

India Meteorological Department Mausam Bhawan, Lodi Road New Delhi-110003

NOTICE INVITING TENDER (NIT)

Tender Enquiry No. CPU/53/0123/1549

Dated: 25.01.2023

- 1. Director General of Meteorology (DGM), India Meteorological Department (IMD), Ministry of Earth Sciences (MoES), Government of India, on behalf of President of India invites, ONLINE tenders in two bid system i.e. (i) Technical bid & (ii) Price bid (Separately) from eligible and qualified **Indian Bidders** for procurement of following Goods/Articles/Services.
- 2. Name of Goods/Articles/Services :

Procurement of 4 (Four) Nos. of S-Band Polarimetric Doppler Weather Radar System (Klystron based)

3. Specification and Quantity:

1.	PRE BID Conference	17.02.2023 / 1100 Hrs.
		Place – Mausam Bhawan,
		Lodi Road, New Delhi-110003
		Tele : 011 - 24344224
2.	Closing date and time for submission of	15.03.2023 / 1700 Hrs.
	tender	
3.	Tender Opening date & time	17.03.2023 / 1200 Hrs.
	(Technical Bid)	
4.	Place of Tender Opening	Central Purchase Unit,
		O/o DGM, IMD,
		Lodi Road, New Delhi.

As per "RFP"

4. Tender schedule is as follows:

5. Earnest Money Deposit (EMD): The bidder should enclose bid security (EMD) of Rs.1,65,00,000/- (Rupees One Crore Sixty Five Lakh only) in the form of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque, Bank Guarantee, Insurance Surety Bond, from any of the Commercial Banks drawn in favour of DDO, O/o DGM, New Delhi. Micro & Small Enterprises (MSEs) as defined in MSE Procurement policy issued by Department of Micro, Small & Medium Enterprises (MSME) are exempt from submission of EMD (Bid Security).

Bidders claiming exemption of EMD under GFR-170 are however required to submit a signed Bid Security declaration (Format Enclosed with Tender document).

- 6. All prospective bidders are requested to attend the **Pre-bid meeting** as per venue, date and time indicated in the Para 4 above. Maximum two representatives of a firm with proof of their COVID-19 Vaccination Certificate of 2nd Dose, will be allowed to participate in Pre-Bid meeting. The prospective bidders are requested to send their queries preferably 5 days in advance before scheduled pre-bid meeting, on email: projectradar@gmail.com and radarlab@gmail.com
- 7. Bidders may download the **Tender Enquiry Document** from the web site <u>www.imd.gov.in</u> & <u>www.eprocurement.gov.in/cpp</u> and read the tender documents carefully before uploading the tender on CPP Portal.
- 8. The following 2 clauses may also be read under "Eligibility Criteria" of the Tender document :-
 - Bidder has to submit a compliance certificate that comply with the Govt Order No. P-45021/2/2017-B.E.-II, Ministry of Commerce and Industry, Department of Industrial Policy and Promotion of Industry and Internal Trade (PP Section) dated 16.09.2020 and instructions issued from time to time failing which their bid shall not be accepted and liable to be rejected.
 - (ii) Compliance of Rule 14(xi) of the GFR 2017 which mandates the bidder from a country sharing land border with India to be registered with the competent authority. Bidder has to submit a compliance certificate that they comply with the Govt Order F.No. 6/18/2019-PPD dated 23rd July, 2020 of Ministry of Finance, DoE, Public Procurement Division, failing which their bid shall not be accepted and liable to be rejected.
- 9. Bidders shall ensure that their tenders are complete in all respects before uploading the same on CPP Portal. CPU will not be held responsible for any delay or corruption in the uploaded bids.
- 10. In the event of the tender opening date being declared as holiday for the purchase organization, the tender will be opened on the next working day. The venue and time of tender opening will remain the same.

11.	Purchaser :	The President of India
		Through Director General of Meteorology,
		India Meteorological Department,
		Lodi Road, New Delhi-110003
12.	Consignee:	DGM (UAID),
	-	India Meteorological Department,
		Lodi Road, New Delhi-110003
13.	Inspecting Authority:	Director General of Meteorology,
		India Meteorological Department,
		Lodi Road, New Delhi-110003.
14.	Inspection officer:	Authorized Representative of Inspecting Authority

Director, Central Purchase Unit (CPU) O/o Director General of Meteorology, India Meteorological Department, Lodi Road, New Delhi-110003. Telefax No: 011-24698148



भारत मौसम विज्ञान विभाग लोदी रोड, नई दिल्ली -110003

निविदा आमंत्रित करने की सूचना (एन आई टी)

निविदा जाँच सं. CPU/53/0123/1549

दिनांक: 25.01.2023

- मौसम विज्ञान के महानिदेशक (मौविमनि) भारत मौसम विज्ञान विभाग (भा.मौ.वि.वि.) पृथ्वी विज्ञान मंत्रालय, भारत सरकार, भारत के राष्ट्रपति की ओर से नीचे लिखे सामान / वस्तुएँ / सेवाओं की आपूर्ति, संस्थापन और आरंभ के लिए पात्र और अर्हक निविदाकारों से दो बिड प्रणाली अर्थात (एक) तकनीकी बिड और (दो) दर बिड में टेंडर आमंत्रित करते हैं.
- 2. सामान/ वस्तुएँ/ सेवाओं का नामः Procurement of 4 (Four) Nos. of S-Band Polarimetric Doppler Weather Radar System (Klystron based)
- 3. विनिर्देशन और मात्रा : विनिर्देशन आर एफ पी के अनुसार, (मात्रा-01)

4. निविदा अनुसूची इस प्रकार हैः

1	प्री बिड कांफ्रेंस	दिनांक	17.02.2023 / 1100 बजे		
		स्थान - म	गौसम भवन,		
		लोदी रोड,	नई दिल्ली -110003		
			टेलीः 011 - 24344224		
2.	निविदा जमा करने की अंतिम तिथि व समय	दिनांक	15.03.2023 / 1700 बजे		
3.	निविदा खोलने की तिथि व समय (तकनीकी बिड)	दिनांक	17.03.2023 / 1200 बजे		

धरोहर राशि (ई एम डी):

बोली लगाने वाले को खाता पेयी डिमांड ड्राफ्ट, सावधि जमा रसीद, बैंकर्स चेक, बैंक गारंटी, बीमा जमानत बांड के रूप में रुपये 1,65,00,000/- की बोली सुरक्षा (ईएमडी) डीडीओ, ओ/ओ डीजीएम, नई दिल्ली, संलग्न करनी चाहिए, जो किसी भी वाणिज्यिक बैंक के पक्ष में आहरित किया गया हो, सूक्ष्म, लघु और मध्यम उद्यम विभाग (एमएसएमई) द्वारा जारी एमएसई खरीद नीति में परिभाषित सूक्ष्म और लघु उद्यमों (एमएसई) को ईएमडी (बोली सुरक्षा) जमा करने से छूट है।

हालांकि, जीएफआर-170 के तहत ईएमडी की छूट का दावा करने वाले बोलीदाताओं को एक हस्ताक्षरित बोली सुरक्षा घोषणा (निविदा दस्तावेज के साथ संलग्न प्रारूप) प्रस्तुत करना आवश्यक है।

6. सभी संभावित बोलीदाताओं से अनुरोध है कि वे उपरोक्त पैरा 4 में उल्लिखित स्थल, तिथि और समय अनुसार **बोली पूर्व बैठक में भाग लें** । एक फर्म के अधिकतम दो प्रतिनिधियों को उनके द्वितीय खुराक के कोविद-१९ टीकाकरण प्रमाण पत्र के प्रमाण के साथ बोली पूर्वक बैठक में भाग लेने की अनुमति दी जाएगी | संभावित बोलीदाता अपने प्रश्नों को अधिमानित 5 दिन पहले निर्धारित प्री-बिड मीटिंग से पहले ईमेल : projectsradar@gmail.com और radarlab@gmail.com पर भेजे ।

7. बोलीदाता वेब साइट www.imd.gov.in और www.eprocurement.gov.in से निविदा पूछताछ दस्तावेज डाउनलोड कर सकते हैं और सीपीपी पोर्टल पर निविदा अपलोड करने से पहले निविदा दस्तावेजों को ध्यान से पढ़ सकते हैं। निविदाकर्ताओं को यह सुनिश्चित करना होगा कि उनकी सभी निविदाएँ सभी तरह से पूर्ण हैं किसी भी प्रकार के विलम्ब अथवा नुकसान के लिए क्रय संगठन जिम्मेवार नहीं होगा।

8. निविदा दस्तावेज के "पात्रता मानदंड" के तहत निम्नलिखित 2 खंड भी पढ़े जा सकते हैं: -(i) बोलीदाता को एक अनुपालन प्रमाण पत्र प्रस्तुत करना होगा जो सरकार के आदेश संख्या पी-45021/2/2017-बीई-द्वितीय, वाणिज्य और उद्योग मंत्रालय, औद्योगिक नीति और उद्योग और आंतरिक व्यापार संवर्धन विभाग (पीपी अनुभाग) का अनुपालन करता है।) दिनांक 16.09.2020 और समय-समय पर जारी निर्देश, जिसमें विफल रहने पर उनकी बोली स्वीकार नहीं की जाएगी और अस्वीकार कर दी जाएगी।

(ii) जीएफआर 2017 के नियम 14(xi) का अनुपालन जो भारत के साथ भूमि सीमा साझा करने वाले देश के बोलीदाता को सक्षम प्राधिकारी के साथ पंजीकृत होने के लिए अनिवार्य करता है। बोलीदाता को एक अनुपालन प्रमाण पत्र प्रस्तुत करना होगा कि वे सरकार के आदेश एफ.सं. का अनुपालन करते हैं। 6/18/2019-पीपीडी दिनांक 23 जुलाई, 2020 वित्त मंत्रालय, डीओई, सार्वजनिक खरीद विभाग, में विफल होने पर उनकी बोली को स्वीकार नहीं किया जाएगा और अस्वीकार कर दिया जाएगा।

- 9. यदि निविदा खोलने की तारीख के दिन क्रय संगठन का अवकाश घोषित होता है तो निविदा अगले कार्य दिवस को खोली जाएगी ।निविदा खोलने का स्थान और तारीख वही रहेंगे ।
- 10. यदि निविदा खोलने की तारीख के दिन क्रय संगठन का अवकाश घोषित होता है तो निविदा अगले कार्य दिवस को खोली जाएगी।निविदा खोलने का स्थान और तारीख वही रहेंगे।

क्रयकर्ताः	भारत के महामहिम राष्ट्रपति
	भा.मौ.वि.वि. के माध्यम से
	भारत मौसम विज्ञान विभाग,
	लोदी रोड, नई दिल्ली-110003
परेषितिः	मौसम विज्ञान के महानिदेशक (UAID)
	भारत मौसम विज्ञान विभाग
	लोदी रोड, नई दिल्ली-110003
<u> </u>	
जाच प्राधिकाराः	मासम विज्ञान के महानिदशक
	भारत मौसम विज्ञान विभाग
	लोदी रोड, नई दिल्ली-110003
जाँच अधिकारीः	जाँच प्राधिकारी का प्राधिकत प्रतिनिधि
	निदेशक, केंद्रीय क्रय एकक (कें.क्र.ए) ,
	मौसम विज्ञान के महानिदेशक का कार्यालय,
	लोदी रोड, नई दिल्ली- 110003
	टेलीफैक्स सं. : 011-24698148
	क्रयकर्ताः परेषितिः जाँच प्राधिकारीः जाँच अधिकारीः

IMD /RFP/DWR/S/UAID/2021



INDIA METEOROLOGICAL DEPARTMENT

REQUEST FOR PROPOSAL FOR PROCUREMENT

OF

S – BAND POLARIMETRIC DOPPLER WEATHER RADAR SYSTEM

(FOUR NUMBERS)

OFFICE OF THE DEPUTY DIRECTOR GENERAL OF METEOROLOGY, (UPPER AIR INSTRUMENTS), INDIA METEOROLOGICAL DEPARTMENT, MAUSAM BHAVAN, LODI ROAD, NEW DELHI - 110003.

24 AUGUST, 2021

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CHAPTER-1

INSTRUCTIONS TO BIDDERS

1. Introduction:

The India Meteorological Department (IMD) has issued this Tender Enquiry document for purchase of goods/stores/articles and related services as mentioned in "Request for Proposal (TENDER DOCUMENT)" which also indicates, inter alia, the required stores, delivery schedule, terms and conditions and place of delivery etc.

This section ("General Instructions to Bidders") provides the relevant information as well as instructions to assist -the prospective bidders in preparation and submission of tenders. Bidders shall have to agree/accept all the terms and conditions of tender including payment terms etc.

Acceptance shall be unconditional and bidders shall have no claim and right in future on their terms, if any.

2. Language of Tender:

The tender submitted by the bidder and all subsequent correspondence and documents relating to the tender exchanged between the bidder and IMD, shall be written in English language.

3. Tendering Expense:

The bidder shall bear all the costs and expenditure incurred and/or to be incurred by them in preparation, and in uploading their tender including attending the pre-bid conference and or arranging demonstration of Product/Services or Presentations that may be deemed necessary by IMD.

4. Pre-Bid Conference:

- a) Pre-bid conference shall be held as per Notice Inviting Tender (NIT) schedule so as to provide an opportunity to the bidders to interact with India Meteorological Department (IMD) with regard to various tender provisions/clauses, before the bids are submitted.
- b) Request for clarification during pre-bid, if any, may be sent by email latest by five working days before the commencement of pre-bid meeting. Pre-Bid minutes shall be uploaded on e-procurement portal (eprocure.gov.in/eprocure).
- c)Bidders are requested to attend or may depute their authorized representative for pre-bid meeting through VC/Personally, if invited by IMD.
- d) In case, due to the points/doubts raised by the prospective bidders, tender needs to be modified, the same will be considered for modification.

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e) No change will be permissible after notification of pre-bid minutes

f) No reply in this regard shall be sent to individual bidders.

5. Regular inspection of website:

Prospective bidders are advised to visit Central Public Procurement (CPP) portal **eprocure.gov.in/eprocure** on regular basis for any change in NIT schedule like amendment / corrigendum in Tender Document including technical requirement and pre-bid minutes etc.

6. Amendments to Tender enquiry (TE) documents:

At any time, prior to the deadline for submission of tender, IMD may, for any reason deemed fit by it, modify the Tender Enquiry document by issuing suitable amendment(s) to it. The amendment will be uploaded on CPP portal eprocure.gov.in/eprocure only.

In order to provide reasonable time to the prospective bidders to take necessary action in preparing their tenders as per the amendment, IMD may, at its discretion extend the deadline for the submission of tenders and other allied time frames, which are linked with that deadline.

7. Documents Comprising the Tender:

The tender is to be submitted in Two Bid System. The "Techno - Commercial Bid" and "Price Bid" prepared by the prime bidder shall comprise the followings:

(A) Techno - Commercial Tender (Un-priced Tender)

- a) The following documents are to be furnished by the responsive bidder along with Technical Bid (Techno-Commercial Bid) as per the eligibility conditions applicable. Bidder shall upload following documents on CPP Portal eprocure.gov.in/eprocure
- b) Registration certificate of bidding firm with any state and central government body of India. Credential/document shall be attached.
- c) Checklist (as per format Annexure-I) shall be properly filled, signed and stamped.
- d) Scanned copy of Earnest Money Deposit (EMD) in the form of Fixed Deposit Receipt/ Bank Guarantee (FDR/BG) as mentioned in the NIT of the tender.
- e) Original EMD in physical form shall be submitted to Central Purchase Unit, Office of DGM, IMD, on or before opening of tender.

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- f) Documentary evidence for fulfillment of Eligibility /Qualification criteria.
- g) Tender terms & Conditions Acceptance Form (as per Annexure-II) duly signed and stamped.
- h) Technical Bid duly signed and stamped on all pages.
- List of deliverable (un-priced/without price) shall be submitted with details of make and model etc. being offered. All should be similar to the items in price bid.
- j) Pre-contract Integrity pact to be signed, stamped and shall be provided along with bid document.(as per Annexure-IX)
- k) The above documents must be signed (all pages), stamped and scanned copies shall be attached in the beginning of technical bid.
- (B) Price Bid

Price bid documents are to be furnished by the bidder as per following:

- a) All pages of the price bid should be page numbered, indexed and signed with company/firm's seal by authorized signatory.
- b) Price Bid shall be quoted as per price schedule format (Chapter-4).
- c) Costing of each and every item, sub items offered in bidder's technical bid, shall be done with all breakup prices.
- d) The bidder shall indicate on the Price Schedule specifying all components (main units and sub units etc. of each item) of prices shown therein including the unit prices and total tender prices of the goods (Hardware & Software), services, packing, inland transportation/freight/insurance to the sites, GST or any other duties and taxes applicable against the requirement.
- e) Successful bidder shall bear all the taxes (GST/IGST/SGST/Income-tax/WCT/or any other taxes) levied by the state / central government applicable in India, as per the rates prevailing at the time of undertaking the job in accordance with the Income-tax Act.
- f) Comprehensive Annual Maintenance Contract (CAMC) shall be for the maintenance of complete system including equipment and software, therefore prospective bidders are advised to quote CAMC charges accordingly and specifically for seven years after the expiry of three years of warranty period. The charges are to be quoted for each year, on annual basis. Minimum amount cannot be less than 4% of the capital cost.
- g) The reasonability of cost including the CAMC charges shall be a criterion for deciding the lowest bidder. Justification of CAMC charges with breakup need to be submitted along with the bid.
- h) In case any charges not mentioned in the price bid, it will be treated as all the charges are free of cost for that item.

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- i) Bidder shall quote prices on F.O.R/FCA (at the sites of consignee) basis.
- j) If there is a discrepancy between the amount expressed in words and figures, the amount in words shall prevail.
- k) If there is any discrepancy between the BOQ and PDF. Price bid the BOQ will be considered as final price bid.

NOTE :

1. Price bid shall summarily be rejected in case of any deviation from the un-priced bid given with the technical bid of the bidder.

2. Price bids shall not be accepted if CAMC charges are quoted in percentage.

8. Signing and Submission of Tender:

Properly signed and stamped tender on the company letterhead shall be uploaded online through CPP Portal, eprocure.gov.in/eprocure. Hard copy of bids shall not be considered and accepted for submission of tender document. The tender shall not contain any over writing. Only PDF format of the tender shall be uploaded on CPP portal and will be treated as final version of the bid.

Note: One set of hard copy of the complete technocommercial bid document which was uploaded during submission of tender is to be submitted before opening of the bid. If any discrepancy is noted between the softcopy uploaded on CPP portal and the hard copy of the technocommercial document, the soft copy uploaded on CPP portal will be considered as the final version for tender evaluation.

Alteration and Withdrawal of Tender: 9.

The bidder after uploading its tender on CPP portal is permitted to alter / modify its tender within the deadline for submission of tenders.

10. Opening of Tenders:

IMD will open the tenders at the specified date and time and at the specified place as indicated in the NIT. However in case the specified date of tender opening falls on/or its subsequently declared holiday or closed day for IMD, the tenders will be opened at the same time and place on the next working day. Authorized representatives of the bidders, may attend the tender opening process, provided they carry letter of authority from the respective bidders.

a) The Technical Bids are to be opened at the prescribed date and time. These bids shall be scrutinized and evaluated by the competent committee/ authority with reference to Wermel

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parameters prescribed in the TE document. During the Technical Bids opening, the tender opening official(s) may read out the salient features of the tenders.

b) Thereafter, in the second stage, the Price Bids of technically qualified bidders only shall be opened on a date notified after uploaded TEC report on CPP portal.

11. Scrutiny and Evaluation for acceptance of tender

(A) Scrutiny of bids:

The tenders will be scrutinized to determine whether they are complete in all respects and meet the essential important requirements, conditions etc. as prescribed in the Tender document.

The tenders are liable to be treated as non - responsive and will be summarily rejected if following are not essentially provided along with techno-commercial bids.

- a) Registration certificate of bidding firm with any state and central government body of India. (Credentials/documents shall be attached).
- b) Tender should be signed on each page, stamped and complete in all respects. All documents shall also be digitally signed.
- c) Properly signed and stamped checklist (Annexure-I) and fully completed compliance statement is to be enclosed.
- d) Tender Acceptance Form (Annexure-II) to be duly signed and stamped. (i.e. all the terms & conditions of tender document are acceptable).
- e) Tender validity for the required period.
- f) Required EMD to be provided unless exempted.

(B) Technical Evaluation:

- a) After the tender acceptance, tenders shall be evaluated to assess the technical suitability of the bid with respect to the terms and conditions of the RFP, by the committee constituted by competent authority.
- b) During the preliminary examination, if any clarification is required, IMD may ask for clarification from the bidders.
- c) Wherever necessary, IMD will convey its observation on such 'minor' issues to the bidder seeking their response by a specified date. If the bidder does not respond by the specified date or provides evasive/incomplete reply without clarifying the exact point in clear terms, and the committee is not satisfied with the reply; the tender will be liable to be ignored for further processing.

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d) Technical presentation in the presence of the committee shall be held in IMD. The committee will seek proof of capabilities claimed in the compliance matrix provided by the respective bidder. IMD will seek clarifications on the design, performance and other technical points during the presentation. All points will be recorded.

(C) Financial evaluation:

a. After Technical Evaluation, the Price Bids of only the technically qualified bidders shall be opened for further scrutiny and evaluation on a date notified after completion of evaluation of the techno commercial tender.

b. Purchase preference shall be given to all local suppliers in all procurement undertaken by the Purchaser (IMD) in the manner prescribed by the Department for Promotion of Industry and Internal Trade, Govt. of India, vide OM No. P-45021/2/2017-PP (BE-II) dated 4th June, 2020. Purchase preference shall be given to Class I local suppliers in all procurement undertaken by the purchaser in the following manner:

- Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a 'Class-I local supplier', the contract for full quantity will be awarded to L1.
- If L1 bid is not a 'Class-I local supplier', 50% of the order quantity (this procurement being divisible in nature) shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the Class-I local supplier's quoted price falling within the margin of purchase preference (20% as prescribed by DIPP OM dated 04.06.2020), and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accept less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L1 bidder.

c. IMD shall evaluate the technically qualified financial bids for deciding lowest bidder (L-I) on the basis of landing costs of the store including cost of dismantling, packing and transportation of old radars plus all applicable taxes/levies/duties etc.

d. The cost of CAMC charges etc. will be added to evaluate financial bid for deciding lowest bidder L-1. Charges Werner clinmen

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towards Insurance, Freight and transportation of goods up to delivery at sites etc. applicable.

e. IF ANY CHARGES ARE NOT INDICATED SPECIFICALLY AND SEPARATELY IN THE BID, SAME WILL BE TREATED AS INCLUSIVE.

f. All the bidders must submit their financial quote in Indian Rupee only.

12. Packing and Marking:

The packing for the goods provided by Successful bidder should be strong and durable enough to withstand, without limitation, the entire journey during transit including transshipment (if any), rough handling, open storage etc. without any damage, deterioration etc.

13. Inspection, Testing and Factory acceptance test (FAT):

a) IMD reserves the right to conduct the FAT/inspect goods at factory site/supplier site before their dispatch if required or as mentioned in technical requirement (TENDER DOCUMENT) section.

b) FAT shall be undertaken by IMD for all the radars manufactured and to be delivered, based on mutually acceptable terms and condition. FAT may be conducted in lots if required.

c) Goods accepted by IMD/consignee and/or its inspector at initial inspection shall no way dilute purchaser's/ consignee's right to reject the same later, if found any deficient in terms of the clauses of the contract.

d) The equipment will be accepted subject to final inspection and test on commissioning and before handing over the equipment to consignee at the site.

e) During FAT, cost of travel, per diem charges and charges for boarding/lodging for IMD personnel (Maximum 5 persons) will be borne by IMD, Government of India.

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CHAPTER-2

Conditions of Contract (CoC)

Bidder shall have to agree/accept all the terms and conditions of tenders including payment terms etc. Acceptance shall be unconditional and bidder shall have no claim and right in future on their terms if any.

NOTE: Whenever there is any conflict between the provisions in the GCC regards to specific Para under "List of requirements/ technical specifications", the provision contained in the "List of requirements/ technical specifications" shall prevail and have an over-riding effect.

Any Special instructions as per "List of requirements/ technical specifications" section will also apply for this purchase.

The conditions (like qualification criteria, delivery schedule, mode of delivery & sites of delivery etc.) mentioned in "List of requirements/ technical specifications section" etc. will also apply for this purchase.

The date of installation of each Radar at different places may vary and accordingly its commissioning date may very which will result in different warranty period and different CAMC period of all 4(Four) Radars. This factor shall be taken in to account while devising the contract clause, warranty clause, CAMC clause and especially in the payment terms and conditions as mentioned in RFP.

1. Tender Validity:

The tenders shall remain valid for acceptance for a period of 180 days (one hundred eighty days) after the date of tender opening prescribed in the TE document.

Purchaser's Right to accept any tender and to reject any or all tenders:

IMD reserves the right to accept in part or in full any tender or reject any tender without assigning any reason or to cancel the tendering process and reject all tenders at any time, prior to award of contract, without incurring any liability whatsoever to the affected bidder or bidders.

3. Tender Fee:

No tender fee is charged for the downloaded and e-tenders.

4. Price preference:

 a) Price preference shall be given to Micro and Small Industries only those registered as manufacturers for "weather radar equipment" as per requirement of tender

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document with National Small Industries Corporation or any government agencies as per other the latest guidelines/orders from Government of India.

- b) With respect to (a) above purchase preference and quantity etc. shall be decided as per the Government of India orders.
- c) The bidders shall have to upload and submit the copy of valid registration certificate. Micro and small Enterprises are exempted from submitting fees/cost towards tender document and submission of earnest money deposit (EMD), also known as security deposit.
- d) Micro and small Enterprises are not exempted for performance security or Bank Guarantee (BG) and have to furnish performance security if contract is awarded to them. There is no relaxation in this regard.

Qualification criteria for Bidders: 5.

I. Eligibility

a) Bid is open to all manufacturers of weather radars in India. The bids are only open for Class I local supplier and class II local suppliers. Purchase preference would be available for Class I local supplier. As per Govt. of India Procurement Policies:

"Class-I Local supplier" means a supplier or service provider, whose goods or service offered for procurement, has local content equal to or more than 50% as defines as prescribed in DIPP Order No.P-45021/2/2017-PP (BE-II) dated 4th June, 2020 or by the competent Ministries/Departments in pursuance of this order.

"Class-II Local supplier" means a supplier or service provider, whose goods or service offered for procurement, has local content more than 20% but less than 50% as defined as prescribed in DIPP Order No.P-45021/2/2017-PP (BE-II) dated 4th June, 2020 or by the competent Ministries/Departments in pursuance of this order.

"Local content" means the amount of value added in India which shall, unless otherwise prescribed by Nodal Ministry, be the total value of the items procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.

b) Provisions of the Public Procurement (Preference to Make in India) order issued by the Department for Promotion of Industry and Internal Trade, Govt. of India, vide OM No. P-45021/2/2017-PP (BE-II) dated 4th June, 2020 and 16th September, 2020 shall be applicable in the tendering process.

c) As described in DIPP OM No. P-45021/2/2017-PP (BE-II) dated 15th June, 2017, "A supplier or bidder shall be Whenwer

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considered to be from a country if (i) the entity is incorporated in that country, or ii) a majority of its shareholding or effective control of the entity is exercised from that country; or (iii) more than 50% of the value of the item being supplied has been added in that country. Indian suppliers shall mean those entities which meet any of these tests with respect to India."

d) The prime bidder, hereinafter referred simply as the 'The bidder'. Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by IMD to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation of Bids.

e) Bidders who fulfill the Eligibility Criteria mentioned in Chapter-2, clause-5, will be considered for Technical Evaluation of bids.

f) Bidders should have proven capabilities in manufacturing Doppler weather radars.

g) The Bidder should not be blacklisted by any Central/State Government Department/Organization/PSU as on the date of submission of bid. Undertaking as per Annexure-XI of Chapter-5 to be submitted.

II. Manufacturing capability

Along with all the necessary documents/certificates required as per the tender conditions, the bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity (both technical and financial), for manufacture and supply of the required goods/equipment, within the specified time of completion, after meeting all their current commitments.

Supporting documents submitted by the bidder must be certified as follows:

All copies of supply/work orders; respective completion certificate and contact details of clients; documents issued by the relevant Industries Department/ manufacturing license; annual report, etc.

III. The bids are open only for Class I local supplier and class II local suppliers as specified in Chapter 2, clause I. Eligibility under Para 5, Qualification criteria for Bidders.

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IV. Creditworthy report

The Creditworthy Report of the OEM / Principal supplier for the Current Financial Year is to be enclosed along with the Technical Bid. The minimum rating for Financial Qualification is Rating-Ba.

The creditworthy report obtained from a reputed and Govt. of India recognised firm shall only be acceptable. However, report should have been obtained after 31st March, 2022.

V. Experience and Past Performance:

The bidder shall satisfy the following criteria to qualify during the last ten years from the date of submission of bid.

Must have executed successfully at least one supply order of similar Doppler weather radar.

In support of experience, past performance and capacity/ capability should be authenticated by the person authorized to sign the tender on behalf of the bidder. Original Documents must be submitted for inspection, if so demanded.

V. Financial Standing - under all conditions

Bidder should submit individual statement confirming compliance to all of the following with documents.

- a) The average annual financial turnover of 'The bidder' during the last Five years, ending on '31st March, 2022, should be at least twenty five crore (Rs. 25 Crore). In this regard audited annual balance sheet and profit or loss statement/reports, duly authenticated (by a Chartered Accountant/Cost Accountant in India or equivalent in relevant countries) of last Five consecutive years shall be submitted along with technical bid. The profit/loss statement should categorically indicate profit or loss for each year.
- b) Bidder firm should not have suffered any financial loss for more than one year during the last Five years, ending on the 31st March, 2022.
- c) The net worth of the Bidder firm should not be negative on 'The 31st March, 2022' and also should have not eroded by more than 30% (thirty percent) in the last Five years, ending on 'The 31st March, 2022.
- d) Bidders who have been restructured by Banks in India, under the statutory guidelines, they would be deemed to have qualified the financial standing criteria considering the institutional financial backing available to them.

VI. Applicability in Special Cases:

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(A) Applicability under 'Make in India'

Bidders who have a valid/approved ongoing 'Make in India' agreement/program with Government of India and who, while meeting all other criteria above, would also be considered to be qualified provided:

- i. Their foreign "Make in India" associates meet all the criteria above without exemption, and
- ii. The bidder submits appropriate documentary proof for a valid/approved ongoing 'Make in India' agreement / program.
- iii. The Bidder furnishes along with the bid, a legally enforceable undertaking, jointly executed by himself and principals, for manufacture, supply (and erection, commissioning) and performance of the product offered including all warranty obligations as per the general conditions of contract.

As prescribed by the Department for Promotion of Industry and Internal Trade, Govt. of India, vide OM No. P-45021/2/2017-PP (BE-II) dated 4th June, 2020, bidder shall be required to provide following (at the time of bidding) for verification of local content:

- 1. The 'Class-I local supplier'/ 'Class-II local supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide selfcertification (as per Annexure-XIII) that the item offered meets the local content requirement for 'Class-I local supplier'/ 'Class-II local supplier', as the case may be. They shall also give details of the location(s) at which the local value addition is made.
- In cases of procurement for a value in excess of Rs. 10 2. Crores, the 'Class-I local supplier'/ 'Class-II local supplier' shall be required to provide a certificate from the statutory or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

6. Contact Details:

The complete name and address of the Indian bidding firm along with permanent income tax account number (PAN) as allotted by the Indian Income Tax authority must be submitted.

7. Earnest Money Deposit (EMD):

The bidder shall furnish along with its tender, earnest money for an amount as shown in the Notice Inviting Tender (NIT). The earnest money is required to protect the purchaser against the risk of the tenderer's unwarranted conduct.

a) The bidder should enclose bid security (EMD) in the form of Wermen uniter Account Payee Demand Draft, Fixed Deposit Receipt, Banker's

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Cheque, Bank Guarantee (As per Annexure-III), Insurance Surety Bond from any of the Commercial Banks drawn in favor of DDO, O/o DGM, IMD, New Delhi.

- b) The tenders without EMD shall be summarily rejected. No exemption for EMD will be entertained. The EMD of the unsuccessful bidders shall be returned without interest after award of work to the successful bidder. The EMD of the successful bidder shall be returned only after the signing of the contract along with performance security deposit. The EMD stands forfeited in case the bidder withdraws or amends his bid after submission of tender document and tender closing date/time. (CPPP permits bid modification before bid closing date/time).
- c) In addition to the above "Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME)" are exempt from submission of EMD (Bid security).
- d) Bidders claiming exemption of EMD under this rule (170 of GFR) are however required to submit a signed Bid securing declaration (as per Annexure-XVI) accepting that if they withdraw or modify their bids during the period of validity, or if they are awarded the contract and they fail to sign the contract, or to submit a performance security before the deadline defined in the request for bids document, they will be suspended for the period of 03 years from being eligible to submit bids for tenders with India Meteorological Department.

8. Refund of EMD:

- a) EMD of the unsuccessful bidders will be returned to them without any interest, after expiry of the tender validity period.
- b) EMD of the successful bidder will be returned without any interest, after receipt of performance security from the successful bidder.
- c) Successful bidder shall submit pre-receipt for obtaining back their security.

9. Forfeit of EMD:

- a) Earnest money of a bidder will be forfeited, if the bidder withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender or if it comes to notice that the information/ documents furnished in its tender is incorrect, false, misleading or forged without prejudice to other rights of IMD.
- b) The successful bidder's earnest money will be forfeited without prejudice to other rights of Purchaser if supplier fails to furnish the required performance security within the specified period.
- c) Firm shall have to extend the validity of EMD if extension of tender validity is agreed on the request of purchaser in manner exceptional cases. Ulmater

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10. Performance Security:

A. Submission

Successful bidder shall submit performance security as per Annexure-IV, within thirty (30) days from date of dispatch of award of contract by IMD or within twenty one (21) days from the receipt of contract agreement by Successful bidder whichever is earlier.

- a) IMD may consider annulment/cancellation of award of contract if performance security not received in stipulated time.
- b) There is no relaxation/exemption in submitting of performance security.
- c) Successful bidder, shall furnish performance security to IMD for an amount equal to ten percent (10%) of the total value of the contract excluding CAMC, or as applicable as per the office order / guidelines of Ministry of Finance with validity up to sixty (60) days beyond the warranty period.
- d) For CAMC, the prime Bidding Firm shall furnish performance security to IMD for an amount equal to five per cent (5%) of the total value of the equipment, valid up to sixty (60) days after successful completion of warranty period and the date of completion of all contractual obligations of CAMC by Successful bidder/service provider (TO BE SUBMITTED 30 DAYS BEFORE COMPLETION OF WARRANTY PERIOD).
- e) Performance Security has to be submitted irrespective of its registration in NSIC etc.
- f) Performance security is not relaxed to any bidder.
- g) The bidder should enclose Performance Guarantee in the form of Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque, Bank Guarantee, Insurance Surety Bond from any of the Commercial Banks drawn in favor of purchaser.
- h) In the event of any amendment issued to the contract, Successful bidder shall, within twenty-one (21) days of issue of the amendment, furnish the corresponding amendment to the Performance Security (as necessary), rendering the same valid in all respects in terms of the contract, as amended.

B. Refund

IMD will release the already submitted valid Performance Security without any interest to Successful bidder/service provider on completion of Successful all contractual obligations including the warranty and CAMC obligations. Successful bidder shall submit pre-receipt for obtaining back their security.

11. Terms of Delivery:

a) Goods shall be delivered by Successful bidder in accordance with the terms of delivery schedule specified in the contract on FOR basis.

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b) Bidder/bidders should not deliver the goods after the valid delivery period unless a prior written consent has been obtained from the competent authority of IMD.

12. Delivery schedule:

a) As per "List of deliverables (Annexure-VI)" under TENDER DOCUMENT-The Date, on which all the stores as per contract agreement have been supplied, installed and commissioned at each site of IMD shall be treated as the final date of delivery of stores for calculating liquidated damages etc.

b) Successful bidder is required to apply to IMD for extension of delivery period and obtain the same before dispatch. In case Successful bidder dispatches the goods without obtaining an extension of Delivery Period (D.P.), it would be doing so at its own risk and no claim for payment for such supply and / or any other expense related to such supply shall be against IMD.

13. Force Majeure:

- a) Force Majeure means an event beyond the control of Successful bidder and not involving Successful bidder's fault or negligence and which is not foreseeable. Such events may include, but are not restricted to, acts of IMD either in its sovereign or contractual capacity, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockdown, lockouts, and freight embargoes.
- b) If there is delay in performance or other failures by Successful bidder to perform its obligation under its contract due to event of a Force Majeure, Successful bidder shall not be held responsible for such delays/failures.
- c) If a Force Majeure situation arises, Successful bidder shall promptly notify IMD in writing of such conditions and the cause thereof within twenty one days of occurrence of such event.
- d) Unless otherwise directed by IMD in writing, Successful bidder shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
- e) If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side.
- f) There may be a Force Majeure situation affecting the purchase organization only. In such a situation the purchase organization shall take up with Successful bidder on similar lines as above menner for further necessary action.

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14. Warranty:

The on-site warranty shall be provided for 03 years. The quoted rate shall deemed to include the same.

- a) All supplied stores should be free from all defects and faults in material workmanship and manufacture.
- b) Goods should be of the highest grade and consistent with the established and generally accepted standards for material of the type used and in full conformity with the specifications, drawings, or samples and shall, if operable, operate as per rated parameters mentioned in this RFP.
- c) Successful bidder shall be bound to furnish a clear written warranty.
- d) Successful bidder will be required to replace defective goods at site, free of cost inclusive of all freight and handling charges.
- e) Successful bidder shall provide warranty certificate from the OEM for the goods along with date of manufacturing of stores/products.
- f) Successful bidder shall take over the replaced parts/ goods after providing their replacements and no claim, whatsoever shall lie on IMD for such replaced parts/goods thereafter.
- g) Custom duty charges, if any, for re-export/re-import of defective parts/repaired parts or replaced parts to the foreign supplier/bidder country for repairs etc. shall be borne by bidder only.
- h) Transportation cost for sending defective parts for repairs and sending back repaired or replaced one to IMD site(s), shall be borne by the bidder itself.
- i) Warranty shall be quoted as per IMD requirements i.e. three years after commissioning of the individual Radars, otherwise the Bid shall be considered as unresponsive.
- j) Other condition, if any, under warranty clause of "List of requirements/ technical specifications" section shall also be applicable.
- k) The maximum down time permissible is 5 days in each quarter (90 days), excluding period for preventive maintenance, for each radar.

15. Comprehensive Annual Maintenance Contract (CAMC) for Equipment and Software

- a) IMD/Consignee reserves the rights to enter into Comprehensive Annual Maintenance contract between Consignee (IMD) and Successful bidder after successful completion of warranty period.
- b) CAMC shall be for the maintenance of stores (all radar equipment and its accessories including software supplied by the bidder only). Prospective bidders are advised to quote accordingly and Warne Linner specifically.

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- c) Payment for maintenance contract is made on quarterly basis unless it is specified otherwise in the technical section.
- d) As per IMD requirements, year wise CAMC shall be quoted for 07 years after completion of 03 years warranty period, otherwise the Bid shall be considered as unresponsive. The minimum quote for each radar shall not be less than 4%, of the total cost of the complete system installed at respective sites.

16. Penalty clause/Liquidated damages clause (LD) for delayed delivery of stores & Services:

Successful bidder shall deliver the goods and perform the services (delivery, installation, acceptance/commissioning and training etc.) under the contract within the time schedule specified by IMD in the "List of requirements/ technical specifications" section and as incorporated in the contract agreement.

- a) The delivery date shall considered as the date on which all the items/stores/materials/services etc., have been delivered at site as per contract-agreement/Supply/Purchase order. Any delay shall be taken into account for penalty/LD purpose as per term/conditions of the contract.
- b) Penalty/Liquidated damages shall be calculated on the total contract price including the element of taxes etc., mentioned in the price bids.
- c) IMD shall, without prejudice to other rights and remedies available to IMD under the contract, deduct as penalty/liquidate damage (L/D) from the contract price, a sum equivalent to 0.5% (half percent of cost of stores) per week of delay or part thereof on delayed supply of goods and/or delayed services in deviation to the milestone in Delivery Schedule, mentioned elsewhere in the document, subject to a maximum of 10% of the total contract value.
- d) L/D shall not be imposed under force majeure conditions.
- e) Once the maximum penalty (L/D) is reached, IMD may also consider following:
 - i. Forfeiture of the performance security.
 - ii. Termination of the contract for default.
 - iii. Black Listing of the firm; if the firm will not adhere to the IMD terms and conditions of the contract.
- f) Successful bidder shall not be held responsible for delay in delivery of stores and their installation under the followings reasons:
 - Delay in providing Entry permits/Road Permits (if required) to Successful bidder by IMD.

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- ii. Delay in providing proper site(s) by IMD to Successful bidder, for installation of stores.
- Delay in providing No Objection Certificate (NOC), iii. required from any other government agency/agencies. Communication facility required for project to be provided to Successful bidder by IMD, if it is not the responsibility of bidder.
- g) Due to delay in any or all of the above conditions the prescribed date of delivery shall be extended by the number of days of delay.
- h) Successful bidder shall inform to IMD directly in writing regarding any delay on part of IMD.

17. Award Criteria and Tolerance Clause:

- a) The contract agreement shall be awarded to the eligible responsive BIDDER/tenderer, evaluated as the most economical, technically qualified and suitable to the requirements.
- b) IMD shall reserve the right to increase/decrease the ordered quantity by 25 (Twenty Five) percent at any time, till final delivery date (or the extended delivery date of the contract) without any change in the terms & conditions and prices quoted by the bidder subject to approvals from competent authority, by giving reasonable notice even though the quantity ordered initially has been supplied in full before the last date of the delivery period (or the extended delivery period).

18. Modification of contract:

If necessary, during the period of the contract, IMD may amend the contract, by making alterations and modifications within the general scope of contract and issue a written amendment in this regard to Successful bidder at any time.

19. Taxes and Duties in India:

A. Duties and Local Taxes:

- i.Bidder shall pay Work Contract Taxes (WCT), GST/IGST/SGST/ Service Tax and other taxes where applicable as per existing rules at that time.
- ii.Normally materials to be supplied to Govt. Department against Govt. contracts are exempted from levy of town duty, Octroi duty, terminal tax and other levies of local bodies. The local Town/Municipal Body regulations at times, however, provide for such exemption only on production of such exemption certificate from any authorized officer.
- iii.Successful bidder shall pay the Octroi, entry tax etc. if exemption certificate not agreed by local authorities and same may be got reimbursed from IMD on proof of payments to avoid delay in the supply of stores.

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Note: All payments due under the contract shall be paid after deduction of statutory levies at source (like ESIC, IT (TDS), GST, LBT / Octroi etc.), wherever applicable.

B. Supply of Road Permits by the indenter /consignee:

In all such cases where the requirement of Road Permit for entry of goods into a particular State is mandatory, the following provisions shall be strictly followed:-

- i.Successful bidder shall request the indenter/consignee for providing Road permit within 10 days of the signing of contract agreement/receipt of the Supply order.
- ii.Successful bidder shall furnish all the necessary information and documents in this regard to consignee.
- iii.On receipt of the above request from Successful bidder, IMD concerned shall arrange to provide the Road permit/way Bill in the prescribed form to Successful bidder within a maximum period of 20 days so that the same reaches Successful bidder before the dispatch of the stores.
 - iv.However, in cases where the Road permit/Way Bill is issued on proof of actual invoice of the material, IMD shall arrange to provide the Road permit/way Bill from appropriate authorities within a maximum period of 20 days from the receipt of invoice.
 - v.Successful bidder shall not be held responsible for any delay in supply due to non- supply/delayed supply of Road permit provided he applies for it in time.

C. Income Tax and service tax etc:

Tax deducted at source (TDS) shall be done before making payment to Successful bidder as per existing law in force. The bidder may visit website of Income Tax Department of India for details of Tax Liabilities, Rules, and Procedures etc.

The bidders shall have to provide their Permanent Income Tax Number (PAN), TAN and GST registration number.

20. Terms and Mode of Payment:

a) Payment towards dismantling of the old radar system at the site and Supply, installation and commissioning of the new radar systems:

I. Payment, as per term mentioned below, shall be made subject to recoveries, if any, by way of liquidated damages /penalty clause /TDS or any other charges as per terms & conditions of contract if not specified elsewhere in the document.

II. After completion of dismantling of the old radar system, packaging, transportation to respective IMD offices indicated in Annexure (XIV), thereafter full payment towards dismantling will be made.

III. a) Payment shall be made in lots as per site wise.

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- b) Sixty percent (60%) payment of the contract value will be made after receipt of the items and confirmation by local IMD offices at all IMD sites.
- c) Forty percent (40%) payment towards stores will be made after successful installation, endurance tests, completion of onsite training, commissioning and acceptance of the radar at each site.

b) Payment towards Comprehensive Annual Maintenance Contract Charges:

I. IMD will enter into CAMC agreement along with the SLA with Successful bidder at the rates as stipulated in the contract, after warranty period.

II. The payment of CAMC will be made after satisfactory completion of CAMC services on quarterly basis as per TENDER DOCUMENT terms and duly certified by IMD.

Successful bidder shall send its claim for payment in III. writing, when contractually due, along with relevant documents etc., duly signed and stamped with date, to IMD.

C) Following documents shall be submitted along with the Bills:

- I. Three copies of supplier's invoice showing contract number, goods description, quantity, unit price and total amount.
- II. Consignee Receipt Certificate in original issued by the authorized representative of IMD.

III. Copies of delivery Challan identifying contents of each package.

- IV. Inspection certificate by the nominated Inspection agency, if any. Insurance Certificate.
- V. Final Acceptance Report from consignee.

VI. Bills/invoices must be submitted separately for stores and services.

VII. The bidder shall submit following particulars of his bank account required for making payments.

(a) Account Number (b) Bank Name (c) Branch Name (d) Address (e) IFS code (f) MICR No. (g) Telephone No. (h) SWIFT code etc.

21. Termination of tender by IMD:

- a) From the time of submission of tender to the time of awarding the contract, if a bidder/firm needs to contact IMD for any reason relating to this tender enquiry and/or its tender, it should do so only in writing.
- b) In case a bidder/firm attempts to influence IMD in IMD's decision on scrutiny, comparison & evaluation of tenders and awarding the contract, the bid of said bidder shall be liable for rejection

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in addition to appropriate administrative actions being taken against that bidder, as deemed fit by IMD.

- c) IMD, without prejudice to any other contractual rights and remedies available to it (IMD), may, by written notice of default sent to Successful bidder, terminate the contract in whole or in part, if Successful bidder fails to deliver any or all of the goods or fails to perform any other contractual obligation(s) within the time period specified in the contract, or within any extension thereof granted by IMD.
- d) In the event of IMD terminating the contract in whole or in part, IMD may procure goods and/or services similar to those cancelled, with such terms and conditions and in such manner as it deems fit and Successful bidder shall be liable to pay IMD for the extra expenditure, if any, incurred by IMD for arranging such procurement at his risk and cost.
- e) If Successful bidder becomes bankrupt or otherwise insolvent, IMD reserves the right to terminate the contract at any time, by serving written notice to Successful bidder without any compensation, whatsoever, to Successful bidder, subject to further condition that such termination will not prejudice or affect the rights and remedies which have accrued and / or will accrue thereafter to IMD.

22. Arbitration clause:

- a) If dispute or difference of any kind shall arise between IMD and Successful bidder in connection with or relating to the extension of contract, the parties shall make every effort to resolve the same amicably by mutual consultations.
- b) If the parties fail to resolve their dispute or difference by such mutual consultation within twenty-one days of its occurrence, then, unless otherwise provided in the "List of requirements/ technical specifications" section either IMD or Successful bidder may give notice to the other party of its intention to commence arbitration, as hereinafter provided the applicable arbitration procedure will be as per Indian Arbitration and Conciliation Act, 1996.
- c) In the case of a dispute or difference arising between IMD/ Consignee and all bidder/suppliers relating to any matter arising out of or connected with the contract, such dispute or difference shall be referred to the independent arbitrator appointed by the Director General of Meteorology.
- d) The award of the arbitrator shall be final and binding on the parties to the contract.
- e) Each party shall bear its own cost.

23. Venue of Arbitration:

- a) The venue of arbitration shall be the place from where the contract has been issued, i.e., New Delhi.
- b) The contract shall be interpreted in accordance with the laws of India and jurisdiction shall be High Court of Delhi.

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24. Dismantling of the old Radar system :

The successful bidder has to dismantle the old radar system, transportation to sites as provided under Annexure (XIV) with packaging, labelling. A complete list of the items have to be provided along with the dismantled items.

25. List of Deliverables:

- a) The bidder shall submit the final list of Deliverables as given at Annexure-VI for all the stores, Hardware, Software items, subunits etc. and all other services which the bidder is going to offer in their technical proposal to meet the requirements under "List of requirement & Technical specifications" of this tender document.
- b) The list of deliverable shall be same as submitted in the price bid.
- c) The price bid shall not be considered if it is not matching with the "list of deliverable" submitted with technical-commercial bid document. Note: It is mandatory to mention the details of offered stores

Note: It is mandatory to mention the details of offered stores /items i.e. make, model and country of origin.

26. Terms & Conditions of Comprehensive Annual Maintenance Contract (CAMC):

- a) The CAMC includes all equipment installed at each site, equipment installed at control center and inclusive of all computers, peripherals, printers, radar and equipment spares, components, cables, connectors etc. and radar related materials like UPS, Three Phase Voltage Stabilizer, Radome etc.
- b) The removed/replaced defective material becomes the property of Successful bidder.
- c) The CAMC clause will be applicable for control center and equipment at individual radar sites.
- d) The CAMC will commence immediately after the expiry of the warranty period.
- e) The comprehensive maintenance contract includes preventive and corrective maintenance and free replacement of all types of the defective parts/devices and consumables including oil and lubrication.
- f) Successful bidder should submit a detailed CAMC plan including preventive maintenance schedule.
- g) The Successful bidder shall provide the details of its call center meant for booking the complaints along with the contact numbers like mobile nos., phone nos., mail address and names etc. of its service engineers.
- h) The radar shall be decommissioned for a period of two weeks for annual preventive maintenance and upkeep in a cyclic mode.

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- i) The Successful bidder's engineers attending to the system are required to make all entries of their work done and corrective measures taken by them with their signatures in the log book kept with the Radar station.
- j) Overall uptime of the system shall be at least 85 days in a quarter of 90 days.
- k) If there is a failure of the system for more than the criteria stipulated in (j) above then penalty will be applicable at the rate of 0.5% per day (calculated for CAMC value of that station) and part there of subject to maximum of 10% of CAMC charges for that quarter. Also CAMC period will be extended by the time the system was under failure and no payment for the extended period for CAMC will be paid to the contractor.
- 1) If the total failure duration (CONTINUOUS OR INTERMITTENT) extends beyond one month then the contract may be terminated at the discretion of competent authority of IMD and cost of its repair from alternate source will be recovered from the "Bidder" and performance security may be forfeited.
- m) Maximum two weeks shutdown for annual maintenance shall not come under the Penalty/LD clause.
- n) Radar down time due to external factors and severe natural calamity beyond human control shall exempt the penalty criteria as in clause (k) above.
- o) Successful bidder shall deploy trained manpower at each site preferably Graduates in Engineering in Electrical / Electronics / Communication for operational and maintenance for round the clock support.
- p) Date of commencement of preventive maintenance period of the individual radars shall be fixed by mutual consultation with IMD.
- q) The mode of payment will be quarterly and will be made after end of each quarter on the basis of satisfactory performance certificate from UAID, IMD at New Delhi.
- r) Successful bidder will assist IMD for regular backups of all the software.
- s) The Successful bidder is also required to restore the existing Software from the Backups whenever required.
- t) Successful bidder will also be responsible for configuring the networking components.
- u) CAMC contract will be signed with validity for seven years and renewed annually based on satisfactory performance. If required, contract may be extended by IMD. However, IMD reserves the right to terminate the contract at any time by giving three months of notice, if the performance of the system or the services rendered by Successful bidder is not found satisfactory.
- v) The Successful bidder has to submit an undertaking that it will not Wenned use IMD's data for any commercial purpose. Jonterry

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- w) Data of radar will not be copied or transmitted without permission from IMD.
- x) This contract shall be governed in all respects by Indian Laws.

CHAPTER-3

S-BAND POLARIMETRIC DOPPLER WEATHER RADAR SYSTEM SPECIFICATIONS

1. GENERAL:

The specifications described herein refer to S-Band (2700 to 2900 MHz) Dual Polarized KLYSTRON based Doppler Weather Radar including all peripherals, hereafter referred to as "The System". The System shall be capable of detecting and estimating meteorological parameters of severe weather phenomena.

The successful bidder has to dismantle the old radar system, transportation to sites as provided under Annexure (XIV) with packaging, labelling. A complete list of the items has to be provided along with the dismantled items.

- a) All the DWR systems to have following latest state of the art facilities for smooth operation of complete radar system and its accessories:
- 1) Two online UPSs, in redundant mode and each with minimum capacity of 20 KVA or more capacity required for continuous operation of entire DWR system, along with separate battery banks and changeover facility for switching to standby UPS, to run the whole radar system for at least 30 minutes. Catering to required voltage stabilization with a power factor suitable for the system. NTP clock based on GPS for system clock time synchronisation of the radar and the connected computers in the radar network.
- 2) Three Phase Air Cooled Servo Voltage Stabilizer capacity of 65 KVA, automatic, I/P Voltage (phase to phase) 240-480, O/P Voltage 415(phase to phase) with digital display.
- Communication hardware and accessories for data transfer to central location.
- The system will have dual polarization capability by simultaneous transmission and receive in both linear Horizontal and Vertical polarization.
- The system shall have user selectable Single polarization and Dual polarization mode of operation.
- Latest state of art computer system shall be used for the generation of data and its processing.
- The entire operation of the System shall be fully computer controlled and remotely manageable.
- The tentative locations for installation of the systems are mentioned in Annexure-VIII.
- 9) The quoted software should be in use in any operational weather services in the world to fulfill the functional requirements along with capabilities which have been specified elsewhere in detail.

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- 10) At the time of supply of the stores, the latest state of art computer system and latest version of software shall be provided for the generation of data and it's processing, with OEM Licensed Version of Linux / Windows Operating System.
- 11) All equipment shall be of industry standard so as to enable easy up-gradation and maintenance.
- 12) Manufacturer shall submit the full details of the hardware, including make, model numbers and the software proposed to be employed for meeting the requirements given herein.
- 13) Central server at Delhi for processing the radar data from all four radars to be provided.
- 14) Facility for radar data analysis and products generation at each of the sites inclusive of automatic dissemination of warnings and alerts are to be provided by the bidder.
- 15) Display of all radar data/products as per IMD requirement such as reflectivity, rainfall rate, horizontal winds at designated height, warnings etc., to be overlaid on GIS map.
- 16) Web access to GIS based radar products display to be provided using web browsers such as Microsoft Internet Explorer, Firefox, and Chrome etc.
- 17) GIS based display should be accessible over the network through VPN or Internet.
- 18) The bidder has to clearly specify the way of achieving the sensitivity & detection capability (with ref. to OVERALL SYSTEM REQUIREMENTS) with supportive documents of claim and appropriate The calculations for achieving the required calculations. operational characteristics such as scanning capabilities, maximum range, maximum velocity, sensitivity and clutter suppression have to be provided. Confirmation with supporting images, test printouts etc., are to be provided.
- 19) Lightning protection is to be provided for ensuring safety of the system and all building mounted elements by way of grounding cable through ground bar or other best suited mechanism. (Grounding of building shall be independent of grounding of its equipment and DG set etc.)
- 20) The supplied UPS, Three Phase Voltage stabilizer etc., should have AMC/CAMC service support facility in India.
- 21) IMD will take possession after appropriate test and evaluation meeting the IMD specifications and accept the radar system after commissioning.
- 22) It is the responsibility of the bidder to bear all the expenditure to operate the radar including manpower requirements, security and all radar peripherals till successful acceptance and commissioning.
- 23) Transportation from the factory to the site will be the responsibility of the bidder. Similarly safe transportation of the dismantled Radar to storage location will be the responsibility of the bidder.
- 24) The entire work of installation and commissioning of the radar has to be carried out by the successful bidder.
- 25) The network link between the systems and central server will be provided by IMD, bidder shall suggest suitable bandwidth for real time system control, monitoring and near real-time receipt of data at central locations for generating composite images and products of all the radars.
- 26) a) The price bids of technically qualified bidders alone shall be Werned similary opened for evaluation on a date notified after evaluation of the techno commercial bid.

IMD shall evaluate the price bids of technically qualified vendors for deciding lowest bidder (L-1) on the basis of total landed cost at site including cost of all the deliverables as per tender document and all prevailing taxes and duties and any other charges as demanded by the vendor.

b) The project to be executed on a turnkey basis. The original equipment manufacturer (OEM) or the tenderer hereinafter called "the Supplier" will be responsible for the entire setup starting with dismantling, supply, transportation, installation, site acceptance, Training at OEM site / site of installation, commissioning and all hardware and software maintenance support at site during the warranty period of the equipment cited under the RFP.

2. Scope of tender:

The tender is for procurement of four S-band Polarimetric Doppler Weather Radar for replacement of existing S-Band DWRs installed at four specified locations in India. The Supplier shall provide the complete turn-key solution for dismantling, packing and transportation of old DWRs and to be kept at safe place provided at concerned IMD offices given under Annexure (XIV) and supply of new radar system (all hardware, software and accessories etc.) as per tender requirement, transportation, installation & commissioning and acceptance of complete radar system for smooth operation at all four sites. Training at factory site and at the site of installation for hardware and software maintenance support to be provided as per terms and conditions of the tender.

During the warranty period the complete radar equipment along with its accessories to be maintained and monitoring of weather and to generate necessary radar data and products to be utilized by weather forecasters for issuing weather forecasts, warnings, high impact weather events; monitoring and use in NWP data assimilation for now casting etc. on round the clock basis to be done by the tenderer.

3. Brief list of Requirements:

- 3.1 All four existing old S-Band DWRs to be dismantled, packed, transported and to be kept at safe places as per Annexure (XIV).
- 3.2 Doppler Weather Radar as specified under following para "Overall System requirement".
- 3.3 Software for operating, maintaining and generating data and products.
- 3.4 Standard Tools and Test and measuring equipment sets along with all accessories required for complete set-up as per Annexure-XV; to be provided at each site for testing and measuring radar parameters/offline calibration of radar.
- 3.5 Data dissemination facility / Networking.
- 3.6 Training to be provided for operation and maintenance of

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the radar system at Factory site and installation sites. 3.7 Warranty for three (03) years period.

3.8 CAMC for Seven (07) Years after warranty.

4. OVERALL SYSTEM REQUIREMENTS:

IMD requires S-Band Dual Polarized Doppler Weather Radar Systems with KLYSTRON based transmitter as mentioned in Table-1

S. No	General			
4.1	Range of observation	Range of observation a. Reflectivity-> 500 Km		
		b. Velocity & spectrum width- 250 Km		
4.2	Range resolution	a. Reflectivity- Equal or better than		
		150 m		
		b. Velocity & spectrum width-Better		
		than 150 m		
4.3	Max. Unambiguous	1) Consistent with PRFs specified below		
	Range	S1. No 4.12;		
		2) 2 nd trip echo recovery and multi trip		
		echo filtering provision to be present		
4.4	Unambiguous Velocity	1) Consistent with PRFs specified below		
		S1. No 4.12;		
		2) Ambiguity Resolution up to four		
		times the Nyquist velocity		
	Batasti an anabi litera			
4.5	Detection capability	13 dBz or better at 230 Km range		
4.6	VSWR	1.25:1		
4.7	Sector Blanking	As radars are to be installed on		
	capability	existing buildings then radar should		
		have capabilities to block		
		transmissions in predefined sectors in		
		azimuth and elevation.		
4.8	Scan time	10 elevation volume scan with all base		
		moments acquired in 8 minutes or		
		better.		
		Transmitter		
4.9	Туре	Klystron		
4.10	Frequency Range	2700 MHz to 2900 MHz		
4.11	Peak Power	Higher than 500 KW at antenna feed for		
		single polarization and 250 kW in each		
		horizontal and vertical Feeds		
		Required to meet 13 dBz at 230Km as per		
		Point No.4.5 above.		
4.12	Pulse Repetition	Variable 250 to 1200 Hz subject to duty		
	Frequency	ratio of transmitting device		
4.13	Pulse width	0.5 to 2.0 uSec		
4.14	Duty ratio	Up to 0.002		
4.15	Modulator	Solid State		
4.16	VSWR (Voltage	1.25:1 maximum		
	Standing Wave Ratio)			
		Antenna		
4.17	Antenna	Horn feeds for simultaneous horizontal		
110100	1999 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	and vertical linear polarised radiation		
		onto parabolic solid surface reflector.		
	1	and purchase sound burnes reactory		
		unier unier		

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4.18	Cross polar	> 30 dB	
4 10	Boam pattern	Pottor than 0.1 day /Uppingtal and	
4.19	Beam pattern	Better than 0.1 deg (Horizontal and	
4 20	Coincidence	vertical)	
4.20	Side lobe	27 dB down from the main lobe to 12	
		then 40 dB	
4 01	Deem width	than 40 dB	
4.21	Beam width	1.0 of less	
4.22	Azimuth steering	360 With 10.05 accuracy and 0-6 rpm	
4.23	Vertical Steering	-2 to +92 with ±0.05 accuracy	
4.24	Polarization	Horizontal; Vertical & STAR Mode	
4.25	Scanning rates	Up to 6 rpm	
4.26	VSWR (Voltage	1.25:1 maximum (with radome) desirable	
	Standing Wave Ratio)		
4.27	Scan Strategy	Automatic change over between different	
		scan strategies shall be possible.	
		Radome	
4.28	Туре	Foam Sandwich, White colour	
		a) Type: Rigid spherical in shape	
		(curved panels) with adequate space for	
		maintenance personnel to enter and	
		work.	
		b) Roof hatch for maintenance of	
		obstruction lights and entry from	
		bottom; suitable portable ladder for	
		the purpose of maintenance.	
4.29	Wind load	Average 200 km /hr; gusting 250 km/hr	
4.30	Transmission loss	Less than 0.3 dB(one way)	
4.31	Wave guide	Material - brass or Aluminum	
4.32	Lightening	Lightening rod with dual ground wires.	
	Protection		
4.33	Obstruction lights	Twin Light System with solar powered &auto switch with long life lamps. Roof hatch for maintenance of obstruction lights and entry from bottom; suitable portable ladder for the purpose of	
		maintenance.	
		Beceiver	
	DD forest and	Receiver	
4.34	RF front end	Multichannel Digital receiver for Dual	
		Polarization (H&V), STAR mode operation	
4.35	Digitization	IF digitization Using Digital receiver	
		to generate I & Q signals.	
4.36	Noise figure	3.0 dB or better	
4.37	Linear dynamic range	95 dB or better	
4.38	Minimum Discernable	-107 dBm or better	
	Signal		
	Rada	ar Signal Processor	
4.39	Doppler processing	essing Pulse Pair and FFT (user selectable)	
4.40		a) Clutter Elimination for 50 dB or	
	Clutter suppression	 b) The system shall have provision for identifying and filtering non- meteorological echoes such as, Sea clutters, bird/insects, chaffs, etc. 	
4.41	Parameters to be	(a) Reflectivity (Z _n)	
4.41	ralameters to be	37 Werning and	

under
	measured and	• Dynamic range : 95 dB or better
	displayed	• Resolution : 0.1 dB Accuracy : <1dB
		(b) Radial Velocity $(V_{\rm H})$
		Max (Nyquist velocity) : isom/s Resolution : 0.1 m/s
		Accuracy : S1 m/s
		(c) Spectrum Width $(\sigma_{\rm H})$
		• Max : ±10m/s
		• Resolution : 0.1 m/s
		Accuracy: <2 m/s
		(d) Differential reflectivity (Z _{DR})
		• Dynamic range : -5 to 8 dBZ
		• Resolution : 0.01 db Accuracy :≤ 0.2dB
		(e) Differential phase (Φ_{DP})
		• Dynamic range: -180 to 180 deg
		• Resolution : 0.1 deg
		(f) Correlation Coefficient at zero
		lag (p _{HV})
		• Dynamic range : 0 to 1
		• Resolution : 0.005
		Accuracy:≤0.05
. 42	Calibration	a) Provision shall be made for programmable and auto run for absolute
		internal calibration to ensure
		at user defined intervals and display
		the current values to monitor the
		system health and accuracy of the
		radar.
		An external calibration through
		standard external equipment and
		dynamic range using standard coherent
		source and standard measuring
		equipment. Standard Tools and Test and
		measuring equipment sets along with all
		accessories required for complete set-
		at each site for testing and measuring
		radar parameters/offline calibration of
		radar.
		b) There should be a provision for
		automatic update of radar parameters.
		The calibration set up should be part
		i Receiver single point calibration in
		long and short pulse mode.
		ii. Transmitter peak power.
		iii.System noise figure
4.43	Sun calibration	 a) Automatic software driven and manual mode operation for verifying pointing
		and them
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4.44	Parameters to be measured and displayed	 b) The system shall be made to point towards sun or equivalent source for establishing the gain and pointing accuracy of the antenna; stability and reliability of receiver chain. c) Procedure shall be provided and to be demonstrated during FAT & SAT. d) Script based execution of such measurements and saving of results are expected as a part of such provision vide above Point-4.42 c).i, ii, iii. a. Reflectivity (Z), b. Radial velocity (V), c. Spectrum Width (σ), d. Differential reflectivity(Z_{DR}), e. Specific differential phase (K_{DP}), f. Differential phase (Φ_{DP}), g. Linear depolarization ratio (L_{DP}),
		 h. Correlation Coefficient at zero
4.45	Peripherals (All the Computer/ server shall be Intel Processor of 10 CORE 2.2 GHz base/ 3.2 Max, 13.75 MB Cache with the System memory-32 GB or better in latest computer server configuration.)	 a) Two Workstations (Main & Standby) of latest computer configuration at the time of delivery in terms of mother board chipset, Processor, processor speed, RAM size and speed, Ethernet speed/USB speed, VGA/DVI card memory and hard disk storage with 32" (inches) full UHD resolution, color LED monitor. Both Workstations shall be used for operation, control and monitoring with real time display of the radar; product generation and display of the data and shall have Raid Storage of the data to avoid any loss of data. b) Two workstations in redundant setup of latest configuration at the time of delivery in terms of mother board chipset, Processor, processor speed, RAM size and speed, Ethernet speed/usb speed, VGA/DVI card memory and hard disk storage processor with 32" (inches) full UHD resolution, color LED monitor. Both Workstations shall be used for networking/communication purpose. c) One workstation with the setup of latest configuration at the time of delivery in terms of mother board chipset. Processor processor speed (inches) full UHD resolution, color LED monitor. Both Workstations shall be used for networking/communication purpose.

		disk storage processor with 32"				
		(inches) full UHD recelution color IED				
		(inches) full ond resolution, color LED				
		monitor. This Workstation shall be				
		installed at New Delhi and use as				
		central server.				
		d) One portable computer (laptop) of				
		latest version/ configuration, capable				
		of handling functions of (a) & (b).				
		e) One 55" (inches) UHD 4k LED for real				
		time display along with computer of				
		latest configuration and processor to				
		display radar various products in				
		multiple windows				
		f) One destan computer of latest				
		configuration processor at the time of				
		delivery for monitories of moder and				
		delivery for monitoring of radar and				
		data products.				
		g) NAS storage with RAID with archival				
		for 05 years of data.				
		h) Provision for recording and playback				
		of offline data as well as storage o I&Q data.				
		i) Provision for remote radar control,				
		monitoring and operations.				
		i) All software licenses shall be				
		multi-user and open, within radar group				
		without any restriction/ hardware lock				
		/ soft- lock.				
		k) All the computer/severs must be				
		ensured to secured by providing				
		firewalls and antivirus software etc.				
		Power Requirements				
4.46	Power	3 phase 400 V ± 10 %V ,50 Hz ± 5 %Hz				
4.47	Operating	Indoor equipment: 15 to 30 deg C or				
	temperature	better Outdoor equipment: 0 to +55 deg				
		C or better All outdoor equipment shall				
		be protected from dust, rain, etc and				
		shall operate in all weather conditions				
		condensation				
4 48		Two online UPSs in redundant mode and				
4.40		each with minimum capacity of 20 KVA or				
		more capacity required for continuous				
		operation of entire DWR system, along				
		with separate battery banks and				
	Online UPS	changeover facility for switching to				
	provide and a second contract defined and provide	standby UPS, to run the whole radar				
		system for at least 30 minutes.				
		Catering to required voltage				
		stabilization with a power factor				
		suitable for the system.				
4.49	Three Phase Air	Three Phase Air Cooled Servo Voltage				
	Cooled Servo Voltage	Stabilizer capacity of 65 KVA,				
	Stabilizer	automatic, I/P Voltage (phase to phase)				

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		240-480, O/P Voltage 415(phase to
4 50		phase) with digital display.
4.50	Software	for data processing and display. The offered software should be in use in any National Weather Service as per Chapter-3, Clause No.1, (a)-9.
		Features
4.51	General	The radar system should be having required menu driven software with GUI controls for: 1. Operating the radar. 2. Setup of operational parameters. 3. Configuration of weather products. 4. Generation of alerts and warning, 5. Setup of communication channels. 6. Setup of display overlaid on map of India with political boundaries of international borders, states and district boundaries. 7. Automatic calibration for antenna, dynamic range, etc. 8. Monitoring the health of the radar using BITE. 9. The process of setup of various scar parameters should be easily accessible to operators using GUI. 10. Base Product display with zooming options, lat-long display, selectable parameter display and color coded 12. Simultaneous display of data having more than one parameter. 13. Requisite software protection for denying unauthorized access to be provided. 14. System should be operated remoter monitoring and control including equipment power supply 15. The base data (output of radar processor) shall be stores automatically on hard disk and NAS is compressed form. At least three month past data shall be available on the local computer disk at a time. 16. Radome should be Tuned A-typ sandwiched or equivalent, suitable fo operating in coastal / snow regions high altitudes. 17. The radome and radar antenn

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system shall be mounted on the roof top
building and other radar equipments
will be installed in the room below the
antenna. The complete Radar system
ready for operation to be delivered to
the consignee at all four sites.
Appropriate cemented concrete base,
hydraulic leveling arrangement (if
required), networking hardware, UPS
with batteries, Three Phase Voltage
Stabilizer etc., shall also be
provided.
18. Air conditioned equipment shelte
with adequate space for housing al
radar electronic equipment's, the wor
station, UPS. Three Phase Voltage
Stabilizer, stationery manuals tool
etc.
19. Lightning protection is to be
place ensuring safety of the eveter an
mounted elements by the way
grounding cable through ground har o
other suitable mechanism
20 The electrical earthing
(maintenance free) requirement o
various paripherals inclusive of radar
bas to be taken care and appropriat
has to be taken care and appropriat
early screamer emission righthing
counter along with deep chemical ge
councer along with deep chemical ge
he provided by the hidder
21 The project is to be executed on
turnboy basis and all itoms shall b
supplied and complete the installatio
and commissioning within the stinulate
time as mentioned in the origina
document
22 The supplied UBS Three Phas
Voltare Stabilizer etc. should have
voltage Stabilizer etc., Should have
service facility and spares back up i
22 All protochics for the property
service perceptie shall be provided i
the equipment have /fleers
24 The aptenna mount should be environ
24. The antenna mount should be equippe
with suitable leveling system to ensur
norizontal alignment of azimuth an
elevation axis. Suitable readers shal
be included with an accuracy of 0.
 degree or better.
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25. IMD will take possession of the
radar after commissioning. Cost
involved of the system (Radar,
inclusive of all the deliverables as
per this document) and operator till
then shall be borne by the bidder
including all consumables and supply of
diesel for the DG set.
26. Transportation from the factory to
the site will be the responsibility of
the bidder. Similarly safe
transportation of the dismantled radar
to the storage location will be the
responsibility of the bidder.
27. The entire site preparedness and
custom tuning/positioning is to be
fully borne by the bidder and the work
is to be undertaken by the bidder in
the presence of duly authorised IMD
engineers.
28. The entire work of installation and
commissioning of the radar has to be
carried out by the bidder, though IMD
may station few of its officials at the
site for guidance.
29. Communication hardware for data
transfer to central location.
The network link between the systems
will be provided by IMD; bidder shall
suggest suitable bandwidth for real
time system control and monitoring; a
depending composites of all the
radars.

5 ARCHIVAL OF RADAR DATA:

- a. The base data which includes Reflectivity, Velocity, Spectrum Width and Dual Pol. Parameters (output of radar processor) shall be stored automatically on hard disk. Network Attached Storage on RAID 5 with a usable capacity for five year radar data.
- b. A-4 size high resolution Ink tank Color Printer (600dpi) for taking hard copies of images and products shall be provided.
- c. External Blue ray DVD writer with 12 disks of dual layer Blue ray DVD R/W and 50 disks of Blue Ray DVD/R at each site to be provided.
- d. Provision to record, store(at least a full event spanning roughly 3 hours) and offline playback for analysis of I & Q data.

6. DATA FORMATS:

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6.1 Digital Data

- a) System should be capable of archiving of raw data (I & Q) and generating Polarimetric Doppler Weather Radar Base data and products in BUFR, NETCDF, HDF5, KML, KMZ formats and NEXRAD-Level II formats.
- b) Data should be converted from RAW, RAINFALL mm/hr, RAINFALL ACCUMULATED in mm, Horizontal winds at user selected levels in height, to Cartesian coordinates. Such data should also be available in HDF5, NetCDF.
- c) Stand-alone BUFR, NETCDF, HDF5, NexRAD-Level II encoding and decoding software on Licensed Linux/MS-WINDOWS platform should be provided. The software should be able to convert the radar data to formats as per user requirements and IMD specifications mentioned at 6.1(a) above.
- d) NetCDF format data shall be provided in NCAR CFRadial, and IMD-NetCDF format. Details of IMD-NetCDF format and BUFR-OPERA format file as required by IMD shall be provided to successful bidder for developing software applications.
- e) Existing central server system at IMD HQ, New Delhi is based on Vaisala (SIGMET) IRIS software for centrally generating various products including mosaic and various data formats from RAW data & data products. The successful bidder should provide necessary provision to ingest their radar data in a compatible format for use with already available central server at New Delhi.
- f) Data format if proprietary should be disclosed with decoding software codes.
- g) The successful bidder shall provide data format converter from Raw Data format as well as products to ASCII.

6.2 IMAGE DATA

The system should be capable of automatic generation of images in (JPEG, GIF, TIFF, PNG) format files for publishing on web site. Images should have high resolution for full HD displays and also for web pages. Following file naming conventions are to be implemented for automatic generation of images after completion of each volume scan.

a)	caz stn.gif	Max	Z	250	km	range
b)	ppz stn.gif	PPI	Z	5001	< m	
C)	ppz_stn.gif	PPI	Z	150	km	
d)	ppv stn.gif	PPI	V	250	km	
e)	vvp2 stn.gif	VVP		30	km	Range/ up to 10 km height
f)	sri stn.gif	SRI		150	km	k):
g)	pac_stn.gif	PAC	15	50 km	acc	cumulated rain for 24hrs

7. SOFTWARE FEATURES:

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- a) The radar system should be having required menu driven software with GUI controls as per the features mentioned in Chapter-3 Point no. 4.49.
- b) The System shall be capable of generating the following products from the base data output from the radar signal processor. Algorithms and references for all the products listed below and supplied should be provided.

7.1 BASE PRODUCTS

- a) The un-filtered I & Q data archival and playback facility to generate base products.
- b) The system shall generate base data comprising of Z, V, o and Polarimetric products after applying different corrections to raw data (like attenuation effect due to precipitation, earth curvature, range normalization, beam blockage, interference due to external sources, non-meteorological echoes, second-trip recovery, ground reflection, bright band correction, etc.)
- c) Products are to be generated based on user defined parameters already selected and stored in workstation and NAS against the various scan schedules.
- d) Provision also should be available to generate all products in offline mode using the archived raw data.

7.2 PRIMARY PRODUCTS

7.2.1 MAXIMUM DISPLAY (Z, V, σ)

The System shall compute and display maximum values of base data products (Z, V and σ) in horizontal (East West and North South) and vertical columns between users defined heights and also display the partial images in a single frame with side panel heights to a scale of 2km covering 0 -18 km.

7.2.2 PPI (PLAN POSITION INDICATOR) (Z, V, σ)

The system should be capable of generating the PPI product for all types of raw data at user selectable elevation angles from lowest to highest elevation in the scheduled scanning procedure.

7.2.3 CAPPI (CONSTANT ALTITUDE PLAN POSITION INDICATOR)

The System shall interpolate from the volume scan data set for a geohorizontal plane at user vertical defined height and display the same pertaining to user selectable data form Z, V and σ from 1 km to 18 km height.

7.2.4 PCAPPI (PSEUDO CAPPI)

The system shall incorporate data form the highest elevation scan near the radar and from lowest elevation scan for areas far away from the radar for which radar beams are not intersected by user defined plane for CAPPI and display same pertaining to data selected by user (Z, V and σ) from 1 km to 18 km height.

7.2.5 VCUT (VERTICAL CUT)

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The system shall interpolate all the base products (Z, V and σ) in any vertical plane passing through user defined two points and display the same for the user selectable parameters.

7.2.6 EBASE (ECHO BASE)

The system shall identify from the volume scan data the minimum height up to which the user defined threshold value for each base data exists and display them for user selectable data.

7.2.7 ETOP (ECHO TOP)

The system shall identify from the volume scan data the maximum height up to which the user defined threshold value for each base data exists and display them for user selectable data.

7.2.8 HAIL WARNING

Based on reliable hail warning algorithm, the system shall generate a hail warning symbol at the appropriate place in the PPI display in one or more of the operator chosen fields.

7.2.9 HYDROMETEOR CLASSIFICATION

The system shall be capable of generating a product for classification of hydrometeors based on Polarimetric parameters (Z_{DR}, Φ_{DP} , K_{DP} and ρ_{HV}). Provision for changing parameters in a scientific way for customization of the hydrometeor classification is required. Hail detection based on this classification shall be one of the products in this class.

7.3 DERIVED METEOROLOGICAL PRODUCTS:

7.3.1 VELOCITY PRODUCTS

- a) The system shall generate and display following velocity products:
- b) Radial velocity versus the azimuth for a fixed elevation and a fixed slant range (VAD).
- c) Radial velocity at a fixed user defined range on height and azimuth angles (Radial velocity display for fixed range, azimuth angles for various height and azimuth).
- d) Horizontal wind velocity and wind direction using barbs in a vertical column above the radar site for different heights including divergence & convergence product. (VVP 1)
- e) The vertical Profile of the horizontal winds derived from the Radial Winds within 30 km range of radar and 10 km height using standard algorithm in the form of Wind Barbs showing wind speed and direction in the time series manner for a user selectable time duration (VVP 2)
- f) Horizontal wind vectors (UWT) using barbs at user defined layer height with or without underlay of reflectivity or velocity in PPI / CAPPI format.

7.3.2 HYDROLOGICAL PRODUCTS:

The system shall generate and display following hydrological products:

a) Rainfall intensity using polarimetric moments as well as Z-R in a user selectable surface layer and constants with constant height

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above ground. Provision of specifying freezing layer height dynamically.

- b) Instantaneous estimation of water content (VIL) residing in a user defined atmosphere layer in the atmosphere to be displayed in PPI type of display.
- c) Precipitation accumulation (PAC) using polarimetric and Z-R in a user definable time period.
- A) Rainfall amount in user defined catchment basins for user defined time span.
- Provision for putting river basin map overlay as per user requirement.
- f) Rainfall intensity, rainfall rate and accumulation products shall have an option to be adjusted in real time by Rain Gauge, disdrometer data. Rain gauge and disdrometer data shall be displayed along with the radar data.
- g) Calibration of rainfall rate by appropriate rain gauge or disdrometer data shall be possible.
- h) The system shall convert data of reflectivity and polarimetric measurement to horizontal maps of rainfall intensity.
- The system shall be capable of generating precise rain rate information using combination of polarimetric parameters as well as Z(h).

The system shall use algorithm based on polarimetric parameters for correcting rain rate estimation errors arising out of hail, non-meteorological echoes and attenuation.

7.3.3 AVIATION PRODUCTS

- a) The system shall evaluate derivatives of wind velocity in radial, azimuth, elevation, North South, East West directions and derive horizontal, vertical and three dimensional shears
- b) The system shall also be able to generate warning product on microburst, meso-cyclones and wind shears beyond adaptable threshold levels.
- c) The system shall evaluate maximum turbulence within user defined atmospheric layer and display in top view.

7.3.4 WARNING AND FORECASTING PRODUCTS:

- a) System shall generate and Display Warning Products with suitable warning symbols for thunderstorm, hail storm, dust storm, mesocyclone, convergence, divergence and gust fronts and other severe weather phenomena.
- b) System shall be capable of evaluating speed and direction of movement of weather systems.
- c) System shall also be capable of warning if any of the conditions defined by the user are reached or fulfilled on reflectivity, velocity, VIL, rainfall intensity, rainfall accumulation and wind shear.
- d) System shall be able to detect tornado and gust fronts associated with storms and issue visual and text warning message.

7.4 ALPHANUMERIC PRODUCTS

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The system shall also be able to provide all the product data (i.e. base, primary and derived) in ASCII tabular form.

8. BUILT IN TEST EQUIPMENT (BITE).

A modern system making use of latest technology for continuous monitoring of the operational status of hardware and software functions and utilities of the radar system shall be supplied.

- a) BITE processor shall measure and process a number of real time analog and digital parameters in the radar system and generate and display the error message whenever their value falls outside the specified permissible range.
- b) BITE processor shall continuously monitor input and output signals of every module/PCB for any deviation from the standard values.
- c) Audio alarm indication for occurrences of faults is to be provided.
- d) Centralized monitoring of status of radars networked.

9. PROVISION FOR NETWORKING & COMMUNICATION SYSTEM FOR DATA TRANSFER TO CENTRAL LOCATION:

- a) Provision shall be made with suitable communication hardware & software for real time transfer of digital radar data and images generated in real time through networking to control and monitoring centre and central server at IMD HQ, New Delhi.
- b) All networking components required at radar site as well as command and control centre shall be provided by the successful contractor.
- c) Necessary interface shall be provided for sending radar data through GSM, VPN and internet.
- d) The control centre should be able to monitor and control the functions of the radar at all four sites. Data from respective radars under each centre will be utilized for real time display facility for monitoring the health parameters as well as the weather data acquired by radars in operational mode.
- e) The communication link will be provided by IMD. The successful contractor shall specify the bandwidth requirement.
- f) Deliverables for control and command centre are to be provided as per Annexure-VI
- g) The radar data is to be converted in a compatible format for use with already available central server of the existing Doppler weather radar network of IMD based on IRIS (SIGMET) software of M/S Vaisala.
- h) Data of all radars to be overlaid on GIS map with option to include underlay maps from Google, Open street map or ESRI, Arc GIS, etc.
- i) Boundary of states will be provided by IMD as shape files. Data of all radars to be overlaid on GIS map with option to include underlay maps from Google, Open street map or ESRI, Arc GIS, etc. GIS server with Open street map to be provided.

When The Products which are to be overlaid are:

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Reflectivity

Rainfall

Warnings based on Rainfall, Velocity, Hydrometeor Classification. Locally installed and accessible GIS server using Open street map to be provided.

11. INSTALLATION:

All installation related work including civil work shall be carried out by the bidder. However, IMD personnel shall be associated with the installation process. All installation materials required shall be supplied by the bidder.

- a) Successful contractor shall take into consideration that the radome and radar antenna system shall be mounted on the roof top building and other radar equipments will be installed in the room below the antenna. The complete Radar system ready for operation to be delivered to the consignee at all four sites. Appropriate cemented concrete base, hydraulic leveling arrangement (if required), networking hardware, UPS with batteries, Three Phase Voltage Stabilizer etc., shall also be provided.
- b) Walk/inspection space of about a meter width all around the radome base with a safety railing of 1.5m height is recommended for servicing of Radome. The railings should not degrade the signals of the radar during regular operations.
- c) The entire responsibility of civil construction/site preparedness for installation of the radar and its peripherals shall be the responsibility of the contractor.
- d) Pre-requisite for both civil & electrical requirements for installation of radar shall be clearly mentioned separately, inclusive of suitable diagrams of antenna & radome installations, along with the technical bid.
- e) The required number of electrical earthing based on latest technology i.e. Chemical Gel earthing or better technique is required for various peripherals inclusive of radar, has to be provided by the successful contractor.
- f) Suitable Lightning Arresters for protecting the radar with reliable lightning protection system with deep chemical gel and copper plate based earth pit shall be carried out by the contractor.
- g) Aviation warning indicator lamps shall be supplied and installed by the contractor on the top of the antenna/radome at appropriate height.
- h) All other requirements such as power and communication facility etc. will be arranged by IMD for enabling installation/ commissioning of radars of each respective site.
- i) IMD shall not facilitate the accommodation and transportation arrangements for the personnel of the installation team of the contractor.

12. LOCATION:

The list of tentative sites for installation of Radars is attached at Wennal Annexure-VIII. Mantenny

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13. TESTING AND ACCEPTANCE:

- a) The bidder shall submit detailed testing plans for Factory Acceptance Testing (FAT) for fully integrated radar system prior to shipment and Site Acceptance Test (SAT) after installation at site for system acceptance. The test plan shall require concurrence of IMD.
- b) During the FAT, cost of travel, per diem charges and charges for boarding/lodging etc. for IMD personnel (2 persons) will be borne by IMD, Government of India.
- c) The objective of the tests shall be the verification of performance of the system as per the specifications and functional requirements as per TENDER DOCUMENT.
- d) As per the mutually agreed test procedures, FAT shall be carried out at the factory premises prior to shipment. The equipment shall be shipped only after satisfactory conclusion of the pre-shipment acceptance testing (FAT).
- e) As per the mutually agreed test procedures, acceptance test should be carried out at each radar site after installation. Successful contractor shall arrange for necessary test equipment, man-power etc.
- f) Any defect/ deviation noticed during the site acceptance tests shall be rectified within a maximum period of one month from the completion of the tests. After such rectification, the tests shall be repeated to verify the rectification.
- g) Within 30 days of installation of each system, the successful contractor should secure acceptance (SAT) of the radar and its peripherals as a whole system.

14. SYSTEM COMMISSIONING:

After satisfactory completion of the site acceptance tests, the successful contractor shall demonstrate the reliabilities and capability of the system to be operated continuously and satisfactorily for a period of 15 days endurance test of the complete radar system, after which it will be said to be "Commissioned".

15. WARRANTY:

- a) Warranty shall remain valid for three years after the system has been commissioned and accepted by the IMD as per terms of the contract. The warranty shall also include all third party bought out items / subsystems including, Computers UPS and Three Phase Voltage Stabilizer, etc. OEM certification of warranty for the third party items is to be provided.
- b) This warranty clause is applicable to all individual radar sites.
- c) Upon receipt of notice about faults, successful contractor shall repair or replace the defective goods or parts thereof, free of cost, at the site.
- d) Successful contractor shall take over the replaced parts/ goods after providing their replacements and no claim, whatsoever shall lie on IMD for such replaced parts/ goods thereafter.
- e) The contractor shall supply the software updates, if any, during the warranty and CAMC period, free of cost.
- f) Contractor shall ensure 95% of 365 days annual-uptime excluding the 15 days of annual preventive maintenance period.
- g) If the successful contractor, could not meet the 95% annualuptime (calculated Quarterly at the time of payments) and there

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is a failure of the system for more than the criteria stipulated, then a penalty amount of 0.5% of the total equipment cost per seven days for that radar, for days it is down, will be deducted from the performance guarantee amount, subject to an upper ceiling of 10% of the total equipment cost during warranty period and 10% of the total CAMC cost during the CAMC period. Also CAMC period will be extended by the time the system was under failure and no payment for the extended period for CAMC will be paid to the contractor. Furthermore IMD may proceed to take such remedial action(s) as deemed fit by the IMD, at the risk and expense of the successful contractor and without prejudice to other contractual rights and remedies, which IMD may have against the successful contractor.

- h) Maximum two weeks shutdown for Annual maintenance shall not come under the clause. Delay due to external factors and natural calamity beyond human control will be exempted.
- i) During warranty period, the successful contractor is required to visit consignee's site at least once in three months commencing from the date of acceptance at site for preventive maintenance, calibration and various types of checks of the goods/ equipment and a detailed report consisting of all test procedure values etc. must be submitted at Upper Air Instrument Division (UAID), India Meteorological Department, New Delhi along with satisfactory certification by the UAID (IMD).

16. TRAINING:

- a) Successful contractor shall provide factory training in operation, maintenance, calibration and fault identification of the radar system along with modification & up-gradation in application software to 4 persons from IMD at the factory premises for a period of 4 weeks.
- b) During factory training, cost of travel, per diem charges and charges for boarding/lodging for IMD personnel will be borne by IMD, Government of India.
- c) The training shall also include lectures on the system design, computer hardware/software, operation and such other aspects which are considered essential for optimum utilization of the radar system.
- d) Onsite training at four radar sites for a period of five working days and at one site of central server location at Delhi for a period of three working days in operations and first level fault identification to be provided for at least 5 IMD persons at each site.

17. DOCUMENTATION:

- a) Successful contractor shall furnish two copies of the following documentation in well-bound sets/volumes of good print quality for each radar site and two copies of the same to Radar Unit, UAID, New Delhi.
- b) Soft copy of all the manuals should also be provided along with hard copy.
- c) All standard manuals, technical data sheets and other pertinent information of functional, electrical and mechanical modules used in the System shall be included in the manuals.
- d) Interface connectivity document has to be provided for hardware as well as software interfaces.

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- e) Detailed documentation of all the proprietary data formats, bitby-bit information on the header and data patterns should be provided.
- f) Free updates made to firmware, processing software and clarifications should also be supplied with relevant documentation during the period of warranty and CAMC thereof.
- g) The system functional block diagram shall be laid out so that a user can readily understand and identify the major functions of the system.
- h) The operating instructions shall include routine procedures, safety and emergency procedures as applicable. These instructions shall include switch-on, standby, normal operating procedures and switch off procedures. The sequence of turn-on procedures shall be optimized for remote switching ON/OFF.
- The instructions shall provide assistance to an operator to use the System for optimum performance.
- j) Sufficient illustrations shall be included to identify and locate all operating controls and indicating devices.
- k) Layout and Schematic Assembly Drawings: Schematic Diagrams of all assemblies, modules shall be provided.
- Parts List: Detailed parts list with part numbers shall be provided.
- m) Algorithm of Products: The algorithms used in product generation shall be supplied.
- n) It shall be the responsibility of the successful contractor to provide detailed parts list of modules sourced. List of items imported and incorporated in the system should also be provided separately. Only such items may be used in the system whose technical details are made available by the manufacturer.

18. DELIVERY SCHEDULE:

- a) First radar to be installed, accepted and commissioned within 13 months from the date of issue of contract agreement. Rest of the radars shall be delivered, installed and commissioned within 22 months from the date of issue of contract agreement in a phased manner. In this regard the contractor will submit the actual schedule along with time line for execution of installation and commissioning work for each radar.
 - Supply of all stores (for first radar) at site within a period of 10 months from issue of contract agreement.
 - ii. Installation of all equipment to test the first radar within 02 month after supply of equipment.
 - iii.Acceptance and commission of first Radar within 01 month after installation.

b) <u>Preliminary Design Review</u> (PDR) will be held after one month from the date of signing of contract agreement where-in the design of hardware & software to be delivered as part of the system will be discussed at the office of UAID, IMD, New Delhi (India).

c) <u>Critical Design Review</u> (CDR) will be conducted within six months from the date of issue of contract agreement where-in the design along with performance parameters of the sub units will be discussed

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in detail to ensure that the system achieves the performance parameters to be delivered as per TENDER DOCUMENT.

19. PENALTY CLAUSE/LIQUIDATED DAMAGES CLAUSE (LD) FOR DELAYED STORES & SERVICES:

The LD will be imposed if delivery schedule is not met as given under Chapter 2(Conditions of the Contract) in Clause No. 15 and Clause No. 20.

20. COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (CAMC):

- a) The contractor shall quote for CAMC for seven years which will commence subsequent to successful completion of warranty period of three years.
- b) The contractor shall submit year wise lump sum amount of CAMC charges for each radar/site.
- c) The amount charged for CAMC shall not be quoted as percentage of the tender cost / cost of equipment.
- d) The CAMC charges shall be included for price comparison. The terms & conditions for the CAMC are enclosed at Annexure -V.

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CHAPTER-4 PRICE SCHEDULE (Financial Bid format)

S. No	Name of Item/Store	Quantity	Model Number/Co untry of	Base price	Applicable taxes	Unit & Price	Total
		Con - Miles 1	origin		duties	5+6	(3x7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dismantling of old S-Band radar at site and Supply, Installation and Commissioning of S-Band dual polarized KLYSTRON based Doppler Weather Radar system including all units/sub units and accessories as follows:	4 Sets					
1	Transmitter	4					
2	Receiver	4					
3	Antenna control unit and Radar control unit	4					
4	Radar signal processor	4					
5	Radome, Antenna & Antenna Pedestal	4					
6	Peripherals at 4 sites as per detail at 4.45 (Peripherals).	4					
7	Radar Application and Operating Software	4					
8	Peripherals as per detail at 4.45 for one central server at Delhi.	1					
9	Server with Web GIS at 4 sites & 1 at control command center server at Delhi.	5					

11	Acceptance testing (Site)	4			
2	Installation	4			
3	Services	4			
.4	Products (Software)	4			
.5	Any other unit/subunits/ item not listed above but required for functioning of DWR shall also be included	4			
6	Installation material	4			
17.	Documentation both hard copy and soft copy - Two copies at each site and two copies at HQ	10			
.8.	Communication hardware/ software for data transfer to control center location.	5			
.9	Standard Tools and Test and measuring equipment sets along with all accessories required for complete set-up as per Annexure-XV; to be provided at each site for testing and measuring radar parameters/ offline calibration of radar.	4			
0	Onsite training at four sites for a period of five working days and at one site at Delhi of central server location (for a period of three working days) in operations and first level fault	5			

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1	identification to					
	be provided for at					
	least 5 IMD					
	persons at each					
	site.					
	Note: Expenses for					
	trainage such as				1.1.1	
- 1	crainees such as					
i	airiare , lodging					
	and per diem to be					
	borne by IMD					
	Successful	1			-	
ļ	contractor shall					
- [provide Feeteru					
ł	provide lactory					
	training in					
	operation,					
	maintenance,		 			
	calibration and					
	fault					
1	Lault					
	identification of					
	the radar system					
ļ	along with					
	modification 6 un-					
. [modificación a up-					
	gradation in					
- 1	application					
	software to 4					
	persons from TMD					
	at the factory					
1	at the factory					
1	premises for a					
þ	period of 4 weeks.					
1						
	Note: Expenses for					
	trainees such as					
	airfare , lodging					
	and per diem to be					
	borne by IMD					
-	Seven (7) veare		 			
ľ	(Veen used)					
	(rear-wise)					
	comprehensive					
	Annual Maintenance					
	Contract (CAMC)					
	(for all radar					
	sites and central					
	sarvar) after the					
Ì	server, arter the					
1	expiry of 3 years					
1	warranty period		 			
6.	1 st Year CAMC					
-						
ł	2nd Vear CAMC					
	2 IGAL CARE					
Ì	3rd Year CAMC					
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	7 th Year CAMC			
23.	Two UPS each of minimum 20 KVA capacity or as per system requirement.	4		
24.	Three Phase Air Cooled Servo Voltage Stabilizer capacity of 65 KVA, automatic, I/P Voltage(phase to phase) 240-480, O/P Voltage 415(phase to phase) with digital display.	4		

Total Tender price in figure:

Total Tender price in words:

Note/Instruction:

- 1. The bidder shall use its own letter head for quoting the prices. Document should be signed and stamped on all the pages.
- 2. Price shall be preferred in the format for deliverables for stores & services as given at Annexure VI.
- 3. The name of each store/item offered in technical proposal must be mentioned with make & Model including services etc. if any. The deliverables list attached with financial bid must be exactly same as per the technical bids.
- 4. Charges, if any, for inland (within India) Transportation /freight/insurance of stores shall be mentioned. In case not mentioned, it is treated as free of cost.
- 5. If there is a discrepancy between the unit price and total price THE UNIT PRICE shall prevail.
- 6. All applicable taxes must be mentioned against each item. Rate of each applicable tax must be mentioned in price bid. If taxes not mentioned, it is treated that price quoted is inclusive of taxes.
- 7. Costing for each and every items and sub items which is offered in technical bid shall be given as per details and specifications given in the schedule. Charges for FAT, Werne annitur

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training, dismantling of old radar, installation of new radar, SAT and other services etc. are to be mentioned clearly in price bid.

- Price Bid (in .pdf format and BoQ Format excluding any note/instruction) shall be uploaded on eprocure.gov.in.
- 9. If there is any discrepancy in the .pdf and BoQ price bid format BoQ format will be considered as final.

Signature of bidder Seal of the bidder

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CHAPTER-5

OTHER STANDARD FORMS

Annexure-I

CHECKLIST

S. No	Activity	Compliance Yes/ No/ NA	Page & Para No. of the bid Document
1.	Is Registration certificate of the Indian bidder with any state or central government body of India attached with technical bid?		
2.	Is Earnest Money Deposit (EMD) (Bank Guarantee /FDR) of required amount enclosed? (as per Annexure-III)		
з.	Is the EMD submitted by the bidder other than participating bidder/ Prime bidder? If yes, then bid is likely to be rejected.		
4.	Is Registration certificate from NSIC/Government bodies on SSI attached for relaxation of EMD?		
5.	Is validity of EMD kept for 240 days?		
6.	Is the validity of bid as per the TE document?		
7.	Is the Tender Terms & Conditions Acceptance Form duly filled and signed (i.e. terms and conditions are acceptable)? (as per Annexure- II)		
8.	Is the bid signed? (Tenders is liable to be rejected if not signed)		
9.	Is the clause-by-clause compliance statement for the "List of requirements / technical specifications "section enclosed? Compliance matrix indicating point wise compliance to all the points of tender document. Each point needs to be complied and single statement for all the points will not be agreed to.		
10.	Is the copy of the last purchase order(s) and end user Certificate enclosed?		
11.	Is tender Submitted by an Indian Original Equipment Manufacturer (IOEM)?		
12.	Whether Back-to-back support agreement with equipment manufacturer and software developer company attached?		
13.	Whether Permanent Account No. of bidding bidder with proof is provided.		
14.	Is sales & service tax number/GST with registration certificate attached?	l l	
15.	Name of the bidder who quoted the price?		
16.	Name of tender currency?		

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17.	Name of the bidder with complete address to whom contract agreement is to be Placed?	
18.	Whether un-priced bid similar to price bid format without price as per Chapter-4 is enclosed?	
19.	Whether Signed Integrity Pact document as per enclosed format is attached?	
20.	Whether the proforma for performance Statement with documentary proof as per Annexure-VII is enclosed?	

(Name & Signature with date and bidder/company seal)

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Annexure-II

TENDER TERMS & CONDITIONS ACCEPTANCE FORM

(All the terms & conditions of tender document are acceptable to tenderer)

To, The Director General of Meteorology, India Meteorological Department, Lodi Road, New Delhi-110003

Ref: Tender Enquiry (TE) Document No. CPU/ --- dated: -----

I/We, the undersigned have examined the above mentioned TE document, including amendment/corrigendum No. ,......dated......(if any), the receipt of which is hereby confirmed. We now offer to supply and deliver the goods and services in conformity with your above referred document. If our tender is accepted, we undertake to supply the goods and perform the services (Installation & commissioning etc.) as mentioned in tender document with-in the delivery schedule specified in the "TENDER DOCUMENT-Chapter-3/ technical specifications".

I/We further confirm that, if supply / purchase order is placed to our firm, we shall provide performance security of required amount in an acceptable form for due performance of the contract within the scheduled time.

I/ We agree to keep our tender valid for acceptance as required in tender document or for subsequently extended period, if any, agreed to by us.

I/ We also accordingly confirm to abide by this tender up to the aforesaid period and this tender may be accepted any time before the expiry of the aforesaid period.

I/We further confirm that, until a formal contract is executed, this tender read with your written acceptance thereof within the aforesaid period shall constitute a binding contract between us.

I/ We further understand that you are not bound to accept the lowest or any tender you may receive against your above-referred tender enquiry.

(Signature with date and seal of the company)

I/We are not involved in any litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment.

I/We confirm that we have not been deregistered/banned/blacklisted by any Central/ State Government/ agency of Central/ State Government of India or any other country in the world/ Public Sector Undertaking/ any Regulatory Authority in India or any other country in the world for any kind of fraudulent activities on the date of submission of bids.

I/ We confirm that we fully accept and agree to all the terms and conditions specified in above mentioned TE document, including amendment/ corrigendum etc. if any.

(Name and designation) Duly authorized to sign tender for and on behalf of tenderer

Note*: Bidder /company shall use their own printed letter head for issuing this certificate for Acceptance shall be unconditional.

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MODEL BANK GUARANTEE FORMAT FOR FURNISHING EMD

(Format only)

Whereas
(hereinafter called the "tenderer")
has submitted their offer dated
for the supply of
(hereinafter called the "tender")
Against IMD's tender enquiry No
KNOW ALL MEN by these presents that WE
of having our registered office at
are bound into (hereinafter called the "Purchaser)
in the sum of
for which payment will and truly to be made to the said Purchaser, the
Bank binds itself, its successors and assigns by these presents.
Sealed with the Common Seal of the said Bank this day

THE CONDITIONS OF THIS OBLIGATION ARE:

(1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
 (2) If the tenderer having been notified of the acceptance of his tender by IMD during the period of its validity:-

- If the tenderer fails to furnish the Performance Security for the due performance of the contract.
- Fails or refuses to accept/execute the contract.

We undertake to pay the "Director General of Meteorology, India Meteorological Department", up to above amount upon receipt of its first written demand, without IMD having to substantiate demand, provided that in its demand IMD will note that the amount claimed by it is due to owing to the occurrence of one or both the two conditions, specifying the occurred condition / conditions.

This guarantee will remain in force up to and including 180 days or after the finalisation of tender any demand in respect thereof should reach the Bank not later than the above date. Bank Guarantee issued with the tender enquiry reference No.

CPU/..... Dated

(Signature of the authorized officer of the Bank)

Name and designation of the officer Seal, name & address of the Bank and address of the Branch

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BANK GUARANTEE MODEL FORMAT FOR PERFORMANCE SECURITY

To,

The President of India

Through :-

Director General of Meteorology, India Meteorological Department, Lodi Road, New Delhi-110008

WHEREAS ______ (Name and address of Successful bidder) (Hereinafter called "Successful bidder") has undertaken, in pursuance of contract no ______ dated _____ to supply (description of goods and services) (herein after called "the contract").

AND WHEREAS it has been stipulated by you in the said contract that Successful bidder shall furnish you with a bank guarantee by a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract;

AND WHEREAS we have agreed to give Successful bidder such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of Successful bidder, up to a total of.

(Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring Successful bidder to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein. We hereby waive the necessity of your demanding the said debt from Successful bidder before presenting us with the demand. We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and Successful bidder shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid up to and including the _____ day of _____, 20____

(Signature with date of the authorized officer of the Bank) Name and designation of the officer

Seal, name & address of the Bank and address of the Branch

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Terms & Conditions of Comprehensive Annual Maintenance Contract (CAMC) of S-Band Dual Polarized Doppler Weather Radars

- The CAMC includes Control Center and Radar Site Material & Services inclusive of all Computer peripherals, Printers, Radar modules, spares, components, cables, connectors etc. and radar related materials like UPS, Three Phase Voltage Stabilizer and Radome, etc. and the removed/replaced defective material becomes the property of "Successful bidder".
- The CAMC amount cannot be less than 4% (for entire CAMC period per year) of the total cost of the DWR including all sub systems.
- 3. The CAMC clause will be applicable for control center and individual radar sites separately.
- 4. The CAMC will commence immediately after the expiry of the warranty period. The comprehensive service includes preventive and corrective maintenance and free replacement of all the defective parts/devices. The company should submit a detailed CAMC plan including preventive maintenance schedule.
- The bidder shall supply the details of its call centers meant for booking the complaints along with the contact numbers like mobile nos., phone nos., mail address and names etc. of its service engineers.
- The radar shall be decommissioned for a period of two weeks only for annual preventive maintenance and upkeep in a cyclic mode.
- 7. The Bidder's engineers attending to the system are required to make all entries of their work done and corrective measures taken by them with their signatures in the log book kept with the Radar.
- 8. Overall uptime of the system shall be at least 95%. If there is a failure of the system for more than the criteria stipulated then the CAMC amount of 0.5% per seven day, for days it is down will be deducted, subjective to an upper ceiling of 10% of CAMC charges for that quarter. Also CAMC period will be extended by the time the system was under failure and no payment for the extended period for CAMC will be paid to the contractor. If the failure duration extends beyond one month then the contract may be terminated and cost of its repair from alternate source will be recovered from the Bidder and performance security may be forfeited. Maximum two weeks shutdown for annual maintenance shall not come under the clause. Radar down time due to external factors and severe natural calamity beyond human control shall exempt the criteria.
- 9. Bidder shall ensure 95% uptime by supportive manpower and radar spares.

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- Date of commencement of Annual Maintenance Period of the individual radars shall be fixed by IMD.
- The mode of payment will be quarterly and will be made after end of each quarter on the basis of satisfactory performance certificate from user.
- 12. "Successful bidder" will assist IMD for regular backups of all the software. The Bidder is also required to restore the existing Software from the Backups whenever required.
- Bidder will also be responsible for configuring the networking components.
- The company shall submit and confirm the list of essential spares required for uninterrupted radar operations.
- 15. CAMC contract will be signed for <u>seven years</u>. If required, contract may be extended by IMD. However, IMD reserves the right to terminate the contract at any time by giving three months' notice, if the performance of the system or the services rendered by the bidder is not found satisfactory.
- 16. The bidder has to submit an undertaking that it will not use IMD data for any commercial purpose.
- This contract shall be governed in all respects by Indian Laws.

Signature of the authorized officer of the bidder)

Seal, name & address of the bidder Name and designation of the officer

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FORMAT FOR List of DELIVERABLES FOR SUPPLY OF Four (04) NUMBERS

S. No	Items Description as per IMD Specification (Chapter- 3)	Qty.	Model & country of origin	Cost Per Unit	Taxes	Total cost
	Dismantling of old S-Band radar at site and Supply, Installation and Commissioning of S-Band dual polarized KLYSTRON based Doppler Weather Radar system including all units/sub units and accessories as follows:	4 Sets				
1	Transmitter	4				
2	Receiver	4				
3	Antenna control unit and Radar control unit	4				
4	Radar signal processor	4				
5	Radome, Antenna & Antenna Pedestal	4				
6	Peripherals at 4 sites as per detail at 4.45 (Peripherals).	4				
7	Radar Application and Operating Software	4				
8	Peripherals as per detail at 4.45 for one central server at Delhi.	1				
9	Server with Web GIS at 4 sites & 1 at control command center server at Delhi.	5				
11	Acceptance testing (Site)	4				
12	Installation	4				1
13	Services	4		-		
14	Products (Software)	4				
7.4						
15	Any other unit/subunits/ item not listed above but required for functioning of DWR shall also be included	4				
16	Installation material	4				
17.	Documentation both hard copy and soft copy - Two copies at each site and two copies at HQ	10				
18.	Communication hardware/ software for data transfer to control center location.	5				
19	Standard Tools and Test and measuring equipment sets along with all accessories required for complete set-up as per Annexure-XV; to be provided at each site for	4				

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	testing and measuring under	1	1	1		
	testing and measuring radar					
	parameters/ offline					
_	calibration of radar.					·
	Onsite training at four sites					
	for a period of five working					
	days and at one site at Delhi					
	of control corver location	1				
	of central server location					
	(for a period of three					
	working days) in operations					
20.	and first level fault	5				
	identification to be provided					
	for at least 5 IMD persons at					
	each site.					
	Note: Expenses for trainees	1				
	such as airfare lodging and					
	such as alliate , lodging and					
	per diem to be borne by IMD					
	Successful contractor shall					
	provide factory training in					
	operation, maintenance,		1			
	calibration and fault					
	identification of the radar					
	rucher l'addition of the fadal					
	system along with					
0.1	modification & up-gradation	-				
21.	in application software to 4	1				
	persons from IMD at the					
	factory promises for a period					
	factory premises for a period					
	of 4 weeks.					
	Notes Described for a second					
	Note: Expenses for trainees					
	such as airfare , lodging and					
	per diem to be borne by IMD					
	Seven (7) years (Year-wise)					
	comprehensive Annual					
	Maintenance Contract (CAMC)					
22.	(for all radar sites and					
	central server) after the					
	avniry of 3 years warranty					
	expiry or 5 years warrancy					
	period					
	1 st Year CAMC					
	2 nd Year CAMC					
	3 rd Year CAMC					
	4th Year CAMC					
	rth y and			+		
	5 Year CAMC					
	6 ^{ch} Year CAMC					
	7 th Year CAMC		-			
	Two UPS each of minimum 20					
23	KVA capacity or as par suster	1				
23.	NAN Capacity of as per system	4				
	mbase planette			-		
	Three Phase Air Cooled Servo					
	Voltage Stabilizer capacity		1			
24	of 65 KVA, automatic, I/P	1				
64	Voltage(phase to phase) 240-	4				
	480, O/P Voltage 415(phase to		1			
	phase) with digital display.					
	Contraction of the second s	-			A	

*Note:

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- Since the date of installation and commissioning of each Radar may be different, the rate for deciding cost of CAMC per site shall be decided on pro rata basis based on overall cost of CAMC per month divided by the number of Radars.
- No additional cost will be paid for initial three years warranty.
- All the above items are to be supplied in quantities shown above. However, if a particular item is combined with another item the fact may be so stated against that item without dropping it.
- If a particular item is not used in the radar system it may be so stated against that item.
- If an item equivalent to the listed items is used in the radar, details of same may be stated against that item.
- Bidder shall also include any other recommended spares (one each) specific to their radar system and identified as critical item. No additional cost shall be paid for such extra item.

(Signature of the authorized officer of the bidder)

Seal, name & address of the bidder

Name and designation of the officer

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PROFORMA FOR PERFORMANCE STATEMENT

Bid No.

Name of the bidder

Order placed by (Full address of Organization)	Order No. and date	Descriptio n and quantity of ordered equipment	Value of order	Date of completio n of delivery as per contract actual	Remarks including reason for late delivery, if any	Has the equipment been satisfactor ily functioning ?

Signature of the authorized officer of the bidder Seal, name & address of the Bidding firm Name and designation of the officer

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Annexure- VIII

List of locations for installation of Four (04) S-Band Polarimetric Doppler Weather Radars

S.No	Name of the stations			
1	Chennai			
2	Kolkata			
3	Machilipatnam			
4	Visakhapatnam			

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Annexure- IX

INTEGRITY PACT

Between

India Meteorological Department, Ministry of Earth Sciences, Govt of India hereinafter referred to as "The Principal", and

hereinafter referred to as "The Bidder/ Contractor"

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for..... The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness / transparency in its relations with its Bidder(s) and / or Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitors (IEMs) who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:

a. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

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Section 2 - Commitments of the Bidder(s) / Contractor(s)

(1) The Bidder(s)/ Contractor(s) commit themselves to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commit themselves to observe the following principles during participation in the tender process and during the contract execution.

a. The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

b. The Bidder(s)/ Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d. The Bidder(s)/Contractors(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the Bidder(s)/Contractors(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers" is placed at (page nos. 6-7).

e. The Bidder(s) / Contractor(s) will, when presenting their bid, disclose any and all payments made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

f. Bidder(s) / Contractor(s) who have signed the Integrity Pact shall not approach the Courts while representing the matter to IEMs and shall wait for their decision in the matter.

(2) The Bidder(s)/ Contractor(s) will not instigate third

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persons to commit offences outlined above or be an accessory to such offences.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put their reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings". Copy of the "Guidelines on Banning of business dealings" is placed at (page nos. 8-17).

Section 4 - Compensation for Damages

(1) If the Principal has disgualified the Bidder(s) from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.

(2) If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 - Previous transgression

(1) The Bidder declares that no previous transgressions occurred in the last three years with any other Company in any country conforming to the anti-corruption approach or with any Public Sector Enterprise in India that could justify his exclusion from the tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disgualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6 - Equal treatment of all Bidders / Contractors / Subcontractors

(1) In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor.

(2) The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

(3) The Principal will disgualify from the tender process all bidders who do not sign this Pact or violate its provisions.

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Section 7 - Criminal charges against violating Bidder(s) / Contractor(s) / Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8 - Independent External Monitor

(1) The Principal appoints competent and credible Independent External Monitor for this Pact after approval by Central Vigilance Commission. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

- 1. Dr. S.K.Sarkar, IAS (Retd.), B-104, Navantara Aprt., Plot 8 B, Sector 07, Dwarka, New Delhi-110075 Email: sksarkar1 979@gmail.com; Mobile No. 9811149324
- 2. Shri Rakesh Goyal, 1RSE (Retd.) 2094, Joy Apartment, Sector 2, Dwarka. Delhi-110075 Email: goyal1259@omail.com; Mobile No. 9717644264

(2) The Monitor is not subject to instructions by the representatives of the parties and performs his/her functions neutrally and independently. The Monitor would have access to all Contract documents, whenever required. It will be obligatory for him / her to treat the information and documents of the Bidders / Contractors as confidential. He/ she reports to the Director General of Meteorology, India Meteorological Department, New Delhi.

(3) The Bidder(s) / Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his/her request and demonstration of a valid interest, unrestricted and unconditional access to their project documentation. The same is applicable to Sub-contractors.

(4) The Monitor is under contractual obligation to treat the information and documents of the Bidder(s) / Contractor(s) / Subcontractor(s) with confidentiality. The Monitor has also signed declarations on 'Non-Disclosure of Confidential Information and of 'Absence of Conflict of Interest. In case of any conflict of interest arising at a later date, the IEM shall inform to the

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Director General of Meteorology, India Meteorological Department, New Delhi and recuse himself / herself from that case.

(5) The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

(6) As soon as the Monitor notices, or believes to notice, a violation of this agreement, he/she will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(7) The Monitor will submit a written report to the Director General of Meteorology, India Meteorological Department, New Delhi within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

(8) If the Monitor has reported to The Director General of Meteorology, India Meteorological Department, New Delhi , a substantiated suspicion of an offence under relevant IPC/ PC Act, and the Director General of Meteorology, India Meteorological Department, New Delhi has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

(9) The word 'Monitor would include both singular and plural.

Section 9 - Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.

If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by the Director General of Meteorology, India Meteorological 75 Weinmer Department, New Delhi . Jumper

Section 10 - Other provisions

(1) This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

(2) Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

(3) If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

(4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(5) Issues like Warranty / Guarantee etc. shall be outside the purview of IEMs.

(6) In the event of any contradiction between the Integrity Pact and its Annexure, the Clause in the Integrity Pact will prevail.

For & On behalf of the Principal) Bidder/Contractor)	For & On behalf of
(Office Seal)	(Office Seal)
Place	Place

Date ----

Witness 1: (Name & Address)

Witness 2: (Name & Address)

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Date ----

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PROFORMA FOR CERTIFICATE FROM THE USER INDICATING SUCCESSFUL OPERATION OF RADAR

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the Doppler Weather Radar with associated subsystems and peripherals supplied by M/s_______ on date ______ to _______ On date ______ Vide M/s_______ Contract Agreement no. ______ dated _______ (copy enclosed) installed and commissioned on _______.

The Doppler Weather Radar system is working satisfactorily for _____ months/ years.

The said radar is under continuous operation since______ and is providing satisfactory results.

Signature of authorized signatory Name of authorized signatory Complete office address With office seal and date

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Non-Blacklisting declaration (Sample Format only)

To: ,

Date:

(Consignee Name and address)

Dear Sir,

This is to notify that our contractor/Company/Organization intends to submit a proposal in response to invitation for RFP No: for supply of Four (04) numbers of KLYSTRON based S-Band Dual Polarized DWRs to India Met Department. In accordance with the above we declare that:

- a) We are not involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment.
- b) We are not blacklisted by any Central/ State Government/ agency of Central/ State Government of India or any other country in the world/ Public Sector Undertaking/ any Regulatory Authorities in India or any other country in the world for any kind of fraudulent activities.

Sincerely,

[BIDDER's NAME] Name Title Signature

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Annexure - XII

COMPLIANCE STATEMENT

Similar compliance matrix to be filled by the contractor as per following table. The parameters for compliance should be similar to the respective points elsewhere in the tender document.

		, Clause, and Page No. of the Bid Documen t
	Special Conditions of Contract (SCC)	
	Contractor shall submit their bids for Four (04) numbers of S-Band Dual Polarization Doppler Weather Radars with KLYSTRON based transmitters.	
	1 GENERAL REGULEREMENT.	
	The specifications described herein refer to S-Band (2700-2900 MHz) Dual Polarized KLYSTRON based Doppler Weather Radar including all peripherals, hereafter referred to as "The System". The System shall be capable of detecting and estimating meteorological parameters of severe weather phenomena that cause widespread damage to life and property. The successful bidder has to dismantle the old radar system, transportation to sites as provided under Annexure (XIV) with packaging, labelling. A complete list of the items has to be provided along with the dismantled items.	
fa	All the DWR systems to have following latest state of the acilities for smooth operation of complete radar system an accessories:	art d its
1)	Two online UPSs, in redundant mode and each with minimum capacity of 20 KVA or more capacity required for continuous operation of entire DWR system, along with separate battery banks and changeover facility for switching to standby UPS, to run the whole radar system for at least 30 minutes. Catering to required voltage stabilization with a power factor suitable for the system.	
2)	Three Phase Air Cooled Servo Voltage Stabilizer capacity of 65 KVA, automatic, I/P Voltage (phase to phase) 240-480, O/P Voltage (phase to phase) 415 with digital display.	
21	NTP clock based on GPS for system clock time synchronisation of the radar and the connected	

Communication hardware and accessories for data transfer to central location.	4)
The system will have dual polarization capability by simultaneous transmission and receive in both linear Horizontal and Vertical polarization.	5)
The system shall have user selectable Single polarization and Dual polarization mode of operation.	6)
Latest state of art computer system shall be used for the generation of data and its processing	7)
The entire operation of the System shall be fully computer controlled and remotely manageable.	8)
The tentative locations for installation of the systems are mentioned in Annexure-VIII.	9)
The quoted software should be in use in any operational weather services in the world to fulfill the functional requirements along with capabilities which have been specified elsewhere in detail.	10)
At the time of supply of the stores, the latest state of art computer system and latest version of software shall be provided for the generation of data and it's processing, with OEM Licensed Version of Linux / Windows Operating System.	11)
All equipment shall be of industry standard so as to enable easy up-gradation and maintenance.	12)
Manufacturer shall submit the full details of the hardware, including model numbers and the software proposed to be employed for meeting the requirements given herein.	13)
Central server at Delhi for processing the radar data from all four radars to be provided.	14)
Facility for radar data analysis and products generation at each of the sites inclusive of automatic dissemination of warnings and alerts are to be provided by the bidder.	15)
Display of data such as reflectivity, rainfall rate, horizontal winds at designated height, warnings etc.,	16)
Web access to GIS based radar data display to be provided using web browsers such as Microsoft Internet Explorer, Firefox, and Chrome etc.	17)
GIS based display should be accessible over the network through VPN or Internet.	18)
The bidder has to clearly specify the way of achieving the sensitivity & detection capability (with ref. to OVERALL SYSTEM REQUIREMENTS) with supportive documents of claim and appropriate calculations. The calculations for achieving the required operational characteristics such as scanning capabilities, maximum range, maximum velocity, sensitivity and clutter suppression have to be provided. Confirmation with supporting images, test printouts etc., are to be	19)
 provided. Lightning protection is to be provided for ensuring safety of the system and all building mounted elements	20)

	etc.)	
21)	The supplied UPS, Three Phase Voltage Stabilizer etc., should have AMC/CAMC service support facility in India.	
22)	IMD will take possession after appropriate test and evaluation meeting the specifications and accept the radar system after commissioning.	
23)	It is the responsibility of the bidder to bear all the expenditure to operate the radar including manpower requirements, security and all radar peripherals till successful acceptance and commissioning.	
24)	Transportation from the factory to the site will be the responsibility of the bidder. Similarly safe transportation of the dismantled Radar to storage location will be the responsibility of the bidder.	š
25)	The entire work of installation and commissioning of the radar has to be carried out by the successful bidder.	
26)	The network link between the systems and central server will be provided by IMD; bidder shall suggest suitable bandwidth for real time system control, monitoring and near real-time receipt of data at central locations for generating composite images and products of all the radars.	
27)	 a) The price bids of technically qualified bidders alone shall be opened for evaluation on a date notified after evaluation of the techno commercial bid. b) IMD shall evaluate the price bids of technically qualified vendors for deciding lowest bidder (L-1) on the basis of total landed cost at site including cost of all the deliverables as per tender document and all prevailing taxes and duties and any other charges as demanded by the vendor. 	
	2.SCOPE OF TENDER:	
	The tender is for procurement of four S-band Polarimetric Doppler Weather Radar for replacement of existing S-Band DWRs installed at four specified locations in India. The Supplier shall provide the complete turn-key solution for dismantling, packing and transportation of old DWRs and to be kept at safe place at concerned IMD offices given under Annexure (XIV) and supply of new radar system (all hardware, software and accessories etc.) as per tender requirement, transportation, installation & commissioning and acceptance of complete radar system for smooth operation at all four sites. Training at factory site and at the site of installation for hardware and software maintenance support to be provided as per terms and conditions of the tender.	

	and monitoring of radar data and p forecasters for i high impact weath data assimilation clock basis to be	f weather and to generate necessary products to be utilized by weather issuing weather forecasts, warnings, er events; monitoring and use in NWP for now casting etc. on round the done by the tenderer.
	2.2	
	3.1 All four	existing old S-Band DWRs to
	be dismantled, pa safe places as per	cked, transported and to be kept at r Annexure (XIV).
	3.2 Doppler Weath para "Overall Syst	er Radar as specified under following tem requirement".
	3.3 Software for data and products	operating, maintaining and generating
	3.4 Standard Too sets along with a set-up as per Ann for for testing a calibration of rac	ls and Test and measuring equipment all accessories required for complete exure-XV; to be provided at each site and measuring radar parameters/offline dar.
	3.5 Data dissemina	ation facility / Networking.
	3.6 Training to maintenance of th installation site:	b be provided for operation and he radar system at Factory site and s.
	3.7 Warranty for	three (03) years period.
	ore orare for sever	to to the second merginely.
IMD r KLYSTI	4. C equires S-Band Dual RON based transmitte	VERALL SYSTEM REQUIREMENTS Polarized Doppler Weather Radar Systems wit er as mentioned in Table-1
4 1	Pange of	General a Reflectivity-> 500 Km
4.1	observation	b. Velocity & spectrum width- 250 Km
4.2	Bange resolution	a Reflectivity- Equal or better

	ODSELVACION	D. Verocrey a spectrum wrath 250 run	
4.2	Range resolution	a. Reflectivity- Equal or better than 150 m b. Velocity & spectrum width - Better than 150 m	
4.3	Max. Unambiguous Range	 Consistent with PRFs specified below Sl. No 4.11 2nd trip echo recovery and multi trip echo filtering provision to be present 	

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4.4	Unambiguous Velocity	 Consistent with PRFs specified below S1. No 4.11 Ambiguity Resolution up to four times the Nyquist velocity 	
4.5	Detection capability	13 dBz or better at 230 Km range	
4.6	Sector Blanking capability	As radars are to be installed on existing buildings then radar should have capabilities to block transmissions in predefined sectors in azimuth and elevation.	
4.7	Scan Time	10 elevation volume scan with all base moments acquired in 8minutes or better.	
		Transmitter	
4 8	Type	Klystron	
A 9	Frequency Range	2700MHz to 2900 MHz	
4.10	Peak Power	Higher than 500 KW at antenna feed for single polarization and at least 250 kW in each horizontal and vertical Feeds Required to meet 13 dBz at 230Km as per Point No.4.5 above	
4.11	Pulse repetition frequency	Variable 250 to 1200 Hz subject to duty ratio of transmitting device	
4.12	Pulse width	0.5 to 2.0 µSec	
4.13	Duty ratio	Up to 0.002	
4.14	Modulator	Solid State	
A 15	VSWP /Voltage	1 25.1 maximum	
4.15	Standing Wave Ratio)	1.23.1 maximum	
		Antenna	
4.16	Antenna	Horn feeds for simultaneous horizontal and vertical linear polarized radiation onto parabolic solid surface reflector.	
4.17	Cross polar isolation	> 30 dB	
4.18	Beam pattern coincidence	Better than 0.1 degree (Horizontal and Vertical)	
4.19	Side lobe	27 dB down from the main lobe to 12 degrees And beyond 12 degrees better than 40 dB	
4.20	Beam width	1.0° or less	
4.21	Azimuth steering	360° with ±0.05° accuracy and 0-6 rpm	
4.22	Vertical Steering	-2° to +92° with ±0.05° accuracy	
4.23	Polarization	Horizontal; Vertical & STAR Mode	
4.24	Scanning rates	Up to 6 rpm	
4.25	VSWR (Voltage Standing Wave Ratio)	1.25:1 maximum (with radome) desirable	
4.26	Scan Strategy	Automatic change over between different scan strategy shall be possible.	
		Radome	

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4.27	Туре	 Foam Sandwich, White colour a) Type: Rigid spherical in shape (curved panels) with adequate space for maintenance personnel to enter and work. b) Roof hatch for maintenance of obstruction lights and entry from bottom; suitable portable ladder for 	
4.28	Wind load	the purpose of maintenance. Average 200 km /hr; gusting 250 km/hr	
4.29	Transmission	less than 0.15 dB(one way)	
4.30	Wave guide	Material - brass or Aluminum	
4.31	Lightning Protection	Lightning rod with dual ground wires.	
4.32	Obstruction lights	Twin Light System with solar powered &auto switch with long life lamps. Roof hatch for maintenance of obstruction lights and entry from bottom; suitable portable ladder for the purpose of maintenance.	
		Receiver	
4.33	Туре	Multichannel Digital receiver for Dual Polarization (H&V), STAR mode	
4.34	Digitization	IF digitization Using Digital receiver to generate I & O signals.	
4.35	Noise figure	3.0 dB or better	
4.36	Linear dynamic range	95 dB or better	
4.37	Minimum Discernable Signal	-107dBm or better	
	Radar	Signal Processor	
4.38	Doppler processing	Pulse Pair and FFT (user selectable)	
4.39	Clutter suppression	 a) Clutter Elimination for 50 dB or better. b) The system shall have provision for identifying and filtering non-meteorological echoes such as, Sea clutters, bird/insects, chaffs, etc. based on polarimetric measurements. 	
4.40	Parameters to be measured and displayed	 a) Reflectivity (Z_H) Dynamic range : 95 dB or better Resolution : 0.1 dB Accuracy :≤1dB b) Radial velocity (V_H) Max (Nyquist velocity) : ±30m/s Resolution : 0.1 m/s Accuracy:≤1 m/s c) Spectrum Width (σ_H) Max : ±10m/s Resolution: 0.1 m/s Accuracy:≤2 m/s 	

		<pre>d) Differencial reflectivity(Z_{DR}) Dynamic range : -5 to 8 dBZ Resolution : 0.01 db Accuracy:≤0.2dB e) Differential phase (Φ_{DP}) Dynamic range: -180 to 180 deg Resolution : 0.1 deg Accuracy:≤2deg f) Correlation Coefficient at zero lag (ρ_{RV}) Dynamic range: 0 to 1 Resolution : 0.005 Accuracy:≤0.05</pre>
4.41	Calibration	 a) Provision shall be made for programmable and auto run for absolute internal calibration to ensure reliability of polarimetric parameters at user defined intervals and display the current values to monitor the system health and accuracy of the radar. b) An external calibration through standard external equipment and validation of receiver linearity and dynamic range using standard coherent source and standard measuring equipment. Standard Tools and Test and measuring equipment sets along with all accessories required for complete set-up as per Annexure-XV; to be provided at each site for testing and measuring radar parameters. The calibration of radar parameters. The calibration set up should be part of the deliverables. i. Receiver single point calibration in long and short pulse mode. ii. Transmitter peak power. iii. System noise figure
4.42	Sun calibration	 a) Automatic software driven and manual mode operation for verifying pointing accuracy 0.1 degree. b) The system shall be made to point towards sun or equivalent source for establishing the gain and pointing accuracy of the antenna; stability and reliability of receiver chain. c) Procedure shall be provided and to be demonstrated during FAT & SAT. d) Script based execution of such

13	Danamatana sa ta	are expected as a part of such provision vide point-4.38 c) I., ii, iii.
.43	parameters to be measured and displayed	 Reflectivity (Z), Radial velocity (V), Spectrum Width (σ), Differential reflectivity(Z_{DR}), Specific differential phase (K_{DP}), Differential phase (Φ_{DP}), Linear depolarization ratio (L_{DR}), Correlation Coefficient at zero lag(ρ_{HV})
. 44	Peripherals (All the Computer/ server shall be Intel Processor of 10 CORE2.2 GHz base/ 3.2 Max, 13.75 MB Cache with the System memory-32 GB or better in latest computer server configuration.)	 a) Two Workstations (Main 6 Standby) of latest computer configuration at the time of delivery in terms of mother board chip-set, Processor, processor speed, RAM size and speed, Ethernet speed/USB speed, VGA/DVI card memory and hard disk storage with 32" (inches) full UHD resolution, color LED monitor. Both Workstations shall be used for operation, control and monitoring with real time display of the radar; product generation and display of the data shall have Raid Storage of the data to avoid any loss of data. b) Two workstations in redundant setup of latest configuration at the time of delivery in terms of mother board chipset, Processor, processor speed, RAM size and speed, Ethernet speed/usb speed, VGA/DVI card memory and hard disk storage processor with 32" (inches) full UHD resolution, color LED monitor. Both Workstations shall be used for networking/communication purpose. c) One workstation with the setup of latest configuration at the time of delivery in terms of mother board chipset, Processor, processor speed, RAM size and speed, Ethernet speed/usb speed, VGA/DVI card memory and hard disk storage processor with 32" (inches) full UHD resolution, color LED monitor. Both Workstations shall be used for networking/communication purpose. c) One workstation with the setup of latest configuration at the time of delivery in terms of mother board chipset, Processor, processor speed, RAM size and speed, Ethernet speed/usb speed, VGA/DVI card memory and hard disk storage processor with 32" (inches) full UHD resolution, color LED monitor. This Workstation shall be installed at New Delhi and use as central server. d) One portable computer (laptop) of

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	Stabilizer	Voltage 415 with digital display.
4.49	Software	The system should have proven software for data processing and display. The offered software should be in use in any National Weather Service as given under S.No. 1 (General Requirement), Chapter-3, Clause No.1, (a)-9.
		FEATURES
4.50	General	The radar system should be having required menu driven software with GUI controls for: 1. Operating the radar. 2. Setup of operational parameters. 3. Configuration of weather products. 4. Generation of alerts and warning, 5. Setup of communication channels. 6. Setup of display overlaid on map of India with political boundaries of international borders, states and district boundaries. 7. Automatic calibration for antenna, dynamic range, etc. 8. Monitoring the health of the radar using BITE. 9. The process of setup of various scan parameters should be easily accessible to operators using GUI. 10. Base Product display with zooming options, lat-long display, selectable parameter display and color coded. 12. Simultaneous display of data having more than one parameter. 13. Requisite software protection for denying unauthorized access to be provided. 14. System should be operated remote monitoring and control including equipment power supply. 15. The base data (output of radar processor) shall be stored automatically on hard disk and NAS in compressed form. At least three month past data shall be available on the local computer disk at a

16. Radome should be Tuned A-type sandwiched or equivalent, suitable for operating in coastal / snow regions / high altitudes. 17. The radome and radar antenna system shall be mounted on the roof top building and other radar equipments will be installed in the room bellow the antenna. The complete Radar system ready for operation to be delivered to the consignee at all four sites. Appropriate cemented concrete base, hydraulic leveling arrangement (if required), networking hardware, UPS with batteries and Three Phase Voltage Stabilizer etc., shall also be provided	
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required), networking hardware, UPS with batteries and Three Phase Voltage Stabilizer etc., shall also be provided	
with batteries and Three Phase Voltage Stabilizer etc., shall also be provided	
Voltage Stabilizer etc., shall also	
be provided	
be provided.	
18. Air conditioned equipment	
shelter with adequate space for	
housing all radar electronic	
equipment's, the work station, UPS,	
stationery, manuals, tools etc.	
19. Lightning protection is to be in	
place ensuring safety of the system	
and mounted elements by the way of	
grounding cable through ground bar	
or other suitable mechanism.	
20. The electrical earthings	
(maintenance free), requirement of	
various peripherals inclusive of	
radar, has to be taken care and	
appropriate early streamer emission	
lightning protection system with	
lightning flash counter along with	
deep chemical gel and copper plate	
based earth pits shall be provided	
by the bidder.	
21. The project is to be executed on	
a turnkey basis and all items shall	
be supplied and complete the	
installation and commissioning	
within the stipulated time as	
mentioned in the original document.	
22. The supplied UPS and Three Phase	
voltage Stabilizer etc., should have	
a service facility and spares back	
up in India.	
23. All protection for the movement	
of service personals shall be	

	provided in the equipment
	bays/floors.
	24. The antenna mount should be
	equipped with suitable leveling
	system to ensure horizontal
	alignment of azimuth and elevation
	arighment of azimuth and elevation
	dais. Suitable feaders shall be
	included with an accuracy of 0.2
	degree or better.
	25. IMD will take possession of the
	radar after commissioning. Cost
	involved of the system (Radar,
	inclusive of all the deliverables as
	per this document) and operator till
	then shall be borne by the bidder
	including all consumables and supply
	of diesel for the DG set.
	26. Transportation from the factory
	to the site will be the
	responsibility of the bidder.
	Similarly safe transportation of the
	dismantled Radar to storage location
	will be the responsibility of the
	will be the responsibility of the
	Didder.
	27. The entire site preparedness and
	custom tuning/positioning is to be
	fully borne by the bidder and the
	work is to be undertaken by the
	bidder in the presence of duly
	authorized IMD engineers.
	28. The entire work of installation
	and commissioning of the radar has
	to be carried out by the bidder,
	though IMD may station few of its
	officials at the site for guidance.
	29. Communication hardware for data
	transfer to central location.
	30. The network link between the
	systems will be provided by IMD:
	bidder shall suggest suitable
	bandwidth for real time system
	control and monitoring; a near real-
	time receipt of data for generating
	composites of all the radars.
	5 ARCHIVAL OF PADAP DATA.
	a. The base data which includes
	Reflectivity, Velocity, Spectrum
	Width and Dual Pol. Parameters
.0	(output of radar processor) shall be
	stored automatically on hard disk.
	Network Attached Storage on RAID 5
	with a usable capacity for five year
	of The
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	 b. A-4 size high resolution Ink tank Color Printer (600dpi) for taking hard copies of images and products shall be provided. c. External Blue ray DVD writer with 12 disks of dual layer Blue ray DVD R/W and 50 disks of Blue Ray DVD/R at each site to be provided. d. Provision to record, store and offline playback for analysis of I & Q data.
6.1	6. DATA FORMATS
6.1 Digital Data	 a) System should be capable of archiving of raw data (I & Q) and generating Polarimetric Doppler Weather Radar Base data and products in BUFR, NETCDF, HDF5, KML, KMZ formats and NEXRAD-Level II formats. b) Data should be converted from RAW, RAINFALL mm/hr, RAINFALL MCCUMULATED in mm, Horizontal winds at user selected levels in height, to Cartesian coordinates. Such data should also be available in HDF5, NetCDF. c) Stand-alone BUFR, NETCDF, HDF5, NetCDF. c) Stand-alone BUFR, NETCDF, HDF5, NetCDF. c) Stand-alone BUFR, NETCDF, HDF5, NetRAD-Level II encoding and decoding software on Licensed Linux/MS-WINDOWS platform should be provided. The software should be able to convert the radar data to formats as per user requirements and IMD specifications mentioned at 6.1(a) above. d) NetCDF format data shall be provided in NCAR CFRadial, and IMD-NetCDF format. Details of IMD-NetCDF format and BUFR-OPERA format file as required by IMD shall be provided to successful bidder for developing software applications. e) Existing central server system at IMD HQ, New Delhi is based on Vaisala (SIGMET) IRIS software for centrally generating various products. The successful bidder should provide necessary provision to ingest their radar data in a compatible format for use with already available central server at New Delhi. f) Data format if proprietary should be disclosed with decoding

g F F t t	() The successful bidder shall brovide data format converter from Raw Data format as well as products to ASCII. 6.2 Image data The system should be capable of utomatic generation of images in	
T a (f	orovide data format converter from Raw Data format as well as products to ASCII. 6.2 Image data 'he system should be capable of utomatic generation of images in	
F t a (f	Raw Data format as well as products to ASCII. 6.2 Image data The system should be capable of utomatic generation of images in	
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T a (f s	The system should be capable of utomatic generation of images in	
a (f	utomatic generation of images in	
f	interest of the second se	
1	JPEG, GIF, TIFF, PNG) format files	
1.5	or publishing on web site. Images	
F	AD displays and also for web pages	
F	Sollowing file naming conventions	
a	are to be implemented for automatic	
g	generation of images after	
Image data	completion of each volume scan.	
a	. caz_stn.gif Max Z 250 km range	
-	ppz_stn.gli PPI 2 500 km	
	i. ppv_stn.gif PPI V 250 km	
e	. vvp2 stn.gif VVP 30 km Range/up	
2.6	to 10 km height	
f	. sri_stn.gif SRI 150 km	
g	accumulated	
	rain for 24brs	
adar signal proces 11 the products 1 provided.	ssor. Algorithms and references for isted below and supplied should be	
	Base Products	
) The un-filter	ed I & Q data archival and playback	
acility to generat	e base products.	
	e public producto.	
) The system sh	all generate base data comprising	
) The system shift Z , V , σ and P	all generate base data comprising olarimetric products after applying	
b) The system shof Z, V , σ and P lifferent correction ffect due to pre	all generate base data comprising olarimetric products after applying ons to raw data (like attenuation cipitation, earth curvature, range	
) The system shift Z , V , σ and P lifferent correction ffect due to precormalization, beau	nall generate base data comprising Polarimetric products after applying ons to raw data (like attenuation cipitation, earth curvature, range im blockage, interference due to	
The system shof Z, V , σ and P lifferent correction ffect due to pre- ormalization, bea xternal sources,	hall generate base data comprising Polarimetric products after applying ons to raw data (like attenuation cipitation, earth curvature, range am blockage, interference due to non-meteorological echoes, second-	
) The system shift Z, V, σ and P lifferent correction ffect due to pre- ormalization, bea external sources, rip recovery, correction at a b	nall generate base data comprising Polarimetric products after applying ons to raw data (like attenuation cipitation, earth curvature, range am blockage, interference due to non-meteorological echoes, second- ground reflection, bright band	
 The system shift Z, V, σ and P Ifferent correction Iffect due to present to prese	to be generated based on user	
 The system shof Z, V , σ and P lifferent correction ffect due to presormalization, beauternal sources, rip recovery, correction, etc.) Products are lefined parameters 	hall generate base data comprising colarimetric products after applying ons to raw data (like attenuation cipitation, earth curvature, range am blockage, interference due to non-meteorological echoes, second- ground reflection, bright band to be generated based on user already selected and stored in	
 The system shof Z, V , σ and P lifferent correction ffect due to presormalization, beauternal sources, rip recovery, correction, etc.) Products are lefined parameters forkstation and 	all generate base data comprising Polarimetric products after applying ons to raw data (like attenuation cipitation, earth curvature, range am blockage, interference due to non-meteorological echoes, second- ground reflection, bright band to be generated based on user already selected and stored in NAS against the various scan	
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	Image data Image data T.0. Softwa find Software with GU Sentioned above in The System shall Sollowing products radar signal process and signal process and signal process and signal process of the products 1 provided.	Image data are to be implemented for automatic generation of images after completion of each volume scan. a. caz_stn.gif Max Z 250 km range b. ppz_stn.gif PPI Z 500 km c. ppz_stn.gif PPI Z 500 km d. ppv_stn.gif PPI Z 500 km e. vvp2_stn.gif PPI Z 500 km g. pac_stn.gif PAC 150 km g. pac_stn.gif PAC 15

3	Primary Products	
_	A) Maximum Display (Z.V.g)	
	The System shall compute and display maximum values of	
	base data products (Z. V and g) in horizontal (East	
	West and North South) and vertical columns between	
	user defined heights and also display the partial	
	images in a single frame with side panel heights to a	
	scale of 2km covering 0 -18 km.	
	B) PPI (Plan Position Indicator) (Ζ, V, σ)	
	The system should be capable of generating the PPI	
	product for all types of raw data at user selectable	
	elevation angles from lowest to highest elevation in	
	the scheduled scanning procedure.	
	C) CAPPI (Constant Altitude Plan Position Indicator)	
	The System shall interpolate from the volume scan data	
	set for a geo-horizontal plane at user vertical	
	defined height and display the same pertaining to user	
	selectable data form Z, V and o from 1 km to 18 km	
	height.	
	D) PCAPPI (PSEUDO CAPPI)	
	The system shall incorporate data form the highest	
	elevation scan near the radar and from lowest	
	elevation scan for areas far away from the radar for	
	which radar beams are not intersected by user defined	
	plane for CAPPI and display same pertaining to data	
	selected by user (Z, V and σ) from 1 km to 18 km	
	height.	
	E) VCUT (Vertical Cut)	
	The system shall interpolate all the base products (2,	
	V and o) in any vertical plane passing through user	
	defined two points and display the same for the user	
	selectable parameters.	
	The sustem shall identify from the values scan data	
	the minimum height up to which the user defined	
	threshold value for each base data exists and display	
	them for user selectable data	
	G) ETOP (ECHO TOP)	
	The system shall identify from the volume scan data	
	the maximum height up to which the user defined	
	threshold value for each base data exists and display	
	them for user selectable data.	
	H) HAIL WARNING	
	Based on reliable hail warning algorithm, the system	
	shall generate a hail warning symbol at the	
	appropriate place in the PPI display in one or more of	
	the operator chosen fields.	
	I) HYDROMETEOR CLASSIFICATION	
	The system shall be capable of generating a product	
	for classification of hydrometeors based on	
	Polarimetric parameters (Z_{DR} , Φ_{DP} , K_{DP} and ρ_{HV}). Provision	
	for changing parameters in a scientific way for	
	customization of the hydrometeor classification is a	
	required. Hail detection based on this classification	
	shall be one of the products in this class.	
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7.4	Derived Meteorological Products:	
4.1	Velocity Products	-
	a) The system shall generate and display following velocity products:	
	b) Radial velocity versus the azimuth for a fixed elevation and a fixed slant range (VAD).	
	c) Radial velocity at a fixed user defined range on height and azimuth angles (Radial velocity display for fixed range, azimuth angles for various height and azimuth).	
	d) Horizontal wind velocity and wind direction using barbs in a vertical column above the radar site for different heights including divergence & convergence product.(VVP_1)	
	e) The vertical Profile of the horizontal winds derived from the Radial Winds within 40 km range of radar and 10 km height using standard algorithm in the form of Wind Barbs showing wind speed and direction in the time series manner for a user selectable time duration (VVP_2)	
	f) Horizontal wind vectors (UWT) using barbs at user defined layer height with or without underlay of reflectivity or velocity in PPI / CAPPI format.	
.4.2	Hydrological Products: a) The system shall generate and display following hydrological products:	
	b) Rainfall intensity using polarimetric moments as well as Z-R in a user selectable surface layer and constants with constant height above ground. Provision of specifying freezing layer height dynamically.	
	c) Instantaneous estimation of water content (VIL) residing in a user defined atmosphere layer in the atmosphere to be displayed in PPI type of display.	
	d) Precipitation accumulation (PAC) using polarimetric and Z-R in a user definable time period.	
	e) Rainfall amount in user defined catchment basins for user defined time span.	
	f) Provision for putting river basin map overlay as per user requirement.	
	g) Rainfall intensity, rainfall rate and accumulation products shall have an option to be adjusted in real time by Rain Gauge disdrometer data. Rain gauge and	

under

	radar data.	
	h) Calibration of rainfall rate by appropriate rain gauge or disdrometer data shall be possible.	
	 i) The system shall convert data of reflectivity and polarimetric measurement to horizontal maps of rainfall intensity. 	
	j) The system shall be capable of generating precise rain rate information using combination of polarimetric parameters as well as Z(h)	
	k) The system shall use algorithm based on polarimetric parameters for correcting rain rate estimation errors arising out of hail, non-meteorological echoes and attenuation.	
.4.3	Aviation Products	
	a) The system shall evaluate derivatives of wind velocity in radial, azimuth, elevation, North South, East West directions and derive horizontal, vertical and three dimensional shears	
	b) The system shall also be able to generate warning product on microburst, meso-cyclones and wind shears beyond adaptable threshold levels.	
	c) The system shall evaluate maximum turbulence within user defined atmospheric layer and display in top view.	
.4.4	Warning and Forecasting Products:-	
	a) System shall generate and display warning products with suitable symbols for thunderstorm, hail storm, dust storm, meso-cyclone, convergence, divergence and gust fronts and other severe weather products.	
	 a) System shall generate and display warning products with suitable symbols for thunderstorm, hail storm, dust storm, meso-cyclone, convergence, divergence and gust fronts and other severe weather products. b) System shall be capable of evaluating speed and direction of movement of weather systems. 	
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7.4.5	 a) System shall generate and display warning products with suitable symbols for thunderstorm, hail storm, dust storm, meso-cyclone, convergence, divergence and gust fronts and other severe weather products. b) System shall be capable of evaluating speed and direction of movement of weather systems. c) System shall also be capable of warning if any of the conditions defined by the user are reached or fulfilled on reflectivity, velocity, VIL, rainfall intensity, rainfall accumulation and wind shear. d) System shall be able to detect tornado and gust fronts associated with storms and issue visual and text warning message. 	

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files. Data of all radars to be overlayed on GIS map with option to include underlay maps from Google, Open street map or ESRI, Arc GIS, etc. GIS server with Open street map to be provided. The Products which are to be overlayed are:	T) Boundary of states will be provided by TMD as above	
with option to include underlay maps from Google, Open street map or ESRI, Arc GIS, etc. GIS server with Open street map to be provided. The Products which are to be overlayed are:	files Data of all redars to be overlaved on CTO men	
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The Products which are to be overlayed are:	street map or ESRI, Arc GIS, etc. GIS server with Open	
The Products which are to be overlayed are:	street map to be provided.	
or year	The Products which are to be overlayed are:	1000000

Mannings based on Dainfall Malasity Mudagesta
 Warnings based on Rainfall, Velocity, Hydrometeor Classification.
Locally installed and accessible GIS server using Open street map to be provided.
10. Installation
All installation related work including civil work shall be carried out by the bidder. However, IMD personnel shall be associated with the installation process. All installation materials required shall be supplied by the bidder.
 a) Successful contractor shall take into consideration that the radome and radar antenna system shall be mounted on the roof top building and other radar equipments will be installed in the room bellow the antenna. The complete Radar system ready for operation to be delivered to the consignee at all four sites. Appropriate cemented concrete base, hydraulic leveling arrangement (if required), networking hardware, UPS with batteries and Three Phase Voltage Stabilizer etc., shall also be provided. b) Walk/inspection space of about a meter width all around the radome base with a safety railing of 1.5m height is recommended for servicing of Radome. The radius should not degrade the signals of the radar
c) The entire responsibility of civil construction/site preparedness for installation of the radar and its peripherals shall be the responsibility of the contractor.
d) Pre-requisite for both civil & electrical requirements for installation of radar shall be clearly mentioned separately, inclusive of suitable diagrams of antenna & radome installations, along with the technical bid.
e) The required number of electrical earthing based on latest technology i.e. Chemical Gel earthing or better technique is required for various peripherals inclusive of radar, has to be provided by the successful contractor.
f) Suitable Lightning Arresters for protecting the radar with reliable lightning protection system with deep chemical gel and copper plate based earth pit

g) Aviation warning indicator lamps shall be supplied and installed by the contractor on the top of the antenna/radome at appropriate height.	
h) All other requirements such as power and communication facility etc. will be arranged by IMD for enabling installation/ commissioning of radars of each respective site.	
i) IMD shall not facilitate the accommodation and transportation arrangements for the personnel of the installation team of the contractor.	
11. LOCATION:	
List of tentative sites for installation of Radars is attached vide at Annexure-VIII.	
12. TESTING AND ACCEPTANCE	
a) The bidder shall submit detailed testing plans for Factory Acceptance Testing (FAT) for fully integrated radar system prior to shipment and Site Acceptance Test (SAT) after installation at site for system acceptance. The test plan shall require concurrence of IMD.	
b) During the FAT, cost of travel, per diem charges and charges for boarding/lodging etc. for IMD personnel (2 Persons) will be borne by IMD, Government of India.	
c) The objective of the tests shall be the verification of performance of the system as per the specifications and functional requirements as per TENDER DOCUMENT.	
d) As per the mutually agreed test procedures, FAT shall be carried out at the factory premises prior to shipment. The equipment shall be shipped only after satisfactory conclusion of the pre-shipment acceptance testing (FAT).	
e) As per the mutually agreed test procedures, acceptance test should be carried out at each radar site after installation. Successful contractor shall arrange for necessary test equipment, man-power etc.	_
f) Any defect/ deviation noticed during the site acceptance tests shall be rectified within a maximum period of one month from the completion of the tests. After such rectification, the tests shall be repeated to verify the rectification.	
g) Within 30 days of installation of each system, the successful contractor should secure acceptance of the radar(SAT) and its peripherals as a whole system.	
13. SYSTEM COMMISSIONING	
After satisfactory completion of the site acceptance tests, the successful contractor shall demonstrate the reliabilities and capability of the system to be operated continuously and satisfactorily for a period of 15 days endurance test of the complete radar system, after which it will be said to be	

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14. WARRANTY:	
Warranty shall remain valid for three years after the system has been commissioned and accepted by the IMD as per terms of the contract. The warranty shall also include all third party bought out items / subsystems including, Computers and UPS and Three Phase Voltage Stabilizer etc. OEM certification of warranty for the third party items is to be provided.	
a) This warranty clause is applicable to all individual radar sites.	
b) Upon receipt of notice about faults, successful contractor shall repair or replace the defective goods or parts thereof, free of cost, at the site.	
c) Successful contractor shall take over the replaced parts/ goods after providing their replacements and no claim, whatsoever shall lie on IMD for such replaced parts/ goods thereafter.	
d) The contractor shall supply the software updates, if any, during the warranty and CAMC period, free of cost.	
 e) Contractor shall ensure 95% of 365 days annual- uptime excluding the 15 days of annual preventive maintenance period.	
f) If the successful contractor, could not meet the 95% annual-uptime (calculated Quarterly at the time of payments) and there is a failure of the system for more than the criteria stipulated, then a penalty amount of 0.5% of the total equipment cost per seven	
days for that radar, for days it is down, will be deducted from the performance guarantee amount, subject to an upper ceiling of 10% of the total equipment cost during warranty period and 10% of the total CAMC cost during the CAMC period. Also CAMC period will be extended by the time the system was under failure and no payment for the extended period for CAMC will be paid to the contractor. Furthermore IMD may proceed to take such remedial action(s) as deemed fit by the IMD, at the risk and expense of the successful contractor and without prejudice to other	
 against the successful contractor. g) Maximum two weeks shutdown for Annual maintenance shall not come under the clause. Delay due to external factors and natural calamity beyond human control will 	
 be exempted. h) During warranty period, the successful contractor is required to visit consignee's site at least once in three months commencing from the date of acceptance at site for preventive maintenance, calibration and various types of checks of the goods/ equipment and a detailed report consisting of all test procedure values etc. must be submitted at Upper Air Instrument Division (UAID), India Meteorological Department, New 	

Delhi along with satisfactory certification by the UAID (IMD).
15. TRAINING:
a) Successful contractor shall provide factory training in operation, maintenance, calibration and fault identification of the radar system along with modification & up-gradation in application software to 4 persons from IMD at the factory premises for a period of 4 weeks.
b) During factory training, cost of travel, per diem charges and charges for boarding/lodging for IMD personnel will be borne by IMD, Government of India.
c) The training shall also include lectures on the system design, computer hardware/software, operation and such other aspects which are considered essential for optimum utilization of the radar system.
d) Onsite training at four radar sites for a period of five working days and at one site of central server location at Delhi for a period of three working days in operations and first level fault identification to be provided for at least 5 IMD persons at each site.
16. DOCUMENTATION:
a) Successful contractor shall furnish two copies of the following documentation in well-bound sets/volumes of good print quality for each radar site and two copies of the same to Radar Unit, UAID, New Delhi.
b) Soft copy of all the manuals should also be provided along with hard copy.
c) All standard manuals, technical data sheets and other pertinent information of functional, electrical and mechanical modules used in the System shall be included in the manuals.
d) Interface connectivity document has to be provided for hardware as well as software interfaces.
e) Detailed documentation of all the proprietary data formats, bit-by-bit information on the header and data patterns should be provided.
f) Free updates made to firmware, processing software and clarifications should also be supplied with relevant documentation during the period of warranty and CAMC thereof.
g) The system functional block diagram shall be laid out so that a user can readily understand and identify the major functions of the system.
h) The operating instructions shall include routine

	procedures, safety and emergency procedures as applicable. These instructions shall include switch- on, standby, normal operating procedures and switch off procedures. The sequence of turn-on procedures shall be optimized for remote switching ON/OFF.	
	i) The instructions shall provide assistance to an operator to use the System for optimum performance.	
	j) Sufficient illustrations shall be included to identify and locate all operating controls and indicating devices.	
	k) Layout and Schematic Assembly Drawings: Schematic Diagrams of all assemblies, modules shall be provided.	
	1) Parts List: Detailed parts list with part numbers shall be provided.	
	m) Algorithm of Products: The algorithms used in product generation shall be supplied.	
	n) It shall be the responsibility of the successful contractor to provide detailed parts list of modules sourced. List of items imported and incorporated in the system should also be provided separately. Only such items may be used in the system whose technical details are made available by the manufacturer.	
	17. DELIVERY SCHEDULE:	
A)	First radar to be installed, accepted and commissioned within 13 months from the date of issue of contract agreement. Rest of the radars shall be delivered, installed and commissioned within 22 months from the date of issue of contract agreement in a phased manner. In this regard the contractor will submit the actual schedule along with time line for execution of installation and commissioning work for each radar.	
	(i)Supply of all stores (for first radar) at site within a period of 10 months from issue of contract agreement.	
	(ii) Installation of all equipment to test the first radar within 02 month after supply of equipment.	
	(iii) Acceptance and commission of first Radar within 01 month after installation.	
B)	Preliminary Design Review (PDR) will be held after one month from the date of signing of contract agreement where-in the design of hardware & software to be delivered as part of the system will be discussed at the office of UAID, IMD. New Delhi (India).	
C)	Critical Design Review (CDR) will be conducted within six months from the date of issue of contract agreement where-in the design along with performance	
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	parameters of the sub units will be discussed in detail to ensure that the system achieves the performance parameters to be delivered as per TENDER DOCUMENT.
1	8. Penalty clause/Liquidated damages clause (LD) for delayed
	stores & Services:
The LD given No. 16	will be imposed if delivery schedule is not met as under Chapter 2 (Conditions of the Contract) in Clause and Clause No.21.
	19. COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT (CAMC):
	a) The contractor shall quote for CAMC for seven years which will commence subsequent to successful completion of warranty period of three years.
	b) The contractor shall submit year wise lump sum amount of CAMC charges for each radar/site.
	c) The amount charged for CAMC shall not be quoted as percentage of the tender cost / cost of equipment.
	d) The CAMC charges shall be included for price comparison. The terms & conditions for the CAMC are enclosed at Annexure-V.

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Annexure (XIII)

Format for Affidavit of Self Certification regarding Local Content in a Doppler Weather Radar

			Date:	
I _			S/o, D/o, W/o	
,	Resident	of _		

do hereby solemnly affirm and declare as under:

That I will agree to abide by the terms and conditions of the policy of Government of India issued vide Notification - Public Procurement (preference to make in India) Order 2017 dated 15th June , 2017 and subsequently 04th June 2020 and 16th September. 2020.

That the information furnished hereinafter is correct to be of my knowledge and belief and I undertake to produce relevant records before the procuring entity or any authority so nominated for the purpose of assessing the local content.

That the local content for all inputs which constitute the said equipment has been verified by me and I am responsible for the correctness of the claims made therein.

That in the event of domestic value addition of the product mentioned herein is found to be incorrect and not meeting the prescribed value addition norms, based on the assessment of an authority so nominated for the purpose of assessing the local content, action will be taken against me as per Order No. P-45021/2/2017/-E.E.-II dated 15.06.2017.

I agree to maintain the following information in the Company's record for a period of 03 years and shall make this available for verification to any statutory authority:

(Kindly fill up the below mentioned particulars)

i. Name and details of the Domestic Manufacturer (Registered Office, Manufacturing Unit location, nature of legal entity):

ii. Date on which this certificate is issued:

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iii. Doppler weather radar for which the certificate is produced:

iv. Procuring entity to whom the certificate is furnished:

v. Percentage of local content claimed:

vi. Name and contact details of the unit of the manufacturer:

vii. Sale Price of the Product:

viii. Ex-Factory Price of the product:

ix. Freight, insurance and handling:

x. Total bill of Material:

xi. List and total cost value of inputs used for manufacture of the Doppler weather radar:

xii. List and total cost of inputs which are imported, directly or indirectly:

For and on behalf of (Name of firm/entity)

Authorized signatory (To be duly signed by the Board of Director)

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All four existing old S-Band Doppler Weather Radar to be dismantled, packed, transported and to be kept at safe places as per following details

S1. No	Name and address of Old Doppler Radar Station which is to be Dismantled)	(*) Name and address of place where Old dismantled Doppler Radar to be store safely)	Contact Nos.
1.	Officer-in-Charge - Sh. B. A. M. Kannan, Sc 'E' (09968383003), Doppler Weather Radar, India Meteorological Department, Port Trust Centenary Building,10 th Floor,Raja ji Salai, Chennai, Tamil Nadu-600001	Meteorological Observatory, India Meteorological Department, Meenambakkam, GST Road, Kancheepuram District Chennai-600027 Nodal Officer: Sh. B.A.M. Kannan, (Sc. E), DWR Chennai Mob No: 09968383003	Ph. No.044- 25360187
2.	Director-in-Charge - Sh. Sourav Adhikary Sc 'E' (09433126234), Doppler Weather Radar, New Secretariat Building (13 th floor)1, Kiran Shankar Roy Road KOLKATA, West Bengal- 700001	Regional Meteorological Centre, 4, Duel Avenue, Alipore Kolkata-700027 Landmark: Body Guard Line, Kolkata Police, Ekbalpur Nodal officer: Shri Sourav Adhikary(Sc. E), DWR Kolkata Mobile No: 9433656885	Ph. No.033- 22480620
3.	Officer - in-Charge - Sh. Prayek Sandepogu , Sc 'C' (08790111050), Radar Kendram, Frenchpet, Baba Nagar Road, Machilipatnam, Andhra Pradesh-521002	Cyclone Detection Radar Station(Radar Kendram), French Pet, Baba Nagar Road, Machiliptanam, Krishna (dist)Andhra Pradesh PIN-521002. Nodal officer: Shri Prayek (Sc. C)DWR Machilipatnam Mobile No: 8099288498	Ph.No.08 672- 222800
4.	Officer - in-Charge - Sh. Sh. Deep Karan Singh Sc 'C' (9958913058),Doppler Weather Radar, C/o Cyclone Warning Centre, Opp. Andhra University outgate Chinauualdair, Visakhapatnam, Andhra Pradesh-530001	Cyclone Warning Centre, Opp. AU Out gate, Kirlampudi Layout, Visakhapatnam- 530 017 Phones: 0891-2543031,32,34 FAX-2543033,36 Nodal officer: Shri K. Murali, DWR Visakhapatnam Mobile No: 9704054375	Ph. No.0891- 2971508

(*) The exact address of place where Old dismantled Doppler Radars to be store safely will be intimated during Pre-Bid Meeting.

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List of standard Tools and measuring Equipments

Sl.No.	Description of Tools and measuring Equipments	Quantity
1)	A set of standard and specialized tools required for repair, disassembly and assembly of the system: like Flat Head and Philips Head Screw Drivers, ratchet action Multipurpose Tool Kit, LAN cable Crimper, Terminal Log Crimper, Nipper, Cutter, Adjustable Wrenches, Pliers, Allen Keys, Tool Box, Short Range Walkie Talkie and Hand Gloves etc.) should be supplied. Detailed Tool Kit list shall be provided by the supplier in the bid document.	04 Sets (One set of all Tools at each site)
2)	Digital Storage Oscilloscope (Make- Tektronics) 4 channel (minimum 1.5Gsa/sec) along with set of test cables & adapters/connectors/accessories and +High Voltage Oscilloscope Probe or Capacitive High Voltage Divider Probe (like Pearsons) +Current Probe (AC/DC, 100A) to monitor Tx Modulator pulse-current like Pearsons or equivalent.	04 Sets (One set of all Tools at each site)
3)	Hand Held Spectrum Analyser facility upto S- band along with set of test cables & adapters/connectors/accessories. (Make- Rhode & Schwarz/Keysight).	04 (One at each site)
4)	Signal Generator with narrow pulse modulation facility upto X band along with set of test cables & adapters/connectors/accessories. (Make-Rhode & Schwarz / Keysight or similar) for S band operation and measurements (Bench model) or similar.	04 (One at each site
5)	Digital Multimeter (5 & ½ digit) (Make-Fluke or similar) along with set of test cables & adapters/connectors/accessories.	04 (One at each site)
6)	Hard & soft copies of detailed manuals of all the test equipments shall be provided.	04 (One at each site)

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ANNEXURE-XVI

Format for Bid Securing Declaration

Date: Bid No. : Alternative No. :

To:

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration.

We accept that we will be suspended for the period of not more than 3 years from being eligible to submit bids for tenders with India Meteorological Department, in the following cases, namely:-

(a) when we withdraw or modify our bid after opening of bids;

(b) when we do not execute the agreement, if any, after placement of supply/work order within the specified period;

(c) When we fail to commence the supply of the goods or service or execute work as per supply/work order within the time specified;

(d) when we do not deposit the performance security within specified period after the supply/work order is placed; and

(e) if we breach any provision of code of integrity prescribed for bidding specified in the Act and Chapter VI of these rules.

In addition to above, the State Government shall debar us from participating in any procurement process undertaken for a period not exceeding three years in case where the entire bid security or any part thereof is required to be forfeited by procuring entity.

We understand this Bid Securing Declaration shall expire if:-

(i) we are not the successful Bidder;

(ii) the execution of agreement for procurement and performance security is furnished by us in case we are successful bidder;

(iii) thirty days after the expiration of our Bid.

(iv) the cancellation of the procurement process; or

(v) the withdrawal of bid prior to the deadline for presenting bids, unless the bidding documents stipulate that no such withdrawal is permitted.

Signed:-----

Name: -----

In the capacity of: -----

Duly authorized to sign the bid for and on behalf of:

Dated on ------day of -----

Corporate Seal -----

[Note: In case of a Joint Venture, the Bid Securing Declaration must be signed in name of all partners of the Joint Venture that is submitting the bid,]

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