

PROCEEDINGS OF THE PRE-BID CONFERENCE HELD ON 12TH FEBRUARY 2019 AT FMCD CONFERENCE HALL, CSIR-NAL TOWARDS PROCUREMENT OF VTOL AUTONOMOUS UNMANNED AERIAL VEHICLE SYSTEM FOR CARRYING 111KG PAYLOAD.

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

Sl. No.	Name & Designation		Role
1	Dr. Jatinder Singh	Chief Scientist/Head FMCD	Chairman
2	Dr. A A Pahsilkar	Chief Scientist/ Head SysED	Member
3	Dr. C. M. Ananda	Chief Scientist/Head ALD	Member
4	Dr. Sampath Prasad	Ex GM RWRDC, HAL	Member
5	Shri. A R Raghunath	Scientist 'G' GEMILAC	Member
6	Shri. G Ashok Babu	Sr. Principal Scientist, NGRI	Member
7	Dr. G K Singh	Sr. Principal Scientist, FMCD	Member
8	Shri. D Kannan	Sr. Principal Scientist, CCADD	Member
9	Shri. P V Satyanarayana Murthy	Principal Scientist/ Head UAV	Member
10	Shri. Roshan Antony	Senior Scientist, UAV	Member- Convenor (TSC)
11	FAO or his representative		Member
12	Mr. M. J. Nandeesh	SPO	Member - Convenor (T&PC)


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 and thereafter requested **SPO** to brief the Bidders on the salient features of the commercial terms. 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.



M. J. Nandeesh
SPO


Dr. A A Pahsilkar
Member


Dr. C. M. Ananda
Member


Dr. Sampath Prasad
Member


A R Raghunath
Member


G Ashok Babu
Member


Dr. G K Singh
Member


D Kannan
Member


P V Satyanarayana Murthy
Member


Roshan Antony
Member


Dr. Jatinder Singh
Chairman

**CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU - 560 017**

TENDER NO.: NAL/PUR/MAV/098/18-Z

ANNEXURE - I

DATE & TIME : 12-02-2019 @ 03.00 PM

VENUE : FMCD Conference Hall CSIR-NAL, Kodihalli, Bengaluru

Pre-Bid Conference towards Procurement of VTOL Autonomous Unmanned Aerial Vehicle System for Carrying 111kg payload.

ATTENDANCE SHEET - T&PC MEMBERS

Sr. No.	Name		Signature
1	Dr. Jatinder Singh, Chief Scientist/Head FMCD	Chairman	<i>Jatinder Singh</i>
2	^{Pashilkar} Dr. A A Pashilkar, Chief Scientist/ Head SysED	Member	—
3	Dr. C. M. Ananda, Chief Scientist/Head ALD	Member	
4	Dr. Sampath Prasad, Ex GM RWRDC, HAL	Member	<i>Prasad</i>
5	Shri. A R Raghunath Scientist 'G' GEMILAC	Member	<i>AR</i>
6	Shri. G Ashok Babu, Sr. Principal Scientist, NGRI	Member	<i>G Ashok Babu</i> 12/21/2019
7	Dr. G K Singh, Sr. Principal Scientist, FMCD	Member	<i>G K Singh</i>
8	Shri. D Kannan, Sr. Principal Scientist, CCADD	Member	
9	Shri. P V Satyanarayana Murthy, Principal Scientist/ Head UAV	Member	<i>P V Satyanarayana Murthy</i>
10	Shri. Roshan Antony, Senior Scientist, UAV	Member- Convenor -TSC	<i>Roshan Antony</i>
11	FAO or his representative	Member	<i>FAO</i>
12	Shri. M. J, Nandeesh, SPO	Member- Convenor T&PC	<i>M J Nandeesh</i>

NATIONAL AEROSPACE LABORATORIES
BENGALURU - 560 017

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Pre-Bid Conference towards Procurement of VTOL Autonomous Unmanned Aerial Vehicle System for Carrying 111kg payload.

ATTENDANCE SHEET - PROSPECTIVE BIDDERS

Sr. No.	Name of the Firm	Name & Designation of Representative	Mobile No. & Email ID	Signature
1	Edall Systems	Pritam A. Bhele Founder	9880576607 pritam@edallsystems.com	
2	Absolute Composites Pvt. Ltd	Director	9886942249 raghav.beddy@absolute.composites.com	
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File No: NAL/PUR/MAV/098/18-Z

BIDDERS PARTICIPATED THROUGH SKYPE PREBID CONFERENCE

SL No	Name of the firm	Participant name	mobile	email
1	IoTechWorld Avigation Pvt Ltd	Deepak Bhardwaj (Manufacturing Head)	9050382777	dbhardwaj@iotechworld.com
		Anoop Upadhyay(Technical Head)		aupadhyay@iotechworld.com
2	IspAgro Robotics Pvt. Ltd	Athul Sanker N (R&D Engineer)	7907960771	athulsanker@ispagro.in
3	AutoBird Technologies Pvt Ltd	Sachin Goel Director	9910181988	sachin@autobird.in
4	ARDN Technology Limited	Aleksandr Timofeev, CEO	79030681939	atimofeev@ardntechnology.com
	ARDN Technology, BDM	Alex Dolbunov	79857623061	adolbunov@ardntechnology.com
5	Advanced Tactics Inc.	CEO	13107013659	dshaw@advancedtacticsinc.com
6	Griff Aviation AS	Hans Ford – CTO	+47 99495321	hans@griffaviation.com
7	Mobile Recon Systems	Tom Nickell	+1-859-492-1532,	tom@mobilereconsystems.com



ROSHAN ANTONY
IO
DAV D&I, CSIR-NAL

**CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU
TECHNICAL QUERIES & CLARIFICATION**

Tender No. : NAL/PUR/MAV/098/18-Z
Item Description : Procurement of VTOL Autonomous Unmanned Aerial Vehicle System for Carrying 111Kg Payload

Sr. No.	Query / Clarification Sought	Clarification/Amendment
1	Peak load of additional power requirement (Page 36 of Tender Document)	60 Amps @ 24 V
2	Clarification on $1.7 \geq T/W \geq 2$	During cruise 50% -60% of total available thrust is sufficient to maintain stable flight
3	IP67 requirement	For Electronics (Autopilot, Communication system)
4	Factor of Safety	UAV structure shall be designed to withstand 1.5 times of the peak load (Static + Dynamic load)
5	Is 100Mbps required	Yes. We need 100Mbps data rate. It should be able to stream HD video
6	Is IP67 a must for the communication system	Yes
7	For what is the 95kJ energy	Impact energy on the ground in case of any failure resulting in crash landing. The impact energy must not be greater than 95kJ with all combinations of mass and speed.
8	What is the maximum weight of the UAV	No weight limit is defined. It is based on the supplier's design.
9	What is the kind of propulsion is preferred	It is not defined and is based on the supplier's design.
10	What is the altitude of flight	It is 35m AGL during the mission. Take-off altitude could be MSL to MSL+2km. Calibration flight at 1Km AGL. So max altitude of operation is 3Km.
11	What kind of MIL qualification and other tests artifacts do you need from our side? Can we provide a company statement that we produce our drone in accordance to these standards?	As per the standards given in the table in relevant sections. Also you can specify what standards you have followed. We will require documentary evidence/artifacts for proof. Test procedure and test results documents.

Signature of IO & PL



15/10/19 15/10/19

**CSIR-NATIONAL AEROSPACE LABORATORIES
BENGALURU**

COMMERCIAL QUERIES & CLARIFICATION

Tender No. : NAL/PUR/MAV/098/18-Z

Item Description : Procurement of VTOL Autonomous Unmanned Aerial Vehicle System for Carrying 111 kg payload.

Sr. No.	Query / Clarification Sought	Clarification/Amendment
1	Bidding by a consortium	Please refer to clause 2.4 & 2.1 (GCC)
2	Payment of EMD/Bid Security by Wire Transfer	May be made to CSIR-NAL Account
	Principal Name:	The Director, NAL
	Address with Phone No.	P B No.1779, Old Airport Road, Kodihalli, Bangalore – 560 017 080-25086040/6041
	Name of the Bank	State Bank of India
	Name of the Branch	NAL
	Branch Code	004815
	City name	Bangalore
	Branch Location	Old Airport Road, Kodihalli,
	Branch Tele Phone No.	080-25277165/25271225
	Bank IF-SC Code	SBIN0004815
	9-Digit MICR	560002035
	Type of the Account	Savings Bank Account 010
	Account Number	30268539001
	Email address of Principal	director@nal.res.in
	Swift Code	SBININBB422


Stores & Purchase Officer