DIRECTORATE GENERAL, CRPF
EAST BLOCK-7, SECTOR-1, R.K PURAM, NEW DELHI-66
e-mail: digeqpt@crpf.gov.in Tele No. 011-26109038

No. B.V-7-C/2025-26-C(HF)-QR CELL Dated, the July'2025

Subject: - REQUEST FOR COMMENTS OF STAKEHOLDERS /OEM/FIRMS ON DRAFT QRS & TDS OF "HF 1 KW TRANSCEIVER" REGARDING.

The Draft QRs/TDs of "HF 1 KW Transceiver" is attached as **Appendix 'A'**. The OEMs/Vendors are requested to forward information of the product, which they can offer and also forward correct specifications of their system against each parameter. Only complied or not complied remarks will not be accepted. The firms are also requested to furnish the following details: -

- Whether you are OEM/Vendor?
- If vendor details of OEM.
- Authorization certificate from OEM.

2. The required information/details may please be forwarded at the following addresses by 15 **August'2025**.

Communication Directorate, CRPF
East Block-7, Sec-1, R.K. Puram, New Delhi-110066
Email: comncell@crpf.gov.in

3. An early response is requested.

{Ujjwal Kumar Singh, AC (QR)}
For DIG (Equipment)
Communication & IT Branch
Directorate General, CRPF

DRAFT QRs OF 1 KILO WATT HF (HP) TRANS-RECEIVER

S.N	Proposed parameter	New Proposed Specifications	Trial Directives
	A) Transceiver base unit:		
	a) GENERAL		
1.	Frequency range	2 MHz to 29.9999 MHz or higher tunable at 10 Hz steps or better	BOO will check practically
2.	Mode of operation	**SSB (J3E), USB, LSB, AM/AM(E), CW/MCW, AFSK**	BOO will check practically and firm will produce OEM certificate
3.	Presets	**500 or more preset channels**	BOO will check it practically
4.	Frequency stability	**± 0.5 ppm or better**	BOO will check practically
5.	Built in Test (BITE)	On-line and operator initiated	BOO will check practically.
6.	Input power	AC mains 190 V to 260 V/50 Hz single phase	BOO will check practically
7.	Power consumption (Including radio + Power amp)	**Up to 4KVA**	BOO will check practically and firm will also submit OEM certificate.
8.	EMC/EMI	MIL-STD 461/462C or ETSI or **CISPR32** or IEC 61000-4 Series (TEC/ EMI/ TEL-001/ 01 Feb 09) or better	The firm will produce certificate of Govt. Lab. Or NABL/ILAC accredited laboratory
9.	Antenna impedance	50 Ω Unbalanced	BOO will check practically and firm will also submit OEM certificate.
10.	Protection	i).Protection against high VSWR	BOO will check practically and firm will also submit OEM certificate.
		ii). Over Voltage and under voltage protection.	BOO will check practically and firm will also submit OEM certificate.
		iii). Protection against high temperature	BOO will check practically and firm will also submit OEM certificate.
11.	Roles	Static	BOO will check practically
12.	Headphone	Should be compatible with radio set	BOO will check practically and firm will also submit OEM certificate

13.	Cooling	Forced air/liquid cooling system/Heat sink	BOO will check practically
14.	VSWR	Better than 1.5	BOO will check practically
15.	Visual display	Front panel digital display	BOO will check practically
16.	Metering indications	Front panel meters-indications for RF output, VSWR and high temperature	BOO will check practically
17.	Interface	**RS 232/ USB/ Ethernet/ Wi-Fi/ Bluetooth**	BOO will check practically
18.	Programming	PC programming software and front panel programming	BOO will check practically by software and front panel programming.
19.	Communication security	**AES-256 bit or better/ SAG approved (As per User requirement)**	Firm will submit OEM Certificate.
20.	Mounting	Mountable into suitable single rack/cabinet	BOO will check practically
21.	**Over all Weight of the equipment**	150 Kg maximum	BOO will check practically
b	**Drive Transmitter Specification**		
1.	Spurious Emission	Better than 40 dB below PEP	BOO will check practically
2.	Side Band suppression	Better than 50 dB	BOO will check practically
3.	Carrier suppression	Better than 40 dB	BOO will check practically
4.	Inter modulation distortion	Better than 25 dB (below PEP)	BOO will check practically/ Firm will submit OEM certificate
5.	Audio response	Within ±6 dB (300 Hz to 2700 Hz	BOO will check practically
6.	Side Tone Level	Better than 0.1 mW into headphone for 5 mV audio input at 1 kHz	BOO will check practically
7.	Modulation sensitivity	1 to 10 mV at 1 kHz for full power under SSB mode	BOO will check practically
c).	**RECEIVER SPECIFICATIONS**		
1.	Receiver sensitivity	**-115dBm** @ 10dB SINAD or better	BOO will check practically
2.	Image frequency rejection	Better than 70 dB	BOO will check practically
3.	IF rejection	Better than 70 dB	BOO will check practically
4.	In Band inter	35dB below PEP or	Firm will submit OEM

	modulation distortion	better	certificate
5.	Audio response	Within ±6 dB per octave for 300 Hz to 2700 Hz ; 1 kHz as reference	BOO will check practically
6.	Audio output	Minimum 10 mW (Across Headphones) Minimum 1W (across Loudspeaker)	BOO will check practically
7.	Audio frequency Harmonic distortion	Better than 25 dB	BOO will check practically
B)	**POWER AMPLIFIER SPECIFICATIONS:**		
1.	Power output	1000 Watts ±1 dB (CW/PEP)	BOO will check practically
2.	Power levels	Variable in steps/continuously	BOO will check practically
3.	Spurious and Harmonic emission	Better than 60 dB below PEP	BOO will check practically.
4.	VSWR	3:1 maximum	BOO will check practically and firm will submit OEM certificate
5.	Emission compliance	MIL-STD-188-141D	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory
C	**ANTENNA TUNING UNIT: (MAY BE INTEGRATED TO POWER AMPLIFIER OR A SEPARATE UNIT)**		
1.	Power rating	**1000 watt or higher**	BOO will check practically.
2.	VSWR	Typical 1.5:1	BOO will check practically.
3.	Tuning	Automatic	BOO will check practically.
4.	Tune time	less than 5 sec	BOO will check practically.
5.	Antenna connector types	There should be facility to connect any of the following antennas- i. Long Wire antenna ii. Whip antenna iii. Broad band antenna	BOO will check practically.
6.	Provision for using single antenna for transmitter and receiver		BOO will check practically.
D)	**ENVIRONMENTAL PARAMETERS**		
1.	Operating Temperature	-10^{O}C to +45^{O}C	Firm will submit certificate of Govt. Lab.

			or NABL/ILAC accredited laboratory
2.	Storage Temperature	-20^{O}C to +60^{O}C	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
3.	Humidity	95% non-condensing (-20^{O}C to +60^{O}C)	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
4.	Dust	MIL-STD-810F or better or JSS-55555 or equivalent	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
5.	Vibration	MIL-STD-810F or better or JSS-55555 or equivalent	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
6.	Shock	MIL-STD-810F or better or JSS-55555 or equivalent	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
7.	Altitude	MIL-STD-810F or better or JSS-55555 or equivalent	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
E)	**FEATURES:**		
1.	Selective calling	Digital FSK coding	BOO will check practically
2.	Scanning	5 channel per sec or better	BOO will check practically
3.	ALE 2G/3G/4G (As per user requirement)	ALE 2G as per Appendix "A", ALE 3G as per Appendix "C" and ALE 4G as per Appendix "G" of MIL-STD-188-141B	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory
4.	ALE link quality data resolution	i. Local: 5bit SINAD, 5 bit BER ii. Remote: 5 bit SINAD, 5 bit BER	Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
5.	Flash message	Predefined message	BOO will check practically
6.	Vocoder	MELP/ACLP/TWEP (600/800/1200/2400 bits) or better	Firm will submit OEM certificate.
7.	Data MODEM (Built in/external)	**MIL-STD-188-110A single tone ≥ 4800 bps or better**	Firm will submit OEM certificate
8.	Data communication	Provision for data communication	BOO will check practically
9.	Tele Call	The radio set should have capability to dial and operate data.	Firm will submit OEM certificate
10.	Controls	i. Front panel controls ii. Ethernet: - Remote	BOO will check practically

		HTML or remote-control software iii. Serial RS-232/RS-422 remote software control. iv. Interlock: - Antenna interlock to prevent keying PA when not connected.	
11.	Software updates	Via USB (Local) or Ethernet (Remote)	BOO will check practically
12.	Tunable receiver	Continuous tunable	BOO will check practically
13.	Remote operation	Capability to operate from remote location	BOO will check practically
14.	Audio input sockets	Microphone and external socket	BOO will check practically
15.	Squelch	Digital squelch	BOO will check practically
16.	Push to talk	Suitable microphone to be provided	BOO will check practically
17.	Compatibility	**Should be interoperable with existing HF radio sets/receivers in Clear voice Mode communication**	BOO will check practically
18.	**External Antenna connectivity**	**Provision for work with an External Antenna without use of PA**	BOO will check practically
19.	**Fault Log**	**System events and error reporting**	BOO will check practically
20.	**Thermal Overload protection**	**85°C**	Firm will submit OEM certificate.
21.	**Integration with source transceiver unit**	**PA must be compatible with any Input Source transceiver unit for Voice and Data communication**	BOO will check practically
22.	**Antenna type**	**Broadband type with 1000 watt or higher**	BOO will check practically and firm will submit OEM certificate