

Indian Institute of Tropical Meteorology

PS/125/21/2018-A

13 September 2019

SUB: Minutes of the Pre-bid meeting of “**SUPPLY, INSTALLATION, SUCCESSFUL COMMISSIONING & MAINTENANCE OF NEW INSTRUMENTED AIRCRAFT SYSTEM FOR ATMOSPHERIC RESEARCH**” Qty -01 Set (as per the tender document) held on 13 September 2019 at IITM, Pune

A Pre-bid meeting for “**SUPPLY, INSTALLATION, SUCCESSFUL COMMISSIONING & MAINTENANCE OF NEW INSTRUMENTED AIRCRAFT SYSTEM FOR ATMOSPHERIC RESEARCH**” Qty -01 Set was held at IITM, Pune on 13 September 2019 starting at 1000 hrs.

The following prospective bidders have posed queries regarding RFP and attended the Pre-bid meeting/discussions.

1. M/s. Droplet Measurement Technologies, LLC, USA
2. M/s. Tesscorn AeroFluid, Inc., Bangalore, India
3. M/s. WMI SUNAG LLC, NJ, USA
4. M/s. HAL, Kanpur, India
5. M/s. Norwegian Special Mission A S, Norway
6. M/s Airworks, Pune, India

The Committee recommended that the modifications as mentioned in Annexure-1 to be incorporated in the RFP through an appropriate Corrigendum.

Committee has come across few spelling mistakes and changes in content page numbers. Thus all such corrections are carried out and given in Annexure 2.

Annexure I

Queries received from vendors and ITTM responses

Queries received from M/s. Droplet Measurement Technologies, LLC, CO, USA		
No.	Question/ Suggestion	ITTM Response / Remarks
1	<p>Page 30 of the tender states that "The Instrumentation Engineer need not be OEM approved/ certified but should be competent enough to operate the instrument and conduct routine maintenance with close guidance from OEM." Droplet Measurement Technologies is an OEM of aerosol instruments, cloud physics instruments and data acquisition software. DMT does not recommend that the instrumentation engineer not be OEM certified. If not certified by OEM, there is a risk that hired Instrumentation Engineer is not competent and evidence provided by bidder is not sufficient to determine competency, experience and knowledge. Will you include the requirement for the Instrumentation Engineer to be certified by OEM to conduct service on mission critical instruments?</p>	<p>As per RFP</p>
2	<p>Page 36 of the tender states that "In-field training should be given during Intensive Observational Periods (IOPs) (each of about 10 days duration) to ITTM team and the expert team will be in place for two IOPs during first year of observations." Droplet Measurement Technologies recommends that the 10 day IOP training period increase to a 30 day period.</p>	<p>As per RFP (10 days duration will be 10 mission days / flying days)</p>
Queries received from M/s. WMI SUNAG LLC, NJ, USA		
1	<p>As per the indication of the clauses in your tender 30 % payment will be made to the bidder post SAT, which is planned for 1 month after FAT 2: We would like to clarify that SAT will be subject to DGCA approval of STCs and as such we have no control over the time taken by DGCA to approve the complex STCs that will be applicable on the IAS. While we will make the best effort to get the approval from DGCA. However ITTM needs to account for the delay and allow for release of 20 % payments upon application submission by the bidder for STCs to DGCA. The balance 10 % could be released post DGCA approval of STCs and grant CoA CoR post which SAT can be conducted. Alternatively ITTM may do SAT upon Aircraft arrival with the N registered Aircraft and release balance 30 % payment</p>	<p>As per RFP</p>

	on completion of SAT and then apply for CoA CoR and STC approvals at DGCA.	
Queries received from M/s. Beechcraft Berlin Aviation GmbH		
1	Documents to be submitted as part of Technical Bid: - Power and heat analysis for aircraft cabin and scientific instruments onboard - Computational Fluid Dynamics analysis for aircraft with instrument installed on pylons Q: These analyses can be only performed when the final configuration is set, which means after contract signature. Please review the timeline again.	If bidder has carried out similar analysis earlier for aircraft and scientific instruments onboard can be shared as part of technical bid.
2	Bids once submitted will become property of ITTM Q: ITTM can have the right to free use. But particularly 3 rd party IP rights born from aircraft or sensor/instrument OEMs cannot be transferable. Please review the requirement accordingly.	Documents will remain in ITTM's custody
3	Procurement: Bidder shall provide a written description and preliminary schedule of its procurement activities. Bidder shall provide a list of proposed suppliers for key materials and equipment. Q: Please define and list key materials and equipment.	Bidder shall provide a list of proposed suppliers for all materials and equipment being used onboard to complete the procurement of IAS. Refer Corrigendum
4	Critical Design Review (CDR) Q: In this project, there will be more than one supplier and in CDR, different stakeholders from each supplier will be involved. In a similar size to ITTM project, at least 4-5 months should be expected between PDR and CDR. Please review the timeline.	As per RFP
5	BFE Q: Is it possible to have list of Buyer's Furnished Equipment and Information?	See Annexure-7 of RFP?.
6	Additional tools, testing/scientific instruments and consumables relevant to NEAR project (if not already covered in the list provided in the Technical Specifications) if envisaged by ITTM and conveyed in writing during any stage of execution of the Contract. Q: This will have an impact on the technical analysis, design reviews so and so forth. If this happens or is requested after completion of those milestones, what will be the procedure to be still compliant?	The word "additional" refers to items to be operated from inside the aircraft cabin without exceeding the specified maximum power limit.
7	The full-scale test site shall be described in detail in the proposal Q: Please provide the full list of tests which ITTM requires.	For site details see corrigendum
8	Pilots can have access to basic on-board sensor data from the cockpit. Q: Please provide the full list of data to be accessed from cockpit.	The word Pilots is replaced with Scientists. See Corrigendum
9	ITTM can, during the period starting from issue of RFP till placement of the Supply Orders,	This clause is removed

	increase or decrease 25% of the tendered quantity of the required goods without any change in the terms and conditions and rates quoted by the Bidder Q: How this clause will be applied to the number of sensors on-board or instruments? For instance, additional sensors will change design and technical analysis.	See Corrigendum
Queries received from M/s. Norwegian Special Mission AS		
1	Request to have 15% advance before signing of contract	As per RFP
2	If the delivery schedule is advanced by the vendor will there be any improvement possible from the ITTM side regarding the payment terms. Will they be also accelerated.	As per RFP
Queries received from M/s. HAL, Kanpur, India		
1	a) EMD of Rs 3.20 Cr. b) Pressurization and operating altitude requirement of 30000ft. c) Minimum service ceiling of 30000ft. it is requested to waive these requirements	As per RFP

Technical queries by HAL, Kanpur

Specification of Items as per RFP	Query by HAL-TAD, Kanpur	ITM Response / Remark
<p>The aircraft, its components and accessories should be of latest manufacture, conform to the current production standard and should have 100% of the defined life at the time of delivery. Deviations, if any, should be clearly brought out by the Bidder in the Technical Proposal</p> <ul style="list-style-type: none"> • Type certified in India/ Internationally • Aircraft must be: • Twin-Engine Turbo-Prop. • Pressurized • Technical details and literature to be provided about the following: • Airframe • Engine • Avionics • Elect/Hydr • Control surface • Landing gear • Fuel • Safety aspects • Maintenance • POH (Pilot Operating Handbook) Other relevant literature and manuals <p>It is to be mentioned if fatigue life is established by actual tests or based on theoretical estimates. In case of modular engines, average/assured life of each module is to be specified.</p>	<ol style="list-style-type: none"> 1. Does aircraft need to be mandatorily pressurized? 2. What is meant by 100% life at the time of delivery? The life of battery, engine and some equipment will be consumed while ground and flight testing. 3. Technical literature regarding Airframe, engine, avionics, maintenance, POH etc. mandatory documents are required for qualifying the bid. Kindly clarify. 	<ol style="list-style-type: none"> 1. Yes 2. The aircraft, its components and accessories should be as per the specifications given in RFP and should be brand new, duly certified by the OEM. 3. Technical literature and brochure supporting the technical specifications of the Aircraft, components should be submitted mandatorily with the technical bid.
<p>Cruise speed a) Long range</p>	<p>Kindly clarify the following:</p>	<p>TAS unit is m/s.</p>

<p>b) With sensors a) 200-220 Knots b) Sampling speed – 100-120 m/s c) Ascent rate :400 - 500 ft /min</p>	<p>What is the measuring unit of speed TAS or IAS? Cruise speed with sensors? Sampling speed? Kindly clarify 100-120 m/s corresponds to 194-233 knots Ascent rate 400-500 ft?</p>	<p>As per RFP.</p>
<p>Operating altitude 500-30,000 ft</p>	<p>Is 30,000 ft maximum limit of operating altitude? If so, is it required for performing mission oriented operations or only for commuting from one place to another?</p>	<p>Aircraft should be capable of operating at 30000 ft altitude for performing scientific mission oriented operations as well as for commuting from one place to another.</p>
<p>Service Ceiling 30,000 ft Minimum</p>	<p>Is Service ceiling – 30000 ft Minimum mandatorily required? Is it required for the scientific mission role?</p>	<p>Yes</p>
<p>O.E.I. (One engine Inoperative) (ISA,SL) Performance at MTOW to be mentioned; also give: O.E.I climb performance (Attach separate page if required)</p>	<p>In OEI condition, What is the meaning of aircraft safety procedure?</p>	<p>As per SOP of the manufacturer / DGCA</p>
<p>Air conditioning & Pressurization</p> <ul style="list-style-type: none"> • Robust air conditioning system to dissipate the heat generated by instruments and maintain cabin temperature of 24-26 °C • Maintain sea level pressure up to 15,000 ft • Cabin altitude at max cruising altitude should not exceed 8000ft 	<p>Is pressurization mandatory requirement for designated operations of ITTM? Kindly specify the operations and their criticality, frequency of those operations which cannot be executed without pressurization.</p>	<p>Pressurized aircraft is mandatory</p>
<p>Track record of Special Mission role for atmospheric research Aircraft should have sufficient pylons to mount atmospheric PMS canisters as listed simultaneously Accordingly accommodate required structural modifications</p>	<p>Kindly elaborate track record of special mission role of atmospheric research. How many pylons are required? Kindly quantify.</p>	<p>Bidder has to elaborate Bidder has to design suitably</p>

<p>without adverse effect on structural design strength, reliability, airworthiness, and lifespan</p> <p>Aircraft to be fitted with Glass cockpit: • Dual VHF COM • Single HF COM • Dual Navigation receivers integrating VOR, LOC, • ILS • Single Flight Management System (FMS) • Optional dual FMS • Cabin paging system • Flight Data Recorder/ CVFDR-120 min. • Dual Air Computers (ADC)/ Auto pilot</p> <ul style="list-style-type: none"> • Attitude Heading Reference System (AHRS) • Automatic Flight Guidance System • Colour Weather Radar (≥ 200Nm range) with storm scope • Traffic alert and Collision avoidance System (TCAS II) • Terrain Awareness and Warning System (TAWS) • RVSM (Reduced Vertical Separation Minimum) compliance • Intercom/headsets • Transponder C & S with data enabling . • Dual GPS with R- NAV or P RNAV compliance • ELT (Emergency Location Transmitter) • CAT II compliance (desirable) 		<p>Bidder has to say YES/NO depending on the Avionics proposed</p>
<p>Condition for Engine start Cold start 3 times</p> <p>a) Extra engine as standby option to be quoted</p>	<p>What is data enabling? Kindly elaborate Colour weather radar ≥ 200 Nm range with storm scope. In our Do-228 aircraft, One PA system is provided along with service handset to enable attendant and pilot to make public announcement. Is it sufficient for IITM requirement? If not, then IITM has to clarify detailed requirement of cabin-paging system.</p>	<p>No Change. As per RFP.</p>
<p>LANDING GEAR • Is it standard or High Floating? • Standard • Retractable tricycle</p>	<p>Engine is capable of two consecutive cold start and third after thorough check up, but we could not understand RFP description Please clarify this point in detail.</p> <p>Kindly elaborate.</p>	<p>Bidder has to choose depending on the Avionics proposed</p>
<p>POWER SYSTEM ON AIRCRAFT</p>	<p>Power supply to the aircraft systems is</p>	<p>Independent power supply is for the</p>

<p>Please provide details to give a fail-proof power system to sensors which shall not be affected in anyway. Electrical system should include A.C and D.C power points and battery back up Research power of 5kW at 28VDC, 2kW at 220VAC 60Hz, 1kW at 115VAC 60Hz</p> <p>Additional research power requirement may be suggested (Due power audit may be provided for all the instrumentation listed, for justification)</p> <p>A fool-proof protection system to be provided by the supplier load protection system. Please provide specs for this and details of power system.</p>	<p>through two engine driven DC generators each of 9KW rating and two batteries each of 27AH rating. Kindly, clarify what is meant by independent power supply?</p>	<p>scientific instruments.</p>
<p>CERTIFICATION Details of STC procedure followed by OEM/Integrator to be submitted to DGCA.</p>	<p>Is it required at the time of bidding?</p>	<p>Yes</p>
<p>Flight Safety Data: All DGCA approved mandatory norms to be followed:a) as per air-worthiness criteria b) as per maintenance criteria c) as per Training criteria of DGCA CAR145 and CAMOThe Technical offer should include Statistical Summary of all accidents and design changes/modifications introduced to enhance Flight Safety.Bidder should provide complete details (if possible).Aircraft will be delivered post compliance of latest flight safety norms. The Aircraft should be equipped with all the necessary equipment for safe flying operations in clouds, and also over water bodies such as de-icing equipment, navigation equipment, communication equipment and lifesaving</p>	<p>Any specific modification for enhancing flight safety?Lifesaving equipment?Kindly elaborate.</p>	<p>As per DGCA's guidelines</p>

equipment.			
Pre-study' report to accompany with the bid.	Kindly elaborate.	Not mandatory but may be submitted if carried out atmospheric sensors studies earlier	
The Supplier should present drawings and preliminary engineering work to justify that the aircraft modification, sensors/ADDMS installation can be done (Integrator should adhere to strict tool based system engineering practices throughout the development/integration life cycle).	Submission of Drawings, modifications, sensors installation and preliminary engineering work .Kindly clarify regarding this point whether it is to be fulfilled at the time of bidding.	At the time of PDR	
The Supplier shall attach to the proposal, the proposed STC certification process for mission modification of the aircraft (Supplier to also provide reference to similar modifications)	Submission of STC certification process for mission modification at the time of bidding?	Not required	
The Supplier shall attach to the proposal, a description of any significant performance changes in the basic aircraft performance due to the modifications within this program in the proposal if any	Degradation in aircraft performance is feasible post installation. Is it required at the time of bidding?	At the time of PDR	
The Supplier to describe how the modifications will be documented. The integrator shall follow the plan and document all the incremental integrations performed and share it with ITTM if done after the initial agreed plan	Procedure for the documentation of modifications. Is it required at the time of bidding?	At the time of PDR	
All modifications of the IAS to be carried out on brand new Aircraft and during the modification time it should not be used for any purpose other than instrument integration and testing. Prior to delivery of IAS to ITTM, all cost of the operation of the aircraft shall be borne by the Supplier	The Supplier to describe in detail how and where the Total System Performance will be tested for systems Verification & Validation (V&V) performance. Is it required at the time of bidding?	At the time of PDR	
A preliminary plan for verification & validation (V&V) shall be attached to the RFP response and be evaluated as part of this RFP process. Proper functionality and accuracy of the aircraft with ADDMS and sensors installed are critical to the Verification and validation	Is it required at the time of bidding?	Yes	

<p>The maintenance facility must be Authorized by the Aircraft OEM and approved by DGCA to carry out maintenance on the aircraft type also certified by DGCA complying with DGCA CAR 145 requirements.</p> <ul style="list-style-type: none"> The aircraft management system with pilots must be provided. Should undertake CAMO functions on behalf of ITTM <p>In case of international flights, apply for over-flight permits and other clearances as maybe required at the departure, transit or arrival airports and coordinate with the relevant authorities in respect of the same.</p>	<p>As we are aircraft manufacturer and not the operators or service provider. Pilots may not be possible to be provided by us. However HAL will assist in providing the list of Do-228 pilot to ITTM. Please clarify whether pilots can be arranged by ITTM itself.</p> <p>What specific capabilities of pilots are required for this RFP?</p> <p>Aircraft is certified by DGCA for flying in India.</p> <p>Is it mandatorily required for this RFP?. Please elaborate.</p>	<p>No Change. As per RFP.</p> <p>Not applicable in case of made in India</p>
<p>Bank guarantee for EMD</p>	<p>Being Defence PSU (DPSU), we give Indemnity bond instead of EMD. Waiver may be given in this regard.</p>	<p>As per RFP</p>
<p>INDEMNITY BOND FOR PERFORMANCE SECURITY</p>	<p>Indemnity bond on account of Performance security shall be submitted after finalization of contract. Is it sufficient to take part in Bid? Waiver may be given in this regard.</p>	<p>As per RFP</p>
<p>PERFORMANCE STATEMENT FORM</p>	<p>We have fitted Maritime Surveillance, Electro optic infrared camera, Pollution Surveillance Radar etc. on Defence customer's aircraft.</p> <p>Is it sufficient to take part in Bid?</p>	<p>As per RFP</p>
<p>SERVICE SUPPORT DETAIL FORM</p>	<p>We have supported Defence customer's aircraft in all respect.</p> <p>Is it sufficient to take part in Bid?</p>	<p>As per RFP</p>

Indemnity Bond	Indemnity bond shall be submitted after finalization of contract. Is it sufficient to take part in Bid? Waiver may be given in this regard.	As per RFP
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Annexure 2

<u>RFP</u>	<u>Change</u>
Page 36 13 (d) "In-field training should be given during Intensive Observational Periods (IOPs) (each of about 10 days duration) to IITM team and the expert team will be in place for two IOPs during first year of observations."	10 days duration should be read as 10 mission days / flying days
Page 17: 25.5 Procurement: Bidder shall provide a written description and preliminary schedule of its procurement activities. Bidder shall provide a list of proposed suppliers for key materials and equipment.	"key" should be read as "all"
Page 86: 1.11 The full-scale test site shall be described in detail in the proposal	Full scale test site details are given as: Various altitudes over sea as well as over land terrains (near sea level and higher altitude not less than 1000 m above sea level) at every 2000 ft up to the ceiling altitude
Annexure IV: 1.3. The Supplier shall describe a solution for how the pilots can have access to basic on-board sensor data from the cockpit. Please describe solution in detail.	"Pilots" to be read as "Scientists"
Page 31: 3. Tolerance Clause: To take care of any change in the requirement during the period starting from issue of RFP till placement of the Supply Orders, the Buyer reserves the right to increase or decrease 25% of the tendered quantity of the required goods without any change in the terms and conditions and rates quoted by the Bidder. While awarding the Contract, the quantity ordered can be increased or decreased by the Buyer within this tolerance limit without change in the rates quoted by the Bidder.	This clause is removed

Spelling correction

Page No	Para No.	existing Word	To be read as
3	Contents	Appendix C Draft Format for Bank Guarantee for EMD	Appendix C Bid Security Form
28, 29	13. (iv)	"f"AS"	of IAS
34	6.b	Proji	Project
38	a.	Civil Aviategulations	Civil Aviation Requirements
38	1)	-omplete the ta-k	complete the task
38	2) a.	qual'fied	qualified
38	2) b.	pa-t	past
38	2) b.	alng	along
38	3)	-xecute	execute
38	4) a.	Con-rol System et-.	Control System
43		Price Bid Format	VIII(I) Price Bid Format

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