

**INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
PASHAN, PUNE – 411 008, INDIA**

File No.PS/125/10/2007

TECHNICAL SPECIFICATIONS

MOBILE DUAL POLARIZED X-BAND DOPPLER RADAR

Specifications for the Mobile Dual Polarized X-band Doppler Radar

Transmitter	
Frequency Range	9.3 – 9.6 GHz (X-Band)
Minimum measuring range	1 km
Maximum measuring range	128 km
Range resolution	75 m corresponding to $\tau = 0.5 \mu\text{sec}$.
Sensitivity	-20 dBz at 10 km
Transmitter Polarization	Both H & V
Beam width	1°
Pulse repetition frequency	0.5 – 5 kHz
Antenna	
Antenna	Steerable Parabolic Antenna with (Radome)
Side lobe	Better than -28 dB tapering to -30 dB
Azimuth steering	360° with $\pm 0.05^\circ$ accuracy and 0-6 rpm
Vertical Steering	-2° to +92° with $\pm 0.05^\circ$ accuracy
Receiver Polarization	Both H & V
Antenna mounting	Trailer-mountable (Low Buoy)
Signal Processing	
Doppler processing	Digital receiver, Pulse Pair and FFT
Polarimetric outputs	Z_{DR} , K_{DP} , ρ_{HV} , Z , V , σ , Φ_{DP} , LDR
Software	Custom-built licensed software with all inbuilt algorithms for rain rate estimation through combination of polarimetric variables and hydrometeor classification.
Calibration	BITE and self calibration with Doppler and polarimetric
Computer and control	Industrial workstations with GUI for operation, control of the radar and display of the data and results.
Container & Power Requirements	
Power	230 V ± 10 V, 50 ± 1 Hz, Three phase
Container	Shelter (Preferably Aluminium container) for radar

	system, radar operator, air conditioner etc.
Warranty	
Equipment warranty	Minimum 1 year from date of commissioning.
Extended warranty	Up to 5 years with indication of cost for each year. With free of cost Software upgrades and Hardware Upgrades at concessional rates.
Essential spare components	For the next 5 years One Magnetron to be supplied as spare at the time of delivery
<p>At the time of quotation, failure rates of all the critical components should be clearly mentioned. In addition to one year equipment warranty, the performance warranty of the transmitter should be ensured for a minimum period of three years. In the event of transmitter power degradation, the manufacturer should replace the critical components free of cost.</p>	
Training and Installation	
<p>Training to two persons from IITM, at the factory, during the sub-system level testing, system integration, software testing and Installation so as to enable them for day-to-day operation, maintenance and minor repairs after warranty. Factory acceptance testing in the presence of IITM representatives. Training for more persons at the time of site installation. 3 sets of Product Documentation (Hardware, Software, User Manual/Guide etc.) in English.</p>	

INDIAN INSTITUTE OF TROPICAL METEOROLOGY PUNE 411 008

TERMS & CONDITIONS

ENQUIRY NO: **PS/125/10/2007/**

- 1) The Tenderers are requested to give detailed sealed tender in their own forms in two Bids i.e.
Part – I Technical Bid.
Part - II Commercial Bid.

Both the sealed bids should be sent in another sealed envelope addressed to the Director, Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, NCL Post, Pashan, Pune – 411 008, INDIA so as to reach on or before **13 November 2007**.

- 2) You have to submit two separate bids in two separate envelopes and you may keep both the bid envelopes in an envelope for sending to us.

One envelope will contain only the TECHNICAL SPECIFICATIONS of the indented equipment.

Another envelope will contain only the financial bid in which price, maintenance, AMC etc. and any other information, which has financial implications, will only be given.

The main envelope, which will contain both the bids, should be super scribed with our tender enquiry No.**PS/125/10/2007** due on **13 November 2007**.

- 3) The technical bids will be opened on the specified due date in the presence of tenderers who wish to be present & the financial bids of only those bidders will be opened whose technical bid is found suitable by us.
- 4) The Date and Time of opening for Part-II (Commercial Bid) will be intimated only to pre-qualified and technically acceptable Tenderers for the item at a later date.

Last Date and Time for receipt of Tenders: **Upto 17.00 hrs. on 13 November 2007**.

Date and Time of opening of Tenders: **At 15:00 hrs. on 14 November 2007**.
(Part - I Technical Bid only)

- 4) This tender is not transferable.
- 5) a) The Equipments are required to be installed at **IITM, Pune** or any site specified by IITM and subsequently
 - b) Training is to be imparted to the Scientists of IITM, at sub-system level testing, system level integration at the factory as well as at the site during commissioning.
 - c) Packing, Forwarding, Freight & Insurance and Commissioning Charges, if any extra may be quoted separately in Commercial Bid.

- d) In case if your quote is F.O.R./F.O.B. basis, estimated Insurance coverage charges may please be indicated.
- e) CIF, Mumbai value both by Airfreight.
- f) Octroi Payment if any, the same may please be shown separately.
- 6) Cost of the items should be mentioned clearly in the Commercial Offer (Part-II) only. The optional and any other essential items / accessories required for the maintenance of the equipment for the next five years should also be specified in the offer separately.
- 7) In case of foreign quote, the Principal supplier should clearly indicate the address of the Indian Agent and percentage (%) of Agency Commission payable if any, to be paid to the Indian Agent in Indian Currency.
- 8) Percentage & amount of Indian Agency commission payable in Indian currency after the receipt of consignment in good condition at our Stores & satisfactory installation and commissioning of the ordered equipment on submission of copy of DGS&D registration wherever it is applicable.
- 9) Indicate the names of the reputed Indian Organizations where you have supplied the similar equipment and may attach the satisfactory performance report of the equipment from user Organization.
- 10) a) If you have supplied identical or similar equipment to other Institutes under Ministry of Earth Sciences and Ministry of Science & Technology, the details of such supplies for the preceding five years should be given together with the prices eventually or finally paid.
- b) Based on the above information IITM will have its option to obtain details of the equipment, their performance, after sales services etc. for evaluation of the tender, directly from the concerned Labs. /Scientists etc.
- 11) Tenders received through Fax / E-mail / Telegraphic / Telex will not be considered.**
- 12) All the Bank Charges inside and outside India, including opening of LC, communication, confirmation, amendments etc., if any to Beneficiary's Account only. This may please be noted.**
- 13) Tenders addressed to the Director, Indian Institute of Tropical Meteorology, Pune 411008 are to be submitted for each item in duplicate in double cover, under two bids system. Superscribed with Tender No. **PS/125/10/2007** for purchase of **“Mobile X-Band Dual Polarized Doppler Radar” – Qty 1 No.** due on **13 November 2007**.
- 14) The tenders must be clearly written or typed without any cancellations / corrections or overwriting.
- a) Tenders, which are submitted without following the Two-Bid Offer System, will summarily be rejected.
- b) Unsigned Tenders will also be rejected.

- c) Part and incomplete tenders are liable to be rejected.
- 15) The tenders will be received in the Institute till **13 November 2007** up to **17:00 hrs.** and shall be opened on **14 November 2007** at **15:00 hrs.** in presence of the tenderers or their authorized agents who wish to be present.
- 16) IITM will not be responsible:
- a) For delayed / late quotations submitted / sent by Post / Courier etc.
 - b) For submission / delivery of quotations at wrong places other than the Office of Director, IITM, Pune ,
- 17) In case of Foreign Quote, the mode of dispatch should be by Air Post Parcel/Ocean Freight/Air Freight (By Air India Freight) and on Freight to-pay basis only. The approximate dimensions of the packages and weight of consignment are to be indicated.
- 18) The makes / brand and name and address of the manufacturer, Country of Origin, Country of Shipment and currency in which rates are quoted are to be mentioned.
- 19) The Technical Bid should accompany with complete specification, Manufacturer's name, address and relevant Technical Literature/Brochures with Warranty Terms.
- 20) The payment of local currency portion shall be payable in equivalent Indian Rupees, within 30 days after the receipt of the equipment in good condition and after satisfactory installation and commissioning and demonstration.
- 21) The tender / quotation / offer submitted by the firm should be valid for a minimum period of **One Hundred Eighty (180) days** from the date of opening the tender.
- 22) The quotation should be only in Indian Rupees for indigenous items. In case of foreign quote, the vendors may quote their rates in, Indian Rupees as well as in Foreign Currency.
- 23) The bidder who submits the tender on behalf of their principals should produce documentary evidence in support of their authority to quote or submit proforma invoice of their principals.
- 24) Details of services rendered by you as well as after-sales services offered by you are to be made clear in the tender.
- 25) The Tenderer's conditions printed on the tender or otherwise sent along with the tender shall not be binding on IITM.
- 26) The vendor should have appropriate facilities and trained personnel for supply, installation, commissioning and warranty-maintenance of the equipment to be supplied. Detailed information in this regard may be furnished.
- 27) **Delivery Period:** As time is the essence of the contract, Delivery period (nine months or earlier) mentioned in the Purchase Order should be strictly adhered to.
- 28) Details regarding terms of payment including period of warranty should be clearly mentioned. However, we prefer to release the payment on BILL Basis (excluding

Indian Agency Commission) after receipt of consignment in good condition and satisfactory installation, and commissioning thereof. Alternatively, depending upon the value and foreign exchange regulations the payment can also be considered through Sight Draft / Letter of Credit through the State Bank of India for the order value excluding the Indian Agency Commission. However, the detailed payment for Sight Draft / Letter of Credit is mentioned at clause No. **34 (B) & (C)** of this tender terms and conditions.

- 29) Supply means "Supply, Installation, Commissioning and satisfactory demonstration of the whole system and training". If any charges extra for Installation, Commissioning and training, the same should be specified in the commercial offer.
- 30) Kindly attach a of copy of your latest DGS&D, New Delhi registration Certificate under the compulsory Scheme of Ministry of Finance regarding the registration of Indian Agent of foreign supplier wherever it is applicable.
 - a) The Tenderer is required to furnish the Permanent Account Number (PAN) Allotted by the Income Tax Department. If registered with the National Small Industries Corporation, the registration number, purpose of registration and the validity period of registration' etc. should also be provided in Technical Bid for Indian Agents.
 - b) A copy of latest Income Tax Clearance Certificate from Income Tax Department (INDIA) for Indian Agents.
- 31) In case of Foreign quote, the address of Principal's / Manufacturer's and their Banker's details should be furnished,
- 32) The system should be supplied with hardware and software manuals including technical / Electronic drawings / circuit diagrams / user manuals etc. The documentation should be complete in all respects to operate the system without any problem.
- 33) The import license is covered under OGL policy of 2004 - 2009.
 - a) In case of Indigenous Items the offer should. contain the Basic Price and percentage of Excise Duty should be shown separately, since IITM, Pune is exempted from payment of Excise duty vide Govt. Notification No.10/97-Central Excise dated 15t March, 1997.
 - b) IITM is exempted from payment of Custom Duty vide Govt. Notification No.51/96-Customs dated 23rd July, 1996. However as per the Govt. of India further notification No.24/2002-Customs dated 15t March, 2002 and notification No.19/2006-Customs' dt. 01.03.2006 Custom Duty is levied on all imports meant for IITM. Since the suppliers are requested to quote only on FOB basis freight, insurance and custom duty as applicable to R&D Institutions will be paid by IITM.
- 34) Tender must clearly indicate the features offered unit price, VAT tax, transport, transit insurance, installation charges. Institute cannot furnish any concessional certificate for exemption or reduction in VAT tax or any other duty / tax. The vendor should mention the price of the equipment and the duties / taxes to be paid such as customs duty / excise duty / VAT taxes etc. separately.

- a) No advance can be paid.
- b) **PAYMENT:** 90% payment shall be made by Sight Draft / an Irrevocable Letter of Credit established in favour of the supplier through the State Bank of India, Main Branch, Camp, Pune 411 001 (India) for the order value, excluding the Agency Commission due to the Indian Agents, against the presentation of original Shipping documents. Balance 10% will be released after completion of satisfactory installation, commissioning, demonstration of the whole system, after imparting training and upon receipt of Bank Guarantee from nationalized bank for 10% of total Order value towards performance security to be valid for one year from the date of installation. However Letter of Credit/Sight Draft arrangement will be made for 100% order value.
The Agency Commission to the Indian Agent will be paid only after successful installation, commissioning and satisfactory demonstration and acceptance of the items ordered for by the end user.
- c) For Indigenous items, 90% payment shall be made against delivery, installation, commissioning and on acceptance as per Purchase Order at site and balance 10% shall be made after receipt of performance Bank Guarantee from nationalized bank for 10% of the total order value, to be valid for entire period of warranty including extension if any. If no Bank Guarantee is given, the balance 10% will be paid after assessing, after sales service during warranty period i.e. payment after warranty period.
- 35) The prices quoted should be firm and irrevocable and not subject to any change whatsoever, even due to increase in cost of raw material components and fluctuation in the foreign exchange rates and excise duty.
- 36) The Tenderer has to state in detail the Electrical Power/UPS requirements, floor Space, head room, foundation needed and also to state whether Air-conditioned environment is needed to house the system and to run the tests. i.e. pre-installation facilities required for installation may please be intimated in the technical bid.
- 37) INSTALLATION & COMMISSIONING:** Bidder shall be responsible for installation / demonstration wherever applicable and for after sales service during the warranty and thereafter.
- 38) PRODUCT ACCEPTANCE:** Acceptance tests at the site to be prescribed later will be carried out after installation and the items will be treated as commissioned only after successful completion of the following acceptance tests.
- (a) Factory acceptance testing
 - (b) Sub-system performance compliance at the site
 - (c) Site installation and commissioning
- 39) Installation demonstration to be arranged by the supplier free of cost and the same is to be done within 15 days of the arrival of the equipment at site after site readiness.
- 40) IITM will not provide any accommodation/transportation for the Engineers/ Representatives for attending Installation, Commissioning and Demonstration Work. It is the absolute responsibility of the Principal Supplier/Indian Agent to make their own arrangements.

- 41) **WARRANTY/GUARANTEE:** The equipment is to be guaranteed for trouble free performance for a minimum period of one year after installation. Supplier shall finally warrant that all the stores, equipment and components supplied under the ORDER shall be new and of the first quality according to the specifications and shall be free from the defects (even concealed fault, deficiency in the design material and workmanship). The defects, if any, during the guarantee period are to be rectified free of charge by arranging free replacement wherever necessary. Further, the technical specifications and requirements may also be verified and quoted accordingly.
- 42) Details of onsite warranty, agency who shall maintain during warranty and undertake Annual Maintenance Contract/Comprehensive Service Maintenance Contract beyond warranty along with cost details shall be given in the offer. In case of foreign quote, the Indian Agent who shall maintain during warranty and AMC beyond warranty shall be given in the Technical Offer.
- 43) The supply of spare parts is to be guaranteed at least for a period of 10 years after the supply of the equipment.
- 44) Please mention that during warranty period who will maintain system/ equipment / Instrument. Indicate the name of firm, address, contact person, phone no. and fax no. etc in your technical bid.
- 45) After successful installation what will be the minimum down time of equipment/instrument in case of breakdown. If the identified firm or person fails to put the system into working condition what is the further alternative course of action suggested by you to adhere to minimum down time.
- a. MTBF – atleast 5000 hours
 - b. MTTR – 48 hours
- 46) Warranty period will stand extended for a period of total downtime of the equipment.
- 47) After warranty period (post warranty) who will maintain equipment / instrument. Indicate the name of Firm, address, contact person, phone no. And fax no. etc in your technical bid.
- 48) Kindly mention the charges for comprehensive maintenance contract separately in **commercial bid** (for post warranty period).
- 49) No sub-contracting will be allowed for installation or maintaining system/ equipment / instrument during or after warranty period.
- 50) You have to quote rates for AMC, if any, only in commercial bid.
- 51) Any upgrade in Operating System (OS) and associated other software during the warranty period should be supplied free of charge.
- 52) Discount offered should be mentioned clearly in the commercial bid only.
- 53) The Tenderers are requested to quote for Educational Institutional Price for Equipment and Software, since we are eligible for the same.

- 54) This Institute is an autonomous scientific research organization under the Ministry of Earth Sciences and is a recognized centre for studies leading to M.Sc. and Ph.D. of the University of Pune and various other Universities. As such, all possible concessions / discounts / rebates applicable for educational Institutions may be given.
- 55) a) The Earnest Money Deposit of **Rs.16,00,000/- (Rs. Sixteen Lakhs only)** must be paid / sent along with your technical bid in the form of a Demand Draft, Banker cheque or Bank Guarantee (from a Nationalized Bank only) drawn in favour of **The Director, Indian Institute of Tropical Meteorology, Pune payable at Pune**, otherwise your technical & financial bids will not be considered at all. The Earnest Money of successful bidder will be returned only after installation, commissioning, satisfactory demonstration and on acceptance of the equipment by the user Scientist / HOD as per the terms of our purchase order. If the successful bidder fails to fulfill the contractual obligations before the due date, he will forfeit the EMD.
- b) The Earnest Money of the unsuccessful bidder whose technical bid has not been found suitable will be returned within 15 days after receipt of Technical Committee recommendations.
- c) Those who are registered with Central Purchase Organization (e.g. DGS&D), National Small Industries Corporation or the concerned Ministry / Department need not furnish EMD along with their bids.
- d) Though EMD has to be submitted by Demand Draft, Banker's Cheque or Bank Guarantee, we prefer to have Bank Guarantee for easy return to the bidders once a decision is taken by IITM. (Specimen of Bank Guarantee is enclosed at Annexure 'A').
- e) Tenders not accompanied with Demand Draft / Bank Guarantee towards "Earnest Money Deposit" will summarily be rejected.
- 56) If the supplier fails to Supply, Install and Commission the system as per specifications mentioned in the order within the due date, the Supplier is liable to pay liquidated damages of one percent value of the Purchase Order awarded, per every week delay subject to a maximum of 10% for every week beyond the due date and such money will be deducted from any money due or which may become due to the supplier.
- 57) Goods should not be dispatched until the Vendor receives a firm order.
- 58) Please indicate page nos. on your quotation ex. If the quotation is containing 25 Pages, please indicate as 1/25, 2/25, 3/25 -----25/25.
- 59) The purpose of certain specific conditions is to get or procure best Equipment / service etc. for IITM. The recommendations of the Technical Committee shall be guiding factor for Technical short listing.
- 60) Firms which have already supplied similar equipment to IITM and have not completed required installation / commissioning / after sales service / warranty replacements etc. such firms offers will not be considered for further evaluation and no enquiries thereafter will be entertained.**

- 61) In the event the Manufacturer / Supplier proposes for amalgamation, acquisition or sale of its business to any firm during the contract period, the Buyer/Successor of the Principal Company are liable for execution of the contract and also fulfillment of contractual obligations i.e. supply, installation, commissioning, warranty, maintenance/replacement of spares accessories etc. with the same cost / ordered value while submitting your bid, you may confirm this condition.
- 62) Conditional Offers will not be considered.
- 63) All disputes are subject to exclusive jurisdiction of Competent Court and Forum in Pune, India only.
- 64) The Director, Indian Institute of Tropical Meteorology, Pune 411 008, India reserves the right to accept any tender in full or in part or to reject the lowest or any or all tenders without assigning any reason.
- 65) In case of any dispute regarding part-shipment, non-compliance of any feature etc., The Director, Indian Institute of Tropical Meteorology, Pune will be the final authority to decide the appropriate action and it will be binding on the Vendor.

(S. R. Nirgude)
Senior Technical Officer-II
For Director