

## INVITATION FOR TENDERS

**Tender No. NAL/PUR/ACD/190/22-Y**

**Dated: 06/09/2022**

CSIR - National Aerospace Laboratories (NAL), Bengaluru, Republic of India, is one of the premier research laboratories under aegis of Council of Scientific and Industrial Research (CSIR), an autonomous body under the Department of Scientific and Industrial Research, Government of India, New Delhi. CSIR-NAL is a Science and Knowledge based Research, Development and Consulting Organisation. 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 Item(s)	Unit	Quantity
1	Single FBG Sensor with Luxcis APC connector.	Nos	5
2	FBG Sensors with FC/APC connector.	Set	1
(Please refer annexure for detailed specifications)			

<b>Single / Double Bid Only</b>	Single	Tender Type	Open
<b>Bid Security (EMD) (in INR)</b>	Bid Security Declaration should be enclosed with quotation	Bid submission end date	29-Sep-2022 10.00 Hrs
<b>Performance Security</b>	Nil	Bid opening date	30-Sep-2022 11.00 Hrs

01. Tender Documents may be downloaded from Central Public Procurement Portal <https://www.etenders.gov.in>. Aspiring Bidders' who have not registered in e- procurement can register free of cost before participating through the website <https://www.etenders.gov.in>. 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 organisation 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. a. Global Tender Enquiry: 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 authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent **cannot** represent two different Foreign principals in one tender  
 b. Open Tender enquiry: Only Local suppliers with prescribed local content as detailed in DIPPT Order No. P-45021/2/2017-PP (BE-II) dated 16<sup>th</sup> Sep, 2020 and subsequent orders issued by Ministry of Finance (GoI) from time to time, are eligible for bidding. Bidders must enclose the certificate declaring the local content of supplies as per our standard form.



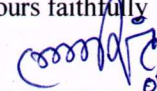
## CSIR-National Aerospace Laboratories, Bengaluru-560 017, INDIA

Note: Kindly refer to the first page (NIT) for tender type (i.e. Open Tender Enquiry / Global Tender Enquiry) and submit your bid accordingly.

04. Unsolicited / conditional / unsigned Quotations/Quotations received after the due date and time shall be summarily rejected. The Bidder shall comply the terms and conditions of the tender, failing which, the offer shall be liable for rejection.
05. The bids' failing to comply with the following clauses will be summarily rejected.
  - a. The Bidders' proposing to supply finished products directly/indirectly from vendors' of countries sharing the land border with India should submit a copy of registration done with DPIIT.
  - b. If the products supplied are not from vendors of countries sharing land border with India, the Bidders' have to enclose a declaration to that effect.
06. As per Govt. of India procurement policies,
  - a. The purchaser intends to give purchase preference to local supplies (Preference to Make in India) in case the cost of procurement is up to Rs. 50.00 lakhs.
  - b. The procuring entity intends to give purchase preference to products/goods manufactured by micro, small and medium enterprises.
07. Bidders' are requested to refer to the instructions regarding Procurement Policies for "Make in India", issued by Ministry of Commerce and Industry, Department of Industrial Policy and Promotion dated. 28-May-2018, and 4-Jun-2020 and guidelines as and when issued.
08. Kindly, note CSIR-NAL **GST No. 29AAATC2716R1ZB**. And the bidders' are requested to furnish their GST No. in their invoice failing which we will **not** be able to make timely payment.
09. Printed conditions, if any, submitted along with your quotation shall not be binding on us.
10. The prospective bidders' are requested to refer to the Standard Terms and Conditions available on NAL Internet ([www.nal.res.in](http://www.nal.res.in)) under the icon Tender-Purchase before formulating and submitting their bids'.
11. 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.

Thanking you,

Yours faithfully

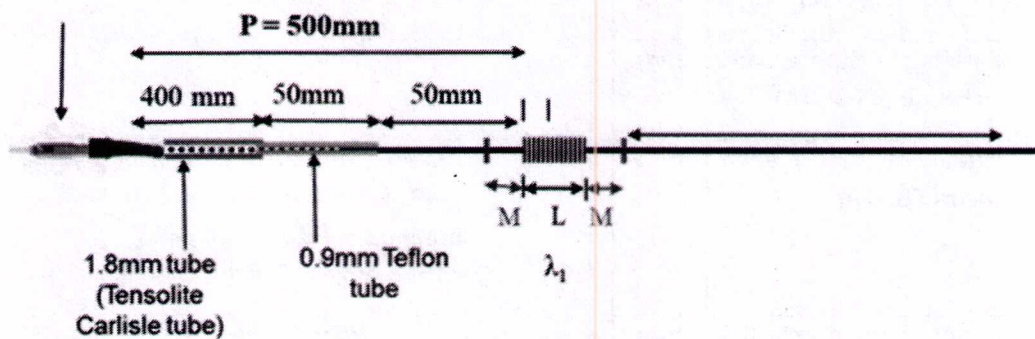
  
06/09/2022  
**Stores & Purchase Officer**  
**For and on behalf of CSIR-NAL**

## 1. FBG sensors Single sensor per fiber with Radiall Luxcis APC connector

Qty:5

Parameter	Unit	Tolerance (-)	Value	Tolerance (+)
Number of Sensors			1	
Sensor Number			$\lambda_1$	
Central Wavelength	nm	-0.3	1535	+0.3
Peak Reflectivity	%		$\geq 50$	
FWHM	nm	-0.15	0.3	+0.15
Sidelobe Suppression (SLSR)	dB		$\geq 10$	
Fiber Type			Fibercore SM1250BI (9.8/125)P	
Coating Type			Polyimide	
Recoating at FBG location			Polyimide	
Grating Length (L)	mm	-1.0	5 (Refer Figure 1)	+1.0
Marking distance on each side of FBG (M)	mm		25 (Refer Figure 1)	
Pigtail Length on each side of FBG (P)	mm	-10.0	500 on each side of end FBGs (Refer tubing type and breakup in Figure 1. Tapering at the change of length location)	+10.0
Sensor Separation (D) (Center to Center)	mm	-0.5		+0.5
Connectorisation			FC/APC (or Radiall's LuxCis ARINC 801 APC ferrule Contact with protection tube and sleeve) on one side as per Fig 1	
Splicing			None	
Proof Strength	kpsi		> 100	
Strain Range			+/- 8000 microstrain or more	
Temperature Range	Deg C		-40 Deg C to +80 Deg C or more	
Thermal Compensation			None	

Radiall LuxCis with blue protection boot/sleeve



## 2. FBG sensors with FC/APC Connector

Qty:1 set

Specifications

	Unit	Tolerance (-)	Value				Tolerance (+)
Number of Sensors			Refer Table -1				
Sensor Number			$\lambda_2$	$\lambda_1$	$\lambda_3$	$\lambda_4$	
Central Wavelength	nm	-0.3	<b>Refer Table-1</b>				+0.3
Peak Reflectivity	%		$\geq 50$				
FWHM	nm	-0.15	0.3				+0.15
Sidelobe Suppression (SLSR)	dB		$\geq 10$ (Typ. 20)				
Fiber Type			Fibercore SM1250BI (9.8/125)P				
Coating Type			Polyimide				
Recoating at FBG location			Polyimide				
Grating Length (L)	mm	-2.0	5 (Refer Figure 1)				+2.0
Marking distance on each side of FBG (M)	mm		15 (Refer Figure 1)				
Pigtail Length on each side of FBG (P)	mm	-10.0	500 on each side of end FBGs (Refer tubing type and breakup in Figure 1. Tapering at the change of length location)				+10.0
Sensor Separation (D) (Center to Center)	mm	-0.1	<b>Refer Table-1</b>				+0.1
Connectorisation			<b>FC/APC on one side as per Figure 1</b>				
Splicing			None				
Proof Strength	kpsi		> 100				
Strain Range			+/- 8000 microstrain or more				

Temperature Range	Deg C		-40 Deg C to +80 Deg C or more	
Thermal Compensation			None	

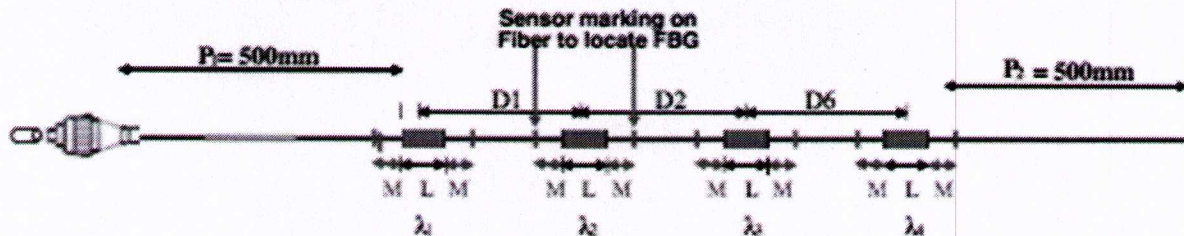


Table-1

Sensor ID	Qty	P1 (mm)	$\lambda_1$ (nm)	D1 (mm)	$\lambda_2$ (nm)	D2 (mm)	$\lambda_3$ (nm)	D3 (mm)	$\lambda_4$ (nm)	D3 (mm)	P2 (mm)
1 X FBG Sensor-FC/APC	10	500	1530	--	--	--	--	--	--	--	500
2 X FBG Sensor-FC/APC	5	500	1530	200	1535	--	--	--	--	--	500
3 X FBG Sensor-FC/APC	5	500	1530	200	1535	200	1540	200	--	--	500
4 X FBG Sensor-FC/APC	5	500	1530	400	1540	600	1550	400	1560	-	500

**Note:**

- (1) Above figures are not to the scale and is just a schematic representation.
  - (2) Properly permanent marking should be provided to locate the FBG sensor physically on the optical fiber.
  - (3) The sensor should be compatible with smartscan aeromini
  - (4) FBG spectrum output diagram, after writing, indicating FWHM etc. should be provided.
- Connector side tubing should be in tapered form at the location of diameter change

**BID-SECURING DECLARATION FORM**

Date: \_\_\_\_\_

Bid No. \_\_\_\_\_

To (insert complete name and address of the purchaser)

I/We. The undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am /We are in a breach of any obligation under the bid conditions, because I/We

(a)	have withdrawn/modified/amended, impairs or derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid; or
(b)	having been notified of the acceptance of our Bid by the purchaser during the period of bid validity
	(i) fail or refuse to execute the contract, if required, or
	(ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid Securing Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: (insert signature of person whose name and capacity are shown)  
in the capacity of (insert legal capacity of person signing the Bid Securing Declaration).

Name: (insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for an on behalf of: (insert complete name of Bidder)

Dated on \_\_\_\_\_ day of \_\_\_\_\_ (insert date of signing)

Corporate Seal (where appropriate)

Note:

1. In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.
2. Bid Security declaration must be signed in by the Proprietor/CEO/MD or equivalent level of Officer of the company.

