

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

Tender for Balloon-borne sensors & accessories

Bids to be submitted online

Tender No.: VSSC/PURCHASE UNIT II (AVN)/VS202400427101 dated 30-09-2024

A. Tender Details

Tender No : **VSSC/PURCHASE UNIT II (AVN)/VS202400427101**

Tender Date : **30-09-2024**

Tender Classification: **GOODS**

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

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

Balloon-borne sensors & accessories

Balloon-borne sensors & accessories [GeMAR No: GEM/GARPTS/09092024/9KLYBE2FYBUH]

A.1 Tender Schedule

Bid Submission Start Date : **07-10-2024 14:00**

Bid Clarification Due Date : **22-10-2024 12:00**

Bid Submission Due Date : **07-11-2024 14:00**

Bid Opening Date : **07-11-2024 15:00**

Price Bid Opening Date : **14-11-2024 12:00**

B. Tender Attachments

Technical Write-up/Drawings

Document : [General Description and Terms and Conditions](#)

Instructions To Vendors

C. Bid Templates

C.1 Technical Bid - Balloon-borne sensors & accessories

1. DEW POINT HYGROMETER:

Cryogenic Frost-point Hygrometers (CFH):

Item specifications for DEW POINT HYGROMETER

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Technique	Temperature controlled Chilled Mirror	Yes / No / Explain		
2	Measurement Range of dew/Frost-point temperature	+25°C to -80°C	Yes / No / Explain		
3	Measurement range of Mixing ratio	25000 ppmv to 0.8 ppmv	Yes / No / Explain		
4	Vertical resolution of measurement	< ~ 50 m (troposphere) and ~ 100 m (stratosphere)	Yes / No / Explain		
5	Altitude range of measurement	0 to 25 km (or above)	Yes / No / Explain		
6	Measurement Uncertainty of Forst-point temperature	better than 0.5 °C	Yes / No / Explain		
7	Measurement Uncertainty of Water Vapour Mixing Ratio	better than 10% accuracy above 10km & better than 5% accuracy below 10 km	Yes / No / Explain		

8	Technical requirements of CFH	a) CFH should be compatible with the offered ECC Ozonesondes and GPS-Radiosonde b) CFH should be compatible the En-Sci Ground Receiving System (Model DAS-2, 403 MHz); c)CFH should interface with the STRATO software program for data recording and processing; d)CFH should be rugged enough to re-use when safely recovered from a balloon flight.	Yes / No / Explain		
9	Accessories	Essential batteries for the functioning/operation of the instrument	Yes / No / Explain		

Document : Specifications

2. Ozone Sonde Accessories and Consumables: Electro-Chemical Cell (ECC) Ozonesondes

Item specifications for Ozone Sonde Accessories and Consumables

Sl No	Specification	Value	Compliance	Offered Specification	Remark
1	Technique	Electrochemical process that generates electrical current in proportion to ozone concentrations	Yes / No / Explain		
2	Measured Parameter	ozone partial pressure in nb & Ozone mixing ratio in parts per billion (ppb)	Yes / No / Explain		
3	Operating Pressure	1050 hPa - 4 hPa	Yes / No / Explain		
4	Operating Temperature	0° C to 40 °C (Inside flight box) and > - 90 °C (Outside flight box)	Yes / No / Explain		

5	Accuracy	better than 10% for pressure levels > 10 hpa	Yes / No / Explain		
6	Precision	better than 4% for pressure levels > 10 hpa	Yes / No / Explain		
7	Technical requirements	(a) ECC Ozonesonde should be compatible with the offered CFH and GPS-Radiosonde (b) ECC Ozonesonde should be compatible with the En-Sci (Model DAS-2, 403 MHz) Ground Receiving System	Yes / No / Explain		
8	Accessories	Essential batteries for the functioning/operation of the instrument	Yes / No / Explain		

Document : Specifications

3. Radiosonde and Accessories: GPS 403 MHz Radiosondes

Item specifications for Radiosonde and Accessories

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Temperature - Range:	-90° C to + 60° C	Yes / No / Explain		
2	Temperature - Resolution:	0.1 °C	Yes / No / Explain		
3	Temperature - Uncertainty:	< 0.5 °C	Yes / No / Explain		
4	Relative Humidity - Range:	0 to 100 %	Yes / No / Explain		
5	Relative Humidity - Resolution:	0.1 %	Yes / No / Explain		
6	Relative Humidity - Uncertainty:	< 7 %	Yes / No / Explain		
7	Pressure - Range:	1050 hPa to 10 hPa	Yes / No / Explain		
8	Pressure - Resolution:	0.01 hPa	Yes / No / Explain		

9	Pressure - Uncertainty:	< 1 hPa for Pressure > 400 hPa	Yes / No / Explain		
10	wind speed Range:	Up to 200 m/s	Yes / No / Explain		
11	Wind Speed - Uncertainty:	< 1 m/s	Yes / No / Explain		
12	Wind Direction - Range:	0° to 359.9°	Yes / No / Explain		
13	Wind Direction - Uncertainty:	< 2°	Yes / No / Explain		
14	Technical requirements	(a) GPS 403 MHz Radiosonde with pressure, temperature and humidity sensors. (b) GPS 403 MHz Radiosonde should be compatible with the CFH and ECC Ozonesondes offered. (c) GPS 403 MHz Radiosonde should be compatible with the En-Sci (Model DAS-2, 403 MHz) ground Receiving system.	Yes / No / Explain		
15	Technical specifications:	The specification values stated in SI Nos. 1-13 should be achieved by the Radiosonde in ambient (environmental) atmospheric condition.	Yes / No / Explain		
16	Accessories	Essential batteries for the functioning/operation of the instrument	Yes / No / Explain		

Document : Specifications

Common Specifications (Applicable for all items)

SI No	Specification	Value	Compliance	Offered Specification	Remark
1	Technique of CFH	Temperature controlled Chilled Mirror (Measurement Uncertainty of Forst-point temperature better than 0.5 deg C)	Yes / No / Explain		

2	Technique of ECC Ozonesondes	Electrochemical process that generates electrical current in proportion to ozone concentrations. Measurement uncertainty of Ozone partial pressure better than 10% for pressure levels > 10 hpa).	Yes / No / Explain		
3	GPS Radiosonde	GPS 403 MHz Radiosonde with pressure, temperature and humidity sensors. [Measurement Uncertainty: Temperature < 0.5 deg.C; Relative Humidity < 7%; Wind speed < 1 m/s; wind direction < 2 deg.]	Yes / No / Explain		
4	Technical Requirements	(i) CFH & ECC ozonesonde should be compatible with each other and also compatible with the offered GPS Radiosonde; (ii) Real time data from CFH and ECC ozonesonde are to be transmitted to the Ground Receiving system through Radiosondes; (iii) GPS 403 MHz Radiosonde should be compatible with the En-Sci (Model DAS-2, 403 MHz) ground Receiving system; (iv) CFH should be rugged enough to re-use when safely recovered from a balloon flight.	Yes / No / Explain		
5	Terms and Conditions	(i) Warranty: - Minimum 6 months; (ii) CFH and/or Ozonesonde needs to be replaced by the party, in case of malfunction during ground test / pre-flight preparation (OR) during its FIRST balloon flight.; (iii) Radiosondes needs to be replaced by the party, in case of malfunction during the warranty period.	Yes / No / Explain		

Supporting Documents required from Vendor

1. Price-bid related documents, if any (Price Bid Related)

2. Make/Model of the item should be included in the technical document

3. Technical document of items including the operational principle, specifications, make/model no. etc.

5 additional documents can be uploaded by the vendor

C.2 Commercial Terms / Bid

Sl. No.	Description	Compliance	Vendor Terms
1	Warranty: - Minimum 6 months	Yes / No / Explain	
2	CFH and/or Ozonesonde needs to be replaced by the party, in case of malfunction during ground test / pre-flight preparation (OR) during its FIRST balloon flight.	Yes / No / Explain	
3	CFH & ECC ozonesonde should be compatible with each other and also compatible with GPS Radiosonde	Yes / No / Explain	
4	Make and Model No of Cryogenic Frost-point Hygrometer (CFH), ECC Ozoensondes and radiosondes should be explicitly mentioned along with the technical bid,	Yes / No / Explain	
5	Radiosondes needs to be replaced by the party, in case of malfunction during the warranty period.	Yes / No / Explain	
6	CFH should be rugged enough to re-use when safely recovered from a balloon flight.	Yes / No / Explain	
7	CFH should interface with the STRATO software program for data recording and processing.	Yes / No / Explain	
8	All the technical requirements and specifications of items should be clearly stated in the technical bid	Yes / No / Explain	
9	This is a TWO-PART tender i.e. Techno-Commercial Bid (C1 & C2 of tender document) and Price Bid (C3 of tender document) 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 in technical & Commercial bid other than area marked as price related documents	Yes / No / Explain	

10	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.	Yes / No / Explain	
11	The Technical Specification/ Drawing/ Product Catalogues/ Works Carried by vendor/ Make offered etc. as a PDF file without any financial details has to be uploaded online mode by the vendor.	Yes / No / Explain	
12	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	
13	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	
14	In cases if the item(s) offered exceed Rs. 10 Crores, the Class-I/Class-II Local Suppliers shall provide a Certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. False Declarations will be in breach of the Code of Integrity under Rule 175 (1) (i) (h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.	Yes / No / Explain	

15	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	
16	Delivery Terms [Normal delivery terms - FOR VSSC]	Yes / No / Explain	
17	Delivery Period [Please Specify the period, LD shall be applicable in case of delayed delivery]. Mention the time required for supply and installation wherever applicable.	Yes / No / Explain	
18	Payment [Within 30 days after receipt and acceptance of Item at our Stores].	Yes / No / Explain	
19	Liquidated Damages @ 0.5% per week subject to maximum of 10% of order value is applicable beyond the promised delivery schedule.	Yes / No / Explain	
20	Warranty [Minimum -6 months required.]	Yes / No / Explain	
21	Performance Bank Guarantee for 3% of order value valid 2 months beyond the Warranty Period to be provided.	Yes / No / Explain	
22	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. 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. No exemption is applicable for MSE vendors from submission of Security Deposit. In case PSU/Autonomous bodies/Central Government organizations, Indemnity Bond shall be accepted. Wherever SD and PBG are involved, the same can be submitted in consolidated SD cum PBG, valid till completion of warranty obligations under the contract. Necessary formats will be issued to the successful tenderer along with Purchase order.	Yes / No / Explain	
23	Country of Origin	Yes / No / Explain	
24	GeM Seller Unique ID	Yes / No / Explain	

25	Quote Validity: Minimum 180 days [for Two part Tender] from the date of Tender opening.	Yes / No / Explain	
26	PO ordering address in full with Contact Persons Name, E-mail id, Phone No. [also attach your Quotation in PDF format].	Yes / No / Explain	
27	As per the provisions of Office Memorandum No. F. No. 6/18/2019-PPD dtd. 23.07.2020 (i.e., Rule No. 144 (xi) of GFR) and its Amendments, issued by Department of Expenditure, Ministry of Finance. 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	
28	If any of the bidders submit any forged or false documents along with the Tender, such tenders will be summarily rejected and such bidders will be blacklisted for all future tenders.	Yes / No / Explain	
29	Foreign vendors also can quote	Yes / No / Explain	
30	Any other terms.	Yes / No / Explain	

C.3 Price Bid

Sl. No.	Item	Quantity	Unit Price	Currency	Total Price	Remark
1	DEW POINT HYGROMETER: Cryogenic Frost-point Hygrometers (CFH):	6.00 Nos.		-		
2	Ozone Sonde Accessories and Consumables : Electro-Chemical Cell (ECC) Ozonesondes	12.00 Nos.		-		

3	Radiosonde and Accessories: GPS 403 MHz Radiosondes	25.00 Nos.		-		
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Common charges (Applicable for all items)

Customs Duty	
IGST	