

NIT

[NOTICE INVITING e-TENDER]

No. : WBPTel/DG/eNIT- 5/Wireless Stores/2025-26, Dated : 20.08.2025

e-Tender

**PROCUREMENT OF VHF DMR (DIGITAL MOBILE RADIO) TIER-II
EQUIPMENT AND ACCESSORIES FOR SUNDARBAN POLICE DISTRICT
COVERING GANGA SAGAR MELA
INCLUDING INSTALLATION AND COMMISSIONING**

**FOR THE USE OF
WEST BENGAL POLICE TELECOMMUNICATION**



**OFFICE OF THE DIRECTOR GENERAL OF POLICE
WEST BENGAL POLICE TELECOMMUNICATION**

3, Manik Bandyopadhyay Sarani, Tollygunj, Kolkata – 700 040

WEST BENGAL POLICE TELECOMMUNICATION

3, M. B. Sarani, Tollygunge, Kolkata – 700 040.

NOTICE INVITING e-TENDER

Tender Enquiry No.: WBPTel/DG/eNIT-5/Wireless Stores/2025-26 Date: 20/08 /2025

The Director General & Inspector General of Police, Telecommunication, West Bengal invites e-Tenders on behalf of Home Department, Government of West Bengal from the bonafide Manufacturers/Direct Importers/Dealers who has tender specific authorization for the items in the table below:-

TYPE OF WORK:- PROCUREMENT OF VHF DMR (DIGITAL MOBILE RADIO) TIER-II EQUIPMENT AND ACCESSORIES FOR SUNDARBAN POLICE DISTRICT COVERING GANGA SAGAR MELA INCLUDING INSTALLATION AND COMMISSIONING

Sl.	Name of Items	Quantity	Remarks
1	DMR Tier-II Repeater with 6 dB or High gain Omni directional Antenna accessories and 45 meter RF Cable RG- 217	20	Technical Specification detail enclosed with N.I.T. (Annexure – IV)
2	DMR Tier-II Transceiver Static/Mobile Version	100	Technical Specification detail enclosed with N.I.T. (Annexure – V)
3	DMR Tier-II Handheld Version with 01 spare battery	165	Technical Specification detail enclosed with N.I.T. (Annexure – VI)
4	DMR Tier-II 0dB Static Antenna accessories with 30 meter cable	30	Technical Specification detail enclosed with N.I.T. (Annexure – VII)
5	DMR Tier-II 3dB whip Antenna accessories and 4 meter cable	70	Technical Specification detail enclosed with N.I.T. (Annexure – VIII)
Earnest Money: Rs. 4,00,000.00 (Rupees Four Lakhs) only			

A) ELIGIBILITY OF BIDDERS:

1. For the event of e-filling, intending bidder may download the Tender documents from the Web Page Links “wbptenders.gov.in/nicgep/app” or “wbpolice.gov.in/wbp/tender.php” directly with the help of Digital Signature Certificate. **Earnest Money Rs. 4,00,000 /- (Four Lakh) only** have to be remitted through online. No alternative will be accepted. Necessary Earnest Money will have to be deposited by the bidder electronically: online through his net banking enabled bank account, maintained at any bank. Bidders will get the Beneficiary details from e-tender portal with the help of Digital Signature Certificate and may transfer the EMD from their respective Bank as per the Beneficiary Name & Account No., Amount, Beneficiary Bank name & IFSC Code. Bidders are also advised to submit EMD of their bid, at least 3 working days before the bid submission closing date as it requires time for processing of Payment of EMD. Bidders eligible for exemption of EMD as per Govt. rule (i.e. all registered Micro, Small and Medium Enterprises being manufacturer of the primary product category or service provider of the primary service category. Whose credentials are validated online through UDYAM / NSIC) database or DIC (District Industries Corporation) database may avail the same and necessary documents regarding the exemption of EMD must be uploaded in the EMD folder of Statuary bid documents.
2. Financial Bid is to be submitted online (both words & figures) concurrently duly digitally signed in the website: <http://wbptenders.gov.in> as per Date & Time schedule stated in **Clause 11**.
3. (a) Bid will remain valid for a period of 1 (one) year from the issuing of acceptance letter.

- (b) Conditional/incomplete bid will not be considered.
- (c) Bidders should submit the document of the address within the City of Kolkata and Phone/Mobile, Fax No./e- mail I.D. for the purpose of quick communication in the event of urgency.
- (d) Replacement of faulty equipment is under provision of the Vendor without delay.
- 4** The selected Bidders shall have to deposit **5% security deposit** of the total contract value of the items in favour of the Director General & Inspector General of Police Telecommunication, West Bengal in Bank Guarantee Bond of any nationalized bank and to execute an agreement of contract within 10 (ten) days from the date of issue of the work order failing which the letter of acceptance, so issued, may be treated as cancelled as well as the security money so deposited may be forfeited and the firm may be blacklisted. No interest would be paid on the performance Security Deposit. Payment will be made as and when fund will be available from the concerned source subject to complete supply of articles.
- 5** Orders for the supply of equipment of the approved tender will be placed with the successful bidders after the execution of the agreements. The successful bidder will have to complete the delivery of equipment, which should be assured at the time of selection as supplier.
- 6 Annual Turnover of OEM:** For last three completed Financial years of **Rs. 800 Lakh** (Audited copy).
- 7. Minimum Annual Turnover of the bidder:** For last three completed Financial years of **Rs. 200 Lakh** (Audited copy).
- 8** It should be noted that the firm/firms will be selected purely on a "PROVISIONAL BASIS" and the forecast requirement may increase or decrease by any quantity during the period of validity of the tender. The work order will be issued subject to available of Government Fund after the tender; proposal will be initiated to the Government for allotment of fund.
- 9** Director General of Police Telecommunication, West Bengal does not bind himself / herself to accept the lowest rate.
- 10.** Any loss incurred by reason of the price paid for such article(s) or any other loss or expense incurred by reason of such default on the part of the Bidders (may be deducted from the bills or any money payable to the Bidders) or from the security deposit of the concerned bidder(s). If the performance of the supplied equipment are found unsatisfactory or not as to the desired level even after payment, the supplier has to refund the entire amount paid to him earlier for that particular item/equipment / job.

11. DATE & TIMESCHEDULE:

SI.No.	Particulars	Date & Time
1.	Date of uploading of N.I.T Documents (Online)	21.08.2025 at 1000 hrs
2.	Documents download/Sell Start date (Online)	25.08.2025 at 1800 hrs
3.	Date of hoisting of documents at Departmental Website "wbpolice.gov.in"	22.08.2025 at 1800 hrs
4.	Bid submission start date (Online)	25.08.2025 at 1800 hrs
5.	Pre-Bid meeting	09.09.2025 at 1200 hrs
6.	Bid submission closing date (Online)	15.09.2025 at 1800 hrs
7.	Last date of submission of Earnest Money Deposit (Online)	18.09.2025 at 1800 hrs
8.	Technical Bid opening (Bid A)	20.09.2025 at 1100 hrs
9.	Field Demonstration of quoted products	24.09.2025 at 1100 hrs
10.	Date of uploading list of technically qualified bidders	To be notified later
11.	Date for opening of Financial Proposal (Bid B) (Online)	To be notified later
12.	Date of uploading list of bidders along with the approved rates	To be notified later

12 Bid opening Location: Office of the Director General of Police, Telecommunication, West Bengal, 3 Manik Bandyopadhyay Sarani, Tollygung, Kolkata 700040.

13 Canvassing on the part of bidders will render his tender to be cancelled summarily.

14 For any clarification regarding the Tender, Bidders are requested to visit Deputy Inspector General of Police, WBP Telecommunication Hqrs., 3 Manik Bandyopadhyay Sarani, Tollygunj, Kolkata 700040.

NB: Any inconsistencies in the descriptions may be expeditiously brought to the notice of the Tendering authority.

B) INSTRUCTIONS TO BIDDERS :

GENERAL GUIDANCE FOR e-TENDERING

Instructions/ Guidelines for electronic submission of the tenders have been annexed for assisting the Bidders to participate in e-Tendering.

I. REGISTRATION OF THE BIDDER:

Any Bidders willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement System, through logging on to <https://wbtenders.gov.in> (the Web Portal of Public Works Department) the bidder is to click on the link for e-Tendering site as given on the web portal.

II. DIGITAL SIGNATURE CERTIFICATE (DSC):

Every Bidder is required to obtain a Class-II OR Class-III Digital Signature Certificate (DSC) for submission of tenders for the approval service of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the website stated in Clause-I above DSC is given as a USB e-Token.

III. The bidder can search & download N.I.T. & Tender Document(s) electronically from computer once he logs on to the website mentioned in Clause-I using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

IV. SUBMISSION OF TENDERS:

Tenders are to be submitted through online to the website stated in Clause-I in two folders at a time for each work, one in Technical Bid & the other is Financial Bid before the prescribed date & time using the Digital Signature Certificate (DSC). The documents are to be uploaded virus scanned copy duly Digital Signed. The documents will get encrypted (transformed into non readable formats).

V. PENALTY CLAUSES:

- (a) PENALTY FOR FORMATION OF CARTEL OR FURNISHING OF FRAUDULENT / MISLEADING DOCUMENTS:** If during the tender process or at any state during the validity of the tender period, it is found that a Bidder(s) has formed a cartel in whatsoever form or name to fix up the rates or suppliers to the detriment of the fairness of the tender process, penal measures shall be initiated. Similar penal measures shall also be initiated against those tenders who have submitted false / misleading / fraudulent documents or made incorrect declarations. The penal measure will be forfeiture of Earnest Money, Forfeiture of Performance Bank Guarantee if enlisted as a supplier.
- (b)** Appropriate penal measures including, but not restricted to, the deduction of security deposit bank Guarantee will be initiated if performance of the equipment is observed below acceptable standard.

VI. TECHNICALPROPOSAL:

The Technical proposal should contain scanned copies of the following in two covers (folders).

(a) Statutory Cover containing the following documents:

(1) NIT (2) EMD (3) APPLICATION FORMAT, AUTHORIZATION LETTER FROM OEM (ORIGINAL EQUIPMENT MANUFACTURER), AGREEMENT PAPERS (AS ANNEXTURE-I, II & III) (4) DOCUMENT RELATED TO COMPLETION OF SIMILAR NATURE OF WORK. (5) **MTCTE** CERTIFICATE FOR QUOTED VHF EQUIPMENT ISSUED BY TCE, DEPARTMENT OF TELECOMMUNICATION GOVT. OF INDIA. (EXCEPT ACCESSORIES) (6) VALID **DPL** ISSUED BY WPC.

(b) Non-statutory Cover containing the following documents:

THE ABOVE STATED NON-STATUTORY/TECHNICAL DOCUMENTS SHOULD BE ARRANGED IN THE FOLLOWING MANNER.

Click the check boxes beside the necessary documents in the My Document list and then click the tab "Submit Non Statutory Documents" to send the selected documents to Non-Statutory folder.

Next Click the tab "Click to Encrypt and upload" and then click the "Technical" Folder to upload the Technical Documents.

Sl. No.	Category Name	Sub-Category Description	Detail(s)
A	Certificate(s)	Certificate(s)	GST Registration, Trade License, Income Tax/PAN, Latest P.Tax (Challan).
B	Company Detail(s)	Company Detail	Proprietorship Firm-Trade License / Partnership Firm (Partnership Deed, Trade License) / Ltd. Company (Incorporation Certificate, Trade License) / Society (Society Registration Copy, Trade License) / Power of Attorney.
C	Credential	Credential - 1	Intending bidders shall submit valid credentials certificate of completion /Successful execution of similar nature of work. However, additional weightage will be given to the bidders having previous experience of similar nature of work.
D	Returns	Income Tax	Last 3 Financial Year's of Income Tax i.e. for 2022-23, 2023-24 & 2024-25.
E	Other Documents		Declaration in an affidavit that no litigation is pending against the Firm/company/bidder or black listed. Declaration on Hardware & technology to be used.

IMPORTANT: If the bidders do not upload these requisite documents in the e-tender portal, they will summarily be rejected during evaluation. If anyone found to be submitting false or manufactured credential, the bidder may be black listed or prevented from participation.

NOTE : BLACK & WHITE SCAN MULTI PAGE SCAN DPI MAX 200-300

VII. FINANCIAL PROPOSAL:

- (a) The Bidder is to quote the rate online through computer in the space marked for quoting rate with BOQ (Bill of Quantities).
- (b) If any bidder is exempted from payment of EMD, copy of relevant Government Order needs to be furnished.
- (c) The financial proposal should contain the following documents in one cover (folder) i.e., BOQ (Bill of Quantities).
- (d) Only downloaded copies of the above documents are to be uploaded virus scanned & Digitally Signed by the bidder. If any bidder fails to produce the original hard copies of the documents as mentioned in their Technical Proposals at point No.VI (a & b) and any other documents on demand of the Tender Evaluation Committee within a specified time frame or if any deviation is detected in the hard copies from the uploaded soft copies, it may be treated as submission of false documents by the bidder and action may be referred to the appropriate authority for prosecution as per relevant IT Act.

C. OPENING & EVALUATION OF TENDER:

1. Opening of Technical Proposal: Deputy Inspector General of Police, Telecommunication, West Bengal and Chairman of the Tender Committee will open the Technical bid of the Tender.
2. Intending Bidders may remain present if they so desire.
3. Cover (folder) for Statutory Documents will be opened first and if found in order, cover (folder) for Non-Statutory Documents will be opened. If there is any deficiency in the Statutory Documents the tender will summarily be rejected.
4. Decrypted (transformed into readable formats) documents of the non- statutory cover will be downloaded & handed over to the Tender Evaluation Committee.
5. Summary list of technically qualified bidders will be uploaded online.
6. Pursuant to the scrutiny, decision of the Tender Evaluation Committee, the summary list of eligible bidders & the serial number of work for which their proposal will be considered will be uploaded in the web portals.
7. After the completion of Technical Evaluation, Financial Bid will be opened. The Bidders should participate for all the 05 (Five) items as mentioned in the Table at Page-2 from Sl. No.1 to 05 in this NIT. **Financial Evaluation will be done on the basis of combined rate for the total items and L1 will be selected as a summation of Sl. Nos. 1 to 5 as mentioned in the Table at Page-2 from Sl. No.1 to 5 in this NIT.**

VIII. REJECTION OF BID:

The Director General of Police Telecommunication, West Bengal reserves the right to reject any/or all the tendered rates without assigning any reason and not to place any orders even after selection and is not liable for any cost that might have incurred by any bidder at the stage of bidding and also reserves the right to divide the contract amongst any number of bidders if required so and to place order for more or less

than the quantity mentioned in the forecast requirement. Director General of Police, Telecommunication, West Bengal, does not bind himself / herself to accept the lowest rate. **If any bidder coated (0) zero value in his / her financial bids or any misleading value just to quote low without any intention to perform the item of the Contract at that rate, then his / her bid will be rejected even after selected as L1 and the next bidder will get the opportunity.**

IX. AWARD OF CONTRACT:

The Bidder whose Bid has been accepted will be notified by the Tender Inviting & Accepting Authority through acceptance letter / Letter of Acceptance both online & offline to save time. The notification of award will constitute the formation of the Contract.

The Agreement in prescribed format in admissible stamp duties will incorporate all agreements between the Tender Accepting Authority and the successful bidder/bidders. The time frame for attending the fault and restoration of equipment within the warranty period and penalty clause for the defaulters will be included in the agreement. All the tender documents including N.I.T. & B.O.Q. will be the part of the contract documents. After receipt of Letter of Acceptance, the successful bidder shall have to submit requisite copies of contract documents downloading from the website stated in the N.I.T. along with requisite EMD.

Once the Tender is accepted the Work Order will be issued, the Vendor should undertake detailed Survey in the Ear marked areas and plan installation accordingly.

X. Payment Terms: The total accepted value of the Project will be paid after successful testing, installation & commissioning of equipment. Submission of bills & payment will be made after getting approval and sanction from the Government.

XI. The selected L1 bidder shall do the RF survey along with buyer and to design of the network for optimum utilization of repeaters as part of implementation.

XII. Scope of Supply:

A. Supply of Equipment: The bidder should supply the tendered equipment within 30 days after getting the work order.

B. Mandatory Training: Necessary technical training need to be arranged by the L1 bidder in collaboration with the OEM, regarding (I) Configuration of Repeater, (II) System Planning & Operation, (III) Repairing and Maintenance. Training shall be given to 15 (fifteen) technical persons for 2 (two) weeks at Telecom Head Quarters Kolkata.

C. Service & Spare Parts Support: OEM should provide necessary support for Service/Spare Parts of the equipment at least minimum **08 (eight) Years** and spare parts should be available within **4 (four) weeks** after receipt of supply order.

D. Supply of Programming Kits etc. : All necessary Hardware, Cables, Connectors, required attenuator and Software for each Network area viz. Repeater , Handheld & Mobile Sets and one set for Telecom HQ need to be supplied after getting the supply order **(as mentioned in Annexure – IV , V & VI).**

E. Technical/Service Manual: Hardcopy and Softcopy of Technical/ Service Manual for each item and for each Network area need to be supplied.

F. OEM has to mention the origin country of the product which should be embossed on the product.

G. Year of manufacture should be mentioned on each Radio Sets.

H. The Data Sheet of the products offered in the bid is to be uploaded along with the bid documents. Buyers can match and verify the data sheet with the products specifications offered. In case of any unexplained mismatch of technical parameters the bid is liable for rejection (**Annexure – IX**).

I. The bidders shall quote only those products (part of service delivery) in the bid which are not obsolete in the market and has at least 08 years residual market life i.e, the offered product shall not be declared end of life by the OEM before this create.

J. Field Demonstration: Before finalization of technical evaluation field demonstration with in a network at desired location is mandatory to check the performance of the equipment (as mentioned in **Annexure – X**). This will be no cost and no commitment basis.

XIII. VALIDITY PERIOD: The Tender validity period will be up to September, 2026.

XIV. Bidders should participate for all the 05 (Five) items as mentioned in the table in 1st paragraph of this NIT. Financial Evaluation will be done on the combined rates for the total items and L1 will be selected as a summation of Sl. No. 1 to 05 as mentioned in NIT.

XIV. WARRENTY: All supplied products must cover 02 (two) years of warranty after completion of installation, commissioning and testing of equipment.

Sd/
Director General of Police
Telecommunication, West Bengal

Committee for Preparation and Up-loading of e-NIT:

Sd/- DIGP, Telecom, WB In the rank of IGP (Chairman)	Sd/- Addl. S.P. Telecom, WB.	Sd/- Prof. Monojit Mitra HOD, Deptt. Of Electronics IIEST, Shibpur
Sd/- Dy. S.P. Technical-I Telecom, WB	Sd/- Dy. S.P. (HQ), TC HQ	Sd/- Dy. S.P. Technical-II Telecom, WB
	Sd/- Inspector (Technical), Radio	

FORMAT CHECK LIST

Sl. No.	Items	Pl mark ✓		Page No.
1	Copy of NIT duly signed properly on each page	Yes	No	
2	Copy of PAN Card	Yes	No	
3	Copy of GST Registration Certificate	Yes	No	
4	Copy of Trade License	Yes	No	
5	MTCTE Certificate	Yes	No	
6	Valid DPL	Yes	No	
7	Scan copy of the online transfer of the EMD document	Yes	No	
8	Filled copies of Annexure I, II, III	Yes	No	
9	Last 3 financial years' returns of Income Tax, i.e., for 2022-23 , 2023-24 & 2024-25	Yes	No	
10	OEM average turnover (last 03 years)	Yes	No	
11	Technical Data Sheet of the products	Yes	No	

Note :

- i.** The bidders are requested to see that all of the above columns are marked.
- ii.** If any of the information furnished above is found to be false, action will be initiated as per law according to the decision of the competent authority.

Annexure - I

APPLICATION FORMAT

(To be furnished in the Company's official letter pad with full Address and Contact No., etc.)

To:

**The Director General & Inspector General of Police
Telecommunication, West Bengal
3 Manik Bandyopadhyay Sarani
Tollygunj, Kolkata 700 040**

Sub: NIT for Wireless Stores at Office of the Director General, & Inspector General of Police,
Telecommunication, West Bengal, 3 Manik Bandyopadhyay Sarani, Tollygunge,
Kolkata 700 040.

Ref:

Sir,

Having examined the pre-qualification & other documents published in the NIT, I/we hereby submit all the necessary information and relevant documents for evaluation:

1. That the application is made by me / us on behalf of

In the capacity of.....duly authorized to submit the offer.
The

authorization letter from the Company is attached in Annexure II.

2. We accept the terms and conditions as laid down in the NIT mentioned above and declare that we shall abide by it for throughout the tender period.

3. We are offering rate for all the item /items and assured supply to the West Bengal Police Telecommunication, Government of West Bengal as mentioned in Page-1.

4. (a) We propose that the order and bill should be raised in our name. For liaisoning, we have appointed M/s having its office at (Address, Contact No. and e-mail address) as C&F agent /Liaisoner /Contact person/..... Others (strike out whichever is not applicable) as per clause of the NIT

OR

(b) We propose that order and bill should be raised in favour of our authorized Distributor. For that purpose, we have appointed M/s having its office at (Address with contact No. and e-mail Address) as authorized Distributor who will receive order and payment in his name on our behalf.

(c) The agreement between ourselves and the distributor/C&F/Liaisoner & other documents as prescribed is attached in annexure III .

5. In the event of being selected, supply will be made within the stipulated period excepting the condition which is beyond our control.

6. We understand that:

(a) Tender Selection Committee can amend the scope & value of the contract bid under this project.

(b) Tender Selection Committee reserves the right to reject any application without assigning any reason.

Date:-

Signature of the applicant including title.

and capacity in which application is made.

Telephone No.:

Mobile No.:

e-Mail Address:

Annexure - II

Authorization letter from Participating Company for authorized signatory.

Annexure - III

Copy of agreement signed between tenderer and the distributor etc.

Annexure – IV

Technical Specification of Digital Radio Repeater (DMR Tier-II)	
Items	Parameter
Frequency Range	136-174MHz (Full Band)
Protocol and Technology	Digital TDMA
No, of Channel	16 or more
Channel Spacing	12.5kHz or better
Power Source	(i) DC - 13.8 Volt (+ / - 15 %) (ii) AC-110Volt - 260 Volt (+ / - 15 %) (iii) There should be provision to shift automatically on DC supply during mains failure and when main supply restores it should be shifted on mains from DC supply.
Duty cycle	Should be 100% duty cycle at full power in both AC and DC Operation
Frequency Stability	± 1.5 PPM or better
Weight	Less than 15KG
Display	Indicator for Transmit & Receive
Antenna Impedance	50Ω
Protection	i)Reverse Polarity protection ii) Protection against high VSWR
EMI/EMC	As per ETSI EN 301 489-1 & ETSI 301 489-5/TEC/SD/DD/ENC-221/05/OCT-16 or equivalent
Duplexer	136 to 174 MHz to be supplied with each repeater.
Type of Emission (Modulation)	Analog: 11KOF3E Digital: 7K60FXE, 7K60FXD,7K60FXW
Mode of Operation	Repeater Should operate in Analog and Digital mode and compatible with existing all type of VHF Digital and Analog Radios in both plain and secure mode
Receiver	
Sensitivity Analog	0.25μV (12dB SINAD) or better
Sensitivity Digital	0.25μV at 5% BER or better
Adjacent Channel Selectivity	60dB or better
Inter-modulation	70dB or better
Audio Distortion	Less than 3%
Audio Response	+1, -3dB
Transmitter	
RF Power Output	50 Watts or More (Programmable/ Selectable)
Modulation Limiting	± 2.5KHz@ 12.5 KHz
FM Hum / Noise	(-)40dB or Better
Adjacent Channel Power	(-) 60dB or better
Audio Distortion	Less than 3%
Environmental Speciation	
Operating Temperature	(-)30°C to + 60°C
Storage Temperature	(-) 40°C to +70°C
Humidity	95% Max, @ +40°C non-Condensing
Networking	Should be capable to support IP site connects
Interfaces	Ethernet port RJ45 to provide a) Wide area IP connectivity for Voice and data b) Remote monitoring and status check

Technical Specification of Digital Radio Repeater (DMR Tier-II)	
Items	Parameter
Accessories	
Battery cable & Mounting fixtures	Should be supplied with Repeater.
Antenna	6 dB or High gain Omni Directional antenna with 45 meter RF Cable RG- 217 with each Repeater. Attenuation 2dB per 100 Feet or better for repeater base station will be provided.
Programming Kit	Required one programming kit against 5 Nos. of Repeater sets
Certification and Test reports	Govt. Lab/NABL accredited Lab.
Warranty	Two years service warranty
Installation , Testing ,Commissioning including IP connectivity(Will be provided by Buyer)	At Sundarban PD or decided by the authority within the State
Seller specific requirement	Valid AIP/DL/WPC License to be provided by the buyer.
Literature-User Manual with each radio sets provided free of cost in soft as well as hard copy	One set of literature against 5 nos. Repeater version set
Literature-Technical repairing & maintenance manual with complete block diagram	One set of literature against 15 nos. Repeater version set
Scope of supply of Digital Repeater Set Covers All components Complete. As per Governing QR:: Specification	Yes
Additional Configuration:: Features optional	Repeater should have Encryption enable Facility Networking (Should be IP based for Auto roaming etc)
QR:: Specification has been seen read and understood.	Yes
MTCTE Certificate issued by Telecom Engineering Centre (TEC), Ministry of Communication, Govt. of India.	Mandatory for quoted VHF product

Annexure – V

Technical Specification of Digital Base / Mobile Transceiver Set (DMR Tier-II)	
Items	Parameter
Frequency Range	136-174MHz (full band)
Protocol and Technology	Digital TDMA Technology
No of Channel	500 or Higher
Channel Spacing	12.5KHz or better in analog and digital mode
Power Source	13.8 V DC $\pm$ 15%
Protection	a) Reverse polarity protection b) Protection against high VSWR
Frequency Stability	$\pm$ 1.5 PPM or better
Antenna Impedance	50 Ω
Weight	Less than 2 KG
Type of Emission (modulation)	Analog: 11KOF3E Digital: 7K60FXE, 7K60FXD, 7K60FXW
Type of Operation	Semi duplex , Push to talk (PTT)
Receiver:	
Sensitivity Analog	0.25 μ V (12dB SINAD) or better
Sensitivity Digital	0.25 μ V at 5% BER or better
Adjacent Channel Selectivity	60dB or better
Inter-modulation	70dB or better
Audio Output	3 W or more
Rated Audio Distortion	Less than 3%
Audio Response	(+)1,(-3)dB
Transmitter	
RF Power Output	25 Watts Programmable / Selectable
Modulation Limiting	$\pm$ 2.5KHz@ 12.5 KHz
FM Hum & Noise	(-)40dB or Better
Adjacent Channel Power	(-) 60dB or better
Audio Distortion	Less than 3%
Environmental Specification	
Storage Temp	(-)40°C to + 70°C
Operating Temp	-30°C to +60°C
Humidity	95% Max. @ +40°C non-Condensing
Vibration	MIL-STD -810 G or better
Shock & Drop	MIL-STD -810 G or better
Water intrusion & Dust	IP 54 or better
Salt	MIL-STD -810 G or better
Rain	MIL-STD -810 G or better
Low Pressure	MIL-STD -810 G or better

Technical Specification of Digital Base / Mobile Transceiver Set (DMR Tier-II)	
Items	Parameter
Accessories	
Microphone	(DTMF/ Keypad Microphone should be Supplied with Radio)
Suitable battery cable and Mounting Fixtures	Should be supplied with Radio
Programming kit(All Necessary Programming Software and Hardware required for the set will be provided as per user's requirements)	One programming kit against 25 Nos. Static/Mobile version set
Literature-User Manual with each radio sets provided free of cost in soft as well as hard copy	One set of literature against 5 nos. Static/Mobile version set
Literature-Technical repairing & maintenance manual with complete block diagram	One set of literature against 50 Nos. Static/Mobile version set
MTCTE Certificate issued by Telecom Engineering Centre, Ministry of Communication	Mandatory for quoted VHF product
Certification and Test reports	Govt. Lab/NABL accredited Lab.
Warranty	Two years service warranty
Configuration	
Support GPS	GPS system with accuracy of less than 10 meters
OTAP (Over The Air Programming)	Should be available
LCD Display	Should be available
Caller ID display	Should be available
Busy channel lock out	Should be available
Scan with priority	Should be available
Transmitter Time out Timer(TOT)	Should be available
Mode of calls	Selective Call, Group Call, Inter and Intra Group call facility
Remote Radio kill/Stun/Revive facility	Should be available
Mode of operation	Radio should operate in analog mode and digital model (compatible with existing all type of VHF Analog and DMR radio sets)
Programming	PC programming
Emergency Button	Allows a user to obtain help in critical situations
SMS Texting	Should be capable of sending pre defined messages & minimum 45 character short messages from keypad
Communication security user defined key management system	System have in built AES 256 bit or better encryption system and should also have provision to support 3 rd party encryption
GIS	Radio should have application protocol interface along with software applications to provide location and messaging on PC/Console
EMI/EMC	As per ETSI EN 301 489-1 & ETSI 301 489-5/TEC/SD/DD/ENC-221/05/OCT-16 or equivalent
Networking	Should be IP Based for Automatic Roaming, etc.

Annexure – VI

Technical Specification of Digital Handheld Transceiver Set (DMR Tier-II)	
Items	Parameter
Frequency Range	136-174MHz
Protocol & Technology	Digital TDMA
No. of channels	Minimum 255
Channel Spacing	12.5KHz or better in Analog & Digital mode
Frequency Stability	± 1.5 PPM or better
Protection	Protection against high VSWR
Weight	Less than 475 gms with battery
Average battery duty cycle (5/5/90)	10 Hrs or more
Type of Antenna	Rugged flexible Helical Antenna
Types of emission (Modulation)	Analog: 11K0F3E
	Digital: 7K60FXE, 7K60FXD, 7K60FXW or equivalent technique complying to open standard/ nonproprietary digital protocol as defined by an international standards body like ETSI/FCC etc.
Types of Operation	Semi-Duplex, Push to talk (PTT)
Power Source	Lithium ion or Lithium Polymer battery pack of 2000 mAh or more with belt clip
Receiver	
Sensitivity Analog	0.25 µV (12dB SINAD) or better
Sensitivity Digital	0.25 µV at 5% BER or better
Adjacent Channel Selectivity	60dB or better
Inter-modulation	60dB or better
Audio Response	(+)1,(-3)dB
Audio Output	Minimum 500 mW
Audio Distortion	Less than 3%
Transmitter	
RF Power Output	1 to 5 Watts (programmable)
Modulation Limiting	± 2.5KHz@ 12.5 KHz
FM Hum & Noise	(-)40dB or Better
Adjacent Channel Power	(-) 60dB or better
Audio Distortion	Less than 3%
Environmental Specification	
Humidity	95% Max. at +40°C non-Condensing
Vibration	MIL-STD -810 G or above
Shock & Drop	MIL-STD -810 G or above
Salt	MIL-STD -810 G or above
Rain	MIL-STD -810 G or above
Water Intrusion & dust	IP67 or better
Operating Temp	-30°C to +60°C

Storage temperature / operational temperature	-40°C to +70°C
Low pressure	MIL-STD -810 G or above
Accessories	
Battery Charger	Single unit Smart Charger.
Programming Kit	One against every 25 Set
Literature	a) User manual with each radio sets should be provided free of cost in soft as well as hard copy with each Radio set.
	b) Technical repairing & maintenance manual, with complete block diagram, circuit layout, PCB layout, Component & wiring diagram etc should be provided as per user's requirement in soft as well as hard copy each against every 50 Radio.
No. of Battery	1 no. of BIS approved Li-ion/Li-Poly spare Batteries against each Radio. (in addition to
	The Battery supplied with the equipment).
Hand free kit (VOX unit with PTT)	Required
MTCTE Certificate issued by Telecom Engineering Centre, Ministry of Communication	Mandatory for quoted VHF product
Certification and Test reports	Govt. Lab/NABL accredited Lab.
Warranty	Two years service warranty
Configuration	
Type of operation	Press to talk
Capable of VOX hands free operation	Required
Scan with priority	Should be available
Remote Radio kill/ stun/ Revive facility with authentication / acknowledgement	Should be available
Mode of operation	Radio should operate in Analog mode and Digital mode (Compatibility with existing all type of VHF Analog and DMR Radio sets)
SMS texting	Should be capable of sending Predefined messages and minimum 45 character short messages from keypad
Programming	PC programming
Emergency button	Allow user to obtain help in critical situation
Battery strength bar	Should be available
Support GPS	In built GPS system with accuracy of less than 10 meter or better
Networking	Should be IP based for automatic roaming etc
Vocoder	AMBE +2 or better

Communication security with user defined key management system	System have in built AES 256 Bit or better encryption system and should also have provision to support 3 rd party
OTAP	Should be available
Bluetooth	4.0 version or better
Noise cancellation / suppression	With or without external mic active noise cancellation
EMI/EMC	ETSI EN 301 489-1 & ETSI 301 489-5/TEC/SD/DD/ENC-221/05/OCT-16 or equivalent
Front panel / DTMF Alpha numeric keypad with backlit	Should be available
Caller ID Display	Should be available
Facility for locking the channel or keypad locking	Should be available
Transmitter time out timer (TOT)	The time should be programmed to best suit the application
GIS	Radio should have application protocol interface along with software applications to provide location and messaging on PC/Console
LCD Display	Display: Should be available (Minimum Display size 1.2 inch)
Mode of calls	Selective call, Group call, Inter and intra group call facility

Annexure – VII

Technical Specification for 0 dB Omni-Directional Antenna with Feeder	
Items	Parameter
Make	Reputed make
Frequency Range	136-174 MHz
Power Rating	50 Watts (Continuous)
Insertion Loss	Less than 1.2 db
Gain	0 dB
TX RX Isolation	Better than 80 db
Polarization	Vertical
VSWR	< 1.5 : 1
TX RX Separation	4.5 to 5.5 MHz
Impedance	50 Ohms
Connector	UHF Female connector
Accessories	a) 1 No. 0.5 Mtrs RF Teflon cable with both end N male connector b) 1 No 0.5 Mtrs RF Teflon cable with BNC male & N male connector
Cable type	½ inch helix cable, inner conductor copper clad aluminum wire 4.8 mm, dielectric foam PE : 12.5 mm, outer conductor: annularly corrugated copper tube 13.8 mm, jacket black low smoke halogen free polyolefin 15.8 mm ,single bending radius minimum 80 mm, repeated bending radius minimum 125 mm. Impedance 50 ohms, velocity 88% capacitance 76 pF/m ,cut off frequency 8.8 GHz.
Length	30 Mtrs

Annexure – VIII**(A)**

Technical Specification of Whip Antenna for DMR Mobile Radio Set	
Items	Parameter
Type of Antenna	Omni Directional /Whip Antenna
Antenna Description	High quality material and polish / coating to prevent corrosion
Gain	3 db Gain
Antenna Impedance	50 Ohms
V.S.W.R	Less than 1.5
Cable	a) 3 Mtrs Coaxial cable b) Outer plastic sheath.
Antenna mounting clamp	Suitable SS clamp and screws for fixing in various vehicles

(B)

Technical Specification for Duplexer with Accessories	
Items	Parameter
Dimension	Not more than 32 x 155 x 1198 mm
Frequency	136 – 174 MHz
Frequency Separation	4 – 7 MHz
Insertion loss	≤1.2 dB
Isolation	≥ 75 dB
Return loss	≥ 18 dB
Connectors	Suitable Connectors
Power	50 Watt or more
Weight (approx)	Not more than 1.2 Kg
Operating Temperature	-10 to 60 degree

Annexure - IX

Product Data Sheet of the Equipment

Annexure – X

Field Demonstration & Inspection Criteria

During field demonstration the participated bidders will install a small network at desired location with sufficient quoted VHF Radio equipment. The following parameters, not restricted to and without any limitation, shall be tested on sample equipment as specified in this bid. If required, the buyer can ask for testing to the satisfaction of any other quality or performance criteria.

1.	RF power output measurement of Repeater, Base stations, Handheld version (Based on test frequency would be allotted by us).
2.	Display brightness and readability for Base stations, Handheld version
3.	Checking operation under Min/Max DC voltage (Static version set) using our variable power supply unit.
4.	Configuration of equipments (Repeater, Base, Handheld) under the licensed frequency of WBP Telecom.
5.	Mode of operation of terminals under DMO and RPT applicable for Base Station and Handheld version sets.
6.	Dual mode operation (Analog and Digital) for Repeater set.
7.	Creation of group nomenclature as per requirement in Two slot operation of single Repeater.
8.	Operational use or test of Digital mobile in Analog DMO mode to communicate with Analog handheld operating under simplex channel.
9.	Scan with priority (Radio to be scanned the same DMO / Repeater mode Digital channel and Analog channel all time & will talk to Analog version radio and Digital Radios as and when required)
10.	Digital to Digital Radios within the cell under same talk group and within different cells under same talk group where the repeaters are connected between each other via Wide Area Network (WAN)
11.	Audio ascent appropriately suitable for our state language (Vocoder Testing)
12.	Digital set to existing Analog set within the cell (in Repeater mode) by keeping the repeater and the user digital radio in analog mode.
13.	Digital set to Digital set within the cell and will be in same talk group through Repeater.
14.	Digital to Digital set with in different cells and will be in same talk group through Repeater by keeping the Repeater in digital / mixed mode.
15.	Two groups (Digital) to be communicated simultaneously within the cells under single repeater (RPT in Digital mode)
18.	Two group (Digital) to be communicated simultaneously with in two different cells (RPT in Digital mode) where the repeaters are connected between each other via Wide Area Network (WAN)
17.	Selective calling, introducing ID to the Digital Radio.
18.	PTT ID decode
19.	Kill and un-kill of digital terminal within the cell or anywhere under the same DMR Tier-II network.
20.	Bluetooth operation functionalities – detailed demonstration is required.
21.	OTAP (Over The Air Programming) configuration changes required through over the air under a common DMR Tier-II network
22.	Coverage area testing of DMR Handheld radio set under DMR Repeater.
23.	Coverage area testing between two Handheld radios under Digital channel in DMO Mode.
24.	VSWR checking of Repeater using the supplied accessories over the Test frequency.
25.	Charging time of the supplied battery pack for DMR Handheld.

26.	Battery life of Handheld Radios-to be checked/or certificate required.
27.	Operation of Dispatcher solution under DMR Tire II Network
28.	Channel Capacity Hand Held
29.	Battery Capacity Hand held
30.	Frequency stability Hand held
31.	Receiver Sensitivity Analog Hand held
32.	Receiver Sensitivity Digital Hand held
33.	Protection: Water intervention Hand held (IP 67)
34.	Frequency stability Static / Mobile Version
35.	No. of channel Static / Mobile version
36.	Receiver Sensitivity Analog Static / Mobile set
37.	Receiver Sensitivity Digital Static / Mobile set
38.	Channel Capacity (Repeater)
39.	Receiver Sensitivity in Analog mode (Repeater)
40.	Receiver Sensitivity in Digital mode (Repeater)
41.	Adjacent channel selectivity of Repeater
42.	Messaging through DTMF Keypad of Handheld Radio set.
43.	Messaging through DTMF microphone of Static / Mobile version sets.
44.	GPS coordinate of Static / Mobile and Handheld Radio sets in different location.
45.	Heat sink facility in hardware of the Repeater radio set