifications given in Annexure 1, should be designed and manufactured in India.

4. Preparation of Bids:

- 4.1. The tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid in separate envelopes, and submitted as per the schedule of events specified in Annexure 6.

4.1.1. **Technical Bid:** The technical bid should contain the following:

- Three (3) samples as per specifications given in Annexure 1.
- Proof of submission of 3 samples along with all the technical documents and details as given in Annexure 2 and 3.
- A comprehensive report giving complete details of the production facility and other resources to demonstrate ability to meet the delivery schedule as specified in Annexure 5.
- Audited annual reports of the company for the last 3 years.
- A copy of the tender document, duly signed on each page with seal, must be enclosed. Each page of the document shall be signed and affixed with the seal of the bidder. The tender must be signed by authorized person/persons.
- A copy of the masked financial bid.

In addition to the above, Bidders should also provide as part of the technical bid, supporting documents for bidder's eligibility criteria

4.1.2. **Financial bid**

- The Financial bid should provide the following details
 - Final delivered price, at the project locations mentioned in Annexure 5, per unit as well as total for 100,000 units, inclusive of

basic price, insurance, logistics, transportation and sales tax. The sales tax rate should be specified.

- Other taxes like octroi/ entry tax etc. if applicable. (Obtaining necessary road permits applicable etc is the responsibility of supplier.)
 - Other costs, if any, with explanations.
- The purchase by IITM is for R&D Pilot and is eligible for excise duty exemption. Necessary certificate will be issued by purchaser on demand.
- 4.2. Financial bid should be accompanied by Earnest Money Deposit (EMD) for 2 % of total quoted value of the tender in the form of Demand Draft drawn in the name of “The Registrar, Indian Institute of Technology, Madras”, or a Bank Guarantee for the same amount.
- 4.3. Covers containing the technical and financial bids must be individually sealed and superscribed respectively as “_____ Technical Bid” and “_____ Financial Bid”. The Technical bid should consist of all the details specified in 4.1.1 above ONLY. The Financial bid should contain all commercial aspects as detailed in 4.1.2 above. Any commercial details enclosed in the technical bid will result in the disqualification of the bidder.
- 4.4. The Technical Bid and the Financial Bid should be duly signed by the bidder/ authorized representative of the bidder.

5. Delivery of the tender:

- 5.1. The tender shall be sent to the below-mentioned address either by post or by courier so as to reach this office before the due date and time specified in the Schedule of Events in Annexure 6. The offer/bids can also be dropped in the tender box on or before the due date and time specified in the schedule. The tender box is kept in the office of the “Assistant Registrar, Project Purchase” 2nd floor, IC & SR Building, I.I.T. Madras, Chennai – 600 036, which is also the address for communication. In the event of the specified date for the submission of the Tender being declared as a holiday by the Employer, the Tenders will be received up to the appointed time on the next working day. Any tender or its component, received after the deadline specified in Annexure 6 will be returned unopened to the bidder.

6. Opening of the tender:

- 6.1. The Technical Bids will be opened by the officer inviting this tender or his duly appointed assistant at 4.00PM on the last day specified in Annexure 6 for submission of Technical bids, in the presence of the bidder or his authorized agent.
- 6.2. Financial Bids will be opened at 4:00PM on the last day specified for the submission of Financial bids. The officer inviting tender or his duly appointed assistant will open the financial bids in the presence of the bidder or his authorized agents.

7. Evaluation of bids.

- 7.1. The bids received from the bidders will be evaluated by a Committee constituted by the Institute.
- 7.2. The evaluation process to identify the successful bidder is based on a combined techno-commercial evaluation. The eligibility criteria stipulated in Section 3 above, must be adhered to and failure of the same will result in disqualification of the bid. The technical criteria set out for evaluation of the technical bid is given below.

Sl. No.	Description	Max. Score	Min. Score
1	Product performance vis-à-vis specifications	50	45
3	Product Superiority	15	5
4	Bidder's ability to meet delivery requirements	20	15
4	Bidder's ability to meet quality requirements and after sales service	15	10
	Overall Score	100	75

- 7.3. Any bidder whose technical score is less than the minimum score in any category or has a total score of less than 75 overall will be rejected.
- 7.4. For bidders, whose technical score is above the minimum specified in every category above as well as overall, will be considered for further evaluation. The following criteria will be used for evaluation of the combined techno-commercial bid.

Sl. No.	Description	Weightage
1	Technical Score	30%
2	Price and commercial terms	70%

8. The bidders are requested to go through all the terms & conditions detailed in this document, before filling out the tender. Agreeing to the terms and conditions of the tender document (by signing all pages of the copy of a tender document) is a mandatory requirement.
9. IIT Madras reserves the full rights to reject any tender at any stage without assigning any reason.

Yours Sincerely,

P.SARVAHARANA

ASSISTANT REGISTRAR

(Project Purchase)

IC&SR, I.I.T. Madras

OTHER TERMS AND CONDITIONS

- 1 Validity:** The tender for supply shall remain open for acceptance for a period of twenty seven days from the date of opening of tender. Any bidder who withdraws his tender before the said period or issue of acceptance, whichever is earlier, or makes any modification in the terms and conditions of the tender which are not acceptable to the Institute, will forfeit 50 % of the said EMD aforesaid to IIT Madras without prejudice to any other right or remedy. Further the bidder who withdraws or makes modifications, which are not acceptable, shall not be allowed to participate in the future tenders of IITM.
- 2** The offer price of the bidder shall be valid for the entire supply duration indicated in Annexure 5.
- 3** IITM will have the option to place an additional PO of the PRODUCT, on the successful bidder for upto 25,000 nos, over and above the current specified quantity of 100,000 nos, at the same commercial terms quoted by the bidder

4 Warranty/Guarantee and Service

- 4.1 Warranty services for the PRODUCT will be valid for a period of 24 months from the date of installation. The warranty shall be limited to repair of the unit/replacement by a similar unit.
- 4.2 During the warranty period, the bidder shall be fully responsible for any malfunction in the product.
- 4.3 The bidder will make arrangements to rectify/replace the dysfunctional product, at the customer premises, within 3 working days of the complaint being raised during the warranty period.
- 4.4 Beyond the warranty period, for a period not less than 3 years from the date of expiry of warranty, the bidder will make arrangements to have a service center at each of the delivery locations to cater to the service requirements of the customers at these locations.

5 Termination of contract: IITM reserves the right to terminate the contract, if during the supply period, the products fail to stay within the tolerance limits for delays and quality as specified below

- 5.1 Tolerance for poor quality – The total failures and replacements of the product will not exceed 1% of the total delivered products. Of this, Dead on Arrivals shall not exceed 20% (0.2% of shipment), infantile mortalities (within 3 months) shall not exceed 50% (0.5% of shipment). In the event of failures exceeding specified percentages, detailed Root Cause Analysis of the faults will be carried out to analyze the nature of faults observed and corrective and preventive action

necessary to prevent similar failures will be provided. If the purchaser is not convinced of the measures or the product performance, he reserves the right to reject the supplies/cancel all outstanding orders on account of poor product quality.

5.2 Tolerances for delays: IITM reserves the right to terminate the contract, on account of delay in product shipments of more than 1 week for more than 2 occasions. The expected delivery schedule is specified in Annexure 5.

6 Disputes and Jurisdiction - Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

7 All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the website <https://tenders.iitm.ac.in/> to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

Acknowledgement:- It is hereby acknowledged that the bidder has gone through all the conditions mentioned above and agrees to abide by them.

SIGNATURE OF TENDERER

ALONG WITH THE SEAL OF THE COMPANY WITH DATE

Annexure 1

Technical Specifications for DC powered DC LED panel light operating at 48V DC and controlled by a specified remote

PARAMETER	SPECIFICATIONS
Input Wattage	< 18 W
DC Input Voltage	45 to 51V
LED Driver Efficiency (@ high intensity level for the supply voltage range of 45-51 V DC)	>94%
Driver Output Voltage	33 to 39 V
Driver Output Current	435 mA ± 5%
Total Lumen Output with diffuser	> 1380 at maximum brightness setting; > 150 at minimum brightness setting
Color Rendering Index	> 80
CCT	5600 K to 7000 K
LED luminous efficacy	> 120 lm/W
System luminous efficacy (typical) @ 48 V	> 80 lm/W
High frequency ripple at input	< 600 mV p-p
Life Span for LED	L70 > 36000hrs
Light Degradation Factor	< 5% after 6000 hrs
Quality of light output	Uniform and not visible LED spots
Operating temperature	0 to 45 °C
Case Temperature	< 60 °C
External DC Driver	Must have built-in IR sensor. The driver cover must overlap > 5 mm (around 8 mm) into the tube light edge
Light ON/OFF and dimming operation	By an external IR Remote having three button (for ON/OFF, light intensity increase and light intensity decrease) as supplied by IIT Madras
Start up mode options	Option 1: Comes on with about 50 % intensity level; Option 2: Comes on with last setting prior to shut-off
Dimming Method	PWM
Dimming lux levels of light (approx) @ 48V	5 steps (10 %, 25 %, 50 %, 75% and 100%)
LED tube size and length	T8, (25.4 mm) and 1200 mm
Diffuser material	UV treated polycarbonate
IP Grade	20
Operation of LED light	Trouble free and not to cause interference to other DC loads
Protections	I/P Reverse Polarity, O/P Open Circuit, Short Circuit, Thermal Shut Down and non compatibility to AC tube light fixtures

Type of mounting	Wall Mounting (The required accessories shall be provided by the supplier)			
Certification	LM 80 for LED and LM79 (for product)			
Design and Manufacturing	India			
IR Remote operation, control signals, commands and codes				
Communication Protocol	NEC derived custom protocol			
Carrier Frequency	38 ± 1 kHz			
Operating distance (line of sight)	3 m			
Control Signals	Commands		Codes	
Light ON or OFF	L_ON_OFF		0x00FFBA47	
Light intensity increase	L_UP		0x00FFBF47	
Light intensity decrease	L_DN		0x00FFBE47	
Code Description				
Command	Hex Code	Binary Codes (32 bits)	Reversal of binary digits in Hex Code	Decimal notation of the Code
L_ON_OFF	0x00FFBA47	0b 0000 0000 1111 1111 1011 1010 0100 0111	E25DFF00	3797810944
L_UP	0x00FFBF47	0b 0000 0000 1111 1111 1011 1111 0100 0111	E2FDFF00	3808296704
L_DN	0x00FFBE47	0b 0000 0000 1111 1111 1011 1110 0100 0111	E27DFF00	3799908096
Data reception		As per NEC protocol for communication		
<p>(i) Total length of the data reception in one cycle in 32 bits.</p> <ul style="list-style-type: none"> - Logical '0' – a 562.5µs high signal followed by a 562.5µs low signal, with a total time of 1.125ms - Logical '1' – a 562.5µs high signal followed by a 1.6875ms low signal, with a total time of 2.25ms. <p>(ii) Start sequence: A high signal of 9ms followed by a low signal of 4.5ms and thus making a total time of 13.5ms; bit sequence is modulating signal.</p>				

Annexure 2

**Performance Table - DC powered DC LED panel light operating at 48V DC
and controlled by a specified remote**

Parameter	IITM Requirements	Vendor Specifications	Test Report (given under Annexure _)
Input Wattage	< 18 W		
DC Input Voltage	45 to 51V		
LED Driver Efficiency (@ high intensity level for the supply voltage range of 45-51 V DC)	>94%		
Driver Output Voltage	33 to 39 V		
Driver Output Current	435 mA \pm 5%		Annexure No__
Total Lumen Output with diffuser	> 1380lm at maximum brightness setting; > 150lm at minimum brightness setting		Annexure No ____
Color Rendering Index	> 80		
CCT	5600 K to 7000 K		
LED luminous efficacy	> 120 lm/W		
System luminous efficacy (typical) @ 48 V	> 80 lm/W		
High frequency ripple at input	< 600 mV p-p		
Life Span for LED	L70 > 36000hrs		
Light Degradation Factor	< 5% after 6000 hrs		
Quality of light output	Uniform and not visible LED spots		
Operating temperature	0 to 45 °C		
Case Temperature	< 60 °C		
External DC Driver	Must have built-in IR sensor. The driver cover must overlap > 5 mm (around 8 mm) into the tube light edge		
Light ON/OFF and dimming operation	By an external IR Remote		
Start up mode options	Comes on with about 50 % intensity level; Comes on with last setting prior to shut-off		

Dimming Method	PWM		
Dimming lux levels of light (approx) @ 48V	5 steps (10%, 25%, 50%, 75% and 100%)		Annexure No ____
LED tube size and length	T8, (25.4 mm) and 1200mm		
Diffuser material	UV treated polycarbonate		
IP Grade	20		
Operation of LED light	Trouble free and not to cause interference to other DC loads		
Protections	I/P Reverse Polarity, O/P Open Circuit, Short Circuit, Thermal Shut Down and non compatibility to AC tube light fixtures		Annexure No ____
Type of mounting	Wall Mounting (The required accessories shall be provided by the supplier)		
Certification	LM 80 for LED and LM79 (for product)		Annexure No ____
Design and Manufacturing	India		
IR Remote operation, control signals, commands and codes			
Communication Protocol	NEC derived custom protocol		
Carrier frequency	38 ± 1 kHz		Data sheet of IR Receiver shall be kept as Annexure. Annexure No ____
Operating distance (line of sight)	3 m (with subtended angle of 45° between the axis of remote control and vertical axis)		Annexure No ____
Light operation commands and codes	Light ON/OFF: 0x00FFBA47 Light intensity increase: 0x00FFBF47 Light intensity decrease : 0x00FFBE47		

Note: Answering 'Yes', 'No' or 'Same as IITM Specs' under 'Vendor Specifications' column shall be avoided and inappropriate answering under this column may result in tender disqualification.

Date

Name and Signature of Authorised Signatory
with company seal

Technical papers / reports

1. Handout of the Product.
 - a. The handout should contain all the product specifications, a description of the operational features of the product and user oriented procedure for operating the product should be provided.
 - b. The handout should also list out the elementary troubleshooting rules to facilitate correct feedback.
2. Test Reports,
3. Certification received, if any, and
4. Specifications of specific components used if any (like IR receiver etc)

Annexure 4

Supplier Product Quality Assurance Requirements

1. Selected supplier/s shall provide test reports on five more samples to IITM as per the Performance Table given in Annexure 2 immediately on selection.
2. Routine tests at factory: This will be done by the vendor at his place. PRODUCTS which meet the specifications will be affixed with 'Tested Ok' sticker. All PRODUCTS will bear Serial Nos. and bar code stickers. Luminance and power consumption at highest luminance shall be recorded and the vendor should provide a test certificate for the units dispatched to IITM along with serial number and measured data in soft copy format.
3. Pre-dispatch Inspection shall be carried out on sample basis (one in every 500 PRODUCTS) as given below. The reports shall be sent to the designated authority by e mail.

Pre-dispatch Inspection Report			
Supplier Name	P.O No	Quantity for delivery	Number of batches and quantity per batch
Batch No from which sample drawn	Sl. No of the sample	Place of inspection	Date of inspection
Tested by:		Inspected by:	
Test results			
Luminance at 48V		Typical Lux @8ft distance directly under the light	Room size
		95 ±10%	10ftX10ftX10ft
Current drawn@ Max luminance			
Power drawn @ Max luminance			
Minimum starting voltage			
System efficiency at Maximum luminance and power			
Reverse polarity protection			
Input transient protection			
Max distance for remote operation			

4. Random Checks after delivery at sites: The purchaser reserves the right to draw samples from deliveries at sites, say one in every 1000 PRODUCTS delivered, for performance testing. The purchaser also reserves the right to be present when inspections are done at factory and draw samples to carry out the test at IITM as deemed necessary.
5. The purchaser reserves the right to reject lot/s, samples of which do not meet the requirements.
6. For every failed PRODUCT in the field over and above the permissible limit, the vendor shall provide two additional PRODUCTS as spares.

THE EXPECTED DELIVERY SCHEDULE

1. Tentative Month wise requirement of **DC powered DC LED panel light operating at 48V DC and controlled by a specified remote** unit is as under. This may be altered at the time of the issue of the PO.

Month	Supply requirement (nos)
30 Aug 2015	2000
30 Sep 2015	6000
31 Oct 2015	12000
30 Nov 2015	20000
31 Dec 2015	20000
31 Jan 2016	20000
29 Feb 2016	20000
Total supply	100000

2. Tentative Location wise Volumes are as under

Sr. No.	State	Location	Quantity to be supplied(nos)
1	Bihar	Likely to be Sasaram and nearby towns	91,000
3	Assam	Lakhimpur	5,000
4	Rajasthan	Jodhpur	4,000

Annexure 6

Schedule of Events

The tender document will be made available in the IIT Madras webpage from the date of release of the tender.

S.no	Description	Date
1	Release of Tender	July 03, 2015
2	Submission of queries (for Pre-bid clarification)	July 07, 2015
3	Pre-bid Clarification Meeting	July 10, 2015
4	Submission of Technical bids - on or before	July 20, 2015
5	Submission of Financial bids - on or before	July 27, 2015