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No.IV-17017/13/06-Prov.I  
Ministry of Home Affairs  
Prov.I

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New Delhi the 28<sup>th</sup> June,2006

To

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

Subject: Finalization of QRs/Specifications for  
Weaponary/security Equipments

The Sub-Group constituted by MHA vide Memorandum No. IV.17017/18/2001-Prov.I dated 5-7-2002 for laying down QRs/specifications of various items/equipments has since submitted its recommendations in respect of following weaponry/security equipments:

- (i) UHF Handheld Radio Set Digital (25W)
- (ii) UHF Mobile Radio Set Digital
- (iii) UHF Light Weight Repeater Digital (25W)
- (iv) UHF Repeater 100 Watt

2. These recommendations have been accepted by MHA. The QRs finalized by the Sub-Group and accepted by MHA in respect of the above communication equipments are enclosed herewith.

3. Henceforth, all the CPMFs should procure the above-items required by them to meet their operational needs strictly as per the laid down QRs/specifications.

Yours faithfully,

*Alok*

(Alok Mukhopadhyay )  
Under Secretary(Prov.I)  
Tele. No.23381278

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Copy to : DD(Procurement), MHA

Copy for information to:

- 1. PS to JS(PM), MHA
- 2. Dir(Prov), MHA

## QUALITATIVE REQUIREMENTS (QRS) FOR UHF REPEATER (100W)

Technical Specification	Qualitative requirements
<b><u>GENERAL</u></b>	
Frequency Range	403 - 430 MHz
Channel Spacing	12.5 and 25 KHz
Frequency stability	+1.0 ppm or better
Type of Emission	Analog -FM Digital - <b>Fully APCO 25 open standard compliance which is not proprietary of a particular manufacturer.</b>
Type of Operation	Repeater mode at 100% duty cycle
Type of Antenna	High gain 6 dB or higher omni directional antenna.
Protection	(i) Reverse polarity protection should be provided. (ii) Protection against high VSWR
Out put Impedance / Termination	50 Ohms
Weight	Without external battery, aerial and metallic rack to be less than 30 Kgs
Power source	(i) Operating supply voltage -230V AC $\pm 10\%$ 50Hz $\pm 2\%$ (ii) 12V / 24V DC $\pm 10\%$ (negative ground). (iii) Automatic changeover to battery in case of mains power supply failure along with float charging facility
<b><u>TRANSMITTER</u></b>	
RF Power Output	Adjustable upto 100Watts or higher at 100% duty cycle for both transmit and receive.
Frequency Deviation	(i) For 25 KHz : maximum $\pm 5$ KHz (ii) For 12.5 KHz : maximum $\pm 2.5$ KHz
Spurious & Harmonics suppression	100 dB or better
FM Hum & Noise	(i) 25 KHz : 45 dB or better (ii) 12.5 KHz : 50 dB or better
Modulation sensitivity	2-10 mV at 1KHz mic input for $\pm 1$ KHz standard deviation for 12.5KHz channel and $\pm 3$ KHz standard deviation for 25KHz channel.
Modulation distortion	Less than 5% at 1KHz for $\pm 1.5$ KHz (12.5KHz channel) and $\pm 3$ KHz (25KHz channel) standard deviation.
Modulation Fidelity	+1, -3 dB of 6 dB / Octave pre-emphasis from 300-2700Hz at 1 KHz reference.
Audio Distortion	Less than 2% at 1 KHz
<b><u>RECEIVER</u></b>	
Sensitivity	(i) Analog : 0.35 $\mu$ V or better at 12 dB SINAD (ii) Digital : 0.35 $\mu$ V or better 5% BER
Squelch sensitivity	0.32 $\mu$ V or better

**SPARES LIST:**

- (a) Details of MRLS (Manufacture Recommended List of Spares).
- (b) ISPL (Illustrated Spares Part List).

**LITERATURE**

- (a) User manual with each radio sets.
- (b) Technical repairing manual with complete block diagram, circuit layout etc. at a scale of 10% of equipment being procured.
- (c) Firm should train a team of four operator and mechanics in handling, operating and repairing of radio receiver free of cost after procurement.

**OTHER CONDITION**

- (a) Bidder to indicate the customer care centers across India for after sales warranty support.
- (b) Warranty for 3 years
- (c) Should provide after sale support, supply of spares for at least 6 years after warranty period.
- (d) The firm should enclose DOT/WPC license for using radio equipment in India.

**FIELD TRIAL**

- (a) One repeater sets for 07 days to be provided for field trial on "no cost no commitments" basis to ascertain the users satisfaction before the proposal is accepted.
- (b) All the technical features / specification will be tested during trials.

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