GOVERNMENT OF INDIA
(Ministry of Home Affairs)
COMMUNICATION & IT DIRECTORATE
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Email:- comncell@crpf.gov.in Tele/Fax:011-26109038)

No. B.V-7/2024-25-C-(VHF)-Q

Dated, the 2 June'2025

To

1. The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D
2. Director, DCPW

Subject: Regarding QRs/TDs of "Digital Hand-Held VHF Transceiver Set, Digital VHF Base/Mobile Transceivers Set and Digital VHF Repeater Set"

I am directed to refer on the subject mentioned above and to say that the QRs/TDs of **"Digital Hand-Held VHF Transceiver, Digital VHF Base/Mobile Transceiver set and Digital VHF Repeater set"** has been approved by the DG CRPF after deliberation and recommended by CAPFs sub-group and experts from DCPW.

2. QRs/TDs of "Digital Hand-Held VHF Transceiver set, Digital VHF Base/Mobile Transceiver set and Digital VHF Repeater set" has forwarded earlier vide letter No. B.V-7/2012-13-C(QRs) dated 02/10/2014 is rescinded.

Encl:-As above

{Harjinder Singh}
DIG (Communication)
Communication & IT Branch
Directorate General C R P F

No. B.V-7/2024-25-C-(VHF)-Q

Dated, the 2 June'2025

Copy to:-

1. Mrs. Sugandhi, Technical Director, North block, MHA with request to upload the QRs/TDs of "**Digital Hand-Held VHF Transceiver Set, Digital VHF Base/Mobile Transceivers Set and Digital VHF Repeater Set** on MHA website (e-mail ID: mpsugandhi@nic.in) and QRs/TDs of "Digital Hand-Held VHF Transceiver set, Digital VHF Base/Mobile Transceiver set and Digital VHF Repeater set" has forwarded earlier vide letter No. B.V-7/2012-13-C(QRs) dated 02/10/2014 is rescinded.

Encl:-As above

{Harjinder Singh}
DIG (Communication)
Communication & IT Branch
Directorate General C R P F

QRs/TDs of Digital Hand-Held VHF Radio Set

S.N	Parameter	Specification	Trail directives
1.	**General**		
i.	Frequency range	136-174 MHz	BOO will check operation of radio set by programming lowest, highest and any random frequency in 136-174 MHz range with the help of measuring instrument
ii.	No of channels	Minimum 255	BOO will check practically
iii.	Channel spacing	12.5 KHz or better in Analog & Digital mode	BOO will check practically
iv.	Frequency stability	±1.5 ppm or better	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/ NABL accredited Lab.
v.	Protocol & Technology	Digital TDMA	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/ NABL accredited Lab.
vi.	Types of emission (modulation)	Analog:11K0F3E Digital: 7K60FXE, 7K60FXD, 7K60FXW or equivalent technique complying to open standard/ nonproprietary Digital Protocol as defined by an international standards body like ETSI/FCC etc.	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/ NABL accredited Lab.
vii.	Types of operation	Semi Duplex, push to talk(PTT)	BOO will check practically
viii.	Type of antenna	Rugged flexible helical antenna	BOO will check Physically
ix.	Weight	less than 475 grams with battery	BOO will check practically
x.	Power source	Lithium –ion or Li-polymer battery pack of 2000 mAh or more with belt clip	BOO will check practically and Firm will submit BIS approved certificate not older than 3 year of Govt. Lab/ILAC/NABL accredited Lab.
xi.	Average battery duty cycle 5/5/90	10 Hrs. or more	BOO will check practically
xii.	Protection	Protection against high VSWR	BOO will check by switching "ON" Radio set and removing antenna/ dummy load and PTT be pressed. In such a condition there should not be any harm to Radio set

S.N	Parameter	Specification	Trail directives
2	**Transmitter**		
i.	RF Power output	1/5 Watt (programmable/selectable)	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
ii.	FM Hum/Noise	-40dB or better	
iii.	Modulation limiting	±2.5 KHz @12.5 KHz	
iv.	Adjacent channel power	-60 dB or better	
v.	Audio Distortion	less than 3%	
3	**Receiver**		
i.	Sensitivity	i) Analog: 0.25µV for 12 dB SINAD or better ii) Digital: 0.25µV at 5% BER or better	BOO will check practically and Firm will submit Certificate not older than 3 year of Govt. Lab/ILAC/NABL Accredited Lab.
ii.	Selectivity (Adjacent channel)	60 dB or better	
iii.	Inter Modulation	60 dB or better	
iv.	Audio Output	500 mW	
v.	Audio Response	+1, -3 dB	
vi.	Rated Audio Distortion	Less than 3%	
4	**Environmental Specifications**		
i.	Operating Temperature	-30°C to + 60 °C	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
ii.	Storage Temperature	-40°C to + 70 °C	
iii.	Humidity	Max. 95% @ +40°C non-condensing	
iv.	Environmental standard (i.e.) Low pressure, Temperature Shock, Rain, Salt Fog, Vibration, Solar Radiation, Dust & Shock	MIL-STD-810 G or above	Firm will submit certificate not older than 3 year of Govt. Lab/ILAC/NABL Accredited Lab.
v.	Dust & Water Intrusion	IP67 or better	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
5	**Accessories**		
i.	Battery Charger	Single unit smart charger	BOO will check practically
ii.	Hands free kit (VOX unit with PTT) (Optional-as per user requirement)	The vendor should provide minimum of two variants for trials	BOO will check practically

S.N	Parameter	Specification	Trail directives
iii.	Programming kit	All necessary latest programming software and hardware required for the set will be provided (As per user requirement)	BOO will check practically
iv.	Literature	i) User's manual with each radio sets should be provided free of cost in soft as well as hard copy. ii) Technical repairing manual with complete block diagram, circuit layout etc. should be provided in soft as well as hard copy. (As per user requirement)	BOO will check practically
v.	Battery	Two extra BIS approved Lithium-ion or Li-Polymer batteries with each Radio set or As per user requirement.	BOO will check practically
6	**Configuration**		
i.	Caller ID display	Should be available	BOO will check practically
ii.	Facility for locking the channel or key pad locking	Should be available	BOO will check practically
iii.	Scan with priority	Should be available	BOO will check practically
iv.	Transmitter Time Out Timer (TOT)	The time should be programmed to best suit the application	BOO will check practically
v.	LCD Display	Display: Should be available (Min Display size 1.2 inch)	BOO will check practically.
vi.	Mode of calls	Selective Call, Group Call, Inter and Intra Group call facility	BOO will check practically
vii.	Remote radio Kill/ Stun/ Revive facility with authentication/ acknowledgement.	Should be available	BOO will check it practically by sending kill command to particular radio. Radio set received kill command will get killed. Similarly, Set should revive if we send the revive command to killed radio.
viii.	Mode of operation	Radio should operate in analog mode and digital mode (compatibility with existing all type of VHF analog & DMR radio sets)	BOO will check practically
ix.	Emergency Button	Allows a user to obtain help in critical situations.	BOO will check practically

S.N	Parameter	Specification	Trail directives
x.	SMS Texting	Should be capable of sending pre-defined messages & minimum 45-character short messages from keypad	BOO will check practically.
xi.	Programming	Front panel programming with password protection or PC programming.	BOO will check practically
xii.	Front Panel/ DTMF alpha-numeric keypad with backlit	Should be available	BOO will check practically
xiii.	Battery strength bar	Should be available	BOO will check practically.
xiv.	Support GPS	Inbuilt GPS system with accuracy of less than 10 meters or better	BOO will check practically
xv.	GIS (As per user requirement)	Radio should have application protocol interface along with software applications to provide location and messaging on PC/ Console.	
xvi.	Networking	Should be IP based for automatic roaming etc.	
xvii.	Vocoder	AMBE+2 or better	Firm will submit certificate not older than 3 year of Govt. Lab/ILAC/NABL Accredited Lab
xviii.	Communication security with user defined key management system	System have in-built AES 256 bit or better encryption system and should also have provision to support 3rd party	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ILAC/NABL Accredited Lab
xix.	OTAP (over the air programming) facility (Optional)	Should be available	BOO will check practically and Firm will submit OEM certificate
xx.	Bluetooth (Optional)	4.0 version or better	Firm will submit OEM certificate
xxi.	Noise cancellation/ Suppression.	With or without external mic active noise cancellation	Firm will submit OEM Certificate
xxii.	EMI/EMC	ETSI EN 301 489-1 and ETSI 301 489-5 /TEC/SD/DD/EMC-221/05/OCT-16 or equivalent	Firm will submit certificate not older than 3 year of Govt Lab/ ILAC/NABL Accredited Lab

7	**Field Trial**	The actual performance of the radio set will be assessed by BOO consisting CAPFs with expert Organization and evaluate the actual field performance of radio.	Field trial of equipment will be conducted by a Board of Officers in the operational area of the force in the presence of Vendor/representative of firms to ascertain the user satisfaction before the proposal is accepted. Radio equipment with all required accessories will be provided by the participating firm's on "No Cost No Commitment" basis at the indenter discretion.

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Approved/Not Approved

(Gyanendra Pratap Singh,IPS)
DG, CRPF

QRs/TDs OF DIGITAL VHF MOBILE/BASE TRANSRECEIVER SET (25 W)

Sn	Parameters	Specification	Trial directives
1.	**General**		
	i) Frequency Range	136-174 MHz (Full Band)	BOO will check operation of radio set by programming lowest, highest and any random frequency in 136-174 MHz range with the help of measuring instrument
	ii) No. of channel	500 or higher	BOO will check practically
	iii) Channel Spacing	12.5 KHz or better in Analog & Digital mode	BOO will check practically
	iv) Frequency Stability	± 1.5 PPM or better	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab
	v) Protocol & Technology	Digital TDMA Technology	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	vi) Type of Emission (Modulation)	Analog: 11K0F3E Digital: 7K60FXE, 7K60FXD, 7K60FXW	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab
	vii) Type of Operation	Semi Duplex, push to talk (PTT)	BOO will check practically
	viii) Weight	Less than 2000 grams	BOO will check practically
	ix) Antenna Impedance	50Ω	BOO will check practically.
	x)Power Source	13.8 Volt DC ± 15%	BOO will check practically
	xi) Protection	(i) Reverse polarity protection (ii) Protection against high VSWR	i) BOO will check it by connecting Radio set with DC supply in reverse polarity and switch the set to "ON" position. There should not be any harm to the Radio Set. ii) BOO will check by switching "ON" Radio set and removing antenna/ dummy load and PTT be pressed. In such a condition there should not be any harm to Radio set.

Sn	Parameters	Specification	Trial directives
2.	**Transmitter**		
	i) R.F Power output	25 Watt Programmable /Selectable)	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	ii) FM Hum / Noise	-40 dB or better	
	iii) Modulation Limiting	± 2.5 KHz @ 12.5 KHz	
	iv) Adjacent Chanel power	-60 db or better	
	v) Audio Distortion	Less than 3%	
3.	**Receiver**		
	i) Sensitivity	i) Analog: 0.25µV for 12 dB SINAD or better ii) Digital: 0.25µV at 5% BER or better	BOO will check practically and Firm will submit Certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	ii)Selectivity (Adjacent channel)	60 dB or better.	
	iii)Inter Modulation	70 dB or better	
	iv)Audio Output	3 W or more	
	v)Audio Response	+1, -3 dB	
	vi) Rated Audio Distortion	Less than 3%	
4	**Environmental Specifications.**		
	i) Operating Temperature	-30°C to + 60 °C	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	ii) Storage Temperature	-40°C to + 70 °C	
	iii) Humidity	Max. 95% @ +40°C non-condensing	
	iv) Environmental standard (i.e) Low pressure, Temperature Shock, Rain, Salt Fog, Vibration, Solar radiations, Dust & Shock	As per MIL STD 810 G or better	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	v) Dust &Water Intrusion	IP 54 or better	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.

Sn	Parameters	Specification	Trial directives
5.	**Accessories**		
	i) Microphone	DTMF/Keypad Microphone should be supplied with Radio	BOO will check practically.
	ii) Battery cable & Mounting fixtures	Should be supplied with Radio	BOO will check practically
	iii) Antenna	i) 3dB gain whip antenna with 3 meters co-axial cable with connector, magnetic base/ mounting bracket for vehicle use will be provided. ii) 6dB or high gain Omni Directional antenna with 30-meter RF cable (LDF ½"/RG-217 as per user requirement) attenuation 2 dB per 100 feet or better for base station will be provided.	BOO will check practically. Firm will submit Certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab
	iv) Programming kit	All necessary latest programming software and hardware required for the set will be provided (As per user requirement)	BOO will check practically
	v) Literature	i) User's manual with each radio sets should be provided free of cost in soft as well as hard copy. ii) Technical repairing manual with complete block diagram, circuit layout etc should be provided in soft as well as hard copy (As per user requirement)	BOO will check practically
6	**Configuration**		
	i) Caller ID display	Should be available	BOO will check practically
	ii) Busy channel locks out	Should be available	BOO will check practically
	iii) Scan with priority	Should be available	BOO will check practically
	iv) Transmitter Time Out Timer (TOT)	The time should be programmed to best suit the application.	BOO will check practically

Sn	Parameters	Specification	Trial directives
	v) LCD Display	Display: Should be available	BOO will check practically
	vi) Mode of calls	Selective Call, Group Call, Inter and Intra Group call facility	BOO will check practically
	vii) Remote radio Kill/Stun/Revive facility with authentication/ acknowledgement	Should be available	BOO will check it practically by sending kill command to particular radio. Radio set received kill command will get killed. Similarly, Set should revive if we send the revive command to killed radio.
	viii) Mode of operation	Radio should operate in Analog and Digital mode (compatible with existing all type of VHF Analog & DMR radio sets.)	BOO will check practically
	ix) Emergency Button (Optional)	Allows a user to obtain help in critical situations.	BOO will check practically.
	x) SMS Texting	Should be capable of sending predefined mgs and minimum 45-character short mgs form key pad.	BOO will check practically
	xi) Programming	Front panel programming with password protection or PC programming.	BOO will check practically
	xii) Support GPS	GPS system with accuracy of less than 10 meters.	BOO will check practically.
	xiii)Networking	Should be IP based for automatic roaming etc.	
	xiv) GIS (As Per user requirement)	Radio should have application protocol interface along with software applications to provide location and messaging on PC /Console.	
	xv)Communication security user defined key management system	System have in-built AEC 256 bit or better encryption system and should also have provision to support 3rd party encryption	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	xvi) OTAP (over the air programming) facility (Optional)	Should be available	BOO will check practically
	xvii) EMI/EMC	ETSI EN 301 489-1 and ETSI 301 489-5 / TEC/SD/DD/EMC-221/05/OCT-16 or equivalent	Firm will submit Certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab

Sn	Parameters	Specification	Trial directives
7	Field Trial	The actual performance of the radio set will be assessed by BOO consisting CAPFs with expert Organization and evaluate the actual field performance of radio	Field trial of equipment will be conducted by a Board of Officers in the operational area of the force in the presence of Vendor/ representative of firms to ascertain the user satisfaction before the proposal is accepted. Radio equipment with all required accessories will be provided by the participating firm's on **"No cost No Commitment"** basis at the indenter discretion.

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SDG (OPS), CRPF

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Approved/~~Not Approved~~

(Gyanendra Pratap Singh,IPS)
DG, CRPF

Draft QRs/TDs OF DIGITAL VHF REPEATER SET

S. N	Parameters	Specification	Trial directives
1.	**General**		
	i) Frequency Range	136-174 MHz (Full Band)	BOO will check operation of radio set by programming lowest, highest and any random frequency in 136-174 MHz range with the help of measuring instrument.
	ii) No. of channel	16 or more	BOO will check practically
	iii) Channel Spacing	12.5 KHz or better	BOO will check practically
	iv) Frequency Stability	± 1.5 PPM or better	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	v) Protocol & Technology	Digital TDMA	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	vi) Type of Emission (Modulation)	Analog: 11K0F3E Digital: 7K60FXE, 7K60FXD, 7K60FXW	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	vii) Weight	Less than 15 Kg	BOO will check practically
	viii) Power Source	i) DC: 13.8 Volt ± 15% ii) AC: 110V-260V iii) There should be provision to shift automatically on DC supply during mains failure & when mains supply restored it should be shifted on mains from DC supply.	BOO will check practically
	ix) Protection	i) Reverse polarity protection ii) Protection against high VSWR	BOO will check practically
	x) EMI/EMC	As per ETSI EN 301 489-1 and ETSI 301 489-5 /TEC/SD/DD/ EMC-221/05/OCT-16 or equivalent	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.

S. N	Parameters	Specification	Trial directives
	xi) Duplexer (optional)	136 to 174 MHz (Frequency as per user requirement)	BOO will check practically
	xii) Mode of Operation	Repeater should operate in Analog and digital mode and Compatible with existing all type of VHF digital and Analog radios in both plain and secure mode	BOO will check practically
	xiii) Antenna Impedance	50Ω	BOO will check practically.
	xiv) Duty cycle	Should be 100 % duty cycle at full power in both AC and DC operation	OEM will submit certificate
2.	**Transmitter**		
	i) R.F Power output	50 Watt or more (Programmable /Selectable)	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	ii) FM Hum /Noise	-40 dB or better	
	iii) Modulation Limiting	± 2.5 KHz @ 12.5 KHz	
	iv) Adjacent Chanel power	-60 db or better	
	v) Audio Distortion	Less than 3%	
3.	**Receiver**		
	i) Sensitivity	i) Analog: 0.25 µV for 12 dB SINAD or better ii) Digital: 0.25µV at 5% BER or better	BOO will check practically and Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	ii)Selectivity (Adjacent channel)	60 dB or better.	
	iii) Inter Modulation	70 dB or better	
	vi) Audio Response	+1, -3 dB	
	v) Rated Audio Distortion	Less than 3%	
4.	**Environmental Specification**		
	i) Operating Temperature	-30°C to + 60 °C	Firm will submit certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab.
	ii) Storage Temperature	-40°C to + 70 °C	
	iii) Humidity	Max. 95% @ +40°C non- condensing	

S. N	Parameters	Specification	Trial directives
5	Networking	Should be capable to support IP site connects	Firm will show networking and interfaces related function of repeater practically by connecting it in user organisation network.
6	Interfaces	Ethernet port RJ-45 to provide a) Wide area IP connectivity for voice and data b) Remote monitoring and status check	
7.	**Accessories**		
	i) Battery cable & Mounting fixtures	Should be supplied with Repeater	BOO will check it practically by connecting battery cable & mounting fixtures with repeater.
	ii) Antenna	6dB or high gain Omni Directional antenna with 45-meter RF (LDF ½"/RG-217 as per user requirement) attenuation 2dB per 100 feet or better for repeater base station will be provided	Firm will submit Certificate not older than 3 year of Govt. Lab/ ILAC/NABL Accredited Lab
	iii) Programming kit	All necessary programming software and hardware required for the set will be provided. (As per user requirement)	BOO will check it practically that all necessary programming software and hardware are available as per user requirement.
	iv) Literature	i) User's manual with each radio sets should be provided free of cost in soft as well as hard copy. ii) Technical repairing manual with complete block diagram, circuit layout etc should be provided in soft as well as hard copy. (As per user requirement)	BOO will check it physically that User and Technical manual are available as per user requirement.

8	Field Trial	The actual performance of the radio set will be assessed by BOO consisting CAPFs with expert Organization and evaluate the actual field performance of radio	Field trial of equipment will be conducted by a Board of Officers in the operational area of the force in the presence of Vendor/ representative of firms to ascertain the user satisfaction before the proposal is accepted. Repeater equipment with all required accessories will be provided by the participating firm's on "**No cost No Commitment**" basis at the indenter discretion.

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