वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्
Council of Scientific & Industrial Research
राष्ट्रीय वांतरिक्ष प्रयोगशालाएं
National Aerospace Laboratories

CSIR - NAL Estd. 1959
ISO 9001 : 2015
Certified Organization

INVITATION FOR BIDS/NIT

Tender No. NAL/PUR/ALD/450/19-Y **Dated: 23-Dec-19** 27

CSIR- National Aerospace Laboratories (NAL), Bengaluru, India is one of the premier laboratories under Council of Scientific and Industrial Research (CSIR), an autonomous body under Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organization. It is internationally known for its excellence in Scientific Research in Aerospace Engineering.

The Director, CSIR-NAL invites online quotation for procurement of the following item(s) for day to day research work.

Sl.No.	Description of Items	Unit	Quantity
01	**Direct georeferencing GNSS system with antenna.**	**Set**	**1**
02	**Post processing software for DG GNSS**	**No**	**1**
03	**Full Frame Image Sensor camera compatible with DG GNSS.**	**No**	**1**
	Please refer Annexure for detailed specification.		

Single / Double Bid	**Two Bid**
Bid Security (EMD) (in INR)	**Rs. 50000/-**
Performance Security	**10% of the purchase order value**

01. Tender Documents may be downloaded from Central Public Procurement Portal https://www.etenders.gov.in. Aspiring Bidders who have not enrolled/ registered in e- procurement should enroll/ register before participating through the website https://www.etenders.gov.in. The portal enrolment is free of cost. Bidders are advised to go through instructions provided at 'Instructions for online Bid Submission'.

02. Tenderers can access tender documents on the website (For searching in the NIC site https://www.etenders.gov.in, kindly go to Tender Search option, select tender type and select ' Council of Scientific and Industrial Research' in organization tab and select NAL-Bengaluru-CSIR in department type Thereafter, Click on "Search" button to view all CSIR-NAL, Bengaluru tenders). Select the appropriate tender and fill them with all relevant information and submit the completed tender document online on the website https://www/etenders.gov.in as per the schedule given in the next page.

03. Either the Indian Agent on behalf of the Foreign principal or the Foreign principal can bid directly in a tender but not both. However, the offer of the Indian Agent should also accompany the authorization letter from their principal. To maintain sanctity of tendering system, one Indian Agent cannot represent two different Foreign principals in one tender.

04. Unsolicited / conditional / unsigned tenders (Quotations) **shall not** be considered. Quotations received after the due date and time **shall be summarily rejected**.

05. The Bidder shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.

06. The Director, CSIR- National Aerospace Laboratories., Bengaluru reserves the right to accept any or all the tenders either in part or in full or to split the order without assigning any reasons there for.

Raman Kumar
(Section Officer S&P)

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SCHEDULE CUM CRITICIAL DATE SHEET

1	Name of Organization	CSIR-National Aerospace Laboratories, Bengaluru	
2	Tender Reference No	NAL/PUR/ALD/450/19-Y dated: 23-Dec-19	
3	Tender Type (Open/Limited/EOI/Auction/Single)	Open Tender	
4	Type/Form of Contract (Work / Supply / Auction / Service / Buy / Empanelment / Sell)	Supply	
5	No of Covers (One/Two/Three/Four)	Two	
6	Tender Category (Services/Good/Works)	Goods	
7	Allow Resubmission (Only in online mode within scheduled period)	Yes	
8	Allow Withdrawal (Only in online mode within scheduled period)	Yes	
9	Allow Offline Submission	No	
10	Work Item Title	Direct georeferencing GNSS system with antenna, Post processing software for DG GNSS.,Etc.	
11	Work Description	Direct georeferencing GNSS system with antenna, Post processing software for DG GNSS.,Etc.	
12	Delivery Schedule	30 days from the date of purchase order	
13	Product Category (Civil Works / Electrical Works / Fleet Management / Computer Systems)	R & D Equipment	
14	Is Multi Currency Allowed	Yes	
15	a) Tender Publishing Date -	28-Dec-19	1800 Hrs
	b) Document Download Start Date-	28-Dec-19	1800 Hrs
	c) Bid Submission Start Date-	28-Dec-19	1800Hrs
	d) Bid Submission End Date-	20-Jan-20	1000 Hrs
	e) Bid Opening Date-	21-Jan-20	1100 Hrs
16	Bid Validity Days	90 days	
17	Address for communication	Stores and Purchase Officer CSIR-National Aerospace Laboratories, HAL Airport Road, Kodihalli, Bengaluru - 560017	
18	Inviting Officer	Director, CSIR-NAL	
19	Contact No	25086040, 25086041	
20	E-mail Address	purchasek@nal.res.in	
21	Detailed specification of item	Refer Invitation for bids / NIT	
22	Tender Terms & Conditions & Instruction for online bid submission	The prospective bidders are requested to refer to the Standard Tender Document available on NAL Internet (www.nal.res.in) under the icon Tender-Purchase before formulating and submitting their bids	

S. No.	Item	Value	Quantity
A	**Integrated GNSS/INS System consisting of following minimum specifications**		**1set**
1	**GNSS IMU OEM receiver with Direct Georeferencing capability and with following specifications:**		
	GNSS unit with 330 channels or more capable of receiving:		
	GPS: L1 C/A, L2C, L2E, L5 GLONASS: L1 C/A, L2 C/A Galileo: E1, E5A, E5B, E5AltBOC GLONASS L1/L2/L3 QZSS: L1/L2/L5 IRNSS: L5 BeiDou: B1, B2		
2	GNSS carrier phase measurements with less than 1 mm precision in 1 Hz bandwidth		
3	Solid Sate MEMS IMU with data rate of 200 Hz		
4	Output of integrated solution: Position, roll, pitch, heading @ 100 Hz		
5	Navigation output format: ASCII		
6	PPS Time sync pulse output should be available		
7	Flash memory for internal data logging	6 GB	
8	USB 2.0 device support for external logging		
9	Logged parameters: Time tag, status, position, attitude, velocity, speed, raw IMU data (@ 200 Hz), raw GNSS data (@ 5 Hz)		
10	Post processed positional accuracy	2-5 cm	
11	Post processed velocity accuracy	1.5 cm/s	
12	Roll and Pitch (post processed)	0.025 deg	
13	Heading (post processed)	0.08 deg	
14	Weight	< 65 grams	

15	Size	67Lx60Wx15H mm or less	
16	Operational temperature	-40 deg C to +75 deg C	
17	Must include evaluation kit & development board		
18	Must be upgradable to both RTK and post- processed		
19	Multi-constellation antenna (e.g. GPS, GLONASS, Galileo, Beidou & L-Band), IP67, LNA Gain of 33dB, Diameter of 40mm x 82,6mm height or less and weight less than 50gms		
20 a.	Must be compatible with many airborne sensor including Analog/digital cameras, Line Scanners/LIDAR/Synthetic Aperture Radar / Hyperspectral Scanners / Thermal Imagers / Oblique Imaging Systems		
20b.	Multi-sensor payload support – The system should geo-reference multiple sensors in parallel. Common multi-sensor payloads include LIDAR with an RBG or multi-spectral camera.		
21	Should have in Fusion GNSS & Interial technology & SmartCAL compensation technology		
22	Serial Input out options		
23	LAN Input output options such as TCP/IP based data streaming		
24	Should have capability to receive RTK L-Band satellite based differential correction services like Omnistar & RTX		
25	User Manual in English (in softcopy)		
26	Evaluation Kit		
B	**Raw data processing software** *Give one quote for all items in B1*		**1 set**
1	OEM differential GNSS-aided inertial post-processing software for georeferencing data. Should have Cm-level post-processed DGNSS position accuracy, Accurate GNSS position translation from Antenna Phase Center (APC) to sensor origin, High accuracy orientatio, 200 Hz Georeferencing solution, Full transformation support. Should also include LiDAR QC Tools included - Boresight calibration - LiDAR-based Corrected SBET trajectory - Point Cloud generation		

C	Full Frame Image Sensor Sony A7R or equivalent compatible with A & B.		**1 set**
	Bill of Material		
1	Integrated GNSS-Inertial Board with Antenna		1
2	GNSS - Inertial Processing Software		**1**
3	Full Frame Image Sensor Sony A7R or equivalent compatible with 1 & 2		**1**

Acceptance Test Procedure

All the systems will be integrated and demonstrated at NAL for performance.