

सरदार वल्लभभाई पटेल राष्ट्रीय पुलिस अकादमी
SARDAR VALLABHBHAI PATEL NATIONAL POLICE ACADEMY
(भारत सरकार : गृह मंत्रालय)
(Government of India: Ministry of Home Affairs)
हैदराबाद – 500 052
Hyderabad – 500 052

TENDER NOTICE NO : 31011/02/2017-18/HS.W
DATED 23 Nov, 2017

SUPPLY OF DIGITAL MOBILE RADIOS TO SARDAR VALLABHBHAI
PATEL, NATIONAL POLICE ACADEMY, HYDERABAD

Date of Tender Enquiry : 23 Nov, 2017

Closing date & time of submitting bids : 15 Dec, 2017



Website: <http://www.eprocure.gov.in>



सरदार वल्लभभाई पटेल राष्ट्रीय पुलिस अकादमी
SARDAR VALLABHBHAI PATEL NATIONAL POLICE ACADEMY
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NOTICE INVITING TENDER
(e-Tender)(Open Tender)

1. SVP National Police Academy, Shivrampally, Hyderabad, invites **e-bids** under Two- bid system (Technical Bid & Financial Bid) in **Open Tender** enquiry from reputed manufacturers or their authorized dealers, fulfilling the following minimum eligibility criteria and as per the terms & conditions for supply of Digital Mobile Radios (List of the bill of material is placed as Appendix –A – page No 09) (**with 03 years onsite warranty**) to communication section of SVP National Police Academy Hyderabad.
2. Salient features of the tender enquiry are as follows:-

a)	Tender No.	31011/02/2017-18/HS.W dated 23.11.2017
b)	Description of item	Digital Mobile Radios - (List of material attached as Appendix – 'A' page No 09) Specification & Attached with NIT (As per Appendix B, C,D & E at Page No. 10 to 16 of NIT)
c)	Type of Tender	Open Tender
d)	Bid System	Two Bid System (Technical Bid & Commercial Bid)
e)	Earnest Money Deposit.	Demand draft of Rs 45,000/- drawn in favour of 'The Director, S.V.P. National Police Academy, Hyderabad'.
f)	Delivery schedule / completion period	Delivery should be completed within 60 days from the date of purchase order of the Academy.
g)	Terms of Delivery	Free on Rail / Road (F.O.R.) Destination, SVP, NPA, Hyderabad.
h)	Bid validity	Bid should be valid for 180 days from the date of opening of bid.
i)	Address of correspondence	The Administrative Officer (Admn) SVP National Police Academy, Shivarampally, Hyderabad, Andhra Pradesh – 500 052

3. Important dates related to this e-Open Tender are furnished below for information:

Srl No	Particular	Date	Time
a)	Date of online publication of tender	23/11/2017	1500 hrs
b)	Starting date for downloading tender documents	23/11/2017	1600 hrs
c)	Bid submission starting date	23/11/2017	1630 hrs
d)	Bid submission closing date	15/12/2017	1700 hrs
e)	Closing date & time for submission of original copies of EMD	15/12/2017	1700 hrs
f)	Opening of bid	18/12/2017	1000 hrs

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4. Interested manufacturers/ authorised dealers/suppliers dealing with items mentioned in Appendix - 'A' can download the tender document from CPP Portal (www.eprocure.gov.in) and bid can only be submitted through the same website. Bid submitted other than on CPP Portal will not be accepted. The eligible bidders should have the digital signature certificate (DSC) issued from any agency authorised by controller of certifying authority (CCA), Govt. Of India.
5. The bids are invited online under two cover system (Technical bid - Cover-1) and price bid/bill of quantity (BOQ) (Cover-2) from eligible bidders.
6. Bidders can access and download the tender documents from CPP Portal and can fill them with all relevant information and submit the completed tender documents online on the website: <http://www.eprocure.gov.in>. The downloading of tender documents shall be carried out strictly as provided on the website. No editing, addition, deletion of matter shall be permitted. If such action is observed at any stage, such tenders are liable for outright rejection.
7. Tender shall be submitted online only at CPPP website. Bidders are advised to refer the Bidders manual kit for e-submission of the bids online through the Central Public procurement portal available at the website: <http://www.eprocure.gov.in>. Aspiring Bidders/ Suppliers who have not enrolled/ registered in e-procurement should enrol/register before participating through the website <http://www.eprocure.gov.in>. The portal enrolment is free of cost.
8. All the documents as per tender requirement should be uploaded online and further, no documents will be accepted offline. However, Demand Draft (EMD- Earnest money deposit) hard copy should be sent to SVP National Police Academy before the due date of opening. Bidders who are not submitting any of the required documents online will summarily be rejected.
9. The details of the Tender documents and EMD should be filled and uploaded online. Earnest Money Deposit (EMD) for Rs 45,000/- only should be deposited in form of Demand draft drawn on any nationalized bank in favour of 'The Director, S.V.P. National Police Academy, payable at SBI, Shivarampally, Hyderabad. **Bids without EMD will not be considered.** Tender Reference Number of details should be mentioned on the backside of the original Demand Draft and the same should be sent to SVP National Police Academy, Hyderabad before due date of opening of the tender.

Terms and Conditions

1. The TIA (Tender inviting authority) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour. For any queries regarding e-tendering process, the bidders are requested to contact over phone : 7799289911 or send a mail over to cppp-nic@nic.in.
2. Service Centre : OEM should have their service centre in Hyderabad, India irrespective of the fact whether OEM is participating directly or through Indian agent to ensure prompt after sales service support. If OEM service centre is not available in India then offer of bidder is liable to be rejected. Details of repair setup and contact person of the service centre should also be enclosed with the tender documents.



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3. Following scanned documents in PDF/Excel file format must be enclosed in separate covers duly sealed and stamped.

First cover (In PDF)

- a) Annual turnover support documents of bidder should be in wireless for at least 03 years. Bidder should have annual turnover of at least Rs 02 crore in the each of last 03 Financial Years.
- b) OEM should be in wireless business for at least 5 years. OEM should have office in India.
- c) Conditions of the Specifications should be accepted as mentioned in Appendix B,C,D and E.
- d) The firm must enclose the attested copy of their **Supplier/firm's Registration, ISO Certificate, OEM Certificate, Delivery term, GST/TIN of the Firm, Pan Card of the firm, Income Tax Returns – Last 3 years, VAT/Sale Tax Returns, list of valued customers, Warranty period (03 years onsite warranty)** and copies of earlier supply orders should accompany along with the quotation. All these documents are to be attached only with Technical Bid.
- e) The Technical Bid containing the specifications of each item, Make, Brand and Model of item and other information leaflets of the proposed brand which the bidder intends to deliver and the delivery schedule by the bidder, **shall be enclosed with the technical tender.**
- f) Scanned copy of EMD for Rs 45,000/- only in the form of Demand draft drawn on any nationalized bank in favour of 'The Director, S.V.P. National Police Academy, payable at SBI, Shivarampally, Hyderabad be submitted in portal followed by original copy before closing of tender date at the address of The Administrative Officer (Admn), SVP National Police Academy, Shivarampally, Hyderabad. **Offers received without the prescribed EMD, will be rejected summarily.**

Second Cover :-

- a) The Financial bid (In excel file like BoQ) :- The rates i.e. unit rate of each item and total amount including all taxes, transportation charges, labour charges and installation charges, if any, are to be quoted explicitly both in words and figures. The Price Bid/BOQ template may not be modified or replaced by the bidder; else the bid submitted is liable to be rejected for this tender. No excess amount beyond the quoted amount will be considered.
- b) The prices once accepted by the purchaser shall remain valid till the successful execution of the complete order to the satisfaction of the purchaser.

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- c) The Financial Bid shall comprise the price component indicating the delivery price including all taxes and installation charges etc. The unit price thereof shall not be overwritten. The unit price, taxes and any other charges should show in separate columns.
- d) Quoted prices **should be inclusive of freight** and forwarding charges, handling charges, loading and unloading charges, insurance charges, etc.
- e) Prices shall be quoted in Indian rupees only.
4. The Bid / Tender submitted shall necessarily remain valid for 180 days after the date of commercial bid opening. If any bidder withdraws his tender before the said period, SVP NPA shall-without prejudice to any other right or remedy, be at liberty to forfeit the Bid Security submitted along with the bid.
5. No interest will be paid on Earnest Money Deposit. EMD of unsuccessful tenderers will be returned in due course of time. If the quotation is accepted and the contracted firm fails to undertake the supply contract, their EMD will be forfeited without any further notice.
6. The Director, SVP National Police Academy **reserves the right to order full or part thereof** of the items enclosed or accept/reject any or all the bids without assigning any reason.
7. Interoperability: Bidders should ensure that their quoted model of DMR is completely interoperable with Kenwood and Motorola analog sets while operated in analog mode available in SVP NPA Hyderabad.
8. Quoted models should have interoperability with 1/5W, 25W and Repeater variation of the same firm.
9. Dispatch Instructions : Stores are required to be delivered at consignee place at freight, risk and cost of the supplier.
10. Payment Terms : Payment will be released on production of inspection report and receipt of stores at consignee's location.
11. Packing & Marking : As per relevant clause of Specifications.
12. Technical Literature : Tenderer should mandatorily submit a technical literature/ brochure with their tender clearly mentioning the compliance of each and every technical parameter as per specifications mentioned in Appendix A & B. Compliance statement should clearly indicate the relevant page No. Of the brochure/literature.
13. Rate quoted by the firms should be on firm price basis.



14. Tenderers should disclose the name and full address (along with telephone/Fax No) of the place where the stores will be manufacture and offered for inspection. In case the firm is registered with NSIC for the subject stores, they should clarify whether they are registered as a manufacturing unit or in any other capacity. In case the registration is as a manufacturer, they should indicate the full address/ phone no of their manufacturing facility.
15. Purchaser reserve the right to get the manufacturing capacity of all firms re-verified irrespective of the registration status.
16. The price bids of the bidders whose technical offers are acceptable will be opened and order would be considered on the lowest bid subject to their capacity and performance etc.
17. Penalty Clause : Firm is to be supplied the ordered stores within time failing which, penalty @ 0.5% of the Purchase Order value will be recovered for per day subject to a maximum of 5% (five percent) from the final payment unless extension is obtained in writing from this office on valid ground before expiry of delivery period. Further in case of inordinate delay of 04 weeks from the stipulated date of supply, this purchase order may be cancelled without any further notice and your firm may also be blacklisted.
18. MANUFACTURERS : Only those firms should respond who are the manufacturer of the tendered stores. In countries where manufacturers are authorized to export the store only through their authorized Govt. Marketing agency, such agencies will be allowed to bid. The tenderer must furnish certificate with their tender from manufacturer and their Govt. Certifying authenticity as above failing which their tender will be summarily ignored. The foreign manufacturers of the tendered store will also have to give details in the tender documents of the after sales-service to be provided after expiry of warranty period.
19. The Indian Agents of foreign manufacturers/principal are also allowed to bid in the tender subject to the following conditions :
 - i) The Indian Agent will submit, alongwith the tender documents, a copy of the agreement with the foreign manufacturer/principal, giving particulars of precise arrangement with foreign principal and their interest in the business in India. Such agreement with foreign manufacturers/principal should be a long term agreement and not merely for the present tender. If the agreement is only for the present tender the offer received will be liable to be rejected.
 - ii) The Indian Agent will provide details of the after sale service and post contractual support i.e. repair, maintenance etc.
 - iii) The Indian Agent will also be required to submit the details of his commission or any other arrangements with foreign manufacturer/principal for providing tendered items.

20. Offer from firms whose business activities are limited to procuring items from manufacturers, both Indian and foreign supplying the same purchaser having no after service back up will not be entertained.
21. Tenderers, who desire to quote more than one model, should submit separate EMD and compliance statement for each model.
22. The successful bidder will provide 1 week free of cost training on handling, operation & minor repair of the radio set.
23. Full name, contact no and status of the person signing the tender documents must be clearly mentioned in the tender documents.
24. The firm applying tenders against the Tender Enquiry are informed that all relevant details with reference to the Tender Enquiry stipulation are clearly responded to otherwise their offer is liable to be rejected.
25. Before submission of tender, tenderers will check the Specifications compliance sheet (Appendix B to E) attached to these Tender Documents for compliance on various stipulations of the tender.
26. The Tender Processing Committee of the Academy may visit the site wherever the equipments are installed or the manufacture to verify the quality. The Tender Processing Committee may also require the bidders to give a demo either at NPA or at a place of their convenience.
27. **SAMPLE** The Tender Processing Committee of the Academy may require the bidders to provide physical samples to be seen during the opening of technical bid and to test quality of Eqpt. Bidder is self responsible on his own expenditure for showing the sample before board during opening of technical bid.
28. Liability of the work order getting cancelled, if the quality / progress of the work is found to be not satisfactory or if there is an inordinate delay of more than 4 weeks in completing the supply from stipulated date as per PO.
29. The bidder will be blacklisted by the Academy in case of (column-28) above being invoked.
30. The SVP NPA reserves the right to increase or decrease the quantity of supply / items.
31. The Director SVP NPA reserves the right to cancel the order without pre notice, forfeit the security deposit or recover any damages for any breach of contract.
32. Notwithstanding any of the conditions and clauses indicated in the Tender form, the Director has whole and sole right to accept or reject either the lowest or any other valid bid and or **split up the order** for supplying of Camera to more than one bidder or to cancel the Tender without assigning any reasons thereto.



33. **Performance Security Clause :-** The successful bidder on receipt of supply order should submit a Bank Guarantee (5% of the order value) issued by any Nationalized Bank in favour of the Director, SVP National Police Academy, Hyderabad payable at SBI Shivrampally, Hyderabad within 15 days of the placement of supply order for due performance as per the provisions contained in GFR-2017. Failure on the part of the firm to deposit the performance security within stipulated time the purchase reserves the right to cancel the supply order. Performance security submitted by the bidder will remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. No interest will be payable for "Performance Security".

34 **Opening and Evaluation of Technical Bids:**

- a) The Tender Committee appointed by the Competent authority of Academy will open all Technical Bids in the first instance on the appointed date, time at SVP NPA Hyderabad.
- b) During evaluation of the bids, the purchase committee may, at its discretion, ask the Bidder for clarifications of its bid. The clarification of the bidder shall be in writing.
- c) No bidder shall contact the committee member on any matter relating to its bid from the time of the bid opening to the time the purchase order is placed. If the Bidder wishes to bring additional information to the notice of the Purchaser it should be done in writing.
- d) Any effort by a bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison or purchase order decision will result in rejection of the bid.
- e) The results of the evaluation of the Technical Bids along with the date of opening of the Financial Bids will be communicated to the qualifying bidders. The purchase committee may at its option to choose to open the financial bids immediately after the opening and evaluation of the Technical Bids.

35 **Opening and evaluation of Financial Bids:**

- a) The Tender Processing Committee will open the financial bids in favour of vendors who successfully qualified technical bid.
- b) Arithmetical errors will be rectified on the following basis:- If there is a discrepancy between words and figures, the lower of the two shall be taken as the bid price. If the bidder does not accept the correction of errors, as aforesaid, its bid will be rejected, and its EMD will stand forfeited



36 **Eligibility Conditions**

- a) The bidding firm should have the capability to supply the ordered equipment in time as per the schedule indicated in the salient features i.e. the supply shall be completed within 60 days from the date of receipt of purchase order.
- b) Any Government organization/undertaking should not have blacklisted debarred/suspended the bidding firm.
- c) The Vendor should preferably be an entity registered in India.

37 **Taxes and duties**

- a) Vendor shall be entirely responsible for all taxes, duties, license, fees etc. incurred until delivery of the contracted services/items to the Academy.
- b) No bid will be considered unless and until all the pages / documents comprising the bid are properly numbered, signed and stamped by the person/s authorized to do so.

R. Jayanthi
23/11/11

(R. Jayanthi)
Administrative Officer (Admn.)
SVP National Police Academy

LIST OF THE BILL OF MATERIAL

Sl. No	Category	Description	Quantity
1	<u>Portables(W/T)</u>	Digital VHF 1-5W Radio Hand Held with Battery, Charger, Belt clip, Helical Antenna, User Manual, and Standard Acc.	30 No.s
2		Spare Battery	30 No.s
3		Technical Manual	2 No.s
4		Programming cable for Portable	2 No.s
5		Programming Software copy	1 No.s
6	<u>Mobile/Static Radios</u>	VHF 25 watt Mobile radio with DTMF Fist mic, DC power cable, Moutning bracket, User Manuals and Other Standard Acc. BNC Connectors for Base radio	5 No.s
7		GPS Antenna with connector for Mobile radios	5 No.s
8		Programming cable for Mobile/Base Radio	2 No.s
9		Latest Programming software version or better on DVD Copies	1 No.s
10		Complete Technical repair manual Original OEM Hard copy	2 No.s
11		3dB gain VHF Whip Antenna with 3 Mtrs cable, with compatable Connector termination, Tuning chat, alignment Key with Standard Acc. For Mobile Radio	5 No.s
12		3 dB VHF GP Antenna with Mounting Brackets & Clamps, Support Dipoles,UHF Female Connector termination and Antenna Tuning Chart.	5 No.s
13		30 Mtrs Length RG-213 RF Cable for Static Radios with UHF male terminations Both ends	5 No.s
14		BNC Connectors for Base radio	5 No.s
15		<u>Repeater</u>	Digital VHF 45 watts Repeater with Power cable operational Manual and Standard Acc.
16	DC Battery Power cable Repeater		2 No.s
17	50 watts VHF Duplexer Filter with connectors.		2 No.s
18	Programming cable for Digital Repeater		2 No.s
19	Latest Programming software		1 No.s
20	Complete Technical repair manual Original OEM Hard copy for Repeater		2 No.s
21	LMR-400 Cable 45 meters with N type end connectors		2 No.s
22	6 db Antenna with suitable dipoles and mounting fixtures N type End connectors.		2 No.s
23	<u>Dispatcher</u>	VOICE + DATA Dispatcher Console, 3 Year Software Upgrades with all facilities and features: Voice Dispatch, Voice Recording, Crosspatch, GPS, ARS, Text, Telemetry, Stun Kill, Lone Worker, Geo fencing, Reporting etc. (Software)	1 No.
24		Subscriber unit license (per radio license) if Applicable	35 No.s
25		Installation & Support for Sets and Dispatcher	
26	<u>Additional Acc.</u>	Light weight headset w Boom mic & PTT Mag One	30
27		8 port Network unmanageable industrial grade switch	1 No.
28		Cat 6e 3 mtrs stright cable patches	4 No.
29		32 Amps Spike Boards	2 No.s
30		USB Sound card	1 No.
31		Headset with in-line microphone or Bluetooth Headset	1 No.
32		Multi port USB	1 No.

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TECHNICAL SPECIFICATIONS OF DIGITAL HAND HELD VHF TRANSCEIVER SET (1/5 WATT)

Sr. No.	Specification	General
1	Fréquency Range	VHF HB : 136MHz to 174MHz,
2	Frequency spread	38 MHz
3	Channel Capacity	250 or higher
4	Protocol	TDMA
5	Channel Spacing	a) Analog- 12.5Khz b) Digital – TDMA –12.5 KHz
6	Type of Emission	a) Analog- 11 KOF3E b) Digital — 7K60F1D & 7K60FXD or Better
7	Fréquency Stability	+ 2 PPM or better
8.	Type of Operation	Simplex, Semi-Duplex, Press to Talk
9	Weight	Less than 400 gms.
10	Power Source	Li-Ion Battery Pack of minimum 2000- mAH or more.
11	Antenna Impedance	50 ohm
		Environmental Specifications
1	Operating Range	Temperature – 20 °C to +60 °C
2	Applicable MIL Standards	MIL Standard 810 C, D, E, F & G
3	Applicable IP Standards	IP 67 Standard or better
		Transmitter
1	RF Power Output	Low : 1 Watt & High : 5 Watt Programmable and Switchable
2	Frequency Deviation	±2.5 KHz @ 12.5 KHz or better
3	Modulation Sensitivity	Less than 10mV @ 1 KHz mic input for standard deviation ± 1.5 KHz (for 12.5 KHz), ± 3 KHz (for 25KHz)
4	Modulation Distortion	Less than 3 % @ 1 KHz
5	Modulation Fidelity	+1, -3 dB of 6dB / Octave pre-emphasis characteristics from 350 Hz to 2700 Hz or better with 1 KHz as a reference
6.	FM Hum Noise	40 dB @ 12.5 KHz, 45 dB @ 25 KHz
7	Spurious & Harmonics Response	70 dB.
		Receiver
1	Sensitivity	Analog – 0.3 micro volts for 12 dB SINAD or Better Digital - 0.35 micro volts @ 3 % BER or Better
2	Adjacent Channel Selectivity	Analog – 60 dB @ 12.5 KHz or Better
3	Image Rejection	60 dB or better
4	Spurious Rejection	70 dB or Better
5	Audio Output	Not less 0.5Watt Typically @ 5 % distortion or Better
6	Audio Response	+1, -3 dB of 6 dB / Octave de-emphasis characteristics from 350 Hz to 2700 Hz or better with 1 KHz as a reference
		Features
1	Mode of operations	Analog , Digital conventional & Mix mode
2	Ready to GPS	GPS built in with built in Antenna with Horizontal accuracy < 10 Mtrs.
3	SMS Text Message Facility	Short and Long Data Message facility

4	Scrambler	In built low grade Analog and Digital high grade Scrambler with provision of AES/DES encryption.
5	Protection	Protection against High VSWR
6	Radio configuration facility	PC Programming and on Air Programming
7	Front Panel Key pad	DTMF Front Panel Keypad with Backlit LCD panel
8	LCD Display	Minimum 3 lines display
9	Battery Strength Indicator	Battery Strength Bar indicator or Digital Read Out , Low Battery alert
10	Signal Strength Indicator	RSSI – Signal Strength Indicator or Digital Read Out
Accessories and Manuals		
1	Type of Antenna	Rugged flexible Helical Antenna with GPS for the frequency specified.
2	Battery	Li-Ion Battery pack of 2000 mAH or more Capacity
3	Spare Battery	Single Unit
4	Rapid Charger	Desktop type Rapid Battery Charger. Charging time – 2 to 3 hrs.
5	Operating Manual	Hardcopy, one for each handheld radio.
6	Technical/ Service Manual	Hardcopy 2 Nos.
7	Programming Interface & S/W	All necessary radio programming Hardware 2Nos. and Software
8	Bluetooth speaker with mic	04 Nos.
Other Features		
1		Alpha –Numeric List of 256 User for SMS and Selective Calling
2		Alpha –Numeric Channel Alias
3		Alpha –Numeric PTT ID Alias
4		Facility for locking the Channel and Key pad
5		Scan with Priority
6		Emergency Status Message Facility
7		Selective Call, Group Call
8		Busy Channel Lockout
9		To be able to get Kill / Stun and Revive
10		Bluetooth built-in
11		Active Noise cancellation
12		Man Down Function
13		Inbuilt message recorder
14		DSP based Noise Cancellation

TECHNICAL SPECIFICATIONS OF DIGITAL MOBILE / STATIC VHF TRANSCEIVER SET (25 WATT)

Sr. No.	Specification	General
1	Frequency Range	VHF HB : 136MHz to 174MHz, Full Band
2	Frequency spread	38 MHz
3	Channel Capacity	250 or higher
4	Protocol	TDMA
5	Channel Spacing	a) Analog- 12.5 KHz. b) Digital- TDMA - 12.5 KHz
6	Type of Emission	a) Analog- 11 KOF3E b) Digital - 7K60F1D & 7K60FXD
7	Frequency Stability	+ 2.0 PPM or better
8.	Type of Operation	Simplex, Semi-Duplex, Press to Talk
9	Weight	Less than 2 Kg.
10	Power Source	13.6 Volt DC +/- 10% with reverse polarity protection
	Communication Interface	Ethernet/USB/RS232 and Bluetooth
		Environmental Specifications
1	Operating Range	Temperature -20°C to +60°C
2	Applicable MIL Standards	MIL Standard 810 C, D, E, F and G
3	Applicable IP Standards	IP 54 or better
4	Antenna Impedance	50 ohm
		Transmitter
1	RF Power Output	25 Watt ± 0.5 dB, Programmable
2	Frequency Deviation	± 2.5 KHz @ 12.5 KHz or better ± 5 KHz @ 25KHz or better
3	Modulation Distortion	Less than 3% @ 1 KHz or better
4	Modulation Fidelity	+1, -3 dB of 6dB/Octave pre-emphasis characteristics from 350 Hz to 2700 Hz or better with 1 KHz as a reference
5.	FM Hum Noise	40 dB @ 12.5 KHz or better
6	Spurious & Harmonics	70 dB or better
		Receiver
1	Sensitivity	Analog – 0.3 micro volts for 12 dB SINAD or better Digital - 0.35 micro volts @ 3 % BER or better
2	Adjacent Channel Selectivity	70 dB @ 12.5 KHz or better MIL STD
3	Image Rejection	60 dB or better
4	Spurious Rejection	70 dB or better
5	Audio Output	Not Less Than 3 Watt Front mounted internal speaker and socket for external speaker@3% distortion
7	Audio Response	+1, -3 dB of 6 dB/Octave de-emphasis characteristics from 350 Hz to 2700 Hz or better with 1 KHz as a reference.
		Features
1	Mode of operations	Analog, Digital conventional & Mix mode
2	Ready to GPS	GPS built-in with Horizontal accuracy < 10 meters. Necessary Hardware, Software shall be provided that is required for making radios "GPS Ready"



3.	SMS Text Message Facility	Short and Long Data Message facility Messaging Facility using PCs.
4	Scrambler	In built low grade in Analog and high grade in Digital with provision of AES/DES encryption.
5	Protection	Reverse Polarity Protection, Protection against High VSWR
6	Radio configuration facility	PC Programming
7	DTMF Mic	DTMF Mic
8.	Multifunction LCD Display	LCD Display with Backlight.
9	Signal Strength Indicator	RSSI – Signal Strength Indicator
10	OTAR (Over The Air Reprogramming)	Required
Accessories and Manuals		
		Antenna
1	Type of Antenna	a) 0 dB Whip Antenna, 3 mtr Co-axial Cable with suitable connector and mounting kit for Mobile Installation.
		b) GPA antenna with 20 Mtr. length of cable with connectors.
2	Operating	Manual Hardcopy, one for each Mobile /Fixed radio.
3	Technical/ Service Manual	Hardcopy
4	Mounting Kit	Mounting Kit
5	DTMF Mic	With Clip
6	Programming Interface & Software	All necessary radio programming Hardware, Cables, Connectors 2Nos. and Software DVD.

TECHNICAL SPECIFICATIONS OF DIGITAL VHF REPEATER SETS

Sr. No.	Specifications	General
1	Frequency Range	VHF HB : 136MHz to 174MHz (Full Band)
2	Channel Capacity	16 Channels or more
3	Protocol	TDMA ETSI Compliant DMR Tier II or Better
4	Channel Spacing	a) Analog- 12.5 KHz
		b) Digital – TDMA – 12.5 KHz
5	Type of Emission	a) Analog- FM- 11K0F3E
		b) Digital –4FSK or equivalent technique complying to open standard/non proprietary Digital Protocol as defined by an international standards body like ETSI / FCC etc
6	Frequency Stability	± 2.0 ppm or better
7	Antenna Port Impedance	50 Ohms
8	Type of Operation	Repeater Mode, Press to Talk
9	Indication	Separate LED indication for transmit, receive and Stand-by mode.
10	Duty Cycle	Continuous 100 % at 25 Watts & 50% at 50 Watts
11	Protection	(i) In case of impedance mismatch the final PA state should not be damaged.
		(ii) The size of the heat sink shall be adequate to ensure heat sink temperature under steady condition does not rise more than 20°C above Ambient Temperature.
12	Repeater Configuration Facility	PC programming
13	Power Source/ Operating Voltage	12 V DC +/- 10% or Mains Operation.
	Receiver	
1	Sensitivity	Analog – 0.28 µV or better for 12 dB SINAD
		Digital - 0.35 µV or better @ 3 % BER
2	Adjacent Channel Selectivity	Analog – 70 dB@ 12.5 KHz
		70 dB @ 25 KHz
3	Inter modulation Distortion	80 dB or better
4	Spurious Response	90 dB or better
5	Audio Output	Ext Sp: not Less than 3 watt
6	Audio Distortion	Less than 5% at 1000 Hz
7	Speaker	Front mounted internal speaker and socket for external speaker
8	Hum and Noise	50 dB @ 12.5 KHz (analog)
		55 dB @ 25 KHz (analog)
	Transmitter	
1	RF Power Output	Not less Than 45 Watts output
2	Frequency Deviation	± 2.5 KHz Max for 12.5 KHz,
		± 5KHz Max for 25KHz Channel spacing.
3	Spurious & Harmonics Response.	Better than 80 dB
4	FM Hum and noise	40 dB @ 12.5 KHz or better
	Modulation Distortion/ Audio Distortion.	Less than 1% @ 1 KHz
5	Digital Vocoder	AMBE+2 or Better
6	Digital Modulation	4FSK or Better
	Digital protocol	ETSI TS 102361-1-2-3 or Better
7	Modulation Sensitivity	Less than 10mV @ 1 KHz Mic input for +/- 1.5 KHz standard deviation for 12.5 KHz TDMA

		Features
1	Mode of operations	Repeater should operate in Analog/Digital/Mixed Mode. In Digital Mode Voice & Data Capabilities are required.
2	IP Compatibility	The repeater should support use of IP Network using leased lines, internet bandwidth or Microwave. Bidder will bid for Hardware/Software required for IP networking.
3	Alarms for Diagnosis	Facility is required
F		Environmental Specifications
1	Operating Temperature Range	-20 °C to + 60° C or better
		Accessories & Manuals
1	Battery Cable	Battery cable of not Less than Three meters length
2	Handset	MIC with PTT
3	Loud Speaker	Suitable External Speaker (If no internal speaker is provide)
4	Programming Kit	All necessary hardware 2Nos. and software on DVD.
5	Antenna and Feeder cable	6.5 dB Omni directional fiber glass Antenna with suitable fitting Clamps.
		Duplexer with 50 watts power handling.
		Low loss RG-217 cable of 30 meter length with connectors (As per the site requirement) with suitable connectors.
6	Power Supply	Power supply cum battery Charger Input 230 V AC +/- 10%, 50 Hz DC Output 13.5 V with required current rating.
7	Cabinet	19" Rack Mounting as well as desktop compatible.
8	Operation Manual	Manual Hard copy one for each repeater.
9	Technical Service Manual	Hard copy 2Nos.

DESPATCHER

1	VOICE + DATA Dispatcher Console, 3 Year Software Upgrades with all facilities and features: Voice Dispatch, Voice Recording, Crosspatch, GPS, ARS, Text, Telemetry, Stun Kill, Lone Worker, Geo fencing, Reporting etc.	
2	Subscriber unit license (per radio license) if Applicable	
3	Installation, Training & Support for Sets and Dispatcher	
	software Features	
1	Caller ID Display	Voice Communication Management
2	Individual Call	Personal calls
3	Group Call	Cross Patch
4	Paging Call	Intercom
5	AVLS	Telephone Interconnect with DTMF
6	Call Log	Group Calls
7	AVLS Log	ARS Functions
8	All Call or Broadcast call	Status of monitoring
9	Status Message	GPS positioning Rastor or vector Maps
10	Text Message	Text Messages
11	Remote Monitor	Telemetry in/out Support
12	Stun / Unstun	Stun kill /Un stun on Air programming
13	Kill / Unkill	Kill / Un kill on Air programming
14	Emergency	Event logging and Reporting
15	Lone Worker	Lone worker
16	Motion Sensor	Motion Sensor
17	Voice Recording	Voice Recording
18	VC Play Back	Should available
19	Voice Scrambler	Voice Scrambler
20	Geo Fencing	Geo Fencing
21	Exports Voice Data to MP3 Data Format	Data export services
22	Configurable Colour & Size	All channels support Digital , Analogue, MDC, SIP

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23/11/14

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