SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FAA APPROVED ADVANCED AIR TRAFFIC ADVISORY SYSTEM (AATAS)
AT
SAHASTRADHARA HELIPAD

TENDER DOCUMENT
Tender No. 002/USDMA/2015 date 02/7/2015

EMD amount: Rs.5,00,000/-

Tender Cost: Rs. 5000/-

UTTARAKHAND STATE DISASTER MANAGEMENT AUTHORITY (USDMA)
Government of Uttarakhand
DMMC Building, Secretariat Campus,
4 Subhash Road, Dehradun (UTTARAKHAND) - 248001

Work Title:
SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FAA APPROVED ADVANCED AIR TRAFFIC ADVISORY SYSTEM

TENDER NOTICE
FORPRESSPUBLICATION

UTTARAKHAND STATE DISASTER MANAGEMENT AUTHORITY(USDMA)
Government of Uttarakhand
DMMC Building, Secretariat Campus, 4 Subhash Road, Dehradun – 248001

Tender No. 002/USDMA/2015 date 02/7/2015 for Supply, Installation, Testing and Commissioning of FAA approved Advanced Air Traffic Advisory System

USDMA invites sealed Techno-commercial bids for Supply, Installation, Testing and Commissioning of FAA approved Advanced Air Traffic Advisory System at Sahastradhara Helipad Dehradun.

The detailed bid document with terms and conditions can be downloaded from www.dmmc.uk.gov.in. The last date for submission of proposals is 16/7/15 till 2:00 p.m. and shall be opened the same day at 2:30 p.m. USDMA reserves the right to reject any or all bids without assigning any reason.

Member Secretary USDMA

DETAILED TENDERNOTICE

Sealed tendersareinvitedby MEMBER SECRETARY, UTTARAKHAND STATE DISASTER MANAGEMENT AUTHORITY (USDMA), GOVERNMENT OF UTTARAKHAND, from ISO Compliant Indian companies only with INTERNATIONAL EXPERIENCE of similar work done for " Supply, Installation, Testing and Commissioning of FAA Approved Advanced Air Traffic Advisory System" the work to be completed within a period of 02 (Two) months. Other conditions are set out herein.

The last dateforsubmissionofbids isupto 14:00 hours on 16.07.2015

For detailedinformation, please visit www.dmmc.uk.gov.in

GENERAL TERMS AND CONDITIONS:

Document fee:
Application form can be procured from the office address mentioned in the tender notice against payment of document fee of Rs. 5000/- through Demand draft in favour of ED DMMC payable at Dehradun or can be downloaded from the website www.dmmc.uk.gov.in. A non refundable document fee of Rs. 5000/= (Rs. Five Thousand) is payable in form of demand draft drawn in favour of "ED DMMC" payable at Dehradun along with the tender. Bids shall be accepted only on the standard document available on the website, any other format of bid will not be accepted.

EMD:
Earnest money of Rs. 5,00,000/= (Rs. Five lacs) in form of demand draft drawn in favour of "ED DMMC" payable at Dehradun is to be deposited along with the tender. EMD for unsuccessfull bidders shall be refunded on signing of contract with successfull bidder and for successfull bidder EMD shall be returned on submission of Bank Guarantee towards advance payment and performance guarantee as specified in the document.

Important Dates:

Date of record:	All eligibility norms shall be as on the last date and time of submission of bids.
Last date for submission of bids:	**16 July 2015, 2:00 p.m. Bids received late on account of postal delay, if any,will not be considered.**

Date of opening of Technical bids: 16July 2015, 2:30 p.m.**Venue:** Conference Hall DMMC, Secretariat Campus, 4 Subhash Road, Dehradun – 248001

Date of presentation: 16July 2015 at 3:00 p.m. **Venue:**Conference Hall DMMC, Secretariat Campus, 4 Subhash Road, Dehradun – 248001.

Date of opening of Financial Bids: To be communicated.

Bids received late (i.e after due date or time) because of Postaldelay,ifany,willnotbeconsidered /entertainedand will be rejected.

Address for Communication:

Member Secretary
Uttarakhand State Disaster Management Authority
Govt. of Uttarakhand
DMMC Building, Secretariat Campus
4 Subhash Road, Dehradun (UTTARAKHAND) – 248001

Selection Process:

First the Envelop 1 shall be opened to check document fee and EMD. Then Envelop 2 shall be opened to examine pre-qualifying /eligibility documents, followed by a presentation on the Technical bid on the date of opening mentioned above. The committee shall in due course evaluate the technical bids and the technically qualified bidders shall be intimated of the date for opening of Financial bids. The selection would be done following the "Least cost" method of selection. The technical bids would be assessed by a committee based on documentation submitted with the bid, presentation by the participating bidders on various parameters such as past experience, conformance to technical features, eligibility criteria etc. The financial bids (Envelop 3) of only those bidders will be opened who are declared as technically qualified by the committee.

One Bid per Bidder:

Each Bidder shall submit only one Bid. A Bidder who submits or participates in more than one Bid shall cause all the proposals with the Bidder's participation to be disqualified.

Cost of Bidding:

The Bidder shall bear all costs associated with the preparation and submission of his/her Bid, and USDMA shall in no case be responsible or liable for those costs.

Site Visit:

The Bidder, at the Bidder's own responsibility and risk, is encouraged to visit and examine the Site and its surroundings and obtain all information that may be necessary for

preparing the Bid and entering into a contract for the said work. The costs of visiting the Site shall be borne by the Bidder.

Document Submission:

The bids have to be submitted in the following manner duly sealed under a cover letter on bidders letter head and should be valid for 90 days from date of opening *<a certificate to this effect should be mentioned in the cover letter>*:

a) Envelop 1: Containing bid document fee and EMD as prescribed above.
b) Envelop 2: Containing the Pre-qualification/ eligibility documents and Technical bid and supporting documents.
c) Envelop 3: Containing the Financial Bid on format.

All the above envelops have to be individually sealed and superscribed as under:

"Envelop *<Mention no.>*:*<Mention the contents of this envelop – fee & EMD or Technical bid or Financial bid as corresponding to the envelop no.>*
Tender for "SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FAA APPROVED ADVANCED AIR TRAFFIC ADVISORY SYSTEMATSAHASTRADHARA HELIPAD, No. 002/USDMA/2015 due on 16/7/2015"

The three sealed envelops are then to be placed in an outer envelop duly sealed and marked as under:

"Tender for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FAA APPROVED ADVANCED AIR TRAFFIC ADVISORY SYSTEMATSAHASTRADHARA HELIPAD, No. 002/USDMA/2015 due on 16/7/2015"

The completed bid document are to be delivered to the address mentioned above within the last date and time specified. Bids over FAX or email are not acceptable. Any bid not sealed and delivered as per specified above or with wrong contents in any envelop will be rejected.

Signing of bids:
All documents (all pages) to be submitted against the tender/bid have to be stamped (official stamp of the bidding entity) and signed in original by the authorised signatory. A power of attorney or authorisation as the case be, in favour of the signatory is to be submitted with the pre-qualification documents.

Clarifications required by bidders:
Bidders may seek clarificationson their Queries,ifany, on email usdmadops@gmail.com upto 11/7/2015 5:00 p.m. only. In response, if necessary USDMA may issue corrigendum or addendum to the bid document but the same shall be published only

on the website www.dmmc.uk.gov.in. Similarly all corrigendum or addendum related to the bid shall be published only on the website www.dmmc.uk.gov.in.

Clarifications on bids submitted:
USDMA reserves the right to seek clarifications or additional information on the bids submitted by the bidders at any stage of the process if so required.

AMENDMENT OF BID DOCUMENT/CONDITIONS:
USDMA may do necessary amendment/changes/additions/deletions to the tender documents or conditions if so required. These shall be published as a corrigendum/addendum on the website www.dmmc.uk.gov.in only. Also all further communications pertaining to the tender/bid shall only be made available on the website: www.dmmc.uk.gov.in only.

Evaluation and rejection of bids:
USDMA reserves the right to reject any or all bids without assigning any reasons. USDMA alsoreserves therighttocalloffttheprocess oftendering atanystagewithout assigningany reason.

Pre-Qualification/ Eligibility criteria:
The following **minimum** pre-qualification/ eligibility criterion has been laid out:

a) Average annual turnover over the last three years (FY 2012-13, 2013-2014, 2014-15) should be Rs. 20 crores.
<Audited balance sheets and CA certificate to this effect to be submitted>

b) The bidding entity should have been in existence for the last three years.
<Copy of certificate of incorporation to be submitted>

c) The bidding entity should not be on the sanctioned list(black listed) by any Multilateral funding agency, Government, PSU or Government organisation.
<An affidavit of self declaration on Rs. 10/= stamp paper duly notarised to be submitted>

d) The Bidders/ firms should have experience of completion of a similar work outside India, as per international requirements and standards. Such international experience shall be considered from completion of a job in ICAO approved countries or countries actively following the ICAO regulations. Experience shall have to be evidenced by way of submission of original documentation on OEM letterheads if applicable, client certificate of international experienceindicatingsatisfactorycompletion, nature of such international experience,dateof completionas per agreement andactualdateofcompletion ofwork, tenderamount,actualcompletioncost andsatisfactory completion of work.Keeping in mind the progress & development in the field of aviation automation internationally, it is desired to maintain and follow International standards. Accordingly, bidder shall submit proof of international experience of similar jobs done outside the country of India. Such

proof can also be included in the letter from OEM, giving details of the international experience the bidder possess.

e) Thebiddershouldprovidea listof clients where these systems areworkingatoperational levelforminimum ten aerodromes/helidromes.
f) Bidders/firmsshouldhavesatisfactorily completedworks(Phase/Part completionofwork inacontractshallnotbeconsidered), atleast one work of exactly same type for an amount of**Rs. 2,00,000/- (Rs. Two crores)** duringthelast fiveyears.
g) The bid document shallbesupportedwithself-attestedphotocopiesofvalidRegistration (Trade license), PermanentAccountNumber(PAN), Tax Deduction and Collection Account Number (TAN), ISO Compliance Certificate.

Bids not found meeting pre-qualification criterion will be rejected.

Technical Evaluation:

Technical bids shall be evaluated based on conformance to specifications of systems mentioned in the bid document.

Period of completion:

The work under the assignment is to be mandatorily completed by successfull bidder within a period of 60 days from the date of signing of contract. USDMA reserves the right to allocate(divide) work to different bidders for sake of convenience.

Payment Terms:

The following payment terms shall be adopted for the woks under the tender:

a) 30% Advance payment (against irrevocable Bank Guarantee of like amount valid for 180 days).
b) 50% on delivery of complete material at site.
c) 20% on successful installation, commissioning and handover and training.

Necessary deductions from payment shall be made towards statutory taxes as per rules like Income Tax etc. as per prevailing rates.

Equipment / Work:

The bidder will also certify that the equipment/ work done conform to the bye laws, rules and stipulations of respective International/Indian authorities. The system has to have FAA approval.

ACCEPTANCE OF TENDER CONDITIONS:

Submissionofa Tenderbya Bidder impliesthathe/she hasread the notice tender document andallother conditions,contractdocuments andhasmadehimself/herself awareofthescopeandspecifications ofthe scope of work/stobedoneandofconditions andratesatwhichlandforstores,toolsandplant, etc.willbe available at the specified site, localconditions,localmaterial ratesandotherfactorsbearingontheexecutionoftheworks. No

counter conditions shall be acceptable.

CURRENCY FOR QUOTATION:

All bids will be submitted ONLY in INDIAN RUPEES. USDMA will not be responsible for any currency fluctuations so bidders are advised to take necessary precautions towards this in case of imported component if any of the bid.

Taxes:

All taxes as applicable on the date of bidding of the financial bid have to be mentioned separately by the bidder however for evaluation purposes only the basic financial quote shall be considered i.e. financial quote exclusive of taxes shall be compared. Any change in tax rates or levy of any additional tax by the government (Central /State) shall be as per prevailing on the date of raising of invoice. *<necessary proof of change shall have to be submitted by successfull bidder>.*

Approvals:

The bidder will seek approvals at all stages from competent authority/committee as will be defined in the contract. There shall be no deemed approval.

Canvassing and use of Corrupt Practices:

All bidders are cautioned not adopt canvassing in any form inconnection with the tender as it isstrictly prohibited andthe bid submitted bythe bidderwhoresorttocanvassingwillbeliabletorejected.

Bidders are also advised not to resort to use of any corrupt practice such as payment of commissions to influence the bid process. Any bidder found to have used corrupt means/ practice shall be black listed in addition to any other punitive action which USDMA may take.

Bidder shall also give a declaration that they have not resorted to any collusive/corrupt practice for influencing the bid process in their favour and have not paid any commissions for such activity.

Contract:

The successfull bidder will be required to enter into a contract with USDMA on non judicial stamp paper of Rs. 100/=. The contract would invariably define the terms governing the work, scope of work etc.

Performance Guarantee:

The successfull bidder will be required to submit a performance guarantee in form of pledged Bank FDR or Bank Guarantee for 7.5% of the contract amount valid for 5 years for proper and faithful completion of services and discharge of responsibilities during the warranty period of 5 years.

Indemnity:

The successfull bidder shall indemnify USDMA of all copyrights/ IPR and any individual/group claims towards the equipment, software, material and work performed under the contract. Bidder will ensure that there is absolutely no infringement of any copyrights/laws of the land/international laws. Bidder shall also indemnify that the items offered and the installation process do not violate any environment parameters laid down in India.

Jurisdiction:
The Courts of Law situated in Dehradun (Uttarakhand) India shall have absolute jurisdiction.

Force Majure and Arbitration:
The contract shall be covered under a Force majure clause. The disputes arising if any shall be settled amicably by the parties to the contract and any unresolved matter shall be referred to Chairman HPC USDMA for resolution, if still unresolved, the Arbitration Act 1996 (and all its latest amendments / enactments) shall be applicable to the contract.

Financial bid format:
Financial bids have to be submitted on the format placed at annexure.
Financial bids will be evaluated for the minimum quantity as mentioned in the Financial bid format however USDMA reserves the right to increase or decrease the quantity of work as per requirements. The bidder has to include all cost related to the said work such as travel, boarding, professional fee, professional, accidental and third party insurance of workmen and crew. USDMA may at its discretion facilitate some of the arrangements on payment of necessary charges by bidder to the respective organization /authority.

SUBMISSION OF BIDS:
Lastdateforthesubmission ofbids isupto14:00 hours on16.07.2015.
Bids shall be submitted at the address mentioned in the cover page within the date and time indicated. The bids shall be sealed in three envelops and all the three envelops shall be sealed in an outer envelop exactly as per described earlier. The contents os each of the three envelops will be as under:

a) Envelop 1: Containing bid document fee and EMD as prescribed above.
b) Envelop 2: Containing the Technical bid and supporting documents.
c) Envelop 3: Containing the Financial Bid on format.

Envelop- 1: This envelop shall contain the Demand draft for bid document fee in case of downloaded tender document (OR the copy of payment already made towards bid documents in case document has been procured from the USDMA) AND the Demand draft for EMD as indicated in the tender document.
Envelop- 2: This envelop shall contain the documents in support of Pre-Qualification/Eligibility and the Technical bid. Invariably the following documents shall

be submitted in this envelop (self attested):

a) Audited Financial statements as required in the bid for supporting turnovers.
b) Copy of certificate of incorporation
c) An affidavit of self declaration of not being on sanctioned list (black list) on Rs. 10/= stamp paper duly notarized.
d) Documents in support of International experience for similar work outside India.
h) Document in support of execution of same type of work for an amount ofRs. 2,00,000/- (Rs. Two crores) during the last five years.
i) ValidTrade Tax Registration (Trade license).
j) PermanentAccountNumber(PAN).
k) Tax Deduction and Collection Account Number (TAN)
l) ISO Compliance Certificate.
e) Complete Technical Specification document and brochure on the product offered along with compliance to technical specifications mentioned in the bid document.
f) Copy of FAA approval.
g) Listof clients where these systems areworkingatoperational levelforminimum ten aerodromes/helidromes.
h) The bid document duly signed and stamped on all pages (with blank and crossed price bid format)
i) CHECK LIST:Bidders are advised in their own interest to submit a check list of all documents submitted in the Technical bid envelop indexing the various documents submitted.

CAUTION: The Envelop 1 and 2 should not contain any indication/mention of the price. Any bid found to have a mention of the price in the Envelop 1 or 2 shall be summarily rejected.

Envelop- 3 : This envelop shall containthe price bid on format provided in the bid document.

Prices shall be EXCLUDING all applicable taxes including VAT, Service Tax, Import customs duties, excise and other taxes. However rates of such applicable taxes and duties shall be indicated in the price bid. USDMA shall provide necessary document for duty/tax waiver/exemption to the successful bidder and it shall be the responsibility of the successful bidder to seek such exemptions/waivers.
Prices quoted shall be FOR site no separate freight shall be paid by USDMA. Transit insurance and comprehensive insurance for the period upto final handover for the total order value shall have to taken by the successful bidder at their own cost, no separate payment shall be made for this. Necessary documentary proof shall be submitted to USDMA. Similarly activity such as custom clearing etc. if any, shall be the successful bidders responsibility.

CORRECTIONS, OVER WRITING:
Any bid containing any correction/s or over writing shall be liable to be rejected.

AWARD OF CONTRACT:
Notificationof Awardofcontractwillbe madein writingto thesuccessfulbidderbythe AcceptingAuthorityorhisrepresentative. Thecontractwill normally be awarded to the qualified and responsive Bidder offering lowest evaluated bid in conformity with the requirements and the specifications and bid documents and the Accepting Authority shall be the sole judge in this regard. The Accepting Authority does not bind himself to accept the lowest or, any bid or to give any reason for his decision. A responsive bidder is one who submits priced bid and accepts all terms, conditions and specifications of the bid documents. A bidder shall submit a responsive bid, failing which his bid will be liable to be rejected. In case successful bidder fails to accept the award, the EMD shall be forfeited.

False Information/ Concealment of facts:
USDMA reservesthe right to disqualify the bidders whose performance based on feedback obtained inongoing project(s)isbelowparorunusuallypoor.Ifatanystage,anyinformation/documentssubmitted bytheapplicantarefoundtobefalse/ information is found to be concealed,thebiddershallbeliablefordebarmentfromtendering and the bid shall be rejected in addition to anyotherappropriate/legal action which USDMA may initiate. The EMD of such bidders shall be forfeited.

Joint Venture:
Notwithstanding what has been stated anywhere in this tender document, notice for tender, contract or otherwise, any consortium/ joint venture shallnotbepermitted, provided however that, any international experience can be evidenced/ proved if the promoter of the bidder entity is also the promoter of the company(ies) having international experience, or if the international entity is the subsidiary of the Indian entity. The Bidder should be an Indian entity. Adequate proof and documents would have to be produced in this regard.

Validity of bids:
The bid for the work shall remain valid for acceptance for a period of 90 days from the date of opening of Price Bid. If any bidder withdraws his bid before the said period, then USDMA, Government of UTTARAKHAND shall without prejudice to any other right or remedy, will be at liberty to forfeit the full earnest money absolutely.Bidders are not allowed to make any modifications in the bids such as specifications, price, terms and conditions. USDMA may seek extension of bid validity if required and bidder will have liberty to accept or decline such a request.

Ownership of Contract from USDMA side:
USDMA reserves the right to transfer the ownership of the contract to the concerned

organization/department of the government, in which case the bidder shall be liable to perform all requirements under the control and guidance of that particular organization/department. USDMA may also assign a particular organization / department of the government to sign the contract under this bid with the successful bidder. USDMAreservestherighttoaccept in wholeor any partof the bid/Tender and bidder shallbebound toperform thesameat their quoted rates.No claimwhatsoeverwillbeentertainedonthisaccount.

On acceptance of the bid, the name of the accredited representative(s) of the Bidder who would be responsible for taking instructions from the MEMBER SECRETARY USDMA shall be communicated.

MEMBER SECRETARY
UTTARAKHAND STATE DISASTER MANAGEMENT AUTHORITY
GOVERNMENT OF UTTARAKHAND

INDICATIVE CHECKLIST
FOR
SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF FAA APPROVED ADVANCED AIR TRAFFIC ADVISORY SYSTEM

Instructions:

1. Please fill the following table and submit the table along with necessary annexures as a part of Envelope 2.
2. Applicant may add more than one Annexures as the underlying enclosures for each point.

<table>
<tr><th>Sl. No.</th><th>Particulars Required</th><th>Details</th><th>Annexures Enclosed</th></tr>
<tr><td>1.</td><td>Name of the Bidder:</td><td></td><td></td></tr>
<tr><td>2.</td><td>Address and Contact Details of the Bidder:</td><td></td><td></td></tr>
<tr><td>3.</td><td>Details of Registration of Bidder:</td><td></td><td></td></tr>
<tr><td>4.</td><td>Details of Experience for Pre-Qualification:</td><td></td><td></td></tr>
<tr><td>5.</td><td>Details of PAN and TAN/ TIN (as applicable)</td><td></td><td></td></tr>
<tr><td>6.</td><td>Details of Works Successfully Completed:</td><td>
<table>
<tr><th>Sl. No.</th><th>Name of Work</th><th>Work Order No./ Agreement No.</th><th>Term of Contract; and Final Completion Date</th><th>Cost of Contract as per Agreement; and Final Cost Incurred</th></tr>
<tr><td>1.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3.</td><td></td><td></td><td></td><td></td></tr>
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</td><td></td></tr>
</table>

Signature of AuthorizedSignatoryoftheBidder
Name:
Designation:

DECLARATION ON BIDDERS LETTER HEAD TO BE SUBMITTED WITH TECHNICAL BID (ENVELOP 2)

I<*state here the name of signatory*>herebydeclarethatthedocumentssubmitted/enclosedaretrueandcorrect.In case ifanydocumentatanystage isfoundfake/incorrect,myEMDmaybeforfeited and actionasdeemedfit by UTTARAKHAND DISASTERMANAGEMENT AUTHORITY, GOVERNMENT OF UTTARAKHAND,canbetakenagainstme.

I undertake to keep my bid (Technical and Financial) valid for a period of <insert no. of days> days as required in the bid document. I also undertake that in case I withdraw my bid before the said validity my EMD deposit may be forfeited.

I further undertake that changes suggested by ICAO/WMO in method of reporting or format during the warranty period will be incorporated by us without any extra cost.

I further declare that I/we have not resorted to any collusive/corrupt practices in connection with this bid and that we have not paid any commissions to influence the bid process to any person/s or organization in this regard.

Place:

Date:

Signature
AuthorizedSignatoryoftheBidder
Stamp

TECHNICAL SPECIFICATIONS

Thefollowingshouldbe broadly considered **whileimplementingtheprojectasanintegratedsystem and as a turnkeysolution,**with complete installation and commissioning.

Required safety services and sensors for aviation:

Air traffic and advisory services to pilots over helipad/airport VHF

1) Advisory to pilots of nearby air traffic
2) Two-way radio check for pilots for takeoff
3) Monitor and remotely report 121.5 aircraft emergency beacons
4) Runway advisory for current conditions
5) Calm wind runway advisory
6) Crosswind advisory warning
7) Windshear advisory warning
8) Density altitude warning

Weather features

1) Winddirection
2) Windspeed
3) Temperature
4) Humidity / Dewpoint
5) Pressure
6) Precipitation (Rain)
7) Weather (Fog/Mist/Haze)
8) Skycondition

IN-DEPENDENT, OFF-GRID, AUTOMATIC ADVISORY AND INFORMATION SYSTEM.

AC mains power may not be reliable or available anywhere near installation site/s. The system must be self-contained and 100% totally off-grid, powered only by 12voltbatteries charged through Solar panels. The system must not require any AC mains power for any part.

a) Civilworksrequiredforthe installation shall be 6 meter mast, and all related sensors and equipment.
b) Electrical grounding must operate reliably from a simple grounding rod.

1. AIR NAVIGATION SERVICES

Biddershould provideweatherproof Power distribution along with safety devices at equipment site.

Biddershouldalsoprovide weatherproofsignaljunction boxesfor terminationand distribution.

i) Separate discrete VHF frequency may not be possible. If available at all, authorization may delay installation. System must have proven track record of sharing airport VHF traffic frequency already used by pilots for air traffic operations.

ii) Power and signal cable wiring at the site is to be provided by the bidder.

iii) UPSwithbackup for a minimum of 01 week continuous operation under full load at eachsite, to operate from solar charged batteries under extended periods of overcast, with weatherproof enclosure.

iv) Supplyof advanced automated airport system as described above.

v) Two way VHFtransmitter / receiver should work on12Vbattery.

vi) Thesystemshould automatically generate air traffic and weather information in standard METAR / ICAO sequence and in plain language.

vii) Weather data should be sent as requested by USDMA, or to GOVERNMENT'S website, as advised.

viii) Speechsynthesizerunitis requiredatsiteforconverting messages tospeechoutputfor broadcasting to pilots. Voice converteristo be providedfor sending the speech data to VHFtransmitter.

ix) Supplyofnecessary calibrationequipment

x) SupplyofVHFtransmitter andAntennafor transmitting voice data up to a rangeof50Km.

xi) SupplyofportableVHF testerfor each site for checkingdata transmissionwithAIRCRAFT pilot. VHFtesterrequiredfor testingandmaintenance.

xii) Loading,unloadingand transportationofthe equipment to sitewhere consignment will be received.

xiii) The system should have provision for remote web based technologyformonitoringdata andstatusofeachsystem.

xiv) Thesystemshouldhave Remote monitoring facility to monitorallsensors, contaminationlevelofVisibility sensor, calibration level of Visibilitysensor, battery and VHF transceiver transmitter and receiver performanceandpoweretc.

2. SYSTEMOVERVIEW

There will be VHF transmissionof messages to pilots.

Field sensors are to be located atsites representingtheprevailing meteorological runway conditionsat the helipad/AIRPORT

3. SYSTEMSPECIFICATIONS

3.1 General Specifications:

Thesystem shall monitor aerodrome/helipad VHF communications and dynamically share the existing VHF airport frequency real-time, only providing operationally relevant real-timeweatherdata fromvarioussensorsforsupportof AIRCRAFT operations directly to pilots over VHF.

In addition, the system and its support network should provide data remotely to pilots for flight planning purpose.

3.1.1 The system shall be based on thelatesttechnologyand modular structure to facilitate changes, expansion and integrationtosupport airport expansion/alteration.

3.1.2 Systemdesignshallbebased onopenarchitecture/standards for facilitatingchanges,expansion, andintegration.

3.2 SafetyofFlightOperationsand SystemReliability:

Thesystemshouldhavemaximum reliability fromaviation operational point of view. The systemshould include the following features:

a) High sensitivity VHF receiver, required to share VHF channel
b) Adaptive software able to share VHF channel
c) High quality sensors in resolutionandaccuracytobeused.
d) All Sensors should be reliable and corrosion resistant.
e) Automatic generationof air traffic and weather reports
f) Automatic generation of Error logs to track problems in the system.
g) Systemshould withstand harsh conditions and should have protective devices in-built sensors.

4. HARDWARE REQUIREMENTS

4.1 FIELD EQUIPMENT**:**

i) Features and sensors specified in sections above.
ii) Collapsible frangible 6m wind mast with all installation accessories.
iii) Speech synthesizer for producingAudio messages to pilots
iv) VHFTransmitter (Operating at 118-150MHZ) with Omni directional antenna and required connectors, cables and accessories.
v) Wireless VHF transmitter and receiver for communication directly with pilots, with method of monitoring status, signal strength, and radio
vi) UPS along with weather proof enclosure with backup for minimum 1 week operation to maintain operation by solar under extended low light

4.2 INDOOR EQUIPMENT:

i) No indoor equipment. No AC power or structures are available for any indoor equipment.

4.3 COMPONENTS OF THE SYSTEM:

4.3.1 ADVISORY & WEATHER SYSTEM**:**

i) Wind mast, VHF transceiver, sensorsanddata logger. Wind mast is to be 6m, collapsibleand frangiblewithICAO markings.
ii) Lightningprotectionand obstruction lights installed on themast.
iii) Sensorscapableofworking underseveremeteorological conditionssuchasheavy rainfall,lightning.
iv) Sensorsshallhavetheability toberemovedorinstalled withoutaffectingoverall performance and calibration ofthesystem.Thesub- components are as follows:

4.3.2 SENSORS:

Each weather sensorshouldbe capableofmonitoring parameterswithout manualintervention. Performance should be optimumforthe entire range.

Factorycalibration certificatewith traceability istobeprovidedfromOEM for all the sensors.

A. VHF TRANSMITTER & RECEIVER

VHF radio transceiver should detect distant VHF communication by pilots and transmit clearly back to pilots. Receiver should be able to also periodically scan other frequencies such as aircraft emergency beacon detection.

Power	2 watts nominal
Equiv RF field strength	10 watts
Sensitivity	-100dbm or better
Frequency	108-150* MHz AM
Temperature Range	-40 ° to 160 °F (-40 ° to 60 ° C)

Extended VHF beyond 139 MHz, to accommodate military helicopter use if needed.

B. WIND (DIRECTION & SPEED):

The sensor shall be of state-of-the-artdesign,high performance,ruggedand corrosionresistantfor trouble-freeoperation.

Therangeandaccuracy specificationsofthisunit should be verified and information should be availableuponrequest.

1. **Direction**:

Range	0° to 360°
Accuracy	1°
Resolution	1° (0° to 355°)
Operating temperature	-40 ° to 160 °F (-40 ° to 60 ° C)
Operating Humidity	0-100%

2. **Speed :**

Range	2 to 150 mph, 2 to 130 knots
Accuracy	±2 mph (2 knots, 3 km/h, 1 m/s)
Resolution	1 mph (1 knot, 0.1 m/s, 1 km/hr)
Operating temperature	-40 ° to 160 °F (-40 ° to 60 ° C)
Operating Humidity	0-100%

C. AIRTEMPERATURE:

Range	-50° to 140°F (-40° to 60°C)
Accuracy	±1°F (±0.5°C) (typical)
Resolution	1.0° or 0.1°F or 1.0° or 0.1°C Celsius
Operating temperature	-50° to 140°F (-45° to 60°C)
Operating Humidity	0% to 100%

D. RELATIVEHUMIDITY

Range	0-100% (-40° to 60°C)
Accuracy	+/2%
Resolution	RH 1%
Operating temperature	-40 to 60° C

Thesensorsshallbehousedinasuitable radiation shieldtowardoffradiationeffect.
Thesensorsshouldbe easily replaceable without lossofaccuracyorneedforcalibration.
Dew point should be provided, calculated based on standard hygrometric tables using airtemperatureandhumidity.

E. ATMOSPHERIC PRESSURE:

Two pressure sensors to be employed to cross check against each other,
Pressuresensorsshallbeusingsolidstate digitalpressuretransducertype sensor.The sensor shall have excellent hysteresisandrepeatabilityand outstanding temperature & long term stability.

i) QFE (Station Level Pressure):

Accuracy :	± 0.5 hPa or better
Resolution:	1 hPa or better
Range:	650 hPa to 1050 hPa
Operating temp:	-20 to +60ºC

ii) QNH is Computed using standardICAO atmospheric table:

Accuracy :	± 0.5 hPa or better
Resolution:	1 hPa or better
Range:	650 hPa to 1050 hPa
Operating temp:	-20 to +60ºC

F. VISIBILITY SENSORMODULE

TheVisibilitysensor shouldbebasedontheleadingdesign conceptsandfieldproven.Thissensorshouldbe capableofworkingintropicalandsubtropicalclimates.

Visibility: Visibilitymeasurements should conform to standard requirements

Factorycalibrationcertificateistobe providedfromOEM.

Fullyautomaticoperation,withexcellent accuracy and stability.

Provisionforcalibrationand compensation with suitableopticalfilters.

Visibilitysensorshouldbesuitableto work in tropical environment where excessivedust,smokeandother suspendedaerosols are presentintheair. Sensorshouldhavebeeninstalledin tropicalregionanywhere in the world.

MeteorologicalOpticalRange (MOR)

Range : 10 to 10,000 m or better

Accuracy: ±2%for MORup to10,000m

G. PRECIPITATION:

Sensor should be able to measure precipitation intensityandprecipitation accumulation.

Precipitation detection:Shouldbeableto detectPrecipitationin10minutes.

Precipitation Intensity: 0.00 to 400mm/Hr.

Precipitation accumulation: Unlimited.

H. WEATHER

Detection:

Different types of precipitation like fog, mist, haze or clear; which may be calculated from other variables.

Reports: Fog, mist, haze.

I. CLOUD HEIGHT/SKY CONDITION SENSOR:

Thecloudheightsensorshouldreliably distinguishtheskycondition operationallyimporttoaviationusers.

Traditional Laser ceilometers are not requiredastheyconsume more power than available, and difficulttooperateonBatterypower.

Followingarethegeneral specifications of the sensor.

i) Measurementofcloudheightandsky conditionmaybebasedonlawsof thermodynamicsofatmosphere.
ii) Thesensorshouldhaveawideviewofabout 45 degreesabove the horizon.
iii) Estimated heightofthelowestlayeraffectingflight operationsshouldbe measured & displayed.
iv) Thesensorshouldconsumeverylesspower so as to operate on battery / solar panel.
v) Itshallcomprisebuilt-inteststodetermine faultinsub-systemwithoutthe needforon-sitetroubleshooting.
vi) Subsystem shall be replaceablewithoutthe needforon-sitecalibration.

4.4 DATA LOGGER

4.4.1 General

Data Logger should process the raw data of sensors and should average the measurements as below

Temperature : 1 minuteAverage **Pressure**: 1 minuteAverage

Wind Speed : Real-time over VHF, 2 minute average sent remote

Wind Direction : Real-time over VHF, 2 minute average sent remote

Gust, crosswind and windshear are tobedetectedand Warning is to be generated real-time directly to pilots over VHF

Relative Humidity: 1 minute Average **Precipitation**: Total per hour to be available

Visibility: 10 minute averaging

4.4.2 Data Loggershould employ following quality control procedures on rawdata ofeach sensor:

A. Plausible value check (The gross error check on measuredvalue):Eachsampleshouldbeexaminedto check if its value lies within the measurement range of a particular station. If the value fails the check it is rejectedandnotusedinthefurthercomputationofthe relevant parameter.

B. Check on Plausible rate of change (The time consistency check on measured values).
This check is to verify the rate of change (unrealistic jumps in the values).
After each signal measurement, the current sample shall be compared to the proceeding one. If the differenceoftheset of samplesismorethanspecified limit then the current sample is identified as suspect and not used for the computation of average. However it is still used for checking temporal consistency of sample.

C. Internalconsistencycheck:Thischeckisbasedonthe relation between the parameters of the same system.

4.4.3 Data LoggerSpecifications:

A. InputChannels:

i) Minimum 12 digital channels configurable to accept RS 232.
ii) Surge protection against lighting.
iii) Scan all channels at least once per second.
iv) Supply data to algorithms to generate METAR and reports.

B. Data retrieval

Suitable means to electronically collect andtransfer the data fromAirport.

C. Real timeClock

In-built RTCwith driftlessthan ±1 minute/month–Provisionto settheclock ondailybasisautomatic and manualandfullytime synchronization with the server.

D. Operating powersupply

12VDC and with automatic charging.

E. Power consumption

1) Less than 2Awhen operating, less than less 50 watts maximum, to operate 100% from solar power.

2) Provision to save power during standby condition.

F. OperatingConditions

Temp: -20to+55ºC
Humidity:5to100%RH
Adequate protection against corrosion in saline atmosphere.

G. GeneralFeatures:

(i) Micro-controllerbased modulardesignusing state-of-the-art technology.
(ii) Compactandlightweight.
(iii) Leak-proofinternal rechargeablebattery backup for data and set up retention in memoryandforRTC.
(iv) Provisiontocheck calibrationofdatalogger.
(v) Data qualitycheckingasper aforementioned clauses.

4.4.4 SOFTWARE / HARDWARE:

4.4.4.1 General Features:

Software should be adaptive to sharing existing VHF with many pilots in addition to basic weather sensing and reporting.

The open system architecture/standards should be providedforsuitableintegrationofvarious sensorsandinstrumentsinstalledatRunway site.

It shouldhavethefollowing capabilities:

1) Itshouldprovidecapabilitiesforbackground processes,whichstartsautomaticallywhen operating systemisstarted.
2) Meteorologicalcalculation and validation of incomingmeasurementdata and shouldbeableto deriveadditionalvariables(suchasQNH,Dew Pointetc.)tobeusedbyotherservices and end user application.
3) Validation,Data qualitychecksshouldbe possible for the sensor data and diagnostic servicesforinput/outputsystem.
4) Auto Message generation ofmeteorological reports e.g. METAR, etc.

4.4.4.2 TheApplication/System Software in data Logger:

A. TheApplication/System Software in Data Logger Softwarelicenseshouldbeforlifetimeof equipment.There should not be any hardware keyorswitchtoenable/disablethesoftware.

B. The software package should be designed to automatically collect, Process, Quality check, display, archive, format and report the environmental parameters necessary to support aviation operations.

The package should be user friendly and calculate the meteorological parameter like dew point from humidity and temperature.

Event monitor application shall be able to view the events generated by the processing unit and to acknowledge the alarm conditions. Data faults includes:

i) Communication faults
ii) Sensor faults
iii) Missing data
iv) Value too high or too low
v) Value higher or lower than airport operating maxima
vi) Value jumping too rapidly
vii) Value " frozen" within a small range of value

C. Data ManipulationandStorage:

Theprovisionforperformingnumberof statistical,arithmetic andlogicalcalculationfor the stored data shouldbe available, such as

i) Min/ Max calculations
ii) Averaging
iii) Unit conversion
iv) Scaling and offset
v) Precisionpressureelevation
vi) Cross wind/Track wind and wind rose.
vii) Markeddiscontinuity
viii) QFEtoQNH
ix) Dailyextremevalues

Information to be available, and be derived from raw data usedformessagegeneration and displaypurpose.

Measured and calculated data as well as transmitted reportsare required to be archived foraperiod of one year.There shouldbewebbaseddataretrievalfacility.A data backup facility also should be the part of theData Loggersystem.

4.4.5. The bidder should give an undertaking that changes suggested by ICAO/WMO in method of reporting or format during the warranty period will be incorporated without any extra cost.

4.4.6 REMOTE COMMUNICATION

Data Loggershould havefacilitytoautomaticallysendlatestMETAR messages as directed by USDMA, or GOVERNMENT'S website, as advised.

Arrangement should be made with the service provider for a period of 5 year.

4.4.7 Web Based remote monitoring system

AwebbasedmonitoringsystemtomonitorthehealthofvariouscomponentsoftheAATAS should be there. This systemshouldalsobeabletomonitorlivedata andderivedproductsfromAATAS, including weather sensors, batteries condition, and VHF transmitter and receiver operation.

4.4.8 SpeechSynthesizerUnit

SpeechsynthesizerisapartofAATASwhich receives METARinformationfromData Loggerandconvertstospeechoutputfor broadcastingtoPilotviaVHFTransmitter.

4.4.9 VHF transmitter and Receiver

VHFTransmitter is apart ofAATAS which receives speech output from data logger and modulatesovercarrierinVHF(118-150MHZ) and broadcastsvia suitable omni directional antenna for a range of up to 50Km for flying heights of AIRCRAFT.Type and level ofmodulation,Transmitting Power,is chosen as suitable for reception of audioon cockpitofAIRCRAFT.

VHFtransmittershouldhavemethod for monitoring and showing status of transmission,Transmitting Power, antenna performance,etc.

VHFTransmittershouldhaveoneextrainput channel with microphone for talking to pilot.

Supplier should also provide a portable VHF tester / receiverfor checking statusofbroadcastingfromAATAS.

5. TRAINING to Appointed Government Staff

The manufacturer/supplier should provide in-depth training to at least THREE persons, as designated by USDMA/Purchaser / Government officers, as advised, in installation, operation and maintenance of the system, at mutually acceptable place, for a minimum period of 2 weeks (1 week – system hardware and 1 week – system software and operations).

6. COMPREHENSIVE WARRANTY

Warranty : The bidder will have to provide a comprehensive warranty forfive years from the date of satisfactory commissioning and acceptance of the complete AATASsystem along with all works/supplies made under this bidwithout any additional cost to the purchaser/USDMA.

Any problem encountered in the system including field units like sensors,Dataloggers, communication systems, UPS systems during this periodshallbe repaired/ replacedbythe bidder free of cost, without any cost

such as freight/clearing/import/export, to USDMA.***The bidder will clearly spell out the consumable item/s if any in the equipment/product/sub components along with the replacement period and indicative cost in the price bid.***

6.1 EXTENDED WARRANTY(at OPTION of USDMA)

Thebiddershouldalsoprovideextended comprehensive warranty for **Five years**afterthe expiryof initial five year warranty.

The bidder should quote the price for extended warrantyof five years inprice bid.

Extendedwarrantychargesshouldnotbe quotedasapercentageofprojectcostetc., butshouldbequotedasalumpsumamount forfiveyears.

However this item willnotbeconsideredfor pricecomparison.Pricesshouldbequoted separately for this optional item.

Maintenancetermsandconditionwillbesimilar toasthosementionedunderwarranty conditions.Costoffreightdeliveryservicesfor importingandexportingofdefective parts/cards/sensorsforrepairs/replacement shall be borne by the supplierunderextended warranty.Thebidder shallgiveaseparate undertakingforacceptanceoftheaboveterms.

The Extended warrantycharges will be paid onyearlybasisandonceinayearafterthe satisfactorymaintenanceofthesystem by thesupplier.

<u>AATAS Systemwillworkinoperationalmode24 x 7 x 365</u>

Duringtheperiodsofwarrantyandextended warranty,thevendorshouldmonitorAATASsystem healthonreal-timebasisthroughWebbased monitoring.

If any fault is observed withthesystemthat cannot be corrected remotely, vendor shoulddeputeengineer, or technical personnel to site, as soon as practical, with suitablesparestoolsandaccessoriesfor rectification of fault. The time to attend shall be specified in the contract to be signed and should not exceed 24 hours in the worst case scenario.

7. TESTING, INSTALLATION AND MAINTENANCE TOOLKIT

ThesuppliershallprovideONEsetof maintenancetoolkitrequiredforinstallationand dismountingofEACH equipment along with the initial supply.

8. DOCUMENTATION

Themanufacturershouldprovide necessary user, operational,servicingand maintenancemanuals.

9. COMPLIANCE/NON-COMPLIANCE STATEMENT

The bidder shall submit a detailed item-wise compliance/non-compliancestatementreferring paragraph-wisetotherequirementsgiveninthis document, for quick evaluation of tender and for anyfuturereference.Thetechnicalspecificationsandotherrequirementscontained inthisdocumentareessentiallyrequiredbythe indenter.However,reasonsfornon-compliance, ifany,forcertainlimitedparagraphorevensub-paragraph ofdocumentmayalsobegivenbythe bidder. **Silence on anypart of the technical specifications will be treated ascompliance.** Allnon-complianceof specifications,evenof small nature, should be clearlybroughtout.

10. RELIABILITY

Thesystemdesignshouldhavehighreliability foroverallperformanceanditsautomatic recoveryincaseofsystemfailuresandshould havefollowingfeatures:

i) Robustcommunicationprotocols–error detection and self-correction.
ii) Built–intestequipment and diagnostics.
iii) Extensive use of on boardtransientprotection
iv) Designforenvironmentalextremes.

11. SPARESAND CONSUMABLES(Optional)

Themanufacturershouldsubmitalistofcritical sparesincludingsensorsandcomponentsfor operatingthesesystemsforaperiodoffive years after the expiryofwarrantyperiod.**However this item willnotbeconsideredfor pricecomparison.Pricesshouldbequoted separately for this optional item.**

12. TESTINGANDACCEPTANCE

Factoryacceptance and quality test (prior to despatch) and onsite acceptance test post installation and commissioning reports are to be provided.

The bidder will submit the above as directed by USDMA, or to the appropriate government department as advised in contract document.

13. INSTALLATION, SYSTEM INTEGRATION AND COMMISSIONING

Bidder has to undertakethecompleteinstallation andintegration, commissioning, training, warranty servicing etc. workonturnkey basis.

14. *SPECIAL CONDITIONS TO BIDDERS*

A. Thebiddermustberesponsible for full compliance ofthe supply orderasper bid documentlikemaintenance, servicingandsupplyofsparesetc.All items must be quoted by bidder only.
B. Thebiddershouldprovidearegular comprehensive warranty (forfive year from the date of satisfactorycommissioningof the AATAS system withoutanyadditional cost to the purchaser.
C. The bidder should also provide extended comprehensive warranty for five yearsaftertheexpiryofinitial five year warranty.
D. The bidder should quote the price for extended warranty (optional).
E. For the reason ofAviation safety, the system shouldbeproven.Thebiddershouldprovidea listof clients where these systems areworkingatoperational levelforminimum **TEN AERODROMES orHELIDROMES**.
F. Themanufacturershouldprovide certification reports for the Systems / sensors, if any, alongwiththetechnicalbid.

The bidders are required to submit complete technical brochure of the product offered along with schematic drawings/photographs in technical bid envelop(Envelop 2).

FINANCIAL BID FORMAT

<to be submitted on bidders letter head with a covering letter>

Sl.	**Work Component**	**Quantity**	**Rate per each in figures in INR**	**Rate per each in words**
1.	SITC of AATAS as per specifications mentioned in the bid document	01		
2.	Consumable items< *mention item wise list>*	Mention item wise quantity required over a five year period		

Applicable Taxes/Duties on above:			
Sl.	**Type of Tax/duty** *<name of tax/duty>*	**Rate of Tax/duty in figures**	**Rate of Tax/duty in words**

USDMA reserves the right to increase or decrease the quantity or delete any of the component.

Total cost shall be compared on basis of equipment cost + cost of consumables required over five year period.

Signature of bidder_____

Name_____

Date_____

Stamp of bidder:

FINANCIAL BID FORMAT

<to be submitted on bidders letter head with a covering letter>

Sl.	**Work Component**	**Quantity**	**Amount in figures in INR**	**Amount in words**
1.	EXTENDED WARRANTY FOR FIVE YEARS FROM EXPIRY OF INITIAL WARRANTY OF FIVE YEARS of AATAS (as per specifications mentioned in the bid document)	One job		

Applicable Taxes/Duties on above:

Sl.	**Type of Tax/duty** *<name of tax/duty>*	**Rate of Tax/duty in figures**	**Rate of Tax/duty in words**

The payment shall be made on yearly basis after successful completion of services.

USDMA reserves the right to increase or decrease the quantity or delete any of the component.

Signature of bidder_____

Name_____

Date_____

Stamp of bidder:

FINANCIAL BID FORMAT

<to be submitted on bidders letter head with a covering letter>

Sl.	**Item**	**Quantity**	**Rate in figures in INR**	**Rate in words**
1.	Spares *<enter list of spares item wise rate to be quoted>*	each		

Applicable Taxes/Duties on above:			
Sl.	**Type of Tax/duty** *<name of tax/duty>*	**Rate of Tax/duty in figures**	**Rate of Tax/duty in words**

USDMA reserves the right to increase or decrease the quantity or delete any of the component.

Signature of bidder_____

Name_____

Date_____

Stamp of bidder:

Manufacturer's Authorization
<on letter head>

Date:
Tender No.:

To:

WHEREAS_____ who are official manufacturers of _____ having factories at _____ do hereby authorize _____ to submit a Bid in relation to the Invitation for Bids indicated above, the purpose of which is to provide the following Goods, manufactured by us _____and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty in accordance with the Conditions of Bid document/Contract, with respect to the Goods offered by the above firm in reply to this Invitation for Bids.

Name:
In the capacity of:
Signed:
Duly authorized to sign the Authorization for and on behalf of:
Date:
Stamp:

DRAWINGS/ BROCHURES

<enclose all technical drawings/documents duly stamped and signed>