

No. IV-21011/28/2009-Prov-I  
Government of India  
Ministry of Home Affairs

26, Man Singh Road, Jaisalmer House,  
New Delhi, 10.7.2009


To

The DGs: Assam Rifles/BSF/CISF/CRPF/ITBP/NSG/SSB/BPR&D

Subject:- QRs/Technical Specifications of the Integrated Communication System for  
Radio-Line Interoperability.

The QRs/ Technical Specifications of the Integrated Communication System for  
Radio-Line Interoperability, as per Annexure, has been accepted by the Competent  
Authority in MHA.

2. Henceforth, all the CPMFs should procure the above items required by them  
strictly as per the laid down Technical Specifications/QRs.

  
107109

(R.S.Sharma)  
Director (Prov)

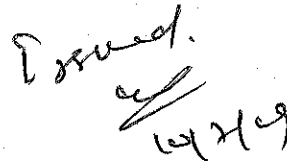


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PS to JS(PM),MHA

  
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**QRs/Technical Specifications Integrated Communication System for Radio-Line Interoperability**

S/No	SYSTEM REQUIREMENTS	REMARKS
1	<p><b>General:</b> The radio-line interoperability system should interface with any combination of 2-way radio (HF,VHF and UHF),cellular/land line /SATCOM telephones while allowing multiple simultaneous two-way conversations or conference calls between the above. The system should include built-in voice prompts to guide users in the operation of the interconnect system.</p> <p>ii) Should be capable of connecting 4 radio nets simultaneously and interface 04 analog ports (FXO/FXS ports) for interoperability with radio sets. It should also support GSM/CDMA interface of 2 ports or more.</p>	<p>The requirement of voice prompts may be optional.</p> <p>The requirement of E1/PRI connectivity may be an optional add on.</p>
2	<p><b>Operational Requirements:</b> The interoperability system should be capable of the following:-</p> <p>(i) Interfacing the various 2-way radios sets in HF, VHF and UHF bands in use.</p> <p>(ii) The interoperability solution should be capable of interconnecting with almost any type of radio through a multitude of specially designed radio interface cable / connectors.</p> <p>(iii) The interoperability solution should also be capable of cross – connecting any or all of the interfaced radios interfacing any type of radio to a public telephone network (PSTN)/ to private access to branch exchanges (PABX)/ to SATCOM terminals (VSATs or INMARSAT), and to Cellular (GSM/CDMA) circuits.</p> <p>(iv) It should cross -connect an encrypted radio network together seamlessly.</p> <p>(v) The interoperability solution should be capable of interconnecting multiple communications systems in one chassis.</p>	<p>The radio sets will be specified by the user as per requirement and holding.</p> <p>The interconnection may be operator assisted or directly accessible by specified users by dialing the access code/ junction number. An IVR facility may be taken, if required by user.</p>
3	<p><b>Performance Requirements:</b></p> <p>i) The system should not add any type of noise in speech communication over Radio's. This should be done by necessary noise filtering circuits.</p> <p>ii) Audio level should be field adjustable. User should be able to increase or decrease audio gain to his satisfaction.</p> <p>iii) Speech should switch instantaneously across Radios with delay of less than 200 m sec.</p> <p>iv) The VOX and VMR feature must also include an adjustable audio sampling so that the audio input received during the time required making a valid signal is not clipped off.</p> <p>v) The system should support necessary interface for instant switching between Radio nets and other gateways.</p> <p>vi) The system should include a configurable noise reduction system. The speech spectrum detector should be capable of filtering out fixed/ variable frequency sirens, whistles and horns without falsely activating cross-connected radio networks.</p>	
4	<p><b>Interfacing with phone lines:</b></p> <p>It should support local telephone interface capability to act as an extension phone for the interconnect system. The local phone circuit shall produce ring voltage, loop current, busy signal and dial tone. It should be possible to inter-connect between telephones connected to system along with other possible interfaces connected to the system. The system should have a magneto connect facility.</p>	

5	<p><b>System operation and Management ;</b></p> <p>(i) The system should perform either as an unmanned gateway over as a manned gateway while providing interoperability over multiple radios.</p> <p>(ii) The interoperability system should have local key pad control, hand set/ head phone / speaker out put for operator control. It should support on line display. Operator should be able to monitor status of port and system on this display.</p> <p>(iii) The system terminal should use a user friendly GUI (Graphical User Interface) depicting system operation and allowing programming of features.</p> <p>(iv) It should also include an Ethernet port for local / remote management. This windows-based software control package shall allow connecting and disconnecting of any interoperability channel with any other interoperability channel.</p> <p>(v) The interoperability system should also include an Ethernet remote control interface allowing the required computer controlled software to operator from multiple dispatch locations simultaneously.</p> <p>(vi) It should permit programming of all radio interface, phone interface features and SATCOM interface features.</p> <p>(vii) <u>Maintainability</u>: The system should support built in test equipment (BITE) facility. The system should be modular in nature with module status indication.</p>	<p>Optional Features</p> <p>Optional Features</p> <p>Necessary indication should be available on the front panel / display to indicate faulty modules.</p>
6	<p><b>Power Supply:</b></p> <p>(i) Equipment should work on any battery available in field. It can be 12 Volt or 24 V or 48 V DC and it should also work on AC mains 230V/50 Hz power. They can be simultaneously connected and the unit will automatically switch to drawing power from the DC input if the AC supply is absent or at too low a level.</p> <p>(ii) Unit power supply must include the ability to charge batteries.</p> <p>(iii) Must be protected against reverse voltage.</p>	
7	<p><b>EMI/EMC Compliance:</b> The equipment should be able to work with various radio requirement in HF, VHF and UHF bands co-located and transmitting at higher power without any problems.</p>	
8	<p><b>Environmental Conditions:</b> The Equipment should be fully ruggedized and will meet environmental conditions as laid down in Table L2B of JSS 5555, Revision NO. 2</p>	Optional Features
9	<p><b>Temperature:</b> Equipment should be capable of being used in any terrain / climate in Indian sub continent. It should be capable of satisfactory performance under the following temperature conditions.</p> <p>i) Operation :- 0 deg. C to 50 deg. C</p> <p>ii) Storage :- 0 deg. C to 50 deg. C</p>	The aim is to lay down the temperatures prevailing in the area of operation.
10	<p><b>Safety :</b></p> <p>i) Should have built in safety devices.</p> <p>ii) Protection against surge voltage from exchange / line side on the PSTN interfaces. It should have protection against high voltages from field side.</p>	