

**PROCEEDINGS OF THE PRE-BID CONFERENCE TOWARDS PROCUREMENT OF AVIONICS SUITE FOR
THE UNNAMED AERIAL VEHICLE.**

The Pre-bid Conference was held and the following T&PC members attended the meeting: -

Sl. No.	Name & Designation	Role
1	Dr. CM Ananda	Chief Scientist, STTD
2	Mr. Satyanarayana Murthy P V	Sr. Principal Scientist, UAV
3	Mr. C S Suraj	Principal Scientist, UAV
4	Dr. L Venkatakrishnan	Chief Scientist, EAD
5	Dr. Giresh Kumar Singh	Chief Scientist, FMCD
6	Mr. Alexander Kale	Sr. Scientist, FMCD
7	Mr. H. Loksha	Principal Scientist, ALD

The list of Prospective bidders who attended the Pre-bid Conference is as per **Annexure-I**.

At the outset, the Chairman welcomed all the Members and the representatives of the Bidders and briefed in general the scope of the Project. The Indenting Officer to read out the clarification sought by the bidders and the replied thereto as detailed in **Annexure-II (Part A: Technical Clarification and Part B: Commercial Clarification, if any)**.

The representatives present were satisfied with the replies given and it was informed that the corrections / additions / clarifications given, as discussed during the Pre-Bid Conference would be hosted on the website of CSIR-NAL and all prospective bidders are required to take cognizance of the proceedings of the Pre-Bid Conference before formulating and submitting their bids as stipulated in bidding Documents.

The meeting ended with a vote of thanks to the Chair.

Encl: as above.

Mr. Alexander Kale
Member

Dr. Giresh Kumar Singh
Member

C. S Suraj
Specialist - Member

PV. Satyanarayana Murthy
Specialist - Member

Dr. L. Venkatakrishnan
PL

H. Loksha
Member - Convener (TSC)

C. M. Ananda
Dr. C. M. Ananda
Chairman

18/02/22

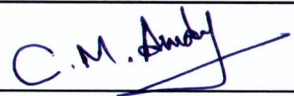




CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU - 560 017

TENDER NO.: NAL/PUR/ALD/345/21-Z[H]
DATE & TIME : 10-Feb-2022 @ 11.00 AM
VENUE: THROUGH WEBEX

ANNEXURE - I

Pre-Bid Conference for Procurement of Avionics Suit with the Following System for the Unnamed Aerial Vehicle.

ATTENDANCE SHEET - TSC MEMBERS

Sr. No.	Name			Signature
1	Dr. CM Ananda	Chief Scientist, ALD	Chairman	
2	Mr. Satyanarayana Murthy P V	Sr. Principal Scientist, UAV	Specialist Member	
3	Mr. Suraj.	Principal Scientist, UAV	Specialist Member	
4	Dr. L Venkatakrishnan	Chief Scientist, EAD	Project Leader	
5	Dr. Giresh Kumar Singh	Chief Scientist, FMCD	Member	
6	Mr. Alexander Kale	Sr. Scientist	Member	

**NATIONAL AEROSPACE LABORATORIES
BENGALURU - 560 017**

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DATE & TIME : 10-Feb-2022 @ 11:00 AM

VENUE: ICAST Conference Hall, CSIR-NAL, HAL Airport Road, Kodihalli, Bengaluru-560017

ANNEXURE - I

Pre-Bid Conference for Procurement of Avionics Suit with the Following System for the Unnamed Aerial Vehicle.

ATTENDANCE through WEBEX

Sr. No.	Name of the Firm	Name & Designation of Representative	E-tender Registration (Yes/No)	Email ID	Signature
1	M/s Cyient Limited, Bengaluru	Mr. S Gnana Guru Senior Business Development Manager	Yes	gnanaguru.S@cyient.com	
2	Larsen & Toubro Ltd., Bengaluru	Ms. Neha Gupta Manager	Yes	neha.g@larsentoubro.com	
3	ICON Design Automation Pvt Ltd, Bengaluru	Mr. Kiran Kumar B S, Business Development Manager	Yes	kiran.kumar@icon-dapl.com	
4		Ms. Rajeshwari Mohan		rajeshwari@icon-dapl.com	
5	Vibhatsu Technologies, Bengaluru	Mr. Shivaprasad	Yes	shivaprasad@vibhatsu.com	
6	MicroPilot Inc., CANADA	Mr. Robert Vinet, Business Development	No	rvinet@micropilot.com	

**CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU**


TECHNICAL QUERIES & CLARIFICATION

Tender No. : NAL/PUR/ALD/345/21-Z[G]
Item Description : Procurement of Avionics suit with the following system for the unnamed aerial vehicle.

Sr. No.	Tender Reference	Present Tender Description	Query / Clarification Sought from Supplier	NAL's Clarification/Amendment
1	Clause: 4.2.3	HAP is designed to fly at an altitude of 70000 ft above MSL. All LRUs are proposed to be installed in Avionics Bay. For operation in these environmental conditions, vendor shall suggest Suitable pressurization / conditional environment to be maintained in the Avionic Bay.	<ul style="list-style-type: none"> Is the requirement of 70,000 ft altitude is hard requirement? In order to support 70,000ft, hardware electronics must be protected using special materials and also to use heating system. <p>We can assist NAL team to do this. But this has to be done separately by customer to protect the system at 70,000ft.</p>	<ul style="list-style-type: none"> Yes, it is a hard requirement. Bidder shall suggest suitable conditional environment to be maintained for unpressurized avionics bay and shall assist NAL during installation.
2	Clause: 4.2-I-A-6	Sense & avoid: Sense & avoid hardware to be part avionics suite. Embedded hardware in autopilot is preferred.	Sense and Avoid - This feature is supported using Mode S Transponder. In order to avoid collision other aircraft should have send have Mode S Transponder to communicate and avoid collision.	NAL platform requires Mode S transponder with ADS-B Tx/Rx preferably integrated into autopilot. Based on this input, Autopilot shall have sense avoid feature enabled.

3	Clause: 4.15	Delivery of the item from the date of PO: 24 Weeks	Delivery lead time from 24 weeks to be extended to till 50 weeks. (However we shall put all efforts to reduce the timeline to meet the NAL Project deadline)	As per HAP program schedule, delivery lead time cannot be extended beyond 24 weeks
4	Clause : 4.2-I-A-13	All the artifacts of DO-254, DO-178C (minimum DAL-B) and DO-160 should be available for UAV certification at the time of bidding and should be supplied on demand basis.	Is availability of certification artifacts a hard requirement? What is the timeline within which certification artifacts should be ready?	Yes, bidder should have certification artifacts readily available at the time of bidding. Bidder shall provide quote for certification artifacts as part RFP. Procurement of certification artifacts is not part of this tender. Bidder shall provide the certification artifacts on demand basis only.
5	Clause : 6.2.C	'The bidder' should have manufactured and/or supplied (/erected/commissioned) at least 3 number (herein after referred as 'The Qualifying Quantity') of 'The Product' in last five years ending on 'The relevant Date', and out of which At least 01 numbers of offered version/model of 'The product' should be in successful operation for at least 01 years on the date of bid opening.	Is vendor qualification criteria as per 6.2.C, a hard requirement ?	Yes, the product offered (min 1 number) by the bidder should be in successful operation for at-least 1 year in similar applications.


I/O



P.C

Updates to Chapter 4 & 6

Tender No. : NAL/PUR/ALD/345/21-Z[G]
Item Description : Procurement of Avionics suit with the following system for the unnamed aerial vehicle.

Sr. No.	Tender Reference	Present Tender Description	Updated Specifications
1			
	Clause : 4.2-I-B-2	LOS Communication 2.4GHz communication system with up to 100Km range. Bandwidth required to transmit 1080p video transmission and Telemetry and Tele communication.	LOS Communication 2.4GHz communication system with up to 100Km range at an altitude of 3km AGL. Bandwidth required to transmit 1080p video transmission and Telemetry and Tele communication. LOS communication system shall have RS232 and ETHERNET interfaces.
	Clause : 4.2-I-C-4	Range of communication Upto 100Km	Range of Communication Upto 100Km range at an altitude of 3km AGL
	Clause : 4.2-I-A-11	PWM / GPIO - 14, CAN Bus – 2, ADC 5, I2C -1, UART-1, USB-3, RS232-1, RS485-1, Vout – 2, EQUPEP -1	PWM / GPIO - 14, CAN Bus – 2, ADC 5, I2C -1, UART-1, USB-3, RS232-1, RS485-1, Vout – 2, EQUPEP -1 Note : CAN bus shall support DroneCAN and other protocols


Signature of IO


Signature of PL

**CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU**

COMMERCIAL QUERIES & CLARIFICATION

Tender No. : NAL/PUR/ALD/345/21-Z [G]
Item Description : Avionics Suit with the following systems for the unnamed
Aerial Vehicle

Query / Clarification Sought	Clarification/Amendment
— NIL —	


18/07/2022

Stores & Purchase Officer
For and on behalf of CSIR

