GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Tele/Fax No-011-26107493, Email-Id: comncell@crpf.gov.in**)**

No. B.V-7-C/2021-22-C (HF) Dated, the 21st September' 2021

Subject:- REQUEST FOR COMMENTS OF STAKEHOLDERS/OEM/FIRMS ON QRS (QUALITY REQUIREMENT) & TDS (TRIAL DIRECTIVES) OF "STATIC HF TRANSCEIVER".

1. The revised QRs/TDs "Static HF 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 **21st September'2021**.

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

3. An early response is requested.

{P.R. Jha, DC(Comn)}
For DIG (Equipment)
Directorate General, C R P F

Draft QRs/TDs OF STATIC HF TRANSCEIVER

1.1 General Specification

S.N	Parameter	Specifications	Trial Directives
1.	Frequency Range	2.0 MHz to 29.9999 MHz channel spacing 10 Hz.	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.

S.N	Parameter	Specifications	Trial Directives
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 20 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.
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.

S.N	Parameter	Specifications	Trial Directives
1.2	**Transmitter Specification**		
1.	RF Power	20W to 100W PEP (Low, Medium , High) As per user requirement with programmable feature.	BOO will check practically.
2.	Spurious Emission Suppression	≥ 46 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 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 ±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.

S.N	Parameter	Specifications	Trial Directives
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.	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
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	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.	In built Data Modem	MIL-STD -188 -110A/B/C single tone ≥ 4800 bps	Firm will produce OEM certificate.
6.	Data Communication	Provision for data communication	BOO will check practically.
7.	Tele Call	The Radio set should have capability to dial and operate data.	Firm will produce OEM certificate.
8.	RS-232 control	The Radio set should have capability to operate at 4800 baud rate or better.	BOO will check practically.
9.	Tuneable receiver	Continuous tuneable.	BOO will check practically.
10.	Radio kill/un-kill	Should have kill/un-kill function.	BOO will check practically.
11.	Remote Operation	Capable to operate from remote location.	BOO will check practically.

S.N	Parameter	Specifications	Trial Directives
12.	Audio input sockets	Mic and external socket.	BOO will check practically.
13.	Squelch	Voice/Digital squelch	BOO will check practically.
14.	Push to talk.	Suitable Microphone to be provided.	BOO will check practically.
1.6	**Optional Features (As per user requirement)**		
1.	Communication Security	AES 128 bit or AES 256 bit or SAG approved (As per user requirement)	Firm will submit 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: >6 hops per second	Firm will produce OEM certificate.
4.	GPS Interface	Inbuilt GPS with polling facility	BOO will check practically.
5.	**Data Terminal Specifications:** Should also be compatible with existing HF Radio		
a)	Processor	Intel Core i5 or better	BOO will check physically and firm will produce OEM certificate.
b)	Speed	2.5 GHz or better	
c)	RAM	Minimum 8GB DDR4 (Expendable up to 64 GB or better)	
d)	Memory Speed	1333 MHz or better	
e)	HDD	256 GB or more SSD	
f)	Display Size	14 Inch or more	
g)	Interface	USB, HDMI Port	
h)	Keyboard	Multimedia	
i)	Mouse	Touchpad	
j)	Operating System	Window 7/8 or latest version OS	
k)	Battery endurance	18 hrs or more with one battery	
l)	Data communication software	Compatible with Window 7/8/10 or latest version OS	

S.N	Parameter	Specifications	Trial Directives
m)	Operating Temperature	-10˚C to +50˚ C	The firm will produce certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
n)	Storage Temperature	-20˚C to +60˚C	
o)	Dust and water resistance test	IP 53 or better	
p)	Safety Standards	MIL-STD810H or better	
q)	Gravity drop resistance test	90 cm	