

TENDER SPECIFICATION - HF TRANSCEIVER (1KW)

1. **Name of the Equipment** : Military standard HF Transceiver (1 KW).
2. **Purpose** : For long range HF communication between BN ships and shore stations.
3. **Quantity** : 01 (One) complete set with all associated accessories.
4. **Type** : Marine Type or to be mentioned.
5. **Brand** : CODAN/ ROHDE & SCHWARZ/ SUNAIR.
6. **Model** : NGT MR/ M3SR/ RT-9000E/ R-9000D/ T-9000D/ Latest production model/ Version/ Series
7. **Country of Origin** : Australia/ Germany/ USA.
8. **Country of manufacturer** : Australia/ Germany/ USA.
9. **Original Equipment Manufacturer (OEM)** : Name & Full address with e-mail of OEM is to be mentioned.
10. **Supplier** : Name & Full address with e-mail of Supplier is to be mentioned.
11. **Year of manufacturing** : 2025 or later.
12. **Classification/ Standard** : The offered items/ equipment under the scope of supply are to fulfil the requirement of MIL-STD (Dust, Shock, Vibration, Humidity, Fungus, Altitude) testing with latest method and procedure, Ingress Protection (IP) and other internationally recognized standards. The applicable classification standard(s) of offered items are to be mentioned and should be well supported by the certificates and OEM brochures.
13. **Environmental Condition.**
 - a. Temperature : Minimum -20° to +55° C.
 - b. Humidity : Non-condensing.
 - c. Storage Temperature : To be mentioned.
14. **Qualification of Bidders.** Only the genuine manufacturers or their authorized dealer (principal) can submit quotation through their authorized agents enlisted at DGDP. In case of dealer (principal), manufacturers certificate of authorization has to be submitted with the offer.
15. **Scope of Supply.** The equipment for HF Transceiver (1KW) set is to be supplied fulfilling the technical specifications and complete in all respect with all required standard accessories (any additional devices, hardware, software and/ or technical support) and attachment which are required to obtain 100% performance of the sets whether it is mentioned in the specification or not. Itemised list and unite price are to be quoted separately in offer. In this regards the Bangladesh Navy (BN) reserve the right to reduce/ increase the quantity of item mentioned in the tender.



16. **Technical Specification.**
following features:

The offered HF Transceiver (1KW) sets must have

Ser	Name	Description
<u>GENERAL</u>		
a.	Range coverage	World Wide.
b.	Channels capacity	1000 simplex or semi-duplex or to be mentioned
c.	Scanning	Voice, Selcall, ALE scan capabilities. Dwell time have to be mentioned.
d.	Interfaces	USB (Handset or Console). Serial RS232 (supports NMEA-0183 GPS). Ethernet (TCP/IP, supports remote control) or to be mentioned.
e.	Interface Compatibility.	The transceiver should have capability to interface with Industry standard HF Data Modem (Conventional FSK and Modern High Speed Multiplexing modem) as well as serial port programming from a standard Personal Computer.
f.	Remote Operation	Capable to operate from remote location via 15-20mtr wire/wireless desk console.
g.	Compliance	To be mentioned (i.e. CE, FCC, IC, NTIA AS/NZS 4770: 2000, AS/NZS4355: 2006).
h.	Display	Large high-resolution, sunlight-readable colour display, and intuitive menu system.
j.	Life Expectancy of the Equipment	To be mentioned.
<u>RF UNIT</u>		
k.	Frequency range	a. Transmit: 1.6 to 30 MHz. b. Receive: 250 kHz to 30 MHz.
m.	Frequency stability	±1ppm or less from -30°C to +60°C
n.	Modes	Single sideband (J3E), USB/LSB, ISB (B7D or B2B) AM (H3E), CW (J2A, J2E), AFSK (J2B), FSK (J2D, F1B), Digital Voice and Data (G1D) (SDR).
p.	Output power	100-150 W.
q.	Duty cycle	100% Voice/Data with optional Fan
r.	RF output impedance	50 Ω.
s.	Filter bandwidths	2.4 kHz standard.
t.	Programming	To be mentioned.



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Ser	Name	Description
u.	Transmitter specifications	a. Spurious & harmonic emissions: Better than <69 dB. b. Carrier suppression: Better than 65 dB. c. Sideband suppression: 70 dB or better.
v.	Receiver specifications	a. Sensitivity: 0.12 μ V, -125 dBm for 10 dB SINAD. b. Selectivity: >70 dB at -1 kHz and +4 kHz. c. Image rejection: >95 dB. d. Spurious response: >85 dB.
w.	Switching speed	<25 ms.

ELECTRICAL & MECHANICAL

x.	Operating range (V)	10 to 15 V DC.
y.	Supply current (VA)	Rx: 500 mA & Tx: 8 A or to be mentioned.
z.	Protection	Safe under all load conditions bypass to 1KW from Transceiver in the event of excess VSWR, excess heat sink temperature & internal fault conditions.
aa.	Size (RF Unit)	To be mentioned.
ab.	Weight (RF Unit)	To be mentioned.

OTHERS

ac.	High speed data communication (HF data modem) facility.	Supplied Hardware and Software must be compatible to use with Data Message Terminal running on minimum Windows 10 (64 bit) or better.
ad.	Encryption	Offered set must have voice and data encryption/scrambler facilities that must be Compatible with existing system.
ae.	Vocoder	MELPe (1200/2400 bit/s); TWELP (600/1200/2400 bit/s) or to be mentioned.
af.	Frequency Hopping	a. Hop rate: 6/12/25 hops per second (user programmable) or to be mentioned. b. Security: 128 bit or to be mentioned. c. Number of hop plans: to be mentioned. d. Key code length: to be mentioned. e. PIN length: to be mentioned.
ag.	Environmental Compatibility	The offered HF Transceiver (1 KW) has to be complied with highest Ingress protection (IP) and MIL-STD (Dust, Shock, Vibration, Humidity, Fungus, Altitude) testing with latest method and procedure, to be mentioned.
ah.	Supporting Documents	All supporting documents (ICD, IRS, booklets, leaflet, catalogue, brochure, drawing etc) and detailed particulars of the offered item.



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Ser	Name	Description	
POWER AMPLIFIER			
aj.	RF Power Output	1 KW.	
ak.	Frequency range	1.6 to 30 MHz.	
al.	Power supply	100 to 240 V AC $\pm 10\%$, 50 / 60 Hz single phase	
am.	Protection	Safe under all load conditions Bypass to 1 KW from transceiver in the event of excess VSWR, excess heat sink temperature or internal fault conditions	
an.	Cooling System	Fan forced front panel exhaust Thermostatically controlled dual speed or better.	
ap.	Size (H x W x D)	To be mentioned.	
aq.	Weight	To be mentioned.	
AUTOMATIC ANTENNA TUNER			
ar.	i	Frequency range	1.6/2 to 30 MHz
	ii	Power rating	1 KW
	iii	Duty cycle	100%
	iv	VSWR	$\leq 1.5:1$
	v	Memory Channel	To be mentioned.
	vi	Operational temperature	Minimum -20°C to $+55^{\circ}\text{C}$
	vii	Certifications	MIL-STD
	viii	Input voltage	115 to 240 VAC
ANTENNA			
as.	Antenna Type	Compatible latest Whip antenna 32 ft (1000W) for better performance; must be supplied with HF Transceiver.	
at.	Antenna Mast	Antenna Mast is to be well reputed branded (local/ foreign) pipe Mast for supply/ selected antenna to be provided as per requirement. Detail to be mentioned.	
au.	Ethernet/USB Connectivity feature	There should be an option for ethernet connectivity feature so that we can operate the Radio from far away if needed using a LAN or WAN.	
av.	Software (Virtual) Control Point feature	There should be a software (virtual) control point available so that we can control and operate the radio using an existing Navy computer or laptop with ethernet connection.	
OPTIONAL FEATURE (TO BE QUOTED SEPARATELY AS OPTIONAL)			
aw.	Antenna Type	Compatible latest antenna for better performance; must be supplied with each HF Transceiver as main item among mentioned below: Option: (i). Long Wire antenna (1000W) Option: (ii). Whip antenna 32 ft (1000W) Option: (iii). Antenna, Full Delta 2-30 MHz (1000W) with 75 Mtr RJ 213 with UHF connector. Purchaser will select type of antenna(s).	



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ax.	3G ALE & Digital Voice & 2G Data (optional)	3G ALE system to be quoted separately as optional. The 3G ALE must include voice messaging feature and software supplied to provide chat, file transfer and email capabilities. Received chat messages must be displayed on transceiver display when the data software disconnected.
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17. **Cable.** High quality compatible feeder cable and control cable (as required) with minimum attenuation (approx 1 watt per 10 mtr) is to be supplied along with set.

18. **Programming Kits/ Software.** One set of original programming kit and software are to be provided for programming/ cloning the HF Transceiver (1 KW) sets and peripheral's units. Within the warranty period the updated version of the programming software is to be provided (if necessary) by the bidder free of cost.

19. **Programming.** Upon receipt of the consignment at Naval Stores Depot Chattogram, the supplier's engineer is to assist BN reps to programme the set at BN Dockyard with given frequencies. The supplier's engineer is to show BN personnel, the procedure of programming the set so that BN personnel can reconfigure/ re-programme the set any time later if required. Thereafter "Bench Test" is to be conducted at BN Dockyard in presence of supplier's engineer.

20. **Installation, Test/ Trial & Acceptance.**

a. The supplier will install the set with proper earthing in presence of BN personnel at respective BN Unit as soon as possible and carryout necessary test and trials. The Supplier's Engineer will show BN personnel about routine operation and maintenance procedure of the set. For the test trial and operation of the set, supplier shall provide all required items (equipment, accessories and other associated supporting materials including consultancy fee (if applicable)) at free of cost whether mentioned in contract or not. Supplier's Engineer will ensure the competency of BN personnel in operation and maintenance of the set.

b. If any component of the supplied set is found defective during installation, test and trial those are to be replaced immediately by new ones free of cost (including freight, insurance and all other cost). BN is to return the defective equipment after receiving the replaced item.

c. Cost for installation is to be quoted and borne by the supplier.

d. Any damage to on board existing equipment, items, machineries are to be compensated by bidder during installation and make the damage items operational with its full functionality.

e. Installation, test and trial must be completed within 30 working days by supplier after issuing allocation by BN.

f. On satisfactory completion of installation, test and trial, BN will issue Final Acceptance Certificate.

21. **Installation Materials.** Standard installation materials are to be provided for all equipment. List to be provided by the bidder.

22. **Tools/ Test Equipment.** Special tools, test equipment and kits necessary for maintenance/repair are to be quoted, indicating itemised price.



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23. **Standard Accessories.** Standard accessories and assemblies will include all items and accessories, which are essential to operate the equipment whether those are mentioned in the specification or not. A list of such items/ accessories/ assemblies with Itemised price is to be included in the quotation as follows:

Ser	Part Number/ Model	Description	Brand	Country of Origin	Country of Manufacturer	Qty (EA)	Unit Price	Total Amount	Remarks
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24. **Price of Optional accessories.** Unit prices for optional accessories are to be quoted separately as follows:

Ser	Part Number/ Model	Description	Brand	Country of Origin	Country of Manufacturer	Qty (EA)	Unit Price	Total Amount	Remarks
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25. **Quality Assurance Certificate.** The Quality assurance certificate (QAC) in respect of the associated equipment in regard to its manufacturing and performance is to be provided by the manufacturer at the time of delivery.

26. **Documents.** The following documents are to be submitted with the offer:

- Certificate of assurance for minimum 10 years supply of spares with reasonable price.
- Original brochure/catalogue of the offered model of HF Transceiver (1 KW) sets.
- Manufacturer's/ distributor's/ agent's/ dealer's certificate mentioning that the supplier (enlisted bidder) is being authorised for this quotation/offer and will be liable to fulfil all contractual obligation if the firm is awarded contract.
- Certificate of Ingress protection (IP) standard.
- Certificate of MIL-STD.
- Radio Equipment Importer and Vendor Enlistment Certificate from BTRC (For Local Agent only).

27. **Manual.** Following documents in English are to be provided free of cost at the time of delivery:

- Operators Manual.** One set of original operator's manual (covering major system units) to be provided with each HF Transceiver (1 KW) set.
- Technical Manual.** One set of original technical manuals (covering principle of design and operations, detail circuit diagram, trouble shooting flowchart, parts catalogue) for each supplied HF Transceiver (1 KW) /accessories to be provided.
- Workshop Manual.** Two sets of original workshop level repair manual.

28. **Local Training.** The supplier will provide 05 (five) working days local training for 05 BN personnel (BN Officers/ Sailors/ Dockyard Staff) in Chattogram regarding routine operation and maintenance, transmitting and receiving of all kinds of message.



29. **Warranty Support.**

a. Warranty for three years or manufacturer standard whichever is higher by the principal/ manufacturer for trouble free operation of HF transceiver (1 KW) set and its accessories wef the date of final acceptance by (CINS) BN. If any component of the supplied item becomes defective during the warranty period, the warranty (for defective component) shall be extended automatically for the period of the subject component remains defective. Moreover, in case of any defective item(s) or component if the whole set defective or non-operational then the whole warranty of the said set shall be extended automatically for the period of subject component remains defective.

b. For warranty repair/ replacement, the supplier will collect the defective item from NSD, Chittagong/ NSSD, Dhaka (as applicable) and re-supply the same to collecting place after warranty repair or for replacement within 90 (ninety) days from the date of defect at no cost to the purchaser.

30. **Extension of Warranty.** During the warranty period, if the item/ equipment remains non-operational for any action pending by the supplier, the warranty period will be extended for the same period. The warranty covers all parts and labour (including service engineer's cost) throughout the warranty period.

31. **After Sale Service.** Local agent has to be authorized by manufacturer/ principal/ dealer in the territory of Bangladesh to provide after sale service within warranty period and thereafter as and when required (at least 10 years) (Assurance certificate to be submitted with the offer for at least 10 years).

32. **Delivery Schedule.** Within 270 days after signing of contract.

33. **Delivery Destination.** The supplier will arrange delivery of all items to the NSD Chattogram. All sea/ air port formalities, customs clearance, transportation etc to be completed/ arranged by supplier. BN may be asked for necessary certificates/ documents.

34. **Consignee.** The Commanding Officer, Naval Stores Depot, Chattogram, New Mooring, Chattogram, Bangladesh/ Officer In-charge, Naval Stores Sub Depot Dhaka, Namapara Khilkhet, Dhaka 1229.

35. **Port of Shipment.** The port of country of origin/ manufacturer/ principal. It is must be mentioned in the offer.

36. **Source of supply.** The source of supply is to be from the country of manufacturer or country of origin/ principal (To be mentioned).

37. **Validity of Offer.** Offer should remain valid up to 30 June 2026.

38. **Terms of Payment.** 80% of total CPT/ CFR value will be paid on completion of shipment of the contracted goods. Remaining 20% payment and 100% installation cost will be made on production of "Acceptance Certificate" rendered by BN following successful test and trial upon delivery of items as per contract.



39. **Price Quotation.** HF Transceiver (1 KW) sets price is to be quoted in FC without VAT/ Tax etc as follows:

- a. FOB price.
- b. Air/ Sea Freight.

40. **Compliance Matrix.** Bidder will submit a Compliance Matrix with the offer stating "COMPLIANT" or "NON COMPLIANT" against every Clause and Sub-Clause of this Specification. All "COMPLIANT" statements are to be explained adequately and should be supported by technical brochures/documentation. Insufficient documentation shall be considered as disqualification. (If required, a set of Technical /Operator Manual may be included with the offer).

41. **Certificate and Document of Authentication.** The concerned supplier must provide following original certificate(s)/ document(s) as applicable with the quotation and during delivery of items as regard to the genuinity of source and item(s) in order to establish chain of links from the original source to supply of items:

- a. One certificate by the Original Equipment Manufacturer (OEM) in favour of the supplier/ local agent (in case of OEM as principal).
- b. Two certificates, one by the OEM to authorized agent and other by the authorized agent to supplier/ local agent (in case of authorized agent as principal).
- c. Three certificates, first one by OEM to authorized agent, second one by authorized agent to sub-agent and third one by sub-agent to supplier/ local agent (in case of sub-agent as principal). If the supplier/ local agent is unable to obtain the first certificate (by OEM to authorized agent), then it has to produce relevant document to prove agency-ship of its claimed agent of the recognized manufacturer.
- d. Quality Assurance Certificate (QAC) by the Original Equipment Manufacturer (OEM).

42. **Compliance Statement.** A compliance statement fulfilling all the requirement of the tender is to be submitted for evaluation of the quotations. An incomplete compliance statement may attribute to cancellation of the offer. If any clause of this specification does not commensurate with offered item, the deviation has to be spelt out clearly.

