

F. No.B.V.7/2017-18-C-(HF)-MHA-Prov-I - 2075

भारत सरकार/Government of India

गृह मंत्रालय/Ministry of Home Affairs

पुलिस आधुनिकीकरण प्रभाग /Police Modernization Division

संभरण-I डेस्क /Prov.I Desk

26, Jaisalmer House, Man Singh Road,
New Delhi, the 31st July, 2017

To

The DsG: AR, BSF, CISF, CRPF, ITBP, NSG, SSB, NIA and IB.

Subject: Revised QRs and Trial Directives of HF Manpack and Static Transceivers .

The undersigned is directed to refer to DG, CRPF's U.O. note No.B.V-7/2017-18-C(HF) dated 14.7.2017 on the subject mentioned above and to say that the QRs and Trial Directives in respect of HF Manpack and Static Transceivers as per Annexure-I and Annexure-II, respectively have been approved by the competent authority in MHA.

2. Henceforth, all the CAPFs/NIA & IB should procure and trial evaluates the above item, required by them, strictly as per the laid down QRs and TDs.

3. The concerned CAPFs will be accountable for correctness of the QRs and Trial Directives of HF Manpack and Static Transceivers.

Encl: As above.

R.K.
31/07/2017
(Ritesh Kumar)

Under Secretary to the Govt. of India
Tel:23381278

Copy to:

1. SO (IT), MHA - with the request to host the Revised QRs and Trial Directives of HF Manpack and Static Transceivers on official website of MHA (under the page of Organizational Set up, Police Modernization Division-IT/Communication items) and Soft copy is being sent through email.
2. DG, BPR&D, near SSB Building, NH-8, Palam, Mahipalpur, New Delhi-110037.
3. DDG (Procurement), MHA

C.B.U.
31/7/17
(C. Baby Usha)
Section Officer (Prov-I)

Revised draft QRs of HF Manpack Transceiver












1.1 General Specification

Parameter	Specification
1. Frequency Range	2.0 MHz to 29.9999 MHz with 100 channel spacing and 10 Hz resolution.
2. Modes	SSB(J3E) USB, LSB, AM, CW/MCW
3. Preset	100 Channels or more
4. Frequency Stability	± 1 PPM or better
5. Built-in-test	Front panel testing.
6. Input Power	+ 12 V DC Nominal (10.8V to 14.8V)
7. Battery life Duty Cycle:5/5/90	10 Ah (Li-Ion or Ni-Mh) or more or 20 Hrs or more
8. EMI / EMC	MIL-STD- 461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard.
9. Weight	Less than 6.5 Kg with battery
10. Antenna Impedance	50 Ω Unbalanced
11. Protection	(i) Reverse polarity protection (Without fuse) (ii) Protection against high VSWR.
12. Roles	Manpack
13. Headphone Impedance	Up to 600Ω
14. Cooling	Convection from case
15. VSWR	Better than 1.5
16. Visual display	Front panel LCD/LED display or latest technology
17. Interface	RS-232 / USB
18. Programming	PC programming software and front panel programming.
1.2 Transmitter Specification	
1. RF Power	5W to 25W PEP (Low, Medium, High) (user programmable)
2. Spurious Emission	≤ 40 dB below PEP
3. Side Band Suppression	≥ 50 dB or better
4. Carrier Suppression	≥ 40 dB or better
5. Inter modulation distortion	30db minimum below PEP
6. Audio Response	Within ±6 dB from 350Hz to 2700Hz.
7. Side Tone Level	Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.
8. Modulation Sensitivity	1 to 10 mV at 1 KHz for full power under SSB mode.
1.3 Receiver Specification	
1. Receiver Sensitivity	-107 dBm for 10dB SINAD or better
2. Image Rejection	≥70 dB or better
3. IF Rejection	≥70 dB or better
4. In band Inter Modulation Distortion	35 dB minimum below PEP
5. Audio Response	Within ±6 dB from 350Hz to 2700Hz
6. Audio Output	1W or more across loudspeaker
7. Audio Frequency Harmonics Distortion.	≤ 25 dB or better


Revised draft QRs of HF Manpack Transceiver

2

Parameter	Specification
Environmental Parameters:	
1. Operating Temperature	30°C to +55° C
2. Storage Temperature	-30°C to +60°C
3. Humidity	95% non-condensing @ 40°C.
4. Dust	MIL-STD-810F or better or JSS-55555 (As laid down in Class L3 of JSS-55555, revision No.2)
5. Vibration	
6. Shock	
7. Water Intrusion	
8. Altitude	
1.5 Features:-	
1. Selective calling	Digital FSK coding
2. Scanning	5 channels per second or better
3. Flash messages	Minimum 60 characters
4. Vocoder	MELP/CELP (1200/2400 bps) or better
5. GPS Interface	Inbuilt GPS with polling facility.
6. RS-232 control	The Radio set should have capability to operate at 4800 baud rate or better.
7. Inbuilt data Modem	MIL-STD-188 -110A/B/C single tone ≥ 4800 bps
8. Tuneable receiver	Continuous tuneable.
9. Radio kill/un-kill	Should have kill/un-kill function.
10. Audio input sockets	Mic and external socket.
11. Squelch	Voice/Digital squelch
12. Push to talk.	Suitable Microphone to be provided.
13. Audio Socket	Suitable headgear should be provided.
1.6 Optional features	
1. Communication Security	Vocoder based 128/256 bit digital encryption or SAG approved encryption.
2. ALE 2G/ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B
3. Frequency Hopping	Hop Rate: ≥ 6 hops per second

 Ombir Singh, N/Sub Assam Riffle	 Mahendra Singh, Insp/T ITBP	 S. P. Singh, Insp (Tele) BSF	 AC-III Tarsem Lal NSG
 Ravindra Kumar, AC(Comn) SSB	 R.K. Meel, DC CISF	 Rajesh Ekka, Dy.Dir DCPW	 P.R. Jha, DC CRPF
 P.C. Jha, DIG (Comn) CRPF	 D.S. Rawat, DIG(Eqpt) CRPF	 Piyush Anand, IG(Comn) CRPF	

Approved / Not Approved


(Rajeev Rai Bhatnagar) IPS
DG, CRPF

Annexure "A"

(3)

DRAFT TRIAL DIRECTIVES OF HF MANPACK TRANSCEIVER

All parameters/specifications mentioned in QRs will be checked by the Board of Officers by ascertaining/verifying following checks in the presence of Vendor/Supplier/Manufacturer. In case of any discrepancies/problem, the vendor/rep of firm will demonstrate the features to the Board of officer of the force concerned. Further, if proper testing instrument for testing these parameters is not available with user organization, firm will provide the same.


- (a) Physical Checks: In this category, specifications of the equipment will be checked physically as per QRs.
 (b) Functional Checks: The vendors will show all the features/configuration of the equipment functioning on ground to the board of officers during trials.


1.1 General Specification


Parameter	Specification	Draft Trial Procedure
1. Frequency Range	2.0 MHz to 29.9999 MHz with 100 Hz channel spacing and 10 Hz resolution.	BOO will check frequency range of HF set by programming lowest, highest and any random frequency in 2.0-29.9999 MHz range and will measure with the help of standard testing instruments. The RF output and sensitivity of radio set in entire band should be same.
2. Modes	SSB(J3E) USB, LSB, AM, CW/MCW	BOO will check Modulation practically after switching "ON" the radio set and setting these modes one by one and firm will produce OEM certificate.
3. Preset	100 Channels or more	BOO will check it practically by setting the channels in the radio set.
4. Frequency Stability	±1 PPM or better	BOO will check parameter practically by using the standard test instrument.
5. Built-in-test	Front panel testing.	BOO will check practically.
6. Input Power	+12 V DC Nominal (10.8V to 14.8V)	BOO will check practically and will ensure that radio set works properly.
7. Battery life Duty Cycle: 5 / 5 / 90	10 Ah (Li-Ion or Ni-Mh) or more or 20 Hrs or More	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory and BOO will check practically.
8. EMI / EMC	MIL-STD- 461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard.	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
9. Weight	Less than 6.5 Kg with battery	BOO will measure weight with help of weighing machine
10. Antenna Impedance	50 Ω Unbalanced	BOO will check practically.
11. Protection	(i) Reverse Polarity protection	BOO will check practically and firm will produce OEM certificate.
	(ii) Protection against high VSWR.	
12. Roles	Manpack	BOO will check practically.
13. Headphone Impedance	Up to 600Ω	BOO will check practically and firm will produce OEM certificate.
14. Cooling	Convection from case	BOO will check Physically.
15. VSWR	Better than 1.5	BOO will check practically.
16. Visual display	Front panel LCD/LED display or latest technology	BOO will check practically.
17. Interface	RS-232 / USB	BOO will check practically.
18. Programming	PC programming software and front panel Programming.	BOO will check practically by software and front panel programming.


Parameter	Specification	Draft Trial Procedure
1.2 Transmitter Specification		
1. RF Power	5W to 25W PEP (Low, Medium , High) (User programmable)	BOO will check practically.
2. Spurious Emission	≤ 40 dB below PEP	BOO will check practically.
3. Side Band Suppression	≥ 50 dB or better	BOO will check practically.
4. Carrier Suppression	≥ 40 dB or better	BOO will check practically.
5. Inter modulation distortion	30 dB minimum below PEP	BOO will check practically.
6. Audio Response	Within ±6db from 350Hz to 2700Hz.	BOO will check practically.
7. Side Tone Level	Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.	BOO will check practically.
8. Modulation Sensitivity	1 to 10 mV at 1 KHz for full power under SSB mode.	BOO will check practically.
1.3 Receiver Specification		
1. Receiver Sensitivity	-107 dBm for 10db SINAD or better	BOO will check practically.
2. Image Rejection	≥70 dB or better	BOO will check practically.
3. IF Rejection	≥70 dB or better	BOO will check practically.
4. In band Inter Modulation Distortion	35 dB minimum below PEP	Firm will produce OEM certificate.
5. Audio Response	Within ±6db from 350Hz to 2700Hz	BOO will check practically.
6. Audio Output	1W or more across loudspeaker	BOO will check practically.
7. Audio Frequency Harmonics Distortion.	≤ 25 dB or better	BOO will check practically.
1.4 Environmental Parameters		
1. Operating Temperature	-30°C to +55° C	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
2. Storage Temperature	-30°C to +60°C	
3. Humidity	95% non-condensing @ 40°C.	
4. Dust	MIL-STD-810F or better	
5. Vibration	or	
6. Shock	JSS-55555 (As laid down in Class L3 of JSS-55555, revision No.2)	
7. Water Intrusion		
8. Altitude		
1.5 Features		
1. Selective calling	Digital FSK Coding	Firm will produce OEM Certificate.
2. Scanning	5 channels per second or better	
3. Flash messages	Minimum 60 characters	BOO will check practically.
4. Vocoder	MELP/CELP (1200/2400bps) or better	Firm will produce OEM certificate.
5. GPS Interface	Inbuilt GPS with polling facility.	BOO will check practically.
6. RS-232 control	The Radio set should have capability to operate at 4800 baud rate or better.	BOO will check practically.

Parameter	Specification	Draft Trial Procedure
7. Inbuilt Data Modem	MIL-STD -188 -110A/B/C single tone \geq 4800 bps	Firm will produce OEM Certificate.
8. Tuneable receiver	Continuous tuneable.	BOO will check practically.
9. Radio kill/un-kill	Should have kill/un-kill function.	BOO will check practically.
10. Audio input sockets	Mic and external socket.	BOO will check practically.
11. Squelch	Voice/Digital squelch	BOO will check practically.
12. Push to talk.	Suitable Microphone to be provided.	BOO will check practically.
13. Audio Socket	Suitable headgear should be provided.	BOO will check practically.
1.6 Optional features		
1. Communication Security	Vocoder based 128/256 bit digital encryption or SAG approved encryption.	Firm will produce OEM Certificate.
2. ALE 2G/ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B	Firm will produce OEM Certificate.
3. Frequency Hopping	Hop Rate: \geq 6 hops per second	Firm will produce OEM certificate.


Ombir Singh, N/Sub
Assam Rifle


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ITBP


S. P. Singh, Insp (Tele)
BSF


AC-III Tarsem Lal
NSG


Ravindra kumar, AC(Comn)
SSB


R.K. Meel, DC
CISF


Rajesh Ekka, Dy. Dir
DCPW

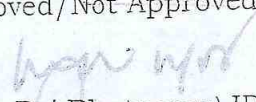

P.R. Jha, DC
CRPF


P.C. Jha, DIG (Comn)
CRPF


D.S. Rawat, DIG(Eqpt)
CRPF


Piyush Anand, IG(Comn)
CRPF

Approved/Not-Approved


(Rajeev Rai Bhatnagar) IPS
DG, CRPF

Revised draft ORs of Static HF Transceiver

1.1 General Specification

Parameter	Specification
1. Frequency Range	2.0 MHz to 29.9999 MHz with 100 channel spacing and 10 Hz resolution.
2. Modes	SSB(J3E) USB, LSB, AM, CW/MCW
3. Preset	100 Channels or more
4. Frequency Stability	± 1 PPM or better
5. Built-in-test	Front panel testing.
6. Input Power	+ 12V or 24V ± 10% DC Nominal & 230V ± 10% AC
7. Power Consumption	≤40W in Receive & ≤ 450W in Transmit
8. EMI / EMC	MIL-STD- 461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard
9. Weight	Less than 17 KG
10. Antenna Impedance	50 Ω Unbalanced
11. Protection	(i) Reverse Polarity protection (without fuse) (ii) Protection against high VSWR. (iii) Over Voltage and under Voltage Protection.
12. Roles	Fixed/Transportable/Mobile
13. Headphone Impedance	Up to 600Ω
14. Cooling	Built in fan/ Heat sink
15. VSWR	Better than 1.5
16. Visual display	Front panel LCD/LED display or latest technology
17. Interface	RS-232 /USB
18. Programming	PC programming software and front panel programming.

1.2 Transmitter Specification

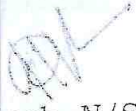
1. RF Power	20 W to 100W PEP (Low, Medium , High) As per user requirement with programmable feature.
2. Spurious Emission	≤ 40 dB below PEP
3. Side Band Suppression	≥ 50 dB or better
4. Carrier Suppression	≥ 40 dB or better
5. Inter modulation distortion	30 dB minimum below PEP
6. Audio Response	Within 6 dB from 350Hz to 2700Hz.
7. Side Tone Level	Better than 0.1 mW into 150Ω load for 5mV of audio input at 1 KHz.
8. Modulation Sensitivity	1 to 10 mV at 1 KHz for full power under SSB mode.

1.3 Receiver Specification

1. Receiver Sensitivity	-107 dBm for 10 dB SINAD or better
2. Image Rejection	≥70 dB or better
3. IF Rejection	≥70 dB or better
4. In band Inter Modulation Distortion	35 dB minimum below PEP
5. Audio Response	Within ±6 dB from 350Hz to 2700Hz

Parameter	Specification
6. Audio Output	1W or more across loudspeaker
7. Audio Frequency Harmonics Distortion.	≤ 25 dB or better
1.4 Environmental Parameters	
1. Operating Temperature	-30°C to +55° C
2. Storage Temperature	-30°C to +60°C
3. Humidity	95% non-condensing @ 40°C.
4. Dust	MIL-STD-810F or better
5. Vibration	or
6. Shock	JSS-55555 (As laid down in Class L3 of JSS-55555, revision No.2)
7. Altitude	
1.5 Features	
1. Selective calling	Digital FSK coding
2. Scanning	5 channels per second or better
3. Flash messages	Minimum 60 characters
4. Vocoder	MELP/CELP (1200/2400bps) or better
5. In built Data Modem	MIL-STD -188 -110A/B/C single tone ≥ 4800 bps
6. GPS Interface	Inbuilt GPS with polling facility.
7. Data Communication	Provision for data communication
8. Tele Call	The Radio set should have capability to dial and Operate data.
9. RS-232 control	The Radio set should have capability to operate at 4800 baud rate or better.
10. Tuneable receiver	Continuous tuneable.
11. Radio kill/un-kill	Should have kill/un-kill function.
12. Remote Operation	Capable to operate from remote location.
13. Audio input sockets	Mic and external socket.
14. Squelch	Voice/Digital squelch
15. Push to talk	Suitable Microphone to be provided.
1.6 Optional Features	
1. Communication Security	Vocoder based 128/256 bit digital encryption or SAG approved encryption.
2. ALE 2G/ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B
3. Frequency Hopping	Hop Rate: ≥ 6 hops per second
4. Data Terminal : Should also be compatible with existing HF Radio	
a. Processor	Intel Core i5 or better
b. Speed	2.5 GHz or better
c. RAM	2GB DDR3 or better
d. Memory Speed	1333 MHz or better
e. HDD	1 TB or better
f. Display Size	Minimum 15.6 Inch
g. Interface	USB Port
h. Keyboard	Multimedia


Parameter	Specification
i. Mouse	Optical Mouse
j. Operating System	Window 7/8 or latest version OS
k. Data communication software	Compatible with Window 7/8 or latest version OS


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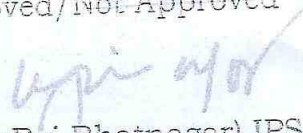

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Approved/Not Approved


(Rajeev Rai Bhatnagar) IPS
DG, CRPF

DRAFT TRIAL DIRECTIVES OF STATIC HF TRANSCEIVER

All parameters/specifications mentioned in QRs will be checked by the Board of Officers by ascertaining/verifying following checks in the presence of Vendor/Supplier/Manufacturer. In case of any discrepancies/problem, the vendor/rep of firm will demonstrate the features to the Board of officer of the force concerned. Further, if proper testing instrument for testing these parameters is not available with user organization, firm will provide the same.

(a) Physical Checks: In this category, specifications of the equipment will be checked physically as per QRs.

(b) Functional Checks: The vendors will show all the features/configuration of the equipment functioning on ground to the board of officers during trials.

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2. Modes	SSB(J3E) USB, LSB, AM, CW/MCW	BOO will check Modulation practically after switching "ON" the radio set and setting these modes one by one and firm will produce OEM certificate.
3. Preset	100 Channels or more	BOO will check it practically by setting the channels in the radio set.
4. Frequency Stability	±1 PPM or better	BOO will check parameter practically by using the standard test instrument.
5. Built-in-test	Front panel testing.	BOO will check practically.
6. Input Power	+ 12V or 24V ± 10% DC Nominal & 230V ± 10% AC	BOO will check practically by connecting mentioned DC/AC voltages to radio set and will ensure that set works properly.
7. Power Consumption	≤40W in Receive & ≤ 450W in Transmit	BOO will check practically.
8. EMI / EMC	MIL-STD- 461/462C or ETSI or CISPR 22 or IEC 61000-4 Series (TEC/EMI/TEL-001/01 FEB-09) or latest standard	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
9. Weight	Less than 17 KG	BOO will measure weight with help of weighing machine
10. Antenna Impedance	50 Ω Unbalanced	BOO will check practically.
11. Protection	(i) Reverse Polarity protection (without fuse)	BOO will check practically and firm will produce OEM certificate.
	(ii) Protection against high VSWR.	
	(iii) Over Voltage and under Voltage Protection.	
12. Roles	Fixed/Transportable/Mobile	BOO will check practically.
13. Headphone Impedance	Up to 600Ω	BOO will check practically/Firm will produce OEM certificate.

Parameter	Specification	Draft Trial Procedure
14. Cooling	Built in fan/ Heat sink	BOO will check Physically.
15. VSWR	Better than 1.5	BOO will check practically.
16. Visual display	Front panel LCD/LED display or latest technology	BOO will check practically.
17. Interface	RS-232 / USB	BOO will check practically.
18. Programming	PC programming software and front panel programming.	BOO will check practically by software and front panel programming.
1.2 Transmitter Specification		
1. RF Power	20 W to 100W PEP (Low, Medium, High) As per user requirement with programmable feature.	BOO will check practically.
2. Spurious Emission	≤ 40 dB below PEP	BOO will check practically.
3. Side Band Suppression	≥ 50 dB or better	BOO will check practically.
4. Carrier Suppression	≥ 40 dB or better	BOO will check practically.
5. Inter modulation distortion	30 dB minimum below PEP	BOO will check practically.
6. Audio Response	Within 6 dB from 350Hz to 2700Hz.	BOO will check practically.
7. Side Tone Level	Better than 0.1 mW into 150 Ω load for 5mV of audio input at 1 KHz.	BOO will check practically.
8. Modulation Sensitivity	1 to 10 mV at 1 KHz for full power under SSB mode.	BOO will check practically.
1.3 Receiver Specification		
1. Receiver Sensitivity	-107 dBm for 10db SINAD or better	BOO will check practically.
2. Image Rejection	≥ 70 dB or better	BOO will check practically.
3. IF Rejection	≥ 70 dB or better	BOO will check practically.
4. In band Inter Modulation Distortion	35 dB minimum below PEP	Firm will produce OEM certificate.
5. Audio Response	Within ± 6 dB from 350Hz to 2700Hz	BOO will check practically.
6. Audio Output	1W or more across loudspeaker	BOO will check practically.
7. Audio Frequency Harmonics Distortion.	≤ 25 dB or better	BOO will check practically.

A collection of handwritten signatures and initials in blue ink, including names like 'Ramesh', 'Munna', and 'APK', along with various symbols and scribbles.

Parameter	Specification	Draft Trial Procedure
1.4 Environmental Parameters		
1. Operating Temperature	-30°C to +55°C	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
2. Storage Temperature	-30°C to +60°C	
3. Humidity	95% non-condensing @ 40°C	
4. Dust	MIL-STD-810F or better	
5. Vibration	or	
6. Shock	JSS-55555 (As laid down in Class L3 of JSS-55555, revision No.2)	
7. Water Intrusion		
8. Altitude		
1.5 Features		
1. Selective calling	Digital FSK coding	Firm will produce OEM Certificate.
2. Scanning	5 channels per second or better	BOO will check practically.
3. Flash messages	Minimum 60 characters	Firm will produce OEM certificate.
4. Vocoder	MELP/CELP (1200/2400bps) or better	Firm will produce OEM certificate.
5. In built Data Modem	MIL-STD -188 -110A/B/C single tone \geq 4800 bps	BOO will check practically.
6. GPS Interface	Inbuilt GPS with polling facility.	BOO will check practically.
7. Data Communication	Provision for data communication	Firm will produce OEM certificate.
8. Tele Call	The Radio set should have capability to dial and Operate data.	BOO will check practically.
9. RS-232 control	The Radio set should have capability to operate at 4800 baud rate or better.	BOO will check practically.
10. Tuneable receiver	Continuous tuneable.	BOO will check practically.
11. Radio kill/un-kill	Should have kill/un-kill function.	BOO will check practically.
12. Remote Operation	Capable to operate from remote location.	BOO will check practically.
13. Audio input sockets	Mic and external socket.	BOO will check practically.
14. Squelch	Voice/Digital squelch	BOO will check practically.
15. Push to talk.	Suitable Microphone to be provided.	BOO will check practically.
1.6 Optional Features		
1. Communication Security	Vocoder based 128/256 bit digital encryption or SAG approved encryption.	Firm will produce OEM Certificate.
2. ALE 2G/ALE 3G	ALE 2G as per Appendix "A" and ALE 3G as per Appendix "C" of MIL-STD-188-141B	Firm will produce OEM Certificate.
3. Frequency Hopping	Hop Rate: \geq 6 hops per second	Firm will produce OEM certificate.

Parameter	Specification	Draft Trial Procedure
4. Data Terminal Specifications: Should also be compatible with existing HF Radio		BOO will check physically and firm will produce OEM certificate.
a. Processor	Intel Core i5 or better	
b. Speed	2.5 GHz or better	
c. RAM	Minimum 2GB DDR3 or better	
d. Memory Speed	1333 MHz or better	
e. HDD	1 TB or better	
f. Display Size	Minimum 15.6 Inch	
g. Interface	USB Port	
h. Keyboard	Multimedia	
i. Mouse	Optical Mouse	
j. Operating System	Window 7/8 or latest version OS	
k. Data communication software	Compatible with Window 7/8 or latest version OS	

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Ombir Singh, N/Sub
Assam Rifle

[Signature]
Mahendra Singh, Insp/T
ITBP

[Signature]
S. P. Singh Insp (T)
BSF

[Signature]
AC-III Tarsem Lal
NSG

[Signature]
Ravindra Kumar,
AC(Comn)
SSB

[Signature]
R.K. Meel, DC
CISF

[Signature]
Rajesh Ekka, Dy.Dir
DCPW

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P.R. Jha, DC
CRPF

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P.C. Jha, DIG (Comn)
CRPF

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D.S. Rawat, DIG(Eqpt)
CRPF

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Piyush Anand, IG(Comn)
CRPF

Approved/Not Approved

[Signature]
(Rajeev Rai Bhatnagar) IPS
DG, CRPF