

(1)

TECHNICAL SPECIFICATIONS OF VHF DIGITAL HIGHER BAND STATIC/MOBILE SET WITH ACCESSORIES.	
GENERAL	
1.1	Frequency range
1.2	TDMA
1.3	Channel capacity
1.4	Channel spacing
1.5	Operating voltage
1.6	Protection
1.7	Frequency stability
1.8	Antenna impedance
1.9	Weight
1.10	EMI/ EMC
1.11	Air interface standards
2	TRANSMITTER
2.1	RF power output
2.2	FM emission
2.3	Digital modulation
2.4	Modulation limiting
2.5	FM hum & noise
2.6	Adjacent channel power
2.7	Audio response
2.8	Audio distortion
2.9	Digital vocoder
2.10	Communication security
3	RECEIVER
3.1	Sensitivity (analog)
3.2	Sensitivity (digital)
3.3	Adjacent channel selectivity
3.4	Inter modulation
3.5	Audio output
3.6	Audio distortion
4	ENVIRONMENTAL
4.1	Operating temperature
4.2	Storage temperature
4.3	Humidity
4.4	Vibration
4.5	Shock & drop
4.6	Water intrusion & dust
4.7	Salt
4.8	Rain
4.9	Low pressure
5	ACCESSORIES
5.1	Microphone
5.2	Battery cable & mounting fixtures
5.3	Antenna



rogramming kit

		All necessary programming software and hardware required for programming of set independantly for life long support with regular update- As per requirement
		Technical diagram, circuit layout, PCB layout, component and wiring diagram etc. should be provided as per user's requiremnet in soft as well as hard copy- As per requirement
		2 years warranty on VHF equipments and 1 year warranty on its accessories.
FEATURES		
1	Simple press to talk	Should be available
2	Low battery alert	Should be available
3	CTCSS or DCS	Should be available
4	Signalling: 2Tone, 5Tone, DTMF Digital	Should be available
5	PTT I.D encode	Should be available
6	Busy channel lockout	Should be available
7	Automatic number identification (ANI)	Should be available
8	Talk around	Should be available
9	Channel scanning with call quieting facility	Should be available
10	Transmitter time out timer (tot)	Should be available
11	LCD display	Should be available
12	Mode of calls	Selective call, Group call, Inter and Intra group call facility
13	Remote radio kill/ stun/ revive facility	Should be available
14	Mode of operation	Radio should operate in analog mode and digital mode. (Compatible with existing all type of VHF analog radio sets viz::: Motorola,Icom,Kenwood, Vertex etc.)
15	Emergency SOS /siren	Should be available
16	SMS texting	Should be capable of sending pre defined messages & short messages from keypad as Optional.
17	Programming kit	Front panel programming with password protection or PC programming
18	Operation	Simple press to talk.
19	GIS	Radio should have Application protocol interface along with software applications to provide locations and messaging on PC/ Console.
TEST REPORT DETAILS & TESTS		
1	Availability of the test report from Central Govt/ NABL/ ILAC accredited lab covering all the declared parameters as per Governing specification.	Shall be provided by the vendor.

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**TECHNICAL SPECIFICATIONS OF VHF DIGITAL HIGHER BAND HAND HELD SET WITH
ACCESSORIES**

1 GENERAL	
1.1	Frequency Range (MHz)
1.2	TDMA
1.3	Channel Capacity
1.4	Channel Spacing
1.5	Battery Capacity
1.6	Average duty cycle 5/ 5 /90
1.7	Frequency Stability (\pm)
1.8	Antenna Impedance
1.9	Antenna
1.10	Weight
1.11	EMI/EMC
1.12	Air Interface Standards
2 TRANSMITTER	
2.1	RF Power output
2.2	FM Emission
2.3	Digital Modulation
2.4	Modulation Limiting
2.5	FM Hum/Noise (dB)
2.6	Adjacent Channel Power (dBc)
2.7	Audio Response
2.8	Audio Distortion
2.9	Digital Vocoder
2.10	Communication Security
3 RECEIVER	
3.1	Sensitivity (Analog)
3.2	Sensitivity (Digital)
3.3	Adjacent Channel Selectivity
3.4	Inter Modulation
3.5	Audio Output
3.6	Audio Distortion
4 ENVIRONMENTAL	
4.1	Operating Temperature
4.2	Storage Temperature
4.3	Humidity
4.4	Vibration
4.5	Shock & Drop
4.6	Water Intrusion & Dust
4.7	Salt
4.8	Rain
4.9	Low Pressure
5 ACCESSORIES	
5.1	Battery charger

5.1.1	Input voltage	230V ± 10% 50Hz
5.1.2	Output voltage	As per battery pack (Information will be provided by OEM/Vendor)
5.1.3	Type of Battery charger	Li-ion/ Li-Poly
5.1.4	Protection	(1) Reverse polarity protection (2) Short circuit protection
5.1.5	Indication	Visual indication for all modes of charging status
5.1.6	Charging Time	Standard chargers- 6 to 14 hrs Rapid charger- 1 to 3 Hrs
5.1.7	No. of charging Pocket	1/2/6 (Vendor to quote accordingly)
5.2	Programming kit	All necessary programming software and hardware required for programming of set independantly for life long support with regular update - As per requirement
5.3	Literature	Technical diagram, circuit layout, PCB layout, component and wiring diagram etc. should be provided as per user's requiremnet in soft as well aas hard copy- As per requirement
5.4	Warranty	2 years warranty on VHF equipments and 1 year warranty on its accessories.
6 FEATURES		
6.1	Simple press to talk	Should be available
6.2	Low battery alrt	Should be available
6.3	Continuous Tone Coded Squelch System (CTCSS)	Should be available
6.4	Mix Mode Operation (Analog and Digital)	Should be available
6.5	Any one of 2-Tone, / 5-Tone/DTMF signalling	Should be available
6.6	Busy Channel Lockout	Should be available
6.7	Selective call Decode / Encode	Should be available
6.8	Capable of VOX hand free operation	Should be available
6.9	PTT ID Encode	Should be available
6.10	Channel Scanning with call quieting facility	Should be available
6.11	Emergency SOS / SIREN	Should be available
6.12	Talk around Mode	Should be available
6.13	Automatic Number Identification (ANI)	Should be available
6.14	Text messages and predefined message (Optional with keypad)	Should be available
6.15	Mode of operation	Radio should operate in analog mode and digital mode, (Compatible with existing all type of VHF analog radio sets viz:: Motorola,Icom,Kenwood, Vertex etc.)
6.16	Should have built in GPS feature with following specifications:- (i) Time to First Fix (TTFF) cold start < 2minutes (ii) Time to First Fix (TTFF) hot start < 20seconds (iii) Horizontally accuracy: < 10 meters	Should be available
7	TEST REPORT DETAILS & TESTS	

Availability of the test report from Central Govt./ NABL/ ILAC accredited lab covering all the declared parameters as per Governing specification.	Shall be provided by the vendor.
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TECHNICAL SPECIFICATIONS OF DIGITAL VHF REPEATER SET WITH ACCESSORIES.

1 GENERAL	
1.1	Frequency Range
1.2	TDMA
1.3	Operating Mode
1.4	Operating Selection
1.5	Channel Capacity
1.6	Channel Spacing
1.7	Operating Voltage
1.8	Frequency Stability
1.9	Interface
1.10	Antenna Impedance
1.11	Duty Cycle
1.12	Weight
1.13	Display
1.14	VSWR (dB)
1.15	Protection
1.16	EMI/ EMC
1.17	Air Interface Standards
2 TRANSMITTER	
2.1	RF Power Output
2.2	FM Emission
2.3	Digital modulation
2.4	Modulation Limiting
2.5	FM Hum & Noise (dB)
2.6	Adjacent Channel Power
2.7	Audio Response
2.8	Audio Distortion
3 RECEIVER	
3.1	Sensitivity (Analog)
3.2	Sensitivity (Digital)
3.3	Image Rejection
3.4	Adjacent Channel Selectivity
3.5	Inter-modulation
3.6	Audio Distortion
4 ENVIRONMENTAL	
4.1	Operating Temperature
4.2	Storage Temperature
4.3	Humidity
5 ACCESSORIES	
5.1	Battery cable & Mounting Fixtures
5.2	Duplexer
5.3	Co-axial Cable RG217
5.4	Antenna

	Programming kit	All necessary programming software and hardware required for programming of set independantly for life long support with regular update - As per requirement
5.6	Literature	<p>1- User's manual with each radio sets should be provided free of cost in soft as well as hard copy.</p> <p>2- Technical repairing manual with complete block diagram, circuit layout etc should be provided as per requirement in soft as well as hard copy.</p>
4	Warranty	2 Years warranty on VHF equipments and 1 year warranty on its accessories.
6	TEST REPORT DETAILS & TESTS	
6.1	Availability of the test report from Central Govt./ NABL/ ILAC accredited lab covering all the declared parameters as per Governing specification.	Shall be provided by the vendor.

TECHNICAL SPECIFICATIONS OF 12V/100AhC HEAVY DUTY (SMF) BATTERY.

N. GENERAL PARAMETERS	
1	Type of Battery
	Stationary Valve Regulated Lead acid batteries Confirming to IS:15549/2005 with ammendments 1 and 2 latest
2	Nominal Voltage of Battery (Volt)
12 Volt	
3	Material of Container
	Polypropylene Copolymer (PPCP) or Acrylonitrile Butadiene Styrene (ABS) or better material to protect battery from wet weather, drop impact etc.
4	Material of separators as per Cl.4.5 of IS:15549:2005
	Glass Mat
6	Battery Capacity (in Ah)
100 Ah	
7	Warranty
2 Years	
8	Battery Condition
Charged	
9	CONSTRUCTIONAL
a	Dimensions (L x W x H)in mm
	388mm x 173mm x 225mm ± 5%
b	Weight
	32Kg ± 5%
c	No. of Cells as battery (no.)
	6 Cell for 12V battery
10	Material and construction for containers, Cells Lids, Plates, Electrolyte, Terminal posts, Fasteners, Connectors and Separators as per CL. 4 of IS:15549:2005
	Yes
11	Marking as per Cl.8 of IS:15549:2005
	Yes
12 CERTIFICATIONS	
a	Availability of Test reports from Central Govt. / NABL/ ILAC accredited Lab showing confirmity to the specifications
	Should be provided
b	Name of the Lab
	Should be provided
c	Address of the Lab
	Should be provided

TECHNICAL SPECIFICATION OF HEAVY DUTY BATTERY CHARGER.

S.NO.	PARAMETER	SPECIFICATION
1.	Suitable For Charging Of Types Of Battery Chemistry	Tubular Lead/Acid VRLA/SMF/Flat Plate Lead Acid
2.	Charger Type	Constant Voltage, Constant Current (CCCV)
3.	Nominal Output Dc Voltage	48 Volt or above
4.	Minimum Output Current At Nominal Output DC Voltage	10Amp
5.	Efficiency	>/=75%
6.	Input Voltage	AC 230V+/- 15%
7.	Protection	<ul style="list-style-type: none"> 1. Overload protection 2. Over current protection 3. Short circuit protection 4. Reverse polarity protection 5. DC output circuit breaker
6.	Accessories	Charging cable of 1.5 mtr with alligator clips provided
7.	Operating Temperature	55°C
8.	IP Protection	IP20 or better
9.	Humidity (Rh)	90%
10.	Warranty	1year or more
11.	Additional Requirements	Charging cutoff voltage 14.5V± 0.2V
12.	Certification Type Of Lab Which Carried Out Test Of Complete Product To Prove The Conformity Of Product As Per Governing Specification	Certificate of GOVT./NABL/ILAC Accredited lab
13.	Test Reports Should Be Submitted To The Buyer On Demand	Yes

TECHNICAL SPECIFICATION OF SMPS

S.NO.	PARAMETER	SPECIFICATION
1.	DC output voltage	12 volt
2.	DC output current equipment	10 Amps
3.	Input frequency	50Hz
4.	AC input voltage range	170-270v Volt
5.	Output voltage regulation	<1%
6.	Output ripple (P-P max)	<1%
7.	AC Input current	1.2 Amp
8.	DC Output current	10Amp, 5Amp Battery charger
9.	Efficiency	>75% at full load
10.	Output over voltage	PSU trips on overvoltage condition
11.	Indication	Mains ON, Battery ON, Battery LOW.
12.	Protection	Short circuit, Overload, Battery reverse polarity through Fuse, Deep discharge cut-off
13.	Operating Temperature	-5°C to +50°C
14.	Humidity (non condensing)	5% to 95%
15.	Warranty	1 Year
16.	ISO certification	Should be available

TECHNICAL SPECIFICATIONS OF 0 dB H/B GP ANTENNA.

SL. No.	SPECIFICATION	DESCRIPTION
1	Operating Frequency Range(MHz)	136-174 MHz
2	Type of antenna	Omni directional Antenna / GP Antenna
3	Radiation Element Material	Copper/stainless steel
4	Gain	0 dB
5	Impedance (Ohm)	50 Ω
6	Polarization	Single
7	Maximum Input Power(Watt)	40 Watt
8	Warranty	1 year
9	Terminal/Connectors	N-Type Female
10	Radiation Pattern	360°/Ground Plane

SPECIFICATION OF RG- 213 CO-AXIAL CABLE.

S.NO	FEATURE	SPECIFICATION
1	Type Designation	Type 75-7-2
2	Radio Frequency Co-Axial Cable Conforming To	As Per IS:5802(PART-II):1975 Latest
3	Inner Conductor Material As Per Cl. 3 OF IS:5802(part-2):1975 Latest	Copper
4	Dielectric Core Type	Solid Polyethylene
5	Outer Conductor Material	Single Braid Of Plain Annealed Copper Wire
6	Outer Protective Sheath	PVC Compound
7	Length Of Cable	30 Meter
8	Both side end of Co-axial Cable should be connected with Brass Metal PL-259 Connector	To Be Provided By Vendor
9	Warranty	3 Year or more
10	Availability of type Test report from Central government lab /NABL/ILAC accredited lab to conformity of the specifications shall be provided by the vendor.	Yes.
11	Test Report Number And Date Must Be Declare	yes
12	all the test report and certificates shall furnish by the seller to purchase authority on demand	yes

32 FEET STAINLESS STEEL TELESCOPIC AERIAL MAST

SPECIFICATION

- The Stainless steel Telescopic Aerial Mast 32ft Is made using stainless steel pipes of Grade 304 of minimum 16SWG for all the mast section and tripod stand . The mast should withstand top loading of 5 kg.
- 1 The extended height of the mast should not be less than 32ft and retracted height of the mast should not exceed 8ft.
 - 2 The outer section of the mast should not be less than 3" dia and the inner section of the mast should not be less than 1" dia.
 - 3 The telescoping mast section can be Extended / Retracted by using semi automatic locking mechanism.
 - 4 The tripod stand consisting of three tripod legs should be made using SS pipes of 3.5" dia.
 - 5 The mast must be supplied complete with all accessories Like, 2Sets (Each Set consisting of 3 Guy Ropes) of steel Guy ropes of length 30 feet and 45 feet, Rope Tightners : 6 nos, Guy anchors of minimum 24" with rings, antenna Mounting bracket, Ground pegs for tripole, Hand gloves for safe Operation of mast etc. One Hammer sledge with Handle must also be provided with each mast.
 - 6 One Canvas Cloth accessories Bag Must be provided with each mast for carrying all accessories.
 - 7 Warrenty Period : 2 Years

SPECIFICATION OF 100 FEET SELF SUPPORTED TOWER

NO.	SPECIFICATION	DESCRIPTION
1.	Height of the Tower	100 Feet
2.	Cross Section	Square
3.	Base Width	5000mm ± 3% as per approved drawing
4.	Top Width	1000mm ± 3% as per approved drawing
5.	Wind Velocity Withstanding capacity	180 KMPH
6.	MATERIAL a) Legs and Bracing etc. B) Hardware c) Minor Hardware < 10mm	1. MS Angle as per IS-326 of size 2. High tensile nuts / Bolts as per Is - 1364 3. Nuts / Bolts as per IS - 1364 (All Bolts be provided with washers)
7.	Welding	Governed by IS -816-2813
8.	Concrete foundation Casting	M-20 in COL M-20 in FND or as per approved drawing
9.	Finish	All members to be Hot Dip Galvanized
10.	Ladder Facility	Provided with safety Rings around Ladder from 10' Height
11.	Platforms	Provided at 20meter and 25 meter or as per approved drawing
12.	Lighting Spike and Earthling / Aviation light	1- Standard Copper Lightening Arrestor Having Pipe 5' Length 2- Copper Connecting Strip (Size 25mm X 5 mm) From Arrestor to Earthling plate should be Provided with Suitable Clamps. 3- Flat Copper Earthling Plate of size 400 x 400 x 6 mm
13.	Top Load Capacity	200 Kg or more
14.	Factor of safety	4
15.	Gusset Plates	Confirming to thickness of angle Joining
16.	Aerial Fitting Clamps	Hot Dip Galvanized Clamps, Qty. 06 Each for Yagi and 6 dB Antenna, Microwave Antenna
17.	Painting	The tower Shall be giving two coats of Paint in addition to Primer coats after Erection. The tower shall be Painted to Have Equal alternate Bands of International Oranges and white color with top and bottom bands Respectively, Painted as per civil Aviation regulation as Approved by the client
18.	Warranty	Minimum 5years on site comprehensive from the date of Installation
19.	Foundation	Foundation should be carried out under guidance local Wireless Officer at City / Distt. The Charges Incurred should be borne by bidder.
20.	Certificate	Design And Structure Including Foundation Of Self Supported Tower Should be Certified/approved by IIT or any recognized government agency.

SPECIFICATION FOR PNEUMATIC 21 METER TELESCOPIC MAST

PARAMETERS	
1	FULLY ERECTED HEIGHT
2	FULLY RETRACTED HEIGHT
3	HEAD LOAD
4	DIAMETER OF BODY SECTION (MAIN MAST)
5	GUY ROPES STAINLESS STEEL OF DIAMETER
6	GUY RADIUS
7	GUY ROPES STAINLESS STEEL FOR THREE PEG SYSTEM
8	APPLICATION
9	TYPE OF OPERATION
10	SWAY
11	ROTATION AZIMUTH
12	ENVIRONMENTAL SPECS
13	WEIGHT OF MAST
14	GUY ANCHOR
15	BASE PLATE

STANDARD ACCESSORIES

- 1 HAMMER - 5 lbs with wooden handle
- 2 Foot pump - Double cylinder, max. air volume 650 CU cm per stroke with 2 Meter Long Rubber pipe Having
- 3 LIGHTNING PROTECTOR COMPLETE
- 4 CLAMP FOR MOUNTING HEAD LOAD - as per user requirement

DESCRIPTION

- 1 The Masts should be made of high strength heat treated aluminium alloy HE 30 T6 Tubes, Light weight and
- 2 The mast should be erected by using a foot pump
- 3 The mast could withstand wind speed of up to 120 Km per HRS for short duration and 80 Km per HRS for
- 4 The mast should stay in erected condition without air pressure for long periods. Each tube moves on Teflon
- 5 Each section should be hard anodized and the body along with locking guide and guide collars is olive green
- 6 All mild steel parts should be hot dip galvanized to withstand harsh environmental conditions