

TECHNICAL SPECIFICATION OF S. D.R.F. Equipments of

Lot no. 34

SPECIFICATION FOR 24 NOS. VHF STATIC/MOBILE SET

TENTATIVE BOQ

Sl.	Name of the Equipment	Item	Qty	Offered (filled by Tenderer)	
				Make	Model
1	DIGITAL VHF STATIC/ MOBILE RADIO SET WITH ACCESSORIES	1 VHF Static Set 20 watt /25 Watt Synthesized with DTMF Mic and Battery lead	24		
		2 0 dB GP Antenna	06		
		3 Magnetic Standard 0 dB gain ¼ wave mobile whip antenna with 3 mtr. cable, connector with magnetic base	18		
		4 12V10A SMPS Power supply cum charger suitable for offered Radio	06		
		5 30 mtr co-axial feeder RG-213 with connectors	06		
		6 Programming Hardware & Software kit for Static/Mobile Set windows base (windows-7 or higher version)	05		
		7 Technical/Service Manual for Static/Mobile Set	01		
12V100AHSMF BATTERY	1 12V100AHVRLASMF Battery	09			
60' LATTICE MAST WITH INSTALLATION KIT	1 6 Section 10' each	06			
	2 Installation Kit	06			

SPECIFICATIONS OF DIGITAL TRANSCEIVER VHF STATIC/MOBILE SET AND ACCESSORIES

1. DIGITAL VHF ST/MOB TRANSCEIVER 25 WATT SYNTHESIZED		
Sl.	Particulars	Desired Specification
A	GENERAL	
1	Frequency Range	136-174 MHz (full band)
2	Channel capacity	255 or more
3	Protocol	TDMA (02 slot)
4	Channel spacing	12.5 KHz
5	Frequency Stability	± 1.5 PPM or better
6	Weight	Less than 2 kg
7	Operating Voltage	10.8 to 15.6 Volt DC with reverse polarity protection
8	Antenna Impedance	50 Ohm

9	Communication Interface	Ethernet/USB/RS232
10	Display	Multifunction alphanumeric LCD display with back light/LED display. Readable in day light, sun light and in night. Minimum 3 rows or more.
11	Warranty	Standard warranty for 05 years
12	Compatibility	With all types of existing analog radios (i.e. Motorola, Kenwood, Icom, Vertex etc.)
13	Encryption	1- High grade 256 bit or higher Digital Encryption module built in/plug in type for secrecy. 2- Programmable key management facility
14	Minimum qualification	(a)Tenderor/OEM must have it's office and service center in India. (b)Tenderor/OEM must have minimum 03 years supply order from govt. department. (c) Tenderor/OEM must have 05 years presence in India.
B	TRANSMITTER	
1	RF Power output	25 W \pm 0.5 dB as Programmable
2	Type of emission	Analog 11KOF3E Digital-4FSK or equivalent technique complying with open standards/ non propriety digital protocol as defined by international standard body like ETSI/FCC etc.
3	Digital Modulation	4FSK
4	Modulation Limiting	\pm 2.5 KHz
5	Audio Response	+1, -3dB, as per TIA 603D
6	FM Hum noise	-40dB or better
7	Adjacent channel power	-60dB or Better
8	Digital Vocoder	AMBE+2
C	RECEIVER	
1	Sensitivity	Analog: 0.30 μ V(12dBSINAD) or better Digital: 0.30 μ V @5% BER or better
2	Adjacent channel	60 dB better as per TIA603A-1T
3	Inter -modulation	70 dB or better
4	Audio output	Minimum 3 watt with built in speaker
5	Audio distortion	3% or better
D	ENVIRONMENTAL SPECIFICATION	
1	Operating Temperature	-30 ⁰ C to +55 ⁰ C
2	Storage Temperature	-30 ⁰ C to +60 ⁰ C
3	Humidity	95% non-condensing (-20 ⁰ C to +60 ⁰ C)
4	Applicable MIL standard	MIL standard 810 C/D/E/F/G
5	Applicable IP standards	IP54/ IP57/ IP67

E	FEATURES	
1	Mode of operations	Analog conventional, digital conventional simple press to talk
2	GPS capability	<ul style="list-style-type: none"> • In built GPS with: TTFF Cold start <2 minutes, TTFF hot start <20 sec • Horizontal accuracy <10 meters • GPS data access methods (a) by polling (b) by fetching (on request) • Vendor should mention– coordinate file Format Compatible with free map. Google map will be preferred for receiving and extracting GPS data/information for the use of location tracking purpose. (This feature has to be demonstrated at the time of testing/trial for future use. PC required for GPS tracking is not part of BOQ.)
3	Status message and SMS text message facility	<ul style="list-style-type: none"> • Status messaging facility • Short and long data message facility • Messaging facility using PCs one to many radios
4	Data transmission facility	Text messaging (file transfer) facility must be demonstrated, using PCs through accessory connector. (PC required for data transmission is not part of BOQ.)
5	Protection	Reverse polarity protection. Protection against high VSWR
6	Radio Programming Facility	PC programmable
7	Hand set with Mike Keypad	DTMF Front panel keypad with backlight
8	Signal Strength indicator	Receiver signal strength indicator or digital readout
9	OTAR	Should have provision for over the air frequency re-programming (wirelessly)
10	Networking	Should be IP based for automatic roaming etc.
F	OTHER FEATURES:	
1	Simple press to talk	
2	Alpha numeric list of 256 users for sending SMS & for selective calling	
3	Alpha numeric channel alias	
4	Alpha numeric PTT ID alias	
5	Facility to assign network access code, CTCSS (Continuous Tone Coded Squelch System)/DCS (Digital Coded Squelch)	
6	Channel scan & priority channel scan	
7	Call alert	
8	Talk around mode	
9	Transmitter Time Out Timer (TOT) operation	
10	Emergency call Facility (SOS)	
11	Selective call, group call	
12	Late entry	
13	Busy channel lock out	
14	Capable to kill-unkill, disable -enable	
15	Automatic number identification	
16	Externally accessible accessory connector. (For connecting programming kit. Repeater interface, Data interface etc.)	

17	Vendor shall mention other manufacturer's models of the radios which are inter portable for voice & data communication to the system offered.
18	All the parameters and specification of offered models should have been tested by an ILAC/ NABL approved laboratory and test reports should be submitted along with the bid as per MHA guidelines.

2. 12 VOLT POWER SUPPLY FOR VHF STATIC/MOBILE RADIO

Sl.	Parameter	TECHNICAL SPECIFICATION
1	DC Current Capacity	10 Amp: Max output current 10 Amp
2	Type of Power Supply	SMPS/Linear
3	Input Voltage	230 Volt AC \pm 10% at 50 Hz
4	Out Put Voltage	13.5 Volt DC \pm 5% on 80% load or better
5	Operation	Continuous Duty
6	Charging	Float and Boost
7	Protection	i) Short circuit protection ii) Reverse Polarity protection
8	Efficiency	More than 80% for SMPS and more than 50% for Linear power supply
9	Weight	Less than 5 Kgs
10	Changeover	Automatic changeover to battery in case of mains power supply failure along with float charging facility. Maximum charging current of 8 Amp for power supply with boost charging facility and 3 Amp for power supply with float charging facility
11	Battery cable	Should be provided with power supply

3. ANTENNA ARRANGEMENTS & FEEDER FOR VHF RADIO

Sl.	Type of Radio	TECHNICAL SPECIFICATION
1	Transceiver VHF Static radio, 25 Watt Synthesized	i) Standard 0dB GP Antenna of reputed brand: OEM test Certification to be attached. ii) Standard RG-213 Coaxial cable, 30 meter with connectors of reputed brand: Defense certification issued by any Govt. approved laboratory/UP Govt. laboratory to be attached.
2	Transceiver VHF Mobile radio 25 Watt Synthesized	i) Standard 0dB gain $\frac{1}{4}$ wave mobile metallic Antenna with 3 mtrs. Cable, connector with magnetic base of reputed brand: OEM test Certification to be attached.

TECHNICAL SPECIFICATIONS FOR 12 V 100 AH VRLASMF BATTERY

1	Sealed Lead Acid Valve regulated types.
2	Nominal Voltage : 12 Volts
3	Rated Capacity at 20 hours discharge rate : 100 AH
4	Confirming Japanese industrial Standards JIS C 8702/2009 (Part 1) : Certificate to be enclosed.
5	Supplier should submit Complete and satisfactory "Type Test Report" from Authorised Govt. Laboratory to meet all the tests mentioned in JIS C 8702/2009 (Part 1) with technical bid.
6	Battery should be supplied with appropriate Batts lead.

60 FEET TRIANGULAR LATTICE MAST & INSTALLATION KIT

A) LATTICE MAST	
1	Length of section 10 ft.
2	Triangular C.D. ≥ 167 mm
3	Thickness of rod ≥ 12 mm
4	Bracing thickness ≥ 6 mm
5	Mast should be hot dip galvanized.
6	Each section should have joining arrangements with (min. 35mm x 35mm x 5mm) iron strip (coupling arrangements). Both sides of 10' section should be reversible so that either of the ends can be used as a base or as a top.
7	Each arms of the triangle should not be less than 7" uniformly.
8	Lattice mast should be able to with stand minimum 60 feet height by putting 6 sections of 10 feet length.
9	Brace to be provided at minimum 6 " intervals.
10	Tri-angular frame of the angle iron to be provided for coupling section to each other.
11	Top plate should have arrangements for installation of Vertical and Horizontal antennas and provision of holes for pulleys.
B) Installation Kit:	
1	Base plate : Min (6 mm x 300 mm x 300 mm)
2	Base plate should have hinged arrangements for easy mast erection.
3	4 nos. of foundation nails min (450 mm x 16 mm) or better, suitable for 60 feet lattice mast erection.
4	Min. 3 sets of Guys of GI wire nos. 12 SWG at 60 feet, 40 feet and 20 feet ; (4x3)=12 Kg. for each set for 60 feet installation.
5	Min. 9 nos. of straining screws 12 " long or better
6	Min. 45 no. of zinc plated nuts and bolts with washer 2" x 3/8 " with full thread or better as required for 60 feet lattice mast installation.
7	Min 18 Nos. 'D' shackles big 4 " long as required for 60 feet mast installation.
8	Min. Three nos. of "T" angle irons spikes of 3 feet long (1 1/2" x 1 1/2" x 3/16") with 3 holes of 12 mm dia or 'D' shackles.
9	Besides these items any other items which are required during demonstration/installation of 60 feet lattice mast erection should be included in the installation kit.
10	Dog Clamp as required Min (9+3) 12 Nos. suitable for 60 feet lattice mast installation.
11	Chutki as required Min (18+6) 24 Nos. suitable for 60 feet lattice mast installation.
12	3 Nos. of Guy Anchor for permanent installation (min. 2 feet rod of thickness min. 12mm with circular bending at top of inner dia. of 8cms with square base plate of min 10 cm x 10 cm x 3mm)