

**Specification and Tentative quantity**

SI No.	Item	Required Specification	Tentative Qty
1.	<p><b>HF Transceiver low power 15–100watts</b>            (Programmable) Static. Freq. range: 02 – 30 MHz.            Including all essential accessories / Technical &amp; operational manual/ Programming kit / software.  <b>Configuration : HF- 3</b>  <b>Accessories :</b>            1. Automatic Antenna Tuning Unit            2. Power Supply 12V, 30 Amps            3. 30 Mtr. RG-213 Co-axial Cable            4. Broad Band Antenna            5. Head Phone            6. Morse Key            7. HF Long Wire Antenna            8. Single Unit, Speaker Front Panel Inbuilt            9. Data interface.            10. BEST/data connectors. .</p>	<p><b>From any ISO certified, world class reputed manufacturer.</b>            Suitable Configuration -            HF-3 (as per DGS &amp; D RC manual) for commando.  <b>Required Feature :</b>  <ul style="list-style-type: none"> <li>• The equipment required to be facilitated with : Automatic Link establishment per MIL-STD-188-141B standard.</li> <li>• ISB-ready (Independent Side Band)</li> <li>• JITC-approved, full interoperability with other manufacturers' radios complying with the same ALE standards. Voice that's loud &amp; clear</li> <li>• Built-in voice quality system utilizes proprietary algorithms to filter out background noises, giving users exceptional communication clarity.</li> <li>• Auto Selectable bandwidth to allow fine tuning for optimal voice communications.</li> <li>• High sensitivity (0.3 <math>\mu</math>V) for outstanding communication coverage.</li> <li>• Voice-activated digital squelch. User-friendliness</li> <li>• Digital front panel display and keyboard for programming and set-up.</li> <li>• Advanced COMSEC for operational security.</li> <li>• DSP unit.</li> <li>• Easily replaceable digital components .</li> <li>• High MTBF.</li> <li>• Built-In self Test system</li> <li>• Multi Net integration of parallel HF radio networks into one seamless network, allowing coordination between different operational networks.</li> <li>• AMD (SMS-like text messages) for pre-set or operator-defined text messages.</li> <li>• Internal GPS for location finding.</li> <li>• Internal Modem/Vocoder option for data applications, improved communications over weak channels and secure/AES encrypted communications .</li> </ul> <b>Tech. Specifications:</b> Frequency range: 1.6–30 MHz.            - preset channels, Simplex or Half duplex            - Built-in Automatic antenna tuner            - Transmission Powr : 25W            - Reception: 100 KHz–30 MHz Rx.            - Standby time: 15hrs            - Audio bandwidth: Auto-Selectable for Voice &amp; Data            - Frequency stability: 0.6 PPM            - Frequency resolution: 10 Hz            - Operating temperature range:            -30<math>\square</math>C to +60<math>\square</math>C / -22<math>\square</math>F to +140<math>\square</math>F            - Shock and vibration: 810F + E. Suitable Dimensions: Height: 220 mm, Width: 220 mm, Depth: 109 mm, Weight: Max. 5.2 Kg (w/o battery) with PC Control and programming kit            - Internal GPS receiver Internal Vocoder voice enhancement            - Digital AES Vocoder encryption .            - ISB ready            - Internal Modem with optional AES encryption.</p>	04

		<p>- The HF Pathfinder backpack is equipped with a military-type handset and connectors, for superior qualities and performance.</p> <ul style="list-style-type: none"> <li>• Internal Vocoder</li> <li>• AC battery charger</li> <li>• Internal 4800 bps modem</li> <li>• Flexible steel blade antenna</li> <li>• Collapsible whip antenna</li> <li>• Fast deployment wideband antenna</li> <li>• Tactical long wire antenna</li> <li>• Internal GPS.</li> <li>• Fold up solar panel charger.</li> </ul>	
2	<p><b>VHF Repeater with all accessories. Freq. range 66-88 MHz. (low band) 40-50 watts. And operating / technical manual / programming kit.</b></p>	<p><b>From any ISO certified &amp; world classed reputed manufacturer. Configuration: M3.</b></p> <p>The VHF Low Band Repeater having following feature &amp; Specification from any reputed manufacturer to meet the need of present technical demand of the user.</p> <ol style="list-style-type: none"> <li>1. System performance must be excellent.</li> <li>2. Must be modular construction with independent TX / RX rack for convenient connection to multi-couplers.</li> <li>3. Easy configured for duplex / Simplex , trunked or linked applications.</li> <li>4. High power exciter facility.</li> <li>5. Separate high power amplifier facility for future provision.</li> <li>6. Adjustable transmitter power facility.</li> <li>7. High speed data transfer capacity.</li> <li>8. Channel capacity up to 100 or more.</li> <li>9. Synthesized designed with programming with PC RS 232 port on TX/RX.</li> <li>10. Field programming facility as per users need.</li> <li>11. Direct FSK data transmission for paging and data link option.</li> <li>12. Built in system diagnostic facility.</li> <li>13. Remote monitoring / channel change &amp; programming through RS 232 port.</li> <li>14. Front panel monitoring display.</li> <li>15. 20 m sec. TX/RX efficient data transmission.</li> <li>16. Carrier adjustable squelch.</li> <li>17. Temperature (-) 30 to + 60 degree C.</li> <li>18. Automatic protection with power reduction at high temperature and VSWR.</li> <li>19. External preset control.</li> <li>20. Built in speaker in RX.</li> <li>21. All modules operates from 13.8 VDC and 12 V DC nominal.</li> </ol> <p><b>Specifications.</b></p> <ol style="list-style-type: none"> <li>1. Frequency Range 66 - 88 MHz</li> <li>2. Channel: 100 nos. Synthesized channels.</li> <li>3. RF Power Output: 50 W Programmable.</li> <li>4. Channel Spacing: 12.5 KHz/25KHz (Module based)</li> <li>5. Frequency stability: ±1 PPM</li> <li>6. Type of Emission: 11KOF3 / 16KOF3</li> <li>7. Type of Operation: Simplex / Full Duplex , Press to talk External / Internal</li> </ol>	02

		<p>8. Speaker: 3 watt external speaker / 0.3 watt internal speaker  9. Power Supply: 10.5 to 16V DC  10. Output Impedance: 50 Ohms  11. Operating Temp.: -30° C to +60° C</p> <p><b>TRANSMITTER (Portion):</b></p> <ol style="list-style-type: none"> <li>1. Frequency Deviation: ± 2.5 KHz max (for 12.5KHz Ch. Spacing .) / ± 5 KHz max (for 25KHz Ch. Spacing .)</li> <li>2. Modulation Sensitivity: 1 to 10 mV at 1 KHz at mic. Input for ± 1.5 KHz standard.</li> <li>3. Deviation (12.5KHz) / Input for ± 3 KHz std. Deviation (25KHz)</li> <li>4. Modulation fidelity: +1, -3 dB of 6 dB/Octave.</li> <li>5. Pre-emphasis characteristics from 350 Hz to 2700 Hz with 1 KHz.</li> <li>6. Spurious and harmonics: Better than 60 dB</li> </ol> <p><b>RECEIVER (Portion)</b></p> <ol style="list-style-type: none"> <li>1. Sensitivity: 0.25 micro volt for 12 dB SINAD.</li> <li>2. Squelch Sensitivity: 0.2 uV or better at threshold.</li> <li>3. Selectivity : Better than 70 dB (for 12.5KHz) / Better than 80 dB (for 25KHz) .</li> <li>4. Spurious &amp; Image Rejection: Better than 90 dB.</li> <li>5. Audio Output: 4Watt min. across 4 Ohms speaker with less than 5% distortion at 1 KHz reference with test deviation.</li> <li>6. Audio Response: +1, -3dB of 6 dB/Octave de-emphasis characteristics from 350 Hz to 2700 Hz with 1 KHz as reference.</li> </ol>	
3	<p><b>VHF static set. RF power - programmable up to 50W</b>  <b>Freq. range: 66-88 MHz.</b></p> <ul style="list-style-type: none"> <li>- with all accessories.</li> <li>- Programming kit</li> <li>- Operational &amp; technical manual.</li> </ul>	<p><b>From any ISO certified &amp; world classed reputed manufacturer.</b>  <b>Configuration: M3.</b>  The M3 VHF Transceiver must have following features and specification to meet and cater the needs of modern voice / Data communication, with</p> <ul style="list-style-type: none"> <li>- GPS enable for locating the position of the troops/ Vehicle etc.</li> <li>- Bluetooth enabled</li> <li>- And so on which are not available with normal VHF (LB) set using by the organization now a day.</li> </ul> <p><b>SPECIAL FEATURES:</b></p> <ol style="list-style-type: none"> <li>1. Simple PC based programming</li> <li>2. Advance selective calling Programming feature</li> <li>3. Conventional &amp; Trunked operations</li> <li>4. Ignition sense input</li> <li>5. Voting &amp; Multiax</li> <li>6. Designed with DSP Technology</li> <li>7. RSSI (Received Signal Strength Indicator)</li> <li>8. DTMF</li> <li>9. User Phone Book</li> <li>10. Alpha Status List</li> <li>11. 1200/2400 Baud</li> <li>12. FFSK,</li> <li>13. GPS card, Optional I/O port-Data routing card.</li> </ol> <p><b>TRANSMITTER (Portion):</b></p> <ol style="list-style-type: none"> <li>1. Frequency Deviation: ± 2.5 KHz max (for 12.5KHz Ch.Sp.) / ± 5 KHz max (for 25KHz Ch.Sp.)</li> <li>2. Modulation Sensitivity: 1 to 10 mV at 1 KHz at mic. Input for ± 1.5 KHz std.</li> </ol>	06

		<p>3. Deviation (12.5KHz) / Input for <math>\pm 3</math> KHz std. Deviation (25KHz)  4. Modulation fidelity: +1, -3 dB of 6 dB/Octave  5. Pre-emphasis characteristics from 350 Hz to 2700 Hz with 1 KHz as  6. Spurious and harmonics: Better than 60 dB  RECEIVER (Portion)  1. Sensitivity: 0.25 micro volt for 12 dB SINAD  2. Squelch Sensitivity: 0.2 uV or better at threshold  3. Selectivity : Better than 70 dB (for 12.5KHz) / Better than 80 dB (for 25KHz)  4. Spurious &amp; Image Rejection: Better than 90 dB  5. Audio Output: 4Watt min. across 4 Ohms speaker with less than 5% distortion at 1 KHz reference with test deviation.  6. Audio Response: +1, -3dB of 6 dB/Octave de-emphasis characteristics from 350 Hz to 2700 Hz with 1 KHz as reference</p>	
4.	<p><b>VHF 1-5W Hand Held Set. Configuration – M3</b>  With spare Li-Ion battery , Appropriate charger/ lather case, belt clip, Programming Kit.</p>	<p><b>From any ISO certified &amp; world classed reputed manufacturer</b>  <b>Configuration: M3</b>  The equipment should have following Features &amp; Tech. Specifications:  <u><b>General features:</b></u></p> <ol style="list-style-type: none"> <li>1. Environmental protection to IP55</li> <li>2. MILSTD 810C/D/E/F</li> <li>3. 1800mAH Li-ion battery.</li> <li>4. Flash upgradeable to add future features.</li> <li>5. Rodust accessories socket.</li> <li>6. Programmable accessory connector.</li> <li>7. Max. Number of channels.</li> <li>8. Large LCD display.</li> <li>9. Scrolling graphics.</li> <li>10. Channel naming.</li> <li>11. Multi function encoder control.</li> <li>12. Scan / Priority scan.</li> <li>13. Voice annunciation.</li> <li>14. Blue tooth Connection.</li> <li>15. Clone data from one radio to another.</li> <li>16. GPS enabled.</li> </ol> <p><u><b>For Security:</b></u></p> <ol style="list-style-type: none"> <li>1. Stun &amp; alarm a lost or stolen radio</li> <li>2. Programmable scrambler.</li> <li>3. Power on password option.</li> </ol> <p><u><b>For Safety:</b></u></p> <ol style="list-style-type: none"> <li>1. Local personnel attack alarm.</li> <li>2. Panic button with remote alert.</li> <li>3. Emergency microphone live.</li> <li>4. Lone worker alarm mode.</li> <li>5. Whisper mode.</li> <li>6. Silent alarm call mode.</li> <li>7. Continue alarm even if switched off.</li> </ol>	18

		<p>8. Manual location information with emergency.  9. Bluetooth fully automatic indoor location.  10. GPS location information with emergency.  11. GPS navigate to casualty.  <b>Lithium Battery:</b>  1. For the convenience it should count charge cycles of the battery pack, warning when it is nearing the end of its life. Models should equipped with an LCD will also display the battery charge count.  <b>2.</b> Extended duty cycle.  <b>3. Not prone to memory affect that Nicad and NiMH battery packs suffer from, therefore no need to fully discharge battery pack before charging.</b></p> <p><b>Specification:</b></p> <ol style="list-style-type: none"> <li>1. RF output : Programmable up to:05watts.</li> <li>2. freq. range: 66-88 MHz.</li> <li>3. Nos. of channel – 100 +</li> <li>4. Environmental ranging: IP55</li> <li>5. Standard : Military MIL STD 810</li> <li>6. Weight: Max 230 gm with battery and antenna.</li> <li>7. Audio op : 700mw</li> <li>8. Distortion: &lt; 3% @ 500mw.</li> <li>9. Battery type: 1800+ mah Li-Ion battery.</li> </ol> <p><b>1. Speaker Impedance: 8 Ohms</b>In case of TX:  <b>2. Operating Temp: -20° C to +55° C</b>  <b>3. Output Impedance: 50 ohms</b>  <b>4. Frequency Deviation: ± 2.5 KHz max. (for 100% at 1 KHz)/ ±.5 KHz max. (for 100% at 1 KHz)</b>  <b>5. Spurious and Harmonics:60 dB or better</b>  <b>6. Modulation fidelity: +1, -3 dB of 6 dB/Octave Pre-emphasis characteristics from 350 Hz to 2700 Hz with 1 KHz as reference</b>  <b>7. Modulation distortion: Less than 5% at 1 KHz reference and ± 1.5 KHz deviation (12.5KHz) / Less than 5% at 1 KHz reference and ± 3 KHz deviation (25KHz)</b>  <b>8. Modulation Sensitivity: 1 to 10 mV at 1 KHz at mic. Input for ± 1.5 KHz std. Deviation (12.5KHz) / Input for ± 3 KHz std. Deviation (25KHz)</b></p> <p><b>In case of RX:</b></p> <ol style="list-style-type: none"> <li>1. Sensitivity: Better than 0.3µV for 12 dB SINAD</li> <li>2. Squelch Sensitivity: 0.25 µV or better at threshold</li> <li>3. Selectivity: 60 dB or better at ± 12.5 KHz / 70 dB or better at ± 25 KHz</li> <li>4. Image Rejection: Better than 65 dB</li> <li>5. Audio Output: 500 mW min. across 8 Ohms speaker with less than 5% distortion at 1 KHz reference with test deviation</li> <li>6. Audio Response: +1, -3dB of 6 dB/Octave de-emphasis characteristics from 350 Hz to 2700 Hz with 1 KHz as reference</li> </ol>	
5.	HF/UHF/VHF interceptor/monitor	From any ISI & ISO certified reputed manufacturer.	02

**Note: The quantity may increase or decrease as per availability of fund.**