

GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066

Email:- comncell@crpf.gov.in Tele Fax:011-26107493

No. B.V-7/2018-19-C (WMR)

Dated, the Sep'2018

To

- | | |
|---|--|
| 1. DIG (Comn), ITBP
Block No. 2, CGO Complex
Lodhi Road, New Delhi-03 | 2. DIG (Comn), NSG
Meharam Nagar
Palam, New Delhi-37 |
| 3. DIG (Comn), SSB
East Block-V, R.K Puram
New- Delhi-66 | 4. AIG (Comn), CISF
Block No. 13, CGO, Complex
Lodhi Road, New Delhi-03 |
| 5. DIG (Prov), BSF
Block No. 10, CGO Complex
Lodhi Road, New Delhi-03 | 6. Liaison Office, Assam Rifle
Room No-171, North Block, MHA
New Delhi -01 |

Subject: QRs/TDs of Wireless Mesh Radio

Please find enclosed here with QRs and TDs in respect of Wireless Mesh Radio as per Annexure-A & Annexure-B respectively duly approved by the competent authority for further necessary action.

Encl: (QRs & TDs of Wireless Mesh Radio)


↖
{P.R.Jha, DC (Comn)}
For DIGP (Equipment)
Directorate General, CRPF

No. B.V-7/2018-19-C(WMR)

Dated, the 13 Sep'2018

Copy to:-

SO(IT), MHA, North Block with request to host the QRS and TDs of Wireless Mesh Radio on MHA website. Soft copy is being sent through email also.


{P.R.Jha, DC (Comn)}
For DIGP (Equipment)
Directorate General, CRPF

QRs of Wireless Mesh Radio

S.N	Parameter	Specifications
General Architecture		
(a)	Each mesh radio to have a wrist computer/PDA and its accessories. (As per user requirement)	
(b)	Ground control station to have operating console for managing audio, video and data from the mesh network. (Number of mesh radio with each ground control station as per user requirement)	
(c)	Repeater as per user requirement(Optional)	
Technical Specification of Mesh Transceiver		
(a)	Frequency range	UHF band
(b)	Number of Channels	24 channels or more (Programmable/selectable)
(c)	Frequency Stability	± 1.0 PPM or better
(d)	Protocol	Standard Digital Technology
(e)	Type of Emission	Modulation technique complying to open standard protocol approved by ETSI/FCC.
(f)	Type of Operation	IP Mesh Radio
(g)	Type of Antenna	Suitable Antenna
(h)	Weight	≤ 1600 grams excluding battery
(i)	Power Source	Rechargeable battery with belt clips to meet the operating time of 8 Hours (voice and data) or more
Transmitter		
(a)	R F Power output	Min 1Watt
(b)	Audio distortion	$\leq 3\%$ @ 1 KHz
Receiver		
(a)	Audio Output	500 mW or higher

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SL No	Parameter	Specifications
Environmental specification		
(a)	Operating Temperature	-20°C to +50 °C
(b)	Storage Temperature	-20°C to +60 °C
(c)	Humidity	Withstand Humidity of 95% at 40°C
(d)	Drop	As per MIL 810F or latest or JSS-55555 (applicable tests)
(e)	Vibration & Shock	
(f)	Dust & Water	IP 65 or better
<p>GPS The radios should have GPS to function with an accuracy of less than 15 meters and should be able to transmit back the coordinates to be displayed on Ground Control Station, Ruggedized or semi-ruggedized PDA/Wrist computer along with supplied adequate Geo software.</p>		
Mesh Radio Features		
(a)	Text messages	Should be capable of storing and sending at least 100 pre defined messages with minimum 250 characters.
(b)	Emergency Button	Should be provided or programmable on the keypad.
(c)	Mode of calls	Should be configurable to make selective call
(d)	Simultaneous Voice/Data/Video session	Simultaneous Voice/Data/Video session
(e)	Remote Radio Killing/Stun/Revive facility	Should be available
(f)	Networking	IPv4/IPv6 based inter-networking with other media like satellite terminal / long range radio systems.
(g)	Mesh network	Multi-hop self-healing and self-forming mesh networking.
(h)	Secrecy	Should provide inherent protection against casual eavesdropping with any commercial grade secrecy.
(j)	Data rate	Minimum data rate 1 Mbps
(k)	Communication Range per hop	1000 mtrs or more for line of sight and 500 mtr or more for non-line of sight
(l)	Min number of hops	3 or more
(m)	VOX	Every mesh radio should have a VOX module
(n)	Interface	USB or with a suitable plug in connector for USB interface. Ethernet
(o)	Facility to integrate already available body worn cameras with the mesh radio system.	

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SL No	Parameter	Specifications
		<p>Ruggedized PDA/Ruggedized Wrist Computer. Ruggedized PDA/Ruggedized Wrist computer. {Visibility during night using NVD (Optional)}</p> <p>or</p> <p>Semi-Ruggedized PDA/Semi-Ruggedized Wrist Computer. Semi-Ruggedized PDA/Semi-Ruggedized Wrist computer. {Visibility during night using NVD (Optional)}</p> <p>(As per user requirement)</p>
General		
(a)	Feature	Extremely Rugged- Withstands Shock, Spills and Dust.
		In-built GPS
		Wireless WAN
		Biometric (Optional)
		Integrated Camera
		Alert user with sound and/or vibration on receiving data
(b)	Software	COTS OS and all mandatory software for operating the PDA/wrist computer.
		Processor speed 1.5 GHz or higher and supporting the software without having bearing on operational communication.
(d)	Storage & Memory	2GB RAM or better and supporting the software's without having bearing on operational communication.
		32GB eMMC or better and supporting the softwares without having bearing on operational communication.
(e)	Display	<ul style="list-style-type: none"> Resolution: Minimum 640x480 or better Screen size: 4-5" Sunlight viewable
		External video support
		Anti-reflective screen
		LED backlighting
		Integrated speaker
		Convenient keyboard volume and mute controls
(g)	Keyboard & Input	Touch screen keyboard
		Integrated stylus holder (Optional) as per user requirement
		Zoom (in/out) and scroll (up/down) buttons
(h)	Interface	Headphones/speaker Mini-jack stereo
		Microphone/line in Mini-jack
		USB
		Ethernet (RJ-45)
		Wireless Wi-Fi Link 802.11a/b/g or latest
		Bluetooth v2.0 or better
(i)	Weight	≤ 500 grams

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SL No	Parameter	Specifications
Electrical Parameters of Ruggedized or Semi-rugged PDA/Wrist Computer		
(a)	Power Supply	Twin hot-swappable rechargeable battery.
		Battery operation: 10 hours or more
		Battery charging time: 3 hours on/off
(b)	Power Management	Suspend/Resume Function, Hibernation, and Standby.
Others		
(a)	Integration (Optional)	Choice of 1D, 2D barcode or RFID6 reader
		Mobile Broadband Solutions
		EV-DO Rev. A
		HSDPA
		2.0MP camera with LED flash or better
		SSD- 32GB or more
		Global positioning system (GPS) receiver
		Fingerprint scanner
Environmental Parameters of Ruggedized/Semi ruggedized PDA/Wrist Computer		
(a)	High Temperature	Storage temperature 60°C and Operating temperature 50°C or better
(b)	Low Temperature	Storage temperature -40°C and Operating Temperature - 20°C or better
(c)	Humidity	Withstand Humidity of 95% at 40°C
Software: The system should come with some basic software and should have provision for adding additional software in the future.		
(a)	Blue Force Tracking	Ability to see location of all the other nodes w.r.t. the wearer's node with correct orientation on a radar type display.
(b)	Video	Ability to see video feed by selecting any node.
(c)	Text Messaging	Ability to send text message to individual node or all nodes
(d)	SOS / Emergency Button	Ability to communicate distress by single button press. The distress signal and the location of the wearer in distress will be accessible by any node in the network.
(e)	Kill Switch	Ability to deactivate the system and wipe all data remotely.
(f)	Location / Navigation	Ability to put location of wearer on a GIS map.

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S. N	Parameter	Specifications		
Operating Console of Ground Control Station				
(a)	Operating Control Software	OCU and software for the Receiver Node		
		i) Displaying and tracking GPS location of mesh radios on a Map with Blue Force Tracking and should be compatible with commercial GIS software including Google earth.		
		ii) Configuring the Mesh Network		
		iii) Displaying 4 or more simultaneous real-time video feeds on tactical display		
		iv) VOX capability for Audio Communication		
		v) Saving video from one or more feeds		
(b)	Operator Console Hardware	Option-I: The GCS should have MIL-STD- 810G or JSS-55555 & IP51 or better semi-rugged Laptop or Option-II: The GCS should have MIL-STD -810G or JSS-55555 & IP65 or better rugged Laptop (As per user requirement)		
		Processor: 1.9 GHz or better		
		Storage : Minimum 500GB		
		Memory: 2GB or more		
		Display: Minimum 10 inch - 1024 x 768 XGA sunlight viewable		
		Keyboard & input Touch screen		
		Accessories		
		(a)	Battery Charger	Single way or four way or six way rapid charger (As per user requirement)
(b)	Programming kit (Quantity as per user requirement)	All necessary software and hardware required for programming of the set.		

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S. N	Parameter	Specifications
(c)	Body worn Camera (Optional) As per user requirement	<p><u>(Option-I)</u> Head / Shoulder mounted (i) System- PAL/NTSC, Analog video (ii) Illumination- Day Night to work in 1 Lux illumination or less (iii) Video output- Digital (iv) Frame Rate- 5 to 30 FPS (v) Streaming Bit Rate- 64 kbps to 1 Mbps (vi) Storage- 4 Hours (vii) Power- for 8 Hours (viii) weight- ≤500 gms (xi) Standards- IP65, MIL-STD 810F or better (x) Should be compatible and integrated with Mesh Radio (xi) Human detection range 100m or more. (xii) Human recognition with weapon range 25m or more.</p> <p><u>Option-II</u> i. Weight : <500g ii. Standards- IP65, MIL-STD 810F or better iii. Should be body worn (Head or Shoulder) for use during day & night. iv. Ability to transmit and receive data. v. Should not use any active illumination like IR illuminator. vi. Human detection range 200m or more during day & night. vii. Human recognition with weapon range 50m or more during day & night. viii. Should be compatible and integrated with Mesh Radio</p>
(d)	Headset (Quantity as per user requirement)	a) Single ear headset with microphone and head fixing b) The headset shall include noise cancellation c) Light weight d) Finger / Wireless press to talk (PTT) e) VOX facility in addition to PTT
Signal Amplifiers/Boosters/Repeater (Optional) As per user requirement		
(a)	Range	Coverage of 20 km or more having LOS
(b)	Power Output	2W or more

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S. N	Parameter	Specifications
Miscellaneous		
a)	Literature	a) User- manual in Hindi and English with each radio sets. b) Technical repairing manual with complete block diagram, circuit layout etc at a scale of 10% of equipment's being procured
b)		Vendor should mention the service centres across India for repairing of equipment's after sale warranty support.
c)		Should provide after sales support, supply of spares for at least 6 years after warranty period.
d)		Firm should train teams of max operators handling, operating and repairing of radio receiver free of cost after procurement. Training should be provided in Hindi and English in 21 working days.
e)		The equipment if faulty within the warranty and comprehensive AMC period should be repaired/replaced within 72 hours from reporting of fault.
f)		Comprehensive warranty: 02 years.

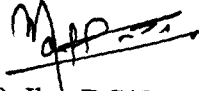

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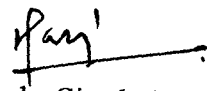

INSP.RajeevDahiya
CISF



InspJayant Kumar
Dutta
BSF


Pramod Kumar,
DC(Comn), SSB

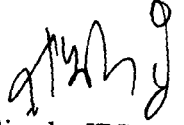

P.R.Jha,DC(Comn)
CRPF


B.N.Sonawar, DC
ITBP

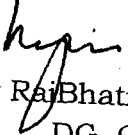

HarjinderSingh,DIG(Eq'q)
CRPF


D.S.Rawat,DC(Comn)
CRPF


Raju Bhargava, IPS, IGP(Comn&IT)
CRPF


R.P.Singh, IPS, SDG(Comom)
CRPF

Approved/Not Approved


Rajeev Raj Bhatnagar, IPS
DG, CRPF

TDS of Wireless Mesh Radio

S.N	Parameter	Specifications	Trial directives
General Architecture			
(a)	Each mesh radio to have a wrist computer/PDA and its accessories. (As per user requirement)		Board will check practically.
(b)	Ground control station to have operating console for managing audio, video and data from the mesh network. (Number of mesh radio with each ground control station as per user requirement)		Board will check practically.
(c)	Repeater as per user requirement(Optional)		Board will check practically.
Technical Specification of Mesh Transceiver			
(a)	Frequency range	UHF band	Board will check practically.
(b)	Number of Channels	24 channels or more (Programmable/selectable)	Board will check practically.
(c)	Frequency Stability	±1.0 PPM or better	Firm will produce OEM Certificate.
(d)	Protocol	Standard Digital Technology	Firm will produce OEM Certificate.
(e)	Type of Emission	Modulation technique complying to open standard protocol approved by ETSI/FCC.	Firm will produce OEM Certificate.
(f)	Type of Operation	IP Mesh Radio	Board will check practically.
(g)	Type of Antenna	Suitable Antenna	Board will check practically.
(h)	Weight	≤1600 grams excluding battery	Board will check practically.
(i)	Power Source	Rechargeable battery with belt clips to meet the operating time of 8 Hours (voice and data) or more	Firm will submit OEM certificate for chemistry of battery and board will check operating time practically according to 1:1:8.

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SL No	Parameter	Specifications	Trial directives
Transmitter			
(a)	R F Power output	Min 1 Watt	B.O.O will check practically.
(b)	Audio distortion	≤ 3% @ 1 Khz	Firm will submit OEM certificate.
Receiver			
(a)	Audio Output	500 mW or higher	Firm will submit OEM certificate.
Environmental Specification			
(a)	Operating Temperature	-20°C to +50 °C	Firm will submit certificate of any Govt. Lab or NABL or (ILAC) accredited laboratory or OEM certificate.
(b)	Storage Temperature	-20°C to +60 °C	
(c)	Humidity	Withstand Humidity of 95% at 40°C	
(d)	Drop	As per MIL 810F or latest or JSS-55555	
(e)	Vibration & Shock	(applicable tests)	
(f)	Dust & Water	IP 65 or better	
GPS The radios should have GPS to function with an accuracy of less than 15 meters and should be able to transmit back the coordinates to be displayed on Ground Control Station, Ruggedized or semi-ruggedized PDA/Wrist computer along with supplied adequate Geo software.			
Mesh Radio Features			
(a)	Text messages	Should be capable of storing and sending at least 100 pre defined messages with minimum 250 characters.	Board will check practically.
(b)	Emergency Button	Should be provided or programmable on the keypad.	Board will check practically.
(c)	Mode of calls	Should be configurable to make selective call	Board will check practically.
(d)	Simultaneous Voice/Data/Video session	Simultaneous Voice/Data/Video session	Board will check practically.

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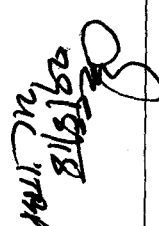
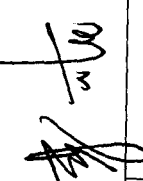

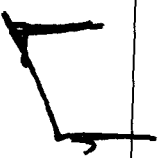
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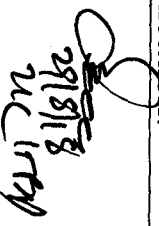


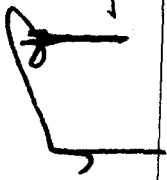
SL No	Parameter	Specifications	Trial directives
(e)	Remote Radio Killing/Stun/Revive facility	Should be available	Board will check practically.
(f)	Networking	IPv4/IPv6 based inter-networking with other media like satellite terminal / long range radio systems.	Board will check practically and/or firm will submit OEM certificate.
(g)	Mesh network	Multi-hop self-healing and self-forming mesh networking.	Board will check practically.
(h)	Secrecy	Should provide inherent protection against casual eavesdropping with any commercial grade secrecy.	Firm will submit OEM certificate.
(i)	Data rate	Minimum data rate 1 Mbps	Firm will submit OEM certificate.
(j)	Communication Range per hop	1000 mtrs or more for line of sight and 500 mtrs or more for non-line of sight	Board will check practically. For Non Los the board will check communication range between radio separated by minimum 10 inch wall of room or minimum one floor.
(k)	Min number of hops	3 or more	Board will check practically.
(l)	VOX	Every mesh radio should have a VOX module	Board will check practically.
(m)	Interface	USB or with a suitable plug in connector for USB interface. Ethernet	Board will check practically.
(n)	Facility to integrate already available body worn cameras with the mesh radio system.		Board will check practically.

SL No	Parameter	Specifications	Trial directives
		Ruggedized PDA/Ruggedized Wrist Computer. Ruggedized PDA/Ruggedized Wrist computer. {Visibility during night using NVD (Optional)} or Semi-Ruggedized PDA/Semi-Ruggedized Wrist Computer. Semi-Ruggedized PDA/Semi-Ruggedized Wrist computer. {Visibility during night using NVD (Optional)} (As per user requirement)	

General

(a)	Feature	Extremely Rugged- Withstands Shock, Spills and Dust.	Board will check practically & firm will also submit OEM certificate.
		In-built GPS	
		Wireless WAN	
		Biometric (Optional)	
		Integrated Camera	
		Alert user with sound and/or vibration on receiving data	Board will check practically.
(b)	Software	COTS OS and all mandatory software for operating the PDA/wrist computer.	Board will check practically.
		Processor speed 1.5 GHz or higher and supporting the software without having bearing on operational communication.	Firm will submit OEM certificate.
		2GB RAM or better and supporting the software's without having bearing on operational communication.	Board will check practically.
(c)	Storage & Memory	32GB eMMC or better and supporting the softwares without having bearing on operational communication.	Board will check practically.

SL No	Parameter	Specifications	Trial directives
(d)	Display	<ul style="list-style-type: none"> Resolution: Minimum 640x480 or better Screen size: 4-5" Sunlight viewable 	Board will check practically and firm will submit OEM certificate.
		External video support	Board will check practically
		Anti-reflective screen	Board will check practically
		LED backlighting	Board will check practically
		Integrated speaker	Board will check practically
		Convenient keyboard volume and mute controls	Board will check practically
		Touch screen keyboard	Board will check practically
		Integrated stylus holder (Optional) as per user requirement	Board will check practically
		Zoom (in/out) and scroll (up/down) buttons	Board will check practically
		Headphones/speaker Mini-jack stereo	Board will check practically
(e)	Keyboard & Input	Microphone/line in Mini-jack	Board will check practically
		USB	Board will check practically
		Ethernet (RJ-45)	Board will check practically
		Wireless Wi-Fi Link 802.11a/b/g or latest	Firm will submit OEM certificate and board will check functionality.
(f)	Interface	Bluetooth v2.0 or better	Firm will submit OEM certificate and board will check functionality.
			Firm will submit OEM certificate and board will check functionality.
(g)	Weight	≤ 500 grams	Firm will submit OEM certificate and board will check functionality.









Sl No	Parameter	Specifications	Trial directives
Electrical Parameters of Ruggedized or Semi-rugged PDA/Wrist Computer			
(a)	Power Supply	Twin hot-swappable rechargeable battery.	Firm will submit OEM certificate for chemistry of battery and board will check practically.
		Battery operation: 10 hours or more	Board will check practically
		Battery charging time: 3 hours on/off	Board will check practically
(b)	Power Management	Suspend/Resume Function, Hibernation, and Standby.	Board will carry out practical check as well as functional test.
Others			
(a)	Integration (Optional)	Choice of 1D, 2D barcode or RFID6 reader Mobile Broadband Solutions EV-DO Rev. A HSDPA 2.0MP camera with LED flash or better SSD - 32GB or more Global positioning system (GPS) receiver Fingerprint scanner	Board will check practically.
Environmental Parameters of Ruggedized/Semi ruggedized PDA/Wrist Computer			
(a)	High Temperature	Storage temperature 60°C and Operating temperature 50°C or better	Firm will submit certificate of any Govt. Lab or NABL or (ILAC) accredited laboratory or OEM certificate.
(b)	Low Temperature	Storage temperature -40°C and Operating Temperature - 20°C or better	
(c)	Humidity	Withstand Humidity of 95% at 40°C	

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S. N	Parameter	Specifications	Trial directives
		Software: The system should come with some basic software and should have provision for adding additional software in the future.	Board will check practically.
(a)	Blue Force Tracking	Ability to see location of the other entire nodes w.r.t. the wearer's node with correct orientation on a radar type display.	Board will check practically.
(b)	Video	Ability to see video feed by selecting any node.	Board will check practically.
(c)	Text Messaging	Ability to send text message to individual node or all nodes	Board will check practically.
(d)	SOS / Emergency Button	Ability to communicate distress by single button press. The distress signal and the location of the wearer in distress will be accessible by any node in the network.	Board will check practically.
(e)	Kill Switch	Ability to deactivate the system and wipe all data remotely.	Board will check it practically.
(f)	Location / Navigation	Ability to put location of wearer on a GIS map.	Board will check practically.
Operating Console of Ground Control Station			
(a)	Operating Control Software	OCU and software for the Receiver Node	Board will check practically.
		i) Displaying and tracking GPS location of mesh radios on a Map with Blue Force Tracking and should be compatible with commercial GIS software including Google earth.	Board will check practically.
		ii) Configuring the Mesh Network	Board will check practically.
		iii) Displaying 4 or more simultaneous real-time video feeds on tactical display	Board will check practically.
		iv) VOX capability for Audio Communication	Board will check practically.
		v) Saving video from one or more feeds	Board will check practically.

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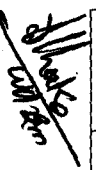
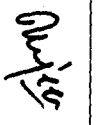
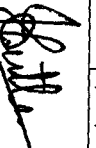
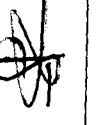

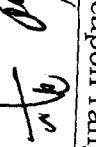


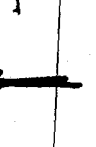


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S. N	Parameter	Specifications	Trial directives
(b)	Operator Console Hardware	Option-I: The GCS should have MIL-STD- 810G or JSS-55555 & IP51 or better semi-rugged Laptop or Option-II: The GCS should have MIL-STD -810G or JSS-55555 & IP65 or better rugged Laptop (As per user requirement) Processor: 1.9 GHz or better Storage : Minimum 500GB Memory: 2GB or more Display: Minimum 10 inch - 1024 x 768 XGA sunlight viewable Keyboard & input Touch screen	Board will check practically and firm will submit OEM certificate.
Accessories			
(a)	Battery Charger	Single way or four way or six way rapid charger (As per user requirement)	Board will check practically.
(b)	Programming kit (Quantity as per user requirement)	All necessary software and hardware required for programming of the set.	Board will check practically.
(c)	Body worn Camera (Optional) As per user requirement	(Option-I) Head / Shoulder mounted (i) System- PAL/NTSC, Analog video (ii) Illumination- Day Night to work in 1 Lux illumination or less (iii) Video output- Digital (iv) Frame Rate- 5 to 30 FPS (v) Streaming Bit Rate- 64 kbps to 1 Mbps (vi) Standards- IP65, MIL-STD 810F or better (vii) Storage- 4 Hours (viii) Power- for 8 Hours (ix) Weight- ≤500 gms (x) Should be compatible and integrated with Mesh Radio (xi) Human detection range 100m or more. (xii) Human recognition with weapon range 25m or more.	Firm will submit OEM certificate for SI No (i)-(vi) Board will check practically SI No (vii)-xii.

S. N	Parameter	Specifications	Trial directives
		<p>Option-II</p> <ol style="list-style-type: none"> i. Weight : <500g ii. Standards- IP65, MIL-STD 810F or better iii. Should be body worn (Head or Shoulder) for use during day & night. iv. Ability to transmit and receive data. v. Should not use any active illumination like IR illuminator. vi. Human detection range 200m or more during day & night. vii. Human recognition with weapon range 50m or more during day & night. viii. Should be compatible and integrated with Mesh Radio. 	<p>Board will check practically sl no (i), (iii) to (viii). Firm will submit OEM certificate for sl (ii)</p>
(d)	Headset (Quantity as per user requirement)	<ol style="list-style-type: none"> a) Single ear headset with microphone and head fixing b) The headset shall include noise cancellation c) Light weight d) Finger / Wireless press to talk (PTT) e) VOX facility in addition to PTT 	<p>Board will check practically and firm will submit OEM certificate.</p>

M. K. Sharma

Order

Sharma

27/8/12

Mr

Sharma

1/1/12

[Signature]


S. N	Parameter	Specifications	Trial directives
Signal Amplifiers/Boosters/Repeater			
(Optional)As per user requirement			
(a)	Range	Coverage of 20 km or more having LOS	Board will check it practically.
(b)	Power Output	2W or more	
Miscellaneous			
a)	Literature	a) User- manual in Hindi and English with each radio sets. b) Technical repairing manual with complete block diagram, circuit layout etc at a scale of 10% of equipment's being procured	Board will check it physically in detail to confirm that User and Technical manual are available in Hard as well as in Soft Copy in both Hindi and English languages.
b)		Vendor should mention the service centres across India for repairing of equipment's after sale warranty support.	Firm to submit relevant supporting documents for the same.
c)		Should provide after sales support, supply of spares for at least 6 years after warranty period.	Firm to submit relevant supporting documents for the same.
d)		Firm should train teams of max operators handling, operating and repairing of radio receiver free of cost after procurement. Training should be provided in Hindi and English in 21 working days.	Firm to submit relevant supporting documents for the same.









S. N	Parameter	Specifications	Trial directives
e)	The equipment if faulty within the warranty and comprehensive AMC period should be repaired/replaced within 72 hours from reporting of fault.	Firm to submit relevant supporting documents for the same.	Firm to submit relevant supporting documents for the same.
f)	Comprehensive warranty: 02 years.		


 WO/RM R.S. Dhaka
 Assam Rifles

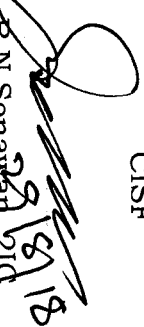

 ACIL. Desai Prashant
 NSG


 INSP. Rajeev Dahiya
 CISF



 Insp Jayant Kumar Dutta
 BSF



 Pramod Kumar, DC(Comm),
 SSB


 P.R. Jha, DC(Comm)
 CRPF


 B.N. Sonawani, 21d
 ITBP


 Harjinder Singh, DIG(Eqpt)
 CRPF


 D.S. Rawat, DIG(Comm)
 CRPF


 Raju Bhargava, IPS, IGP(Comm & IT)
 CRPF


 R.P. Singh, IPS, SDG(Comm)
 CRPF

Approved / Not Approved


 Rajeev Rai Bhatnagar, IPS
 DG, CRPF