

**PROCEEDINGS OF THE PRE-BID CONFERENCE HELD ON 18<sup>th</sup> December 2020 AT ICAST CONFERENCE HALL, CSIR-NAL, TOWARDS PROCUREMENT OF AIRCRAFT INTERIORS DESIGN AND HUMAN COMFORT ANALYSIS SOFTWARE.**

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

Sl. No.	Name & Designation		Role
1	Dr. M. Manjuprasad	Chief Scientist, STTD	Chairman
2	Dr. C. M. Ananda	Chief Scientist/Head, ALD	Specialist Member
3	Dr. Pavan Kumar, D.V.T.G	Sr. Principal Scientist, STTD	Specialist Member
4	Mr. Dilip Kumar Sahu,	Sr. Technical Officer-2, CAD	Member
5	Mr. Satish Rohidekar, R	Chief Scientist, CAD	Member
6	Dr. Abhay Pashilkar	Chief Scientist, FMCD	Member
7	Mr. Vineet Kumar	Chief Scientist, CAD	PD SARAS
8	Mrs. Rashmi Hundekari	Principal Scientist, CAD	Member - Convener (TSC)
9	AO or his representative		Member
10	FAO or his representative		Member
11	CoSP/SPO or his representative		Member - Convener (T&PC)

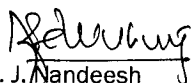
The list of Prospective bidders who attended the Pre-bid Conference is as per **Annexure-I**.

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.

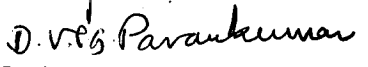
  
M. J. Nandeesh  
Member - Convener (T&PC)

—  
CoSP-Member


  
D. V. G. Parankumar  
Specialist - Member

  
Admin - Member

—  
Dr. C. M. Ananda  
Specialist- Member


  
Dr. Pavan Kumar DVTG  
Specialist - Member

  
Dilip Kumar Sahu  
Member

  
Satish Rohidekar R  
Member

—  
Vineet Kumar  
PD SARAS

  
Rashmi Hundekari  
IO-Member

  
Dr. Abhay Pashilkar  
Proj- Director- Member

  
Dr. M. Manjuprasad  
Chairman 18/12/20

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

TENDER NO.: NAL/PUR/CAD(STTD)/300/20-Z


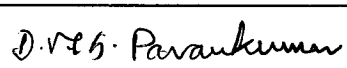

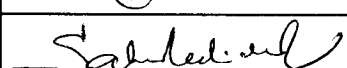
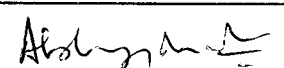
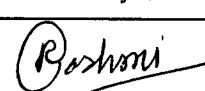
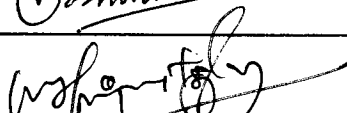
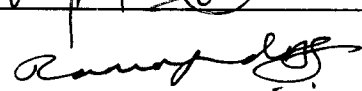

ANNEXURE - I

DATE & TIME : 18-Dec-2020 @ 10:30 AM

VENUE: THROUGH WEBEX

**Pre-Bid Conference for PROCUREMENT OF AIRCRAFT INTERIORS DESIGN AND HUMAN COMFORT ANALYSIS SOFTWARE.**

**ATTENDANCE SHEET - T&PC MEMBERS**

Sr. No.	Name	Signature	
1	Dr. M. Manjuprasad, Chief Scientist, STTD	Chairman	
2	Dr. C. M. Ananda, Chief Scientist/Head, ALD	Specialist-Member	-
3	Dr. Pavan Kumar, D.V.T.G, Sr. Principal Scientist, STTD	Specialist-Member	
4	Mr. Dilip Kumar Sahu, Sr. Technical Officer-2, CAD	<del>Member</del> Member	
5	Mr. Satish Rohidekar, R, Chief Scientist, CAD	Member	
6	Mr. Mr. Vineet Kumar, Chief Scientist, CAD	Member	-
7	Dr. Abhay Pashilkar, Chief Scientist, FMCD	Member	
8	Mrs. Rashmi Hundekari, Principal Scientist, CAD	Member- Convenor - TSC	
9	FAO or his representative	Member	
10	AO or his representative	Member	
11	CoSP/SPO or his representative	Member-Convenor T&PC	

NATIONAL AEROSPACE LABORATORIES  
BENGALURU - 560 017

TENDER NO.: NAL/PUR/CAD(STTD)/300/20-Z

ANNEXURE - I

DATE & TIME : 18-Dec-2020 @ 10:30 AM

VENUE: ICAST CONFERENCE HALL, CSIR-NAL, HAL Airport Road, Kodihalli, Bengaluru-560017

Pre-Bid Conference for PROCUREMENT OF AIRCRAFT INTERIORS DESIGN AND HUMAN COMFORT ANALYSIS SOFTWARE..

ATTENDANCE SHEET - PROSPECTIVE BIDDERS

Sr. No.	Name of the Firm	Name & Designation of Representative	E-tender Registration (Yes/No)	Email ID	Signature
1	ESI	Mr. Vijay Basavraj	Yes	Vijay. Basavraj ① esi-group.com	
2	ESI	Mr. Bharath	Yes	Bharath. Isandra Govindappa@esi- group.com	
3	ESI	Mr. Ravi Kulkarni	Yes	Ravi. Kulkarni esi-group.com	
4	DASSAULTSYS	Mr. Umashankar	Yes	Umashankar. G ② 3ds.com	
5	DASSAULTSYS	Mr. Sanjeev	Yes	Sanjeev@3ds. com.	
6	DASSAULTSYS	Mr. Ganeshprasad		Sridhar, Rajagopalan ① esi-group.com	
7	ESI	Mr. Sridhar Rajagopalan	Yes →		
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

**CSIR-NATIONAL AEROSPACE LABORATORIES  
BENGALURU**

**TECHNICAL QUERIES & CLARIFICATION**

**Tender No.** : NAL/PUR/CAD/(STTD)/300/20-Z

**Item Description** : Procurement of Aircraft Interiors Design and Human Comfort Analysis Software

Sr. No.	Technical query	Clarification Sought	Amendment
1	4.1 (point 1) Layout/Drawing generation Clarification/ explanation about 2D layout generation requirement is requested. Since VR is not used for 3D model creation or 2D content generation.	The software intended to be procured should have design capabilities (3D CAD/2D layout generation), VR should be embedded as one of the module but not the only module. Software should facilitate the creation of cockpit/cabin/inboards layouts from existing 3D CAD models	NA
2	4.2 (C) (1)	4.2 (C) Vendor Should quote for the software covering first-year warranty period Additionally, a supplementary proposal can be forwarded with the main quotation regarding provision for AMC, if CSIR-NAL wants to opt for AMC in a later timeline (post-warranty period)	Installation of Aircraft interiors design and human comfort analysis software with relevant documentation (Standard part/material library, help menu, user manuals and tutorials doc etc.) Perpetual license with 1 year warranty covering AMC for intended warranty period, software copy with necessary license key to be available in case of software or hardware crash
3	Technical Qualification of Vendor	Technical qualification of vendor will be based on <b>Chapter 4 - Section4.1, Section4.2, and Section 4.4.3</b>	NA
4	4.4 Inspection & Tests Successful installation and operation of software with relevant technical support		Inspection & Tests Successful installation and operation of software with relevant technical support documents.

	documents. Demonstration of test simulation as mentioned at section 4.4.5 using installed software at CSIR-NAL		Demonstration of test simulation as mentioned at section <b>4.4.3</b> using installed software at CSIR-NAL
5	4.4.3 (point 1) VR manikins today already come with country-wise anthropometric manikin which are industry-preferred, would these manikins suffice requirement?	We have top level requirement to conform our manikin to the anthropometric data supplied by IAF, Standard VR manikins available are dimensionally different than the requirement given, hence software proposed should have provision for building a customized manikin, once built, should be able to call the as standard part for variety of ergonomic evaluations	NA
6	4.6 (point 2) Immersive Experience shall be available only on a VR hardware connected machine. Can this specification be made as NODELOCKED instead of Floating license	The tool is intended be used by multiple users (Cabin/Inboards Layout Team, Mechanical Systems team working from CSIR-NAL Belur and Kodihalli Campus), floating license will give flexibility and enable us for maximum usage	NA
7	4.1 (point 1) Request clarification about end-use in inboard-layout – what use-case/scope is referred to here, this is not specific VR scope. Also, additionally what is referred as the word design in this specification?	Everything that is housed within an airframe viz. system, structure, pilot, passenger, baggage etc. arranged in particular manner is inboards layout, Scope of VR in finalising inboards layout is system placement, routings, structures, crew and passenger accommodation, clash detection and elimination Design in this specification refers to layout design, relative placement of system/routings/structures components, crew and passenger accommodation	NA
8	4.1 (point 3) Request explanation of this point as in use case requirement Evacuation simulation and evacuation time estimations are not VR scope.	It's not VR scope, but motion analysis module which will mimic the human motion. Time study on how long it takes for a passenger to board the plane, time to evacuation and exit. will be end result of motion study module of software to be offered	NA

Sr. No.	Technical query	Clarification Sought	Amendment
9	4.1 (point 4) Muscle strain and human fatigue evaluation are not specific VR scope, please clarify use-case expected here for better clarity on the solution required.	In view of software available to date may not be able to quantify muscle strain but can qualitative give the score for comfort level, the specification can be changed as requested	Human motion studies, postural analysis, clash detection and human comfort evaluation
10	4.2A (point 1) Clarification/explanation requested of the requirement.	Software proposed to be procured should have CAD capabilities, should generate a layout provide a CAD model or Drawing of layout for different engineering works	NA
11	4.2A (point 8) Request explanation of this point and any specifications available/provided about LRU?	Software proposed to be procured should have CAD capabilities it also should have real time rendering capabilities to anticipate the aesthetics of aircraft Cabin/Cockpit interiors	NA
12	4.2B (point 2) VR does not output/create/export ppt and engineering drawing. It also does not allow modelling of 3D CAD data but allows export of 3D CAD data. Request for correction/changes accordingly.	The tool proposed should have CAD/Drafting/Real-time rendering/Motion simulation/Immersive virtual reality capabilities apart from VR capabilities	NA
13	General clarification Only Virtual Reality software is the requirement in this whole tender?	CSIR-NAL is looking for a tool which can do partly design work and will have AR/VR interface for evaluation, CSIR-NAL intend to do Cabin/Cockpit/Inboards layout (includes interiors layout / aesthetic design/ interior material rendering/Digital mock-up generation manikin based comfort level assessment)	NA
14	4.1 (point 5) General query & 4.2B (point 3) related Immersive visualization in VR is using which configuration? HMD? (or) Powerwall?	VR is using HMD configuration	NA

Sr. No.	Technical query	Clarification Sought	Amendment
15	4.1 (point 5) General query & 4.2B (point 3) related Hardware specifications for virtual reality setup is not specified. Request the same for immersive visualization alongside the required VR configuration from above HMD/PW.	Software should be compatible to cluster quorum of 3 servers, specification is as below <b>Processor</b> 2 <sup>nd</sup> Generation Intel® Xeon Scalable Processor with 10 cores, Clock Speed 2.4 GHz, 13MB cache, Memory typeDDR-2933 <b>Mother Board</b> Intel® C620 with 16RDIMM slots <b>RAM</b> 2x16GB DDR4 operating at 2933MHz <b>Hard Drive</b> 2*600 Gbps 15k RPM SAS inch slot	NA

Signature of IO & PL

Rashmi  
(IO)

Abhinav  
(PL)

# List of Pre-bid Meet Attendees through Webex

Enter meeting information to join a meeting

①

## Meeting content

### Report

Name	Connection time	Duration	Connection type
Dr. Abhay Pashilkar	10:26 AM - 12:38 PM	133 mins	Other
Dr. Abhay Pashilkar	10:26 AM - 12:38 PM	133 mins	Desktop app
Structures Task Team SARAS Mk2 NAL	10:25 AM - 12:38 PM	133 mins	Desktop app
Structures Task Team SARAS Mk2 NAL	10:25 AM - 12:38 PM	133 mins	Other
Structures Task Team SARAS Mk2 NAL	10:25 AM - 12:38 PM	133 mins	Other
R Ravi	10:28 AM - 12:38 PM	131 mins	Desktop app
V VBJ	10:28 AM - 12:38 PM	131 mins	Desktop app
SR Sridhar Rajagopalan	10:29 AM - 12:38 PM	129 mins	Desktop app
DS dilip kumar sahu	10:31 AM - 12:38 PM	128 mins	Web app
U Umashankar	10:33 AM - 12:38 PM	125 mins	Desktop app
S Sanjeev	10:40 AM - 12:38 PM	119 mins	Desktop app
Structures Task Team SARAS Mk2 NAL	11:00 AM - 12:38 PM	99 mins	Other
Structures Task Team SARAS Mk2 NAL	11:00 AM - 12:38 PM	99 mins	Desktop app
B Bharath	11:29 AM - 12:38 PM	70 mins	Mobile app
RK Ravi Kulkarni	10:28 AM - 11:35 AM	67 mins	Desktop app
B Bharath	10:29 AM - 11:34 AM	65 mins	Desktop app
Dr. Manjuprasad M	11:37 AM - 12:38 PM	62 mins	Desktop app
Dr. Manjuprasad M	11:03 AM - 11:37 AM	34 mins	Desktop app

