

Serial Number of Equipment:.....

Make/Model of Equipment:.....

## Test Schedule and Test Procedure for 5 W to 25 Watt HF Manpack

### Specification :

*TxRx, HF Manpack 5W to 25 W*

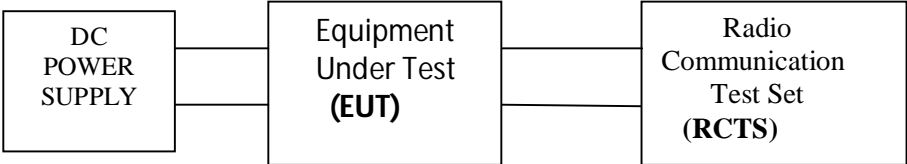
*Configuration 2.0 MHz to 29.9999 MHz*

*Transceiver HF MANPACK 5 W to 25 Watts Synthesized*

*Name of OEM/Vendor:*

*Tender No.*

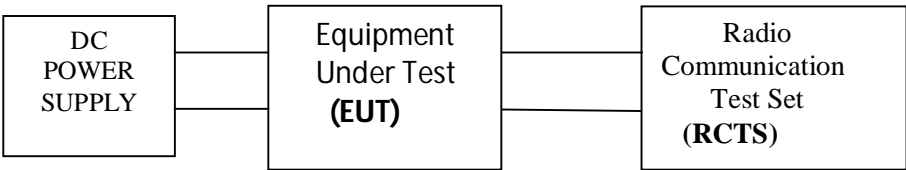
### 1. General

<b>Clause No.</b>	<b>1.1</b>																
<b>Specification</b>	<b>Frequency Range: 2.0 MHz to 29.9999 MHz with 100 Channel Spacing and 10 Hz Resolution</b>																
<b>Status</b>	Mandatory / Optional																
<b>Test Purpose</b>	The radio equipment shall be capable of operating over the frequency range of 2.0 MHz to 29.9999 MHz.																
<b>Test Configuration</b>	<div style="text-align: center;"><pre>graph LR; A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]; B --- C[Radio Communication Test Set (RCTS)];</pre></div> <p><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipment's Required:</b> DC Power Supply Digital Multimeter Radio Communication Test Set ( RCTS ) Different types of connectors.</p>																
<b>Initial Condition</b>	Switch "on" Radio Set and allow EUT to warm up for 30 minutes.																
<b>Test Procedure</b>	<ol style="list-style-type: none"><li>1. Connect Radio as per above set up diagram.</li><li>2. Set the Lowest frequency of the given range.</li><li>3. Select the mode CW to check the carrier and Press PTT. (The Communication Tester should be in Tx Test)</li><li>4. Check the frequency on low, medium and high frequency range. The readings should come as per selection.</li></ol> <table border="1" style="margin-left: auto; margin-right: auto;"><thead><tr><th>Make:</th><th>Channel Number</th><th>Programmed Frequency on Radio</th><th>Observed frequency In RCTS</th></tr></thead><tbody><tr><td>Model No.:</td><td></td><td></td><td></td></tr><tr><td>Serial number of EUT:</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></tbody></table>	Make:	Channel Number	Programmed Frequency on Radio	Observed frequency In RCTS	Model No.:				Serial number of EUT:							
Make:	Channel Number	Programmed Frequency on Radio	Observed frequency In RCTS														
Model No.:																	
Serial number of EUT:																	

Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.1.1</b>																		
<b>Specification</b>	<b>Frequency Range: 2.0 MHz to 29.9999 MHz</b>																		
<b>Status</b>	Mandatory / Optional																		
<b>Test Purpose</b>	To check channel spacing of 100Hz.																		
<b>Test Configuration</b>	<div style="text-align: center;">  <pre> graph LR     A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]     B --- C[Radio Communication Test Set (RCTS)]             </pre> <p><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipment's Required:</b>                  DC Power Supply                  Digital Multimeter                  Radio Communication Test Set ( RCTS )                  Different types of connectors.</p> </div>																		
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																		
<b>Test Procedure</b>	<ol style="list-style-type: none"> <li>1. Follow steps 1 to 4 of Clause 1.1</li> <li>2. Feed the next frequency with difference of 100 Hz.</li> <li>3. Press PTT and check the reading, which should be selected frequency plus 100Hz.</li> <li>4. Repeat the procedure for entire frequency range.</li> </ol> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Serial Number of Equipment Under Test</th> <th style="width: 17%;">Channel No.</th> <th style="width: 20%;">Programmed Frequency</th> <th style="width: 30%;">Observed Frequency in RCTS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Serial Number of Equipment Under Test	Channel No.	Programmed Frequency	Observed Frequency in RCTS												
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<b>Required Value/Result</b>																			

*Serial Number of Equipment:.....*  
*Make/Model of Equipment:.....*

<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.1.2</b>
<b>Specification</b>	<b>Frequency Range: 2.0 MHz to 29.9999 MHz</b>
<b>Status</b>	Mandatory / Optional
<b>Test Purpose</b>	To check resolution 10Hz.

<b>Test Configuration</b>	<div style="text-align: center;"> <pre> graph LR     A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]     B --- C[RCTS]             </pre> </div> <p style="text-align: center;"><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipments Required:</b>                  DC Power Supply                  Digital Multimeter                  Radio Communication Test Set ( RCTS )                  Different types of connectors.</p>
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<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
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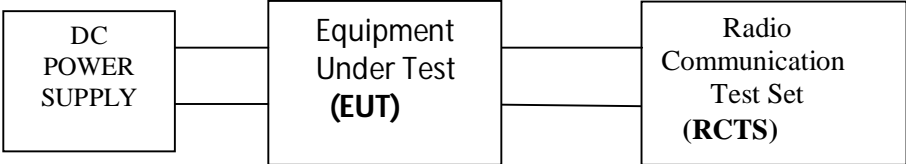
<b>Test Procedure</b>	<ol style="list-style-type: none"> <li>1. Follow steps 1 to 4 of clause 1.1.1</li> <li>2. Feed the next frequency with difference of 10 Hz.</li> <li>3. Press PTT and check the reading, which should be selected frequency plus 10Hz.</li> <li>4. Repeat the procedure for entire frequency range.</li> </ol> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th style="width: 30%;">Serial Number of Equipment Under Test</th> <th style="width: 15%;">Channel No.</th> <th style="width: 25%;">Programmed Frequency in Hz</th> <th style="width: 30%;">Observed Frequency in RCTS in Hz</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Serial Number of Equipment Under Test	Channel No.	Programmed Frequency in Hz	Observed Frequency in RCTS in Hz												
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<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.2.1</b>
<b>Specification</b>	<b>Modes : SSB( J3E) USB, LSB, AM/AM(E),CW/MCW,AFSK</b>
<b>Status</b>	Mandatory / Optional
<b>Test Purpose</b>	To test Radio and availability for modes of operation in the Radio.

Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Test Configuration</b>	<div style="text-align: center;"><pre>graph LR; A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]; B --- C[Radio Communication Test Set (RCTS)];</pre></div> <p><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipments Required:</b> DC Power Supply Digital Multimeter Radio Communication Test Set ( RCTS ) Different types of connectors.</p>																																			
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up mode for 30 minutes.																																			
<b>Test Procedure</b>	<ol style="list-style-type: none"><li>1. Select the mode of radio as SSB (USB).</li><li>2. Feed RF modulated signal of 1 KHz.</li><li>3. Check the reading on RCTS screen. It should be ( Carrier frequency + Audio) for USB</li><li>5. Check the reading in LSB also. It should be (Carrier frequency -Audio Frequency in LSB).</li><li>6. Check the frequency on low, medium and high frequency range.</li></ol> <p><b>Test and Measurement Record:</b></p> <table border="1" data-bbox="424 1361 1474 1921"><thead><tr><th>Serial Number of Equipment Under Test</th><th>Channel No.</th><th>Mode (USB/LSB)</th><th>Programmed Frequency</th><th>Observed Frequency in RCTS</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	Serial Number of Equipment Under Test	Channel No.	Mode (USB/LSB)	Programmed Frequency	Observed Frequency in RCTS																														
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Serial Number of Equipment:.....

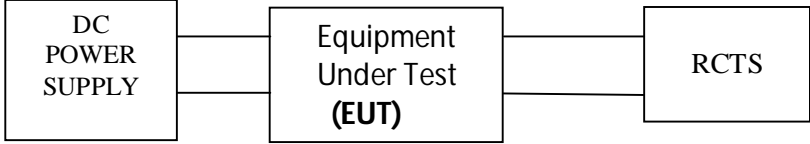
Make/Model of Equipment:.....

<b>Clause No.</b>	<b>1.2.2</b>																												
<b>Specification</b>	<b>Mode: AM/AM(E)</b>																												
<b>Status</b>	Mandatory / Optional																												
<b>Test Purpose</b>	To test AM / AM ( E ) mode																												
<b>Test Configuration</b>	<div style="text-align: center;"><pre>graph LR; A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]; B --- C[Spectrum Analyzer/Oscilloscope]</pre></div> <p style="text-align: center;"><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipments Required:</b> DC Power Supply Digital Multimeter Spectrum Analyzer/Oscilloscope Different types of connectors.</p>																												
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																												
<b>Test Procedure</b>	<ol style="list-style-type: none"><li>1. Select the mode of Radio as AM / AM ( E )</li><li>2. Feed RF modulated signal of 1 KHz.</li><li>3. Check the reading on RCTS screen</li><li>4. Check the frequency on low, medium and high frequency range.</li></ol> <p><b>Test and Measurement Record:</b></p> <table border="1"><thead><tr><th>Serial Number of Equipment Under Test</th><th>Channel No. (Ch. Freq.)</th><th>Programmed Frequency</th><th>Observed Frequency in RCTS</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	Serial Number of Equipment Under Test	Channel No. (Ch. Freq.)	Programmed Frequency	Observed Frequency in RCTS																								
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Serial Number of Equipment:.....

Make/Model of Equipment:.....

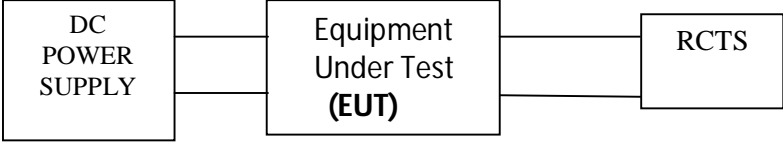
<b>Finding</b>	
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<b>Clause No.</b>	<b>1.2.3</b>												
<b>Specification</b>	<b>CW/MCW</b>												
<b>Status</b>	Mandatory / Optional												
<b>Test Purpose</b>	To test CW and MCW mode.												
<b>Test Configuration</b>	<div style="text-align: center;">  <pre> graph LR     A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]     B --- C[RCTS]             </pre> </div> <p><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipments Required:</b>                  DC Power Supply                  Digital Multimeter                  Radio communication Test Set (RCTS)                  Different types of connectors.</p>												
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.												
<b>Test Procedure</b>	<p><b>CW TESTING:-</b>Press the Morse key and get the reading in communication test set. It should be carrier only.</p> <p><b>MCW:</b> - For MCW press the Morse key and the set the reading in communication tester as carrier + Modulating tone frequency. It will be the same as USB.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Serial Number Equipment Under Test</th> <th style="width: 10%;">Modes</th> <th style="width: 25%;">Programmed Frequency</th> <th style="width: 25%;">Observed Frequency in RCTS</th> </tr> </thead> <tbody> <tr> <td></td> <td style="text-align: center;">CW</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">MCW</td> <td></td> <td></td> </tr> </tbody> </table>	Serial Number Equipment Under Test	Modes	Programmed Frequency	Observed Frequency in RCTS		CW				MCW		
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	MCW												
<b>Required Value/Result</b>													
<b>Measured Value/Result</b>													
<b>Finding</b>													

<b>Clause No.</b>	<b>1.2.3</b>
<b>Specification</b>	<b>Mode: AFSK</b>
<b>Status</b>	Mandatory / Optional
<b>Test Purpose</b>	To test AFSK mode.

Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Test Configuration</b>	<div style="text-align: center;">  <pre> graph LR     A[DC POWER SUPPLY] --- B[Equipment Under Test (EUT)]     B --- C[RCTS]             </pre> </div> <p><b>Standard Test Setup for testing Radio</b></p> <p><b>Test Equipments Required:</b>                  DC Power Supply                  Digital Multimeter                  Radio communication Test Set (RCTS)                  Different types of connectors.</p>
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.3</b>													
<b>Specification</b>	<b>Preset: 200 Channels or more</b>													
<b>Status</b>	Mandatory/Optional													
<b>Test Purpose</b>	To check and confirm availability of 200 channels in the Radio.													
<b>Test Configuration</b>	As above													
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.													
<b>Test Procedure</b>	<ol style="list-style-type: none"> <li>1. Radio is required to be programmed for 200 or more channels by the supplier.</li> <li>2. Check that Radio is having 200 or more preset channels by selecting channels from 1 to 200 and check that channel is as per selection. The frequency will be varied as per channel selection.</li> </ol> <table border="1" data-bbox="491 1666 1406 1986" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Serial Number of Equipment Under Test</th> <th style="width: 33%;">Channel No.</th> <th style="width: 33%;">Frequency observed</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		Serial Number of Equipment Under Test	Channel No.	Frequency observed									
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Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Required Value/Result</b>				
<b>Measured Value/Result</b>				
<b>Finding</b>				

<b>Clause No.</b>	<b>1.4</b>																																							
<b>Specification</b>	<b>Frequency Stability : ± 1.0 PPM or better</b>																																							
<b>Status</b>	Mandatory/Optional																																							
<b>Test Purpose</b>	To ensure that the frequency of the Radio should not drift beyond ± 1.5 PPM or better																																							
<b>Test Configuration</b>	As above																																							
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																																							
<b>Test Procedure</b>	<p><b>Method of Measurement</b></p> <p>a) Connect the equipment as illustrated in the standard test setup.</p> <p>b) Set the DC Power Supply for test voltage.</p> <p>c) Set the Transmitter under Test (TUT) to a channel and note down the assigned channel frequency as <math>ACF_{MHz}</math>.</p> <p>d) Operate the equipment in standby conditions for 15 / 30 minutes .</p> <p>e) Record the carrier frequency of the transmitter as <math>MCF_{MHz}</math>.</p> <p>f) Calculate the ppm frequency error by the following:  <math display="block">ppm\ error = [ (MCF_{MHz} \div ACF_{MHz}) - 1 ] \times 10^6</math></p> <p>g) The value recorded in step f) is the carrier frequency stability.</p> <p><b>Test and Measurement Record</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Ch No.</th> <th style="width:20%;">Assigned Freq. (MHz) <math>ACF_{MHz}</math></th> <th style="width:15%;">Time</th> <th style="width:15%;">Measured Carrier Freq. (MHz) <math>MCF_{MHz}</math></th> <th style="width:40%;">Carrier Frequency Stability <math>[ (MCF_{MHz} \div ACF_{MHz}) - 1 ] \times 10^6</math>  <b>Specified:.....</b></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>T<sub>0</sub></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>T<sub>1</sub>=T<sub>0</sub>+ 60 min</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>T<sub>2</sub>=T<sub>1</sub>+ 60 min</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>T<sub>3</sub>=T<sub>2</sub>+ 60 min</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>T<sub>4</sub>=T<sub>3</sub>+ 60 min</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>T<sub>5</sub>=T<sub>4</sub>+ 60 min</td> <td></td> <td></td> </tr> </tbody> </table>					Ch No.	Assigned Freq. (MHz) $ACF_{MHz}$	Time	Measured Carrier Freq. (MHz) $MCF_{MHz}$	Carrier Frequency Stability $[ (MCF_{MHz} \div ACF_{MHz}) - 1 ] \times 10^6$  <b>Specified:.....</b>			T <sub>0</sub>					T <sub>1</sub> =T <sub>0</sub> + 60 min					T <sub>2</sub> =T <sub>1</sub> + 60 min					T <sub>3</sub> =T <sub>2</sub> + 60 min					T <sub>4</sub> =T <sub>3</sub> + 60 min					T <sub>5</sub> =T <sub>4</sub> + 60 min		
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Serial Number of Equipment:.....

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			T <sub>6</sub> =T <sub>5</sub> + 60 min			
<b>Required Value/Result</b>						
<b>Measured Value/Result</b>						
<b>Finding</b>						

<b>Clause No.</b>	<b>1.5</b>
<b>Specification</b>	<b>Built-in-Test: Front Panel Testing</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As above
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.6</b>																
<b>Specification</b>	<b>Input Power : + 12 V DC Nominal (10.8V to 14.4V)</b>																
<b>Status</b>	Mandatory/Optional																
<b>Test Purpose</b>	To test that Radio is operating on 12 / 24 V DC Nominal (10.8V to 14.4V)																
<b>Test Configuration</b>	As above																
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																
<b>Test Procedure</b>	<p>1. Connect the Radio with 12 V DC Power Supply with correct polarity of PSU.</p> <p>2. Ensure 12V DC of the Power Supply voltage at the output terminal of PSU with the help of Digital multimeter.</p> <p>3. Press PTT and check Radio for rated RF output.</p> <p>4. Vary the operating voltage range from 10.8V to 14.4V and check RF output of Transmitter</p> <p>5. Press PTT and observe RF rated output of Radio.</p> <table border="1" data-bbox="619 1697 1406 1865"> <thead> <tr> <th>Input Voltage</th> <th>Channel Number (Frequency)</th> <th>Rated Output</th> <th>RF</th> </tr> </thead> <tbody> <tr> <td>12V DC</td> <td></td> <td></td> <td></td> </tr> <tr> <td>10.8V DC</td> <td></td> <td></td> <td></td> </tr> <tr> <td>14.4V DC</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Input Voltage	Channel Number (Frequency)	Rated Output	RF	12V DC				10.8V DC				14.4V DC			
Input Voltage	Channel Number (Frequency)	Rated Output	RF														
12V DC																	
10.8V DC																	
14.4V DC																	
<b>Required Value/Result</b>																	
<b>Measured Value/Result</b>																	
<b>Finding</b>																	

Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Clause No.</b>	<b>1.7</b>
<b>Specification</b>	<b>Battery Life Duty Cycle: 5/5/90: Option 1: 20 Hrs or more Option 2: 40 Hrs or more</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is operating in the given range.
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

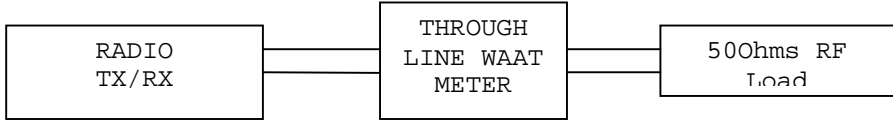
<b>Clause No.</b>	<b>1.8</b>
<b>Specification</b>	<b>EMI / EMC : MIL-STD- 461 / 462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09)</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To confirm that Radio is complying EMI / EMC standards.
<b>Test Configuration</b>	As above
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	Check for the manufacturer certificate issued by accredited lab from any Government recognized labs.
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

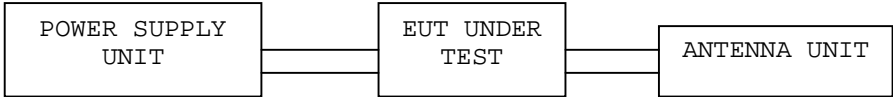
<b>Clause No.</b>	<b>1.9</b>
<b>Specification</b>	<b>Weight – less than 6 Kg</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that weight of the Radio should not exceed 06 Kg.
<b>Test Configuration</b>	Measure the weight with the help of weight measuring machine.
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	Measure the weight of the Radio on Digital weighing machine. It should be as per the requirement specification.
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.10</b>
<b>Specification</b>	<b>Antenna Impedance : 50 Ohms unbalanced</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is having 50 Ohms impedance.
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

<p><b>Test Procedure</b></p>	<div style="text-align: center;">  </div> <ol style="list-style-type: none"> <li>1. Connect EUT as per above hook up diagram.</li> <li>2. Tune Radio on CW Mode.</li> <li>3. Press PTT, and observe rated RF output power and VSWR.</li> </ol> <table border="1" data-bbox="552 683 1442 882"> <thead> <tr> <th>Channel Number</th> <th>Mode</th> <th>Rated Output Power</th> <th>RF</th> <th>VSWR</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Channel Number	Mode	Rated Output Power	RF	VSWR															
Channel Number	Mode	Rated Output Power	RF	VSWR																	
<p><b>Required Value/Result</b></p>																					
<p><b>Measured Value/Result</b></p>																					
<p><b>Finding</b></p>																					

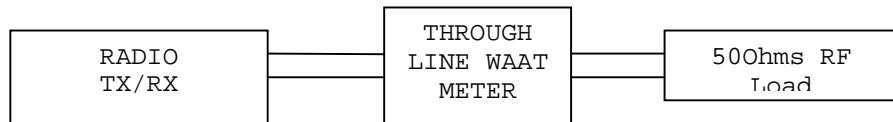
<p><b>Clause No.</b></p>	<p><b>1.11</b></p>
<p><b>Specification</b></p>	<p><b>Protection :</b>  <b>(i) Reverse Polarity protection (without fuse)</b>  <b>(ii) Protection against high VSWR.</b></p>
<p><b>Status</b></p>	<p>Mandatory/Optional</p>
<p><b>Test Purpose</b></p>	<p>To verify that Radio is having Reverse polarity and high VSWR protection facility.</p>
<p><b>Test Configuration</b></p>	
<p><b>Initial Condition</b></p>	<p>Switch on Radio Set and allow EUT to warm up for 30 minutes.</p>
<p><b>Test Procedure</b></p>	<p><b>Reverse Polarity protection (without fuse):</b></p> <div style="text-align: center;">  </div> <ol style="list-style-type: none"> <li>a) Connect the Radio with power supply with correct polarity.</li> <li>b) Switch on EUT and observe its serviceability.</li> <li>c) Next, Put Off the EUT and connect power supply with reverse polarity.</li> <li>d) Switch ON the EUT for few minutes and then switch OFF.</li> <li>e) Next, Change the polarity in correct position. Then Switch ON EUT and observe its serviceability.</li> </ol>

**Serial Number of Equipment:.....**

**Make/Model of Equipment:.....**

Power Supply	Serviceability of EUT at correct polarity	Serviceability of EUT after undergoing reverse polarity
12 V DC		

**Protection against high VSWR:**



- a) Connect EUT as per above hookup diagram.
- b) Switch ON EUT and Tune it in CW Mode.
- c) Press PTT and measure the VSWR Reading in Trough Line Watt Meter.
- d) Then, Remove 50 Ohms RF Load from the output Terminal of the EUT.
- e) Press PTT for 10 second and observe VSWR Reading.
- f) Next reconnect the 50 Ohms RF load to EUT and press PTT to check VSWR.

Mode	VSWR Reading with 50 Ohms Load	VSWR Reading without Load	Serviceability Condition of EUT after removing VSWR Protection

**Required Value/Result**

**Measured Value/Result**

**Finding**

<b>Clause No.</b>	<b>1.12</b>
<b>Specification</b>	<b>Roles : Manpack</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio can operate in Mobile mode.
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	

*Serial Number of Equipment:.....*  
*Make/Model of Equipment:.....*

<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.13</b>
<b>Specification</b>	<b>Headphone Impedance : 150 Ω / 300Ω / 600Ω</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is having 150 Ω / 300Ω / 600Ω Impedance.
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.14</b>
<b>Specification</b>	<b>Cooling : Convection From Case</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is having convection cooling system
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.15</b>
<b>Specification</b>	<b>VSWR : Better than 1.5</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is having better than 1.5 VSWR
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	<div style="text-align: center;"> <pre> graph LR     A[RADIO TX/RX] --- B[THROUGH LINE WAAT METER]     B --- C[50 OHMS ANTENNA LOAD]             </pre> </div> <ol style="list-style-type: none"> <li>1. Connect the Radio as per above hook up diagram.</li> <li>2. Switch ON EUT on CW Mode.</li> <li>3. Press PTT and observe VSWR reading.</li> </ol>

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

	Mode	VSWR Reading with 50 Ohms Load	RF Output Power
<b>Required Value/Result</b>			
<b>Measured Value/Result</b>			
<b>Finding</b>			

<b>Clause No.</b>	<b>1.16</b>
<b>Specification</b>	<b>Visual display : Front Panel LCD display</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is having front panel display.
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	Check that Radio is having front panel LCD/ LED display. Its display should be clear and distinguishable.
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.17</b>
<b>Specification</b>	<b>Interface : RS-232 / USB</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that Radio is having RS-232 / USB interface port.
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	Connect the Radio with Laptop/ Desktop with RS-232 Comport or USB Port and transfer the data for confirmation.
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>1.18</b>
<b>Specification</b>	<b>Programming : PC programming software and front panel programming</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To check PC Programming Software and front panel programming

*Serial Number of Equipment:.....*

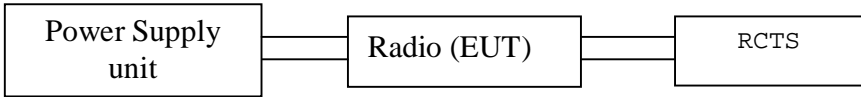
*Make/Model of Equipment:.....*

<b>Test Configuration</b>																					
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																				
<b>Test Procedure</b>	For ensuring the PC programming and front panel programming a self-test generated profile should be programmed in both ways.																				
	<table border="1"><thead><tr><th>Profile</th><th>Channel No</th><th>Tx/Rx frequency</th><th>Mode</th></tr></thead><tbody><tr><td>AS per User requirement</td><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td><td></td></tr><tr><td></td><td>3</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></tbody></table>	Profile	Channel No	Tx/Rx frequency	Mode	AS per User requirement	1				2				3						
	Profile	Channel No	Tx/Rx frequency	Mode																	
	AS per User requirement	1																			
		2																			
	3																				
<b>Required Value/Result</b>																					
<b>Measured Value/Result</b>																					
<b>Finding</b>																					

<b>Clause No.</b>	<b>1.19</b>
<b>Specification</b>	<b>Communication Security : Approved encryption (SAG)</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	For confirmation of Encryption Voice and data to maintain communication security the SAG approval certificate is required to be seen after submission of Vendor/Manufacturer
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	

*Serial Number of Equipment:.....*  
*Make/Model of Equipment:.....*

## 2. TRANSMITTER

<b>Clause No.</b>	<b>2.1</b>																														
<b>Specification</b>	<b>RF Power Output : 5 to 25 Watts PEP (Low Medium &amp; High) user programmable</b>																														
<b>Status</b>	Mandatory/Optional																														
<b>Test Purpose</b>	The RF Output Power for a transmitter is the power available at the output terminals of the transmitter when the output terminals are connected to a standard transmitter load.																														
<b>Test Configuration</b>	As above set up.																														
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																														
<b>Test Procedure</b>	<div style="text-align: center;">  <pre> graph LR     PSU[Power Supply unit] --- Radio[Radio (EUT)]     Radio --- RCTS[RCTS]             </pre> </div> <p><b>Method of Measurement</b></p> <ol style="list-style-type: none"> <li>Connect the equipment as illustrated in the standard test setup.</li> <li>Set the DC Power Supply for test voltage.</li> <li>Set the Transmitter under Test (TUT) to a channel and note down the channel frequency.</li> <li>Key the transmitter and measure the transmitter output power using RCTS.</li> <li>The value recorded in step d) is the RF power output. Repeat step c) and step for all the channels covering the specified frequency range.</li> </ol> <p><b>Test and Measurement Record</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Channel No.</th> <th>Freq. (MHz)</th> <th>RF output Power (W)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td>HIGH:</td></tr> <tr><td> </td><td> </td><td>HIGH:</td></tr> <tr><td> </td><td> </td><td>HIGH:</td></tr> <tr><td> </td><td> </td><td>HIGH:</td></tr> <tr><td> </td><td> </td><td>LOW:</td></tr> <tr><td> </td><td> </td><td>LOW:</td></tr> <tr><td> </td><td> </td><td>LOW:</td></tr> <tr><td> </td><td> </td><td>LOW:</td></tr> <tr><td> </td><td> </td><td>LOW:</td></tr> </tbody> </table>	Channel No.	Freq. (MHz)	RF output Power (W)			HIGH:			HIGH:			HIGH:			HIGH:			LOW:			LOW:			LOW:			LOW:			LOW:
Channel No.	Freq. (MHz)	RF output Power (W)																													
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		LOW:																													
<b>Required Value/Result</b>																															
<b>Measured Value/Result</b>																															
<b>Finding</b>																															



Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Clause No.</b>	<b>2.2</b>																								
<b>Specification</b>	<b>Spurious Emission : <math>\leq 50\text{mW}</math> and 40db or more, below PEP</b>																								
<b>Status</b>	Mandatory/Optional																								
<b>Test Purpose</b>	Spurious emissions are emissions at the antenna terminals on a frequency or frequencies that are outside a band sufficient to ensure transmission of information of required quality.																								
<b>Test Configuration</b>	Switch on Radio and operate all function of the Radio and observe that all the indication are readable over the display.																								
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																								
<b>Test Procedure</b>	<p><b>Method of Measurement</b></p> <p>a) Connect the equipment as illustrated in the standard test setup.</p> <p>b) Set the RCTS to spectrum analyzer mode and set the appropriate resolution filter, reference level, center frequency and span settings.</p> <p>c) Set the DC Power Supply for test voltage.</p> <p>d) Set the Equipment Under Test (EUT) to a channel and note down the channel frequency.</p> <p>e) Key the transmitter and record the RF signal level (in dB) for the channel frequency and at spurious peaks on both sides of the channel frequency.</p> <p>f) Repeat steps d) to e) for other channels.</p> <p><b>Test and Measurement Record</b></p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Ch No</th> <th>Freq. (MHz)</th> <th>Spectrum level (dBm) <math>S_L</math></th> <th>Spurious Frequency (MHz)</th> <th>Spurious Spectrum level (dBm) <math>SS_L</math></th> <th>Spurious Suppression <math>=  SS_L - S_L </math> <b>Specified:.....</b></th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Ch No	Freq. (MHz)	Spectrum level (dBm) $S_L$	Spurious Frequency (MHz)	Spurious Spectrum level (dBm) $SS_L$	Spurious Suppression $=  SS_L - S_L $ <b>Specified:.....</b>																		
Ch No	Freq. (MHz)	Spectrum level (dBm) $S_L$	Spurious Frequency (MHz)	Spurious Spectrum level (dBm) $SS_L$	Spurious Suppression $=  SS_L - S_L $ <b>Specified:.....</b>																				
<b>Required Value/Result</b>																									
<b>Measured Value/Result</b>																									
<b>Finding</b>																									

<b>Clause No.</b>	<b>2.3</b>
<b>Specification</b>	<b>Side Band Suppression : <math>\geq 70</math> db or better</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	The method of producing an SSB signal is to remove one of the sidebands via filtering, leaving only either the upper

Serial Number of Equipment:.....

Make/Model of Equipment:.....

	sideband (USB), the sideband with the higher frequency, or the lower sideband (LSB), the sideband with the lower frequency.																					
<b>Test Configuration</b>	Switch on Radio and operate in the given range of Side band suppression.																					
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																					
<b>Test Procedure</b>	<p><b>Method of Measurement</b></p> <p>a) Connect the equipment as illustrated in the standard test setup.</p> <p>b) Set the RCTS to spectrum analyzer mode and set the appropriate resolution filter, Reference level, center frequency and span settings.</p> <p>c) Set the DC Power Supply for test voltage.</p> <p>d) Set the Equipment Under Test (EUT) in SSB mode to a channel and note down the channel frequency.</p> <p>e) Press PTT and record the RF signal level (in dB) for the channel frequency and at</p> <p>f) Unwanted sideband frequency.</p> <p>g) Repeat steps d) to e) for other channels.</p> <p><b>Test and Measurement Record</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Ch No.</th> <th rowspan="2">Freq. (MHz)</th> <th rowspan="2">Wanted Spectrum level (dBm) <math>R_w</math></th> <th rowspan="2">Unwanted Spectrum level (dBm) <math>R_{uw}</math></th> <th><b>Specified:</b></th> </tr> <tr> <th>Unwanted sideband suppression = <math> R_w - R_{uw} </math></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>USB</td> <td>LSB</td> <td></td> </tr> <tr> <td></td> <td></td> <td>LSB</td> <td>USB</td> <td></td> </tr> <tr> <td></td> <td></td> <td>LSB</td> <td>USB</td> <td></td> </tr> </tbody> </table>	Ch No.	Freq. (MHz)	Wanted Spectrum level (dBm) $R_w$	Unwanted Spectrum level (dBm) $R_{uw}$	<b>Specified:</b>	Unwanted sideband suppression = $ R_w - R_{uw} $			USB	LSB				LSB	USB				LSB	USB	
Ch No.	Freq. (MHz)					Wanted Spectrum level (dBm) $R_w$	Unwanted Spectrum level (dBm) $R_{uw}$	<b>Specified:</b>														
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		USB	LSB																			
		LSB	USB																			
		LSB	USB																			
<b>Required Value/Result</b>																						
<b>Measured Value/Result</b>																						
<b>Finding</b>																						

<b>Clause No.</b>	<b>2.4</b>
<b>Specification</b>	<b>Carrier suppression : <math>\geq 40</math> db or better</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	The method of producing an SSB signal is to remove one of the sidebands via filtering, leaving only either the upper sideband (USB), the sideband with the higher frequency, or the lower sideband (LSB), the sideband with the lower

**Serial Number of Equipment:.....**

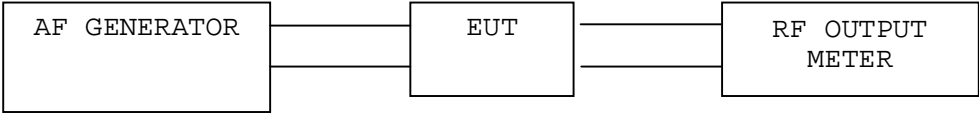
**Make/Model of Equipment:.....**

	frequency. The carrier is reduced or removed entirely (suppressed), being referred to in full as single sideband suppressed carrier (SSBSC).																				
<b>Test Configuration</b>	Switch on Radio and operate all function of the Radio and observe that all the indication are readable over the display.																				
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																				
<b>Test Procedure</b>	<p><b>Method of Measurement</b></p> <p>a) Connect the equipment as illustrated in the standard test setup.</p> <p>b) Set the RCTS to spectrum analyzer mode and set the appropriate resolution filter, reference level, center frequency and span settings.</p> <p>c) Set the DC Power Supply for test voltage.</p> <p>d) Set the Transmitter under Test (TUT) in SSB mode to a channel and note down the channel frequency.</p> <p>e) Press PTT and record the RF signal level (in dB) for the channel frequency and at carrier frequency.</p> <p>f) Repeat steps d) to e) for other channels.</p> <p><b>Test and Measurement Record</b></p> <table border="1"> <thead> <tr> <th>Ch No.</th> <th>Freq. (MHz)</th> <th>Wanted Spectrum level (dBm) <math>R_w</math></th> <th>Carrier Spectrum level (dBm) <math>R_c</math></th> <th><b>Specified:.....</b> . Carrier suppression = <math> R_w - R_c </math></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>USB</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>LSB</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>LSB</td> <td></td> <td></td> </tr> </tbody> </table>	Ch No.	Freq. (MHz)	Wanted Spectrum level (dBm) $R_w$	Carrier Spectrum level (dBm) $R_c$	<b>Specified:.....</b> . Carrier suppression = $ R_w - R_c $			USB					LSB					LSB		
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		USB																			
		LSB																			
		LSB																			
<b>Required Value/Result</b>																					
<b>Measured Value/Result</b>																					
<b>Finding</b>																					

<b>Clause No.</b>	<b>2.5</b>
<b>Specification</b>	<b>Inter modulation distortion : 30 db min. below PEP</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To measure inter modulation distortion of EUT.
<b>Test Configuration</b>	Switch on Radio and operate all function of the Radio and observe that all the indication are readable over the display.

*Serial Number of Equipment:.....*  
*Make/Model of Equipment:.....*

<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>2.6</b>
<b>Specification</b>	<b>Audio Response : within 6db from 350 Hz to 2700 Hz.</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	Audio frequency response refers to the way a microphone responds to different audio frequencies.
<b>Test Configuration</b>	Switch on Radio and operate all function of the Radio and observe that all the indication are readable over the display.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	<p><b>1. <u>Audio Response</u> :</b></p> <div style="text-align: center;">  <pre> graph LR     A[AF GENERATOR] --- B[EUT]     B --- C[RF OUTPUT METER]             </pre> </div> <p><b>Method of Measurement</b>  <b>Constant Input Test Method</b></p> <ol style="list-style-type: none"> <li>a) Connect the equipment as illustrated in the standard test setup.</li> <li>b) Set the DC Power Supply for test voltage.</li> <li>c) Set the Transmitter under Test (TUT) in SSB mode to a channel and note down the channel frequency.</li> <li>d) Apply a 1000 Hz audio frequency to mic input from RCTS to at a level (modulation sensitivity) to produce rated RF power output.</li> <li>e) Set the RCTS to measure RF power output (in dB) and press PTT to record the reading as reference (by zeroing).</li> <li>f) Keeping the AF level constant vary the AF frequency between 350Hz and 2700 Hz and record the RF power output reading.</li> <li>g) Repeat steps d) through f) for other channels.</li> <li>h) Plot the audio frequency response graph and compare with the specification.</li> </ol>

**Serial Number of Equipment:.....**

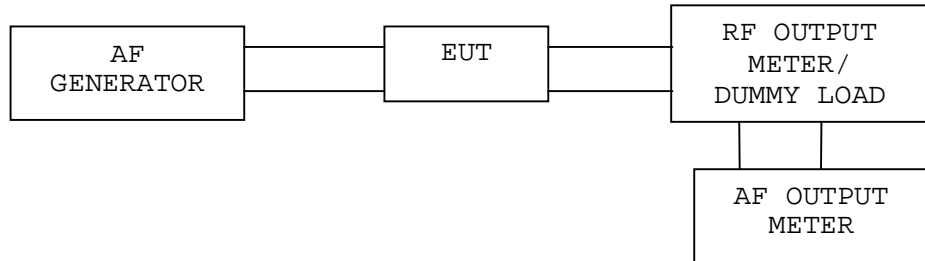
**Make/Model of Equipment:.....**

<b>Test and Measurement Record</b>							
Ch No:2	Constant Input Test Method 20% Frequency Deviation:500Hz AF level (@20% freq. dev):.....mV						
AF Freq (Hz)	Deviation (in dB)	AF Freq (Hz)	Deviation (in dB)	AF Freq (Hz)	Deviation (in dB)	AF Freq (Hz)	Deviation (in dB)
0350		1100		1900		2700	
0400		1200		2000			
0500		1300		2100			
0600		1400		2200			
0700		1500		2300			
0800		1600		2400			
0900		1700		2500			
1000		1800		2600			
<b>Specified:</b> .....							
Remarks:							
<b>Required Value/Result</b>							
<b>Measured Value/Result</b>							
<b>Finding</b>							

<b>Clause No.</b>	<b>2.7</b>
<b>Specification</b>	<b>Side Tone Level : Better than 0.1 mw into 150 Ω load for 5 mV of audio input at 1 KHz.</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	Side tone is the effect of sound that is picked up by the telephone's mouthpiece and introduced (at low level) into the earpiece of the same handset, acting as feedback. In wireless telegraphy (WT) and land mobile radio, side tone is the audible indication of a CW signal as the operator sends Morse Code. It acts as feedback to the operator that what they are sending is what is intended.
<b>Test Configuration</b>	Switch on Radio and operate all function of the Radio and observe that all the indication is readable over the display.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	

Serial Number of Equipment:.....

Make/Model of Equipment:.....



**Method of Measurement**

- a) Connect the equipment as illustrated in the standard test setup.
- b) Set the DC Power Supply for test voltage.
- c) Set the Equipment Under Test (EUT) in CW mode to a channel and note down the channel frequency.
- d) Key the transmitter and apply a 1000 Hz modulating signal to the transmitter from RCTS, and adjust the level to obtain rated RF power output.
- e) Measure the side tone output level at the speaker terminals on the AF power meter.
- f) Repeat steps c) to f) for other channels.

**Test and Measurement Record**

Ch No.	Freq. (MHz)	Load impedance	Side tone level in mW <b>Specified: .....</b>

<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

	<b>2.8</b>
<b>Specification</b>	<b>Modulation Sensitivity: 1 to 10 mV at 1 KHz for full power under SSB mode.</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	Modulation Sensitivity is the input rms voltage level that must be applied to the input terminals of the microphone circuit to produce the rated RF output power.
<b>Test Configuration</b>	Switch on Radio and operate all function of the Radio and observe that all the indication are readable over the display.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	<b>Method of Measurement</b>

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

- a) Connect the equipment as illustrated in the standard test setup.
- b) Set the DC Power Supply for test voltage.
- c) Set the Equipment Under Test (EUT) in SSB mode to a channel and note down
- d) the channel frequency.
- e) Press PTT and apply a 1000 Hz Audio Frequency from the RCTS and adjust its
- f) output level until rated RF power output is achieved.
- g) Record the AF output level as the Modulation Sensitivity.
- h) Repeat steps c) to e) for other channels.

**Test and Measurement Record**

Ch No	Freq. (MHz)	RF Power (Watt) <b>USB</b>	AF level (mV) <b>USB Specified:</b> .....	RF Power (Watt) <b>LSB</b>	AF level (mV) <b>LSB Specified: .....</b>

**Required Value/Result**

**Measured Value/Result**

**Finding**

*Serial Number of Equipment:.....*  
*Make/Model of Equipment:.....*

**1. RECEIVER**

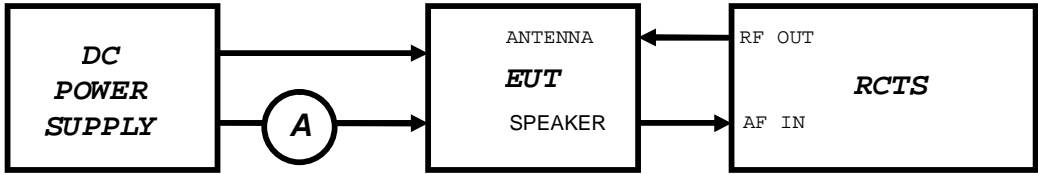
<b>Clause No.</b>	<b>3.1</b>
<b>Specification</b>	<b>Receiver Sensitivity : -111 dBm for 10 dB SINAD or better</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	Receiver Sensitivity is the level of receiver input signal modulated at a specified audio frequency that will result in the specified Signal to Noise ratio at the output of the receiver. The maximum audio output obtained at maximum volume control setting, without exceeding the specified distortion, when an input signal modulated at a specified audio frequency is applied to the receiver.
<b>Test Configuration</b>	As per above standard set up.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	<div style="text-align: center;"> <pre> graph LR     DC[DC POWER SUPPLY] --&gt; A((A))     A --&gt; EUT[ANTENNA EUT SPEAKER]     EUT --&gt; RCTS[RCTS]     RCTS -- RF OUT --&gt; EUT     RCTS -- AF IN --&gt; EUT             </pre> </div> <p><b>Method of Measurement</b></p> <ol style="list-style-type: none"> <li>a) Connect the equipment as illustrated.</li> <li>b) Set the EUT in SSB mode and apply an un modulated signal of the set channel frequency from RCTS to the receiver input terminals.</li> <li>c) Keep the receiver volume control to maximum and apply modulating audio signal of 1kHz to obtain maximum audio output.</li> <li>d) Record the maximum audio output (in W).</li> <li>e) Record the input signal level (i.e. [Signal + Noise] in <math>\mu</math>V and dBm)</li> <li>f) Switch off the input signal and record the Noise level (in dBm).</li> <li>g) Set the input signal level at 10 times (up 20dB) and measure distortion.</li> <li>h) Repeat steps b) to g) for CW mode.</li> <li>i) Repeat steps b) to h) for other channels.</li> </ol> <p><b>Test and Measurement Record</b></p> <p style="text-align: center;">Speaker impedance :..... Measured at :.....</p>



Serial Number of Equipment:.....

Make/Model of Equipment:.....

Ch No.	Freq. (MHz)	Input signal level (in $\mu$ V)	S+N (in dB)	N (in dB)	(S+N)/N (in dB)	Max Audio output (in W)	Distortion @ 10x I/P signal level (in %)
	CW						
	USB						
	LSB						
Specified: .....							
<b>Required Value/Result</b>							
<b>Measured Value/Result</b>							
<b>Finding</b>		<b>Meet</b>					

<b>Clause No.</b>	<b>3.2</b>
<b>Specification</b>	<b>Image Rejection : <math>\geq 70</math> db or better</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	The image rejection ratio or image frequency rejection ratio, is the ratio of the intermediate-frequency (IF) signal level (in dB) produced by the desired input frequency to that produced by the image frequency.
<b>Test Configuration</b>	As per above standard set up.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	 <p><b>Method of Measurement</b></p> <ol style="list-style-type: none"> <li>Connect the equipment as illustrated in the standard test setup.</li> <li>Set the DC Power Supply for test voltage.</li> <li>Set the Equipment Under Test (EUT) in SSB mode to a channel and note down the</li> <li>channel frequency.</li> <li>Apply an un-modulated RF signal to obtain 10dB SINAD from RCTS( <math>c_f</math> )</li> <li>Apply Image frequency to EUT and increase signal input level to obtain the 10dB SINAD.</li> </ol>

Serial Number of Equipment:.....

Make/Model of Equipment:.....

- g) The difference in the input signal level gives the image rejection ratio.  
 h) Repeat steps c) to f) for other channels.

**Test and Measurement Record**

Ch No.	Freq. (MHz)	Input signal level (in dBm) $C_f$	SINAD In dB	Image Freq. (MHz)	Input signal level (in dBm) $I_f$	SINAD In dB	<b>Specified:</b> ≥70dB or better  Result = $C_f - I_f$
	USB						
	LSB						

**Required Value/Result**

**Measured Value/Result**

**Finding** Meet

**Clause No.** 3.3

**Specification** IF Rejection : : ≥ 70 db or better

**Status** Mandatory/Optional

**Test Purpose** To verify IF rejection is ≥ 70 db or better for the Receiver.

**Test Configuration** As per standard diagram.

**Initial Condition** Switch on Radio Set and allow EUT to warm up for 30 minutes.

**Test Procedure**



**Method of Measurement**

- a) Connect the equipment as illustrated in the standard test setup.  
 b) Set the DC Power Supply for test voltage.

Serial Number of Equipment:.....

Make/Model of Equipment:.....

- c) Set the Equipment Under Test (EUT) in SSB mode to a channel and note down the channel frequency.
- d) Apply an un-modulated RF signal to obtain 10dB SINAD from RCTS(  $C_f$  )
- e) Apply IF frequency to EUT and increase signal input level to obtain the 10dB SINAD.
- f) The difference in the input signal level gives the IF rejection ratio.
- g) Repeat steps c) to f) for other channels.

**Test and Measurement Record**

Ch No.	Freq . (MHz )	Input signal level (in dBm) $C_f$	SINAD In dB	IF Frequency (MHz)	Input signal level (in dBm) $I_f$	SINAD In dB	<b>Specified:</b> ≥70dB or better  Result = $C_f - I_f$
	USB						
	LSB						

**Required Value/Result**

**Measured Value/Result**

**Finding**

<b>Clause No.</b>	<b>3.4</b>
<b>Specification</b>	<b>In Band Inter Modulation Distortion : 35 db min. below PEP</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that In Band Inter Modulation Distortion is 35 db min. below PEP
<b>Test Configuration</b>	As per above standard set up.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	<b>Meet</b>

Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Clause No.</b>	<b>3.5</b>																																						
<b>Specification</b>	<b>Audio Response : With in <math>\pm 6</math> db from 350 Hz to 2700 Hz</b>																																						
<b>Status</b>	Mandatory/Optional																																						
<b>Test Purpose</b>	The Audio Response denotes the characteristic of the audio output of a receiver over a specified continuous audio frequency range with constant RF input signal level to the receiver.																																						
<b>Test Configuration</b>	As per above standard set up.																																						
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.																																						
<b>Test Procedure</b>	<div style="text-align: center;"> <pre> graph LR     DC[DC POWER SUPPLY] --&gt; A((A))     A --&gt; ANT[ANTENNA EUT SPEAKER]     RCTS[RCTS] -- RF OUT --&gt; ANT     ANT -- AF IN --&gt; RCTS             </pre> </div> <p><b>Method of Measurement</b></p> <ol style="list-style-type: none"> <li>Connect the equipment as illustrated in the standard test setup.</li> <li>Set the DC Power Supply for test voltage.</li> <li>Set the Equipment under Test (EUT) in SSB mode to a channel and note down the channel frequency.</li> <li>Apply an un-modulated RF signal at 10 times (up 20dB) at 10 dB SINAD from RCTS to the receiver input terminals.</li> <li>Record the audio output level (in dB) as reference (by zeroing).</li> <li>Keeping the RF signal level constant ;vary the RF signal frequency to obtain audio output (beats) of 1000Hz and record the audio output level (in dB) as reference (by zeroing).</li> <li>Vary the RF signal frequency to obtain audio output (beats) from 350Hz to 2700Hz and record the audio output level (in dB).</li> <li>Repeat steps c) to g) for other channels.</li> </ol> <p><b>Test and Measurement Record</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="8">Ch No: 2</td> </tr> <tr> <td colspan="8">Audio Frequency Response - Constant Input Test Method @ 20% Frequency Deviation: 500Hz</td> </tr> <tr> <th>AF Freq (Hz)</th> <th>AF level (in dB)</th> <th>AF Freq (Hz)</th> <th>AF level (in dB)</th> <th>AF Freq (Hz)</th> <th>AF level (in dB)</th> <th>AF Freq (Hz)</th> <th>AF level (in dB)</th> </tr> <tr> <td>0350</td> <td></td> <td>1100</td> <td></td> <td>1900</td> <td></td> <td>2700</td> <td></td> </tr> </table>							Ch No: 2								Audio Frequency Response - Constant Input Test Method @ 20% Frequency Deviation: 500Hz								AF Freq (Hz)	AF level (in dB)	AF Freq (Hz)	AF level (in dB)	AF Freq (Hz)	AF level (in dB)	AF Freq (Hz)	AF level (in dB)	0350		1100		1900		2700	
Ch No: 2																																							
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AF Freq (Hz)	AF level (in dB)	AF Freq (Hz)	AF level (in dB)	AF Freq (Hz)	AF level (in dB)	AF Freq (Hz)	AF level (in dB)																																
0350		1100		1900		2700																																	

Serial Number of Equipment:.....

Make/Model of Equipment:.....

	0400		1200		2000			
	0500		1300		2100			
	0600		1400		2200			
	0700		1500		2300			
	0800		1600		2400			
	0900		1700		2500			
	1000		1800		2600			
	<b>Specified:</b> .....							
	Remarks:							
<b>Required Value/Result</b>								
<b>Measured Value/Result</b>								
<b>Finding</b>	<b>Meet</b>							

<b>Clause No.</b>	<b>3.6</b>								
<b>Specification</b>	<b>Audio Output : 1W or more across loudspeaker</b>								
<b>Status</b>	Mandatory/Optional								
<b>Test Purpose</b>	The maximum audio output obtained at maximum volume control setting, without exceeding the specified distortion, when a standard input signal at standard modulation and standard SINAD is applied to the receiver								
<b>Test Configuration</b>	As per above standard set up.								
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.								
<b>Test Procedure</b>	<div style="text-align: center;"> <pre> graph LR     RCTS[RCTS] --&gt; Radio[TX/RX RADIO SET]     Radio --&gt; Meter[AF OUTPUT METER]             </pre> </div> <p><b>Method of Measurement</b></p> <ol style="list-style-type: none"> <li>Connect the equipment as illustrated.</li> <li>Adjust the receiver volume control for maximum.</li> <li>Apply a standard input signal (refer std. definitions) from RCTS to the receiver input terminals.</li> <li>Record the audio output (in W) and audio distortion.</li> <li>Repeat steps c) to d) for other channels.</li> </ol> <p><b>Test and Measurement Record</b></p> <p>Speaker impedance: .....Ω</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Ch No</th> <th style="width: 20%;">Freq. (MHz)</th> <th style="width: 30%;">Input signal level (in μV) (@ 60%</th> <th style="width: 40%;">Max. audio output (in W)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Ch No	Freq. (MHz)	Input signal level (in μV) (@ 60%	Max. audio output (in W)				
Ch No	Freq. (MHz)	Input signal level (in μV) (@ 60%	Max. audio output (in W)						

Serial Number of Equipment:.....

Make/Model of Equipment:.....

			freq dev.:1.5KHz and 10dB std. SINAD)	Specified: .....
<b>Required Value/Result</b>				
<b>Measured Value/Result</b>				
<b>Finding</b>	<b>Meet</b>			

<b>Clause No.</b>	<b>3.7</b>
<b>Specification</b>	<b>Audio Frequency Harmonic Distortion : <math>\leq 25</math> dB or better</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As per above standard set up.
<b>Initial Condition</b>	Switch on Radio Set and allow EUT to warm up for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	<b>Meet</b>

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

#### 4. ENVIRONMENTAL TEST

<b>Clause No.</b>	<b>4.1</b>
<b>Specification</b>	Operating Temperature : -30°C to +55°C
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>4.2</b>
<b>Specification</b>	<b>Storage Temperature : -30°C to +60°C</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>4.3</b>
<b>Specification</b>	<b>Humidity : 95% non-condensing (-20°C to +60°C)</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

<b>Finding</b>	
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<b>Clause No.</b>	<b>4.4</b>
<b>Specification</b>	<b>Dust : MIL-STD-810 C /D /E /F /G or JSS-55555</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>4.5</b>
<b>Specification</b>	<b>Vibration : MIL-STD-810 C /D /E /F /G or JSS-55555</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>4.6</b>
<b>Specification</b>	<b>Shock : MIL-STD-810 C /D /E /F /G or JSS-55555</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured</b>	



*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

<b>Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>4.7</b>
<b>Specification</b>	<b>Water Intrusion : MIL-STD-810 C /D /E /F /G or JSS-55555</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>4.8</b>
<b>Specification</b>	<b>Altitude : MIL-STD-810 C /D /E /F /G or JSS-55555</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

Serial Number of Equipment:.....  
 Make/Model of Equipment:.....

## 5.FEATURES OF HF TRANSRECEIVER:

Note: OEM / Vendor will provide necessary tool to test the features.

<b>Clause No.</b>	<b>5.1</b>
<b>Specification</b>	<b>Selective Calling : Digital FSK coding ( 4/6 digit select call )</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	To verify that equipment is transmitting or receiving selective call in digital select call mode.
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.2</b>
<b>Specification</b>	<b>Scanning : 5 channels per second or better</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.3</b>
<b>Specification</b>	<b>ALE (2G/3G) : Complying MIL-STD-188-141-B</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.4</b>
<b>Specification</b>	<b>ALE Link Quality data resolution: 24 hours, up to 100 stations and 100 channels or better.</b>

*Serial Number of Equipment:.....*  
*Make/Model of Equipment:.....*

<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.5</b>
<b>Specification</b>	<b>ALE Link quality data resolution : Local : 5 bits SINAD, 5 bits BER Remote: 5 bits SINAD , 5 bits BER</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Specification</b>	<b>5.6 Flash Messages: Predefined messages</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As shown below.
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.7</b>
<b>Specification</b>	<b>VOCODER : MELP/ACL P (1200/2400 bps)</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As shown below.
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	

Serial Number of Equipment:.....

Make/Model of Equipment:.....

<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.8</b>
<b>Specification</b>	<b>Frequency Hopping : Hop Rate: 6 / 12 / 25 hops per second (User programmable) as per regulation. Hop set table: 100 frequencies or better.</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.9</b>
<b>Specification</b>	<b>GPS Interface: In-built GPS with Polling Facilities</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As shown below.
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.10</b>
<b>Specification</b>	<b>RS-232 Control : The Radio set should have capability to operate on 4800 baud or more.</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

<b>Clause No.</b>	<b>5.11</b>
<b>Specification</b>	<b>Tunable receiver : Continuous tunable</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As above diagram.
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.12</b>
<b>Specification</b>	<b>Radio kill/un-kill : Should have kill/un-kill function</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.13</b>
<b>Specification</b>	<b>Audio Input Sockets :Mic and external socket</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	Allow EUT to warm up by leaving it powered on in receive mode for 30 minutes.
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.14</b>
<b>Specification</b>	<b>Squelch: Coded squelch</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	As per above standard set up.

*Serial Number of Equipment:.....*

*Make/Model of Equipment:.....*

<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.15</b>
<b>Specification</b>	<b>Push to talk: Suitable Microphone to be provided.</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	

<b>Clause No.</b>	<b>5.16</b>
<b>Specification</b>	<b>Audio Socket : Suitable Head Gear should be provided</b>
<b>Status</b>	Mandatory/Optional
<b>Test Purpose</b>	
<b>Test Configuration</b>	
<b>Initial Condition</b>	
<b>Test Procedure</b>	
<b>Required Value/Result</b>	
<b>Measured Value/Result</b>	
<b>Finding</b>	