

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
VIKRAM SARABHAI SPACE CENTRE (VSSC)
THIRUVANANTHAPURAM**

**Tender for Photomultipliers, Recorders and Accessories for Lidar
Applications**

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT II (AVN)/VS202300287301 dated 15-09-2023

A. Tender Details

Tender No : **VSSC/PURCHASE UNIT II (AVN)/VS202300287301**

Tender Date : **15-09-2023**

Tender Classification: **GOODS**

Purchase Entity : **PURCHASE UNIT II (AVN)**

Centre : **VIKRAM SARABHAI SPACE CENTRE (VSSC)**

Photomultipliers, Recorders and Accessories for Lidar Applications

Photomultipliers, Recorders and Accessories for Lidar Applications

A.1 Tender Schedule

Bid Submission Start Date : **14-09-2023 11:00**

Bid Clarification Due Date : **29-09-2023 11:00**

Bid Submission Due Date : **12-10-2023 14:00**

Bid Opening Date : **12-10-2023 15:00**

Price Bid Opening Date : **26-10-2023 15:00**

B. Tender Attachments

Technical Write-up/Drawings

Document : General Description and Terms and Conditions

Instructions To Vendors

2. Conditions for BIDDER FROM A COUNTRY WHICH SHARES LAND BORDER WITH INDIA - Restrictions under Rule 144 (XI) in GFR, 2017.

1. Any bidder from a country which shares a land border with India will be eligible to bid in this tender, only if the bidder is registered with the Competent Authority. Competent Authority for the purpose of registration shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
2. Any false declaration and non-compliance of the above would be a ground for immediate rejection of offer or termination of the contract and further legal action in accordance with the laws.
3. Validity of Registration: Registration should be valid at the time of submission of bids and should be valid at the time of placement of order.

C. Bid Templates

C.1 Technical Bid - Photomultipliers, Recorders and Accessories for Lidar Applications

1. Photon counting module: Photomultiplier Modules (PM) with Accessories

Item specifications for Photon counting module

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Photomultiplier Modules (PM) with Accessories – Quantity: 1 Set [the specifications are given in Sl. Nos. 2-16]	(i) Photomultiplier Module (PM) with High Voltage (HV) Power Supply – Quantity: 2 Nos.; (ii) PM Controller – Quantity: 1 No.; (iii) Rack for HV Power Supplies of PMs – Quantity: 1 No.	Yes / No / Explain		
2	Application	Photomultiplier Modules and accessories for Atmospheric Lidar application (Mie Scattering mode)	Yes / No / Explain		
3	Cathode	Super Bialkali cathode	Yes / No / Explain		
4	Gated/Ungated	Ungated	Yes / No / Explain		
5	Cooling	Uncooled	Yes / No / Explain		
6	Window	UV Glass	Yes / No / Explain		
7	Wavelength Range	300-600 nm or wider	Yes / No / Explain		
8	Peak Wavelength	Around 400-500 nm	Yes / No / Explain		
9	Gain	~10 ⁵ or better	Yes / No / Explain		
10	Average anode output current	25 microA to 400 microA (typical ~100 microA)	Yes / No / Explain		
11	Dark current	Max. 10 nA (typical ~1 nA)	Yes / No / Explain		

12	Operating temperature	15 deg C to 30 deg C (or wider)	Yes / No / Explain		
13	High Voltage Power Supply	Compatible HV power supply for the Photomultiplier Module specified above, with necessary accessories such as cables	Yes / No / Explain		
14	Rack for HV Power Supply of PMs (Quantity: 1 No.)	(a) One compatible Rack should be provided for mounting the HV Power Supplies of the PMs, with the capacity to mount up to 6 or more modules. (b) Additionally, the rack should have 12V power supply for one cooled PMT to be installed in a later phase.	Yes / No / Explain		
15	PM Controller (Quantity: 1 No.)	(a) It should have capability for remote control of multiple Photomultiplier Modules (up to 6 or more), including remote high voltage setting and high voltage monitoring; (b) The high voltage set/read accuracy should be +/- 1 V or better; (c) All necessary software should be provided, suitable for Windows platform; (d) The PM Controller should be compatible with the Photomultiplier Modules specified above; (e) It should have Ethernet Interface.	Yes / No / Explain		
16	Cables and Connectors	All necessary cables and connectors required for the Photomultiplier Modules, HV power supplies, PM Controller and rack should be provided.	Yes / No / Explain		

2. 16 bit Data Acquisition System: Transient Recorders (TR) with Accessories

Item specifications for 16 bit Data Acquisition System

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Transient Recorders (TR) with Accessories – Quantity: 1 Set [the specifications are given in Sl. Nos. 2-16]	(i) Transient Recorders (TR) – Quantity: 2 Nos.; (ii) TR Controller – Quantity: 1 No.; (iii) Rack and Power Supply for TR – Quantity: 1 No.	Yes / No / Explain		
2	Application	Transient Recorders and accessories for Atmospheric Lidar application (Mie Scattering mode)	Yes / No / Explain		
3	Acquisition modes	Analog mode and Photon counting mode, with built-in pre-amplifiers	Yes / No / Explain		
4	Signal Input Range	Compatible with output of Photomultiplier Module specified above	Yes / No / Explain		
5	Analog Mode Acquisition	(a) A/D Resolution: 16 Bit or better; (b) Sampling rate: 40 MHz or better; (c) Bandwidth: 20 MHz or better	Yes / No / Explain		
6	Photon Counting Acquisition	(a) Maximum photon count rate: 800 MHz or better; (b) Discriminator: multiple software-controlled levels (at least 32 levels)	Yes / No / Explain		
7	Spatial Resolution	5 m or better	Yes / No / Explain		
8	No. of Acquisitions	Up to 64k shots or more	Yes / No / Explain		
9	Memory depth	32k bins or better	Yes / No / Explain		
10	External Trigger Input	Should have provision for external trigger input	Yes / No / Explain		
11	Interface	Ethernet	Yes / No / Explain		

12	Compatibility of TR	TRs should be compatible with the specifications of the Photomultiplier Modules specified above.	Yes / No / Explain		
13	Software	All necessary software for TR should be provided, suitable for Windows platform.	Yes / No / Explain		
14	Rack with Power Supply for TRs (Quantity: 1 No.)	One compatible Rack with Power Supply (suitable for 230V, 50 Hz input supply) should be provided, with capacity to mount and control up to 6 or more TRs.	Yes / No / Explain		
15	TR Controller (Quantity: 1 No.)	(a) It should have the capability for remote control and readout of multiple Transient Recorders (up to 6 or more), including selection of acquisition mode, binning, pre-amplification level, discriminator level, sampling rate, no. of acquisitions, etc.; (b) All necessary software should be provided, suitable for Windows platform; (c) The TR Controller should be compatible with the Transient Recorders specified above; (d) It should have Ethernet Interface.	Yes / No / Explain		
16	Cables and Connectors	All necessary cables and connectors required for the Transient Recorders, TR Controller, Trigger Generator, rack and power supply should be provided.	Yes / No / Explain		

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
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1	Photomultiplier Modules (PM) with Accessories [PM with HV Power Supply: - 2 Nos.; PM Controller: - 1 No.; Rack for HV Power Supplies of PMs :- 1 No.] – Quantity: 1 Set .	These items/modules are for atmospheric lidar application. Inter-module compatibility should be ensured for all items and accessories. All necessary cables and connectors required for the items and accessories should be supplied. The party has to comply with all the item-wise specifications provided in the indent.	Yes / No / Explain		
2	Transient Recorders (TR) with Accessories [TR: - 2 Nos.; TR Controller: - 1 No.; Rack and Power Supply for TRs :- 1 No.] – Quantity: 1 Set.	These items/modules are for atmospheric lidar application. Inter-module compatibility should be ensured for all items and accessories. All necessary cables and connectors required for the items and accessories should be supplied. The party has to comply with all the item-wise specifications provided in the indent.	Yes / No / Explain		

Supporting Documents required from Vendor

1. Warranty period should be mentioned in the quote. A minimum warranty period of 12 months should be provided.
2. Make/Model of the item should be included in the technical document
3. Detailed specification of the items shall be included in the quote.

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Supplier has to quote for all items, including all accessories, and partial offers will not be considered.	Yes / No / Explain	
2	Detailed specification of the items shall be included in the techno-commercial bid.	Yes / No / Explain	
3	Being 2 Part PT, the price should NOT be revealed in Techno-Commercial bid/offer.	Yes / No / Explain	
4	Make and Model of the items should be explicitly specified in the techno-commercial bid.	Yes / No / Explain	
5	These items/modules are for atmospheric lidar application.	Yes / No / Explain	
6	Inter-module compatibility should be ensured for all items and accessories.	Yes / No / Explain	
7	All necessary cables and connectors required for the items and accessories should be supplied.	Yes / No / Explain	
8	All items should have warranty for a minimum period of 1 year from the date of delivery.	Yes / No / Explain	
9	This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. All technical and commercial terms and conditions shall be furnished in the Techno-Commercial Bid while price shall be indicated only in the Price Bid. Uploading price details anywhere else other than the price-bid shall lead to unconditional rejection of the tender. Please make note of the same. Tenderers are advised NOT TO UPLOAD any documents revealing the price of the main equipment, accessories, spares or AMC in technical & Commercial bid other than area marked as price related documents. They are however, requested to upload UNPRICED BIDS (i.e. Price details masked) showing appropriate breakup of components of main equipment, individual accessories and spares as desired	Yes / No / Explain	

10	GST extra as applicable. Please quote applicable G.S.T rates with HSN code. Your GST Reg. No. and details shall be furnished in your quotation.	Yes / No / Explain	
11	Warranty [Minimum One year]	Yes / No / Explain	
12	Performance Bank Guarantee :3% Performance Bank Guarantee valid two months beyond warranty period to be provided	Yes / No / Explain	
13	Delivery Terms [Normal delivery terms - FOR Destination (for Indigenous cases) & FOB/ FCA or Ex-works (for Import cases).	Yes / No / Explain	
14	Delivery Period [Please Specify the period, LD Clause applicable].	Yes / No / Explain	
15	Payment Term [Within 30 days after receipt and acceptance for indigenous/ Sight Draft for import cases].	Yes / No / Explain	
16	Quote Validity: Minimum 180 days from the date of tender opening	Yes / No / Explain	
17	Liquidated Damages @ 0.5% per week subject to maximum of 10% of order value is applicable beyond the promised delivery schedule	Yes / No / Explain	
18	Security Deposit: Successful Tenderer shall submit Security Deposit equivalent to 3% of the order value valid for a period of 60 days beyond the date for completion of the Purchase Order shall be furnished. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee or Fixed Deposit receipts from Nationalised/Scheduled Banks.	Yes / No / Explain	
19	I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered	Yes / No / Explain	

20	Purchase preference to eligible vendors are applicable as per extant notifications issued by the Government of India. The Class-I/Class-II Local suppliers, at the time of submitting their offer, shall also indicate percentage of local content and provide self-certification that the item (s) offered meets the local content requirement for Class-I/Class-II Local Suppliers as the case may be. They shall also give details of location (s) at which the local value addition is made	Yes / No / Explain	
21	The vendor has to compulsorily submit the compliance statement online otherwise their offer will not be considered for further evaluation. Before entering the compliance statement, vendors are advised to refer the detailed specification provided. The Technical Specification/ Drawing/ Product Catalogues/ Works Carried by vendor/ Make offered etc. as a single PDF file without any financial details has to be uploaded online mode by the vendor	Yes / No / Explain	
22	Technical Bids will be opened at the scheduled due date & time. No further intimation will be sent in this regard. The schedule for price bid opening shown is only indicative. Price bids will only be opened in the case of parties who have been techno-commercially accepted, the details of which will be communicated at a later stage.	Yes / No / Explain	
23	PO ordering address in full with Contact Persons Name, E-mail id, Phone No. [also attach your Quotation in PDF format without prices details].	Yes / No / Explain	
24	Any Other terms	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	Photon counting module: Photomultiplier Modules (PM) with Accessories	1.00 Sets		-		

2	16 bit Data Acquisition System: Transient Recorders (TR) with Accessories	1.00 Sets		-		
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Common charges (Applicable for all items)

Customs Duty	
IGST	