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TENDER SPECIFICATION OF WARSHIP ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEM (WECDIS)

1. **Name of the Equipment.** Warship Electronic Chart Display and Information System (WECDIS).
2. **Installation Site.** The WECDIS will be installed onboard BNS KHALID BIN WALID.
3. **Purpose.** The WECDIS is to provide full watching and control over Navigation plans along with Additional Military Layer (AML).
4. **Quantity.** 01 (One) Set WECDIS.
5. **Country of Origin.** UK, USA, Japan, Canada, Norway, EU countries (Name of the country to be mentioned).
6. **Country of Manufacturer.** UK, USA, Japan, Canada, Norway, EU countries (Name of the country to be mentioned).
7. **Type.** To be mentioned.
8. **Brand.** To be mentioned.
9. **Model.** To be mentioned.
10. **Year of Manufacturing.** 2025 or later.
11. **Manufacturer.** Name of full address with telephone number and email of manufacturer to be mentioned.
12. **Date of First Introduction in the Market.** To be mentioned.
13. **Principal Supplier.** Name and Full address with telephone number and email of Principal Supplier is to be mentioned.
14. **Local Agent.** Name and Full address with telephone number and email of local agent is to be mentioned.
15. **Qualification for Bidder.** Only genuine manufacturer or authorized dealer (Foreign principal) can submit quotation through authorized agents/dealer enlisted in the Directorate General of Defense Purchase (DGDP). For participation by agents/dealer, authenticity certificate is required.
16. **Classification Standard.**
 - a. The WECDIS along with associated accessories offered/supplied under the scope of the supply are to be designed, constructed/ manufactured and tested up to the requirement of IEEE/IEC, IALA, IMO, MIL-STDs and it shall comply other referenced international standards. The applicable classification standard(s) of the offered item is to be mentioned and should be well supported by the brochures/certificates.

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- b. The manufacturer company must be ISO/equivalent certified. The ISO/equivalent certificate to be submitted with the offer.
- c. The WECDIS system must be Type Approved by a recognized/competent international certification authority and **fully compliant with Full NATO STANAG 4565 Edition 3 for WECDIS. The Type Approval Certificate to be submitted with the offer.**
17. **Additional Features Offered by Bidder.** The bidders may suggest and offer additional features for the WECDIS. In this case, bidders have to explain the detail advantage of that/those features of the WECDIS (Price to be quoted separately).
18. **Acceptance/Reaction of Bid.** BN reserves the right to accept or reject any offer or to annul the tender process and reject all bids at any time prior to signing of the contract.
19. **Scope of Supply.** The scope of supply is 01 X complete set of WECDIS (01 X Bridge) including associated accessories for immediate operation, including but not limited to:
- a. Manufacturer's proprietary WECDIS Software (as per Para 20). Name and version to be mentioned.
 - b. WECDIS workstation/ Console. Installation sketch to be submitted with the offer.
 - c. Processor Unit. Configuration to be submitted with the offer.
 - d. Keyboard/Trackball, COM port expansion modules, mounting hardware and accessories required for onboard installation, whether or not mentioned in this specification.
 - e. Installation, Supervision, STW and Commissioning.
 - f. Test/Trial and Acceptance.
 - g. Fast moving spare parts and Tools (as option).
 - h. Operator and Maintainer Training.
 - j. Documentation and Certificate.
20. **General Features.** The WECDIS system should be suitable for operating in naval environment and must have following features (but not limited to):
- a. **AML.** Manage and display Additional Military Layer (AML) derived to STANAG 7170 standard, included but not limited to:
 - (1) Environment Seabed and Beach (ESB).
 - (2) Contour Line Bathymetry for different users/warfare scenario (CLB).
 - (3) Large Bottom Objects (LBO).
 - (4) Small Bottom Objects (SBO).
 - (5) Maritime Foundation and Facilities (MFF).
 - (6) Routes, Areas, and Limits (RAL).
 - (7) Integrated Water Column (IWC).

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- b. **Supported Chart Formats.** All modernized military and civilian ENC formats should be supported i.e., S-57, S-63, S-101, S-102 and the NATO GWMW AML Portrayal Specification (S-501 to S-525). Where S-100 Universal Data Model specifications related supports are under development, the manufacturer has to provide a certificate of assurance that upgradation of their WECDIS software to support S-100 based products will be borne free of cost, when introduced. Raster/Digitized chart loading capacity is optional, if available, to be mentioned.
- c. Automatic Position Plotting and Monitoring.
- d. Provision of Pilotage and Plotting Tool Sets for standard Navigation techniques such as Bearings, Bearing and Range Lattices, Bottom Contour Fixing, Visual Fixing by Bearings, Radar Ranges, Transits, etc. to be mentioned based on BR45 Pilotage tools.
- e. Route Planning and detailed Passage Planning including Rendezvous Calculation.
- f. Enhanced positioning tools i.e., auto DR, set and drift calculations, Pool of Errors reduction, running fixes, and fixing by soundings and contours to be offered. Any other features to be mentioned.
- g. Enhanced planning, i.e., moving havens, PIM, vertical cross-track corridor, minimum expected depth and dynamic chart objects. Any other features to be mentioned.
- h. Enhanced watch keeping i.e., sector screens, dynamic safety contour and total depth display.
- j. Water-space Management Functionality (WSM) to allow the user access to a number of overlays associated with military operations and create the ability to increase situational awareness in a tactical setting. WSM functions should include:
- (1) Water-space Management Areas.
 - (2) Moving Havens.
 - (3) Exclusion Zones.
 - (4) Exercise Areas.
 - (5) Patrol Areas.
 - (6) Tactical Areas.
 - (7) Search Areas.
 - (8) Weapon Danger Areas.
 - (9) Any other functionalities to be mentioned.
- k. The WECDIS should have following applications:
- (1) Anti Submarine Warfare
 - (2) Submarine Bathymetric Profile
 - (3) Mine Warfare Operation
 - (4) Surface and sub surface Navigation
 - (5) Search and rescue operations
 - (6) Interception
 - (7) Surveillance

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- l. Allow the operator to provide associated target information to the Combat Management System (CMS) and classify with military symbols in accordance with APP-6 and MIL-STD-2525 standards. Capability to synchronize FCOP (Force Common Operating Picture) received via Tactical Data Link to be mentioned.
- m. Scope of Integration/Interconnectivity of WECDIS with Combat Management System (CMS) to enable display of CMS tracks on the WECDIS and vice versa overlay. Data formats to enable the same are to be indicated.
- n. Allow the user to communicate and configure WAIS.
- p. Able to receive and/or transmit data with external sensors, communication equipment and security equipment using the NMEA sentences specified in the IEC 61162-1 standard. Allow exchange of data through serial and Ethernet links according to the IEC 61162-2 and IEC 61162-450 standards.
- q. Supports all NMEA-0183 interfaces. Full range of navigation equipment interface to be mentioned.
- r. 3-D chart projection capability is desirable.
- s. Ability to support navigation in GNSS denied environment.
- t. All functionality of IMO-compliant ECDIS.
- u. Radar Image Overlay (RIO), Target Motion Analysis, Relative Velocity Problem Solving, Custom Grid Disposition, Search and Rescue Pattern functionality to be offered. Full range of capacity in tactical assisting Warship Navigator to be mentioned.

21. **Environmental Condition and Other Standards.**

- a. Temperature : To be IEC 60945 compliant.
- b. Corrosion : To be IEC 60945 compliant.
- c. For Shock : MIL standard compliant.
(Testing standard to be mentioned. Example: MIL-S-901D etc.)
- d. For Vibration : IEC 60945 or equivalent compliant (To be mentioned).
- e. Ingress Protection : To be mentioned.

22. **Composition of Complete System.**

a. **System Composition.** The WECDIS shall comprise of all components required to operate with full functionality. The basic system composition is as follows (but not limited to):

- (1) **Hardware.** The WECDIS should have the following units (but not limited to):
 - (a) Workstation/ Console.
 - (b) Main Display Unit.
 - (c) Remote Display Unit (Price to be quoted separately). Detail to be mentioned.
 - (d) Keyboard.
 - (e) Tracker Ball and Buttons. Type and specification to be mentioned.

(2) **Software and License.** As per Para 19a, Para 20 and Para 24.

(3) **Chart Management.** As per Para 20b.

b. **System Architecture.** A diagram of system configuration showing interface/ integration options is to be provided with the offer for assessment.

23. **Technical Specification.** The technical specifications of WECDIS are as follows:

a. **Hardware.**

(1) **Workstation/ Console.**

- (a) Brand : To be mentioned.
- (b) Model : To be mentioned.
- (c) CPU : Intel core i7 or above. Details to be mentioned.
- (d) RAM, HDD & Graphics: Higher memory of RAM graphics preferable. Details to be mentioned.
- (e) DVD/ BR Disc : To be mentioned.
- (f) It should be housed within the pedestal.

(2) **Main Display Unit.**

- (a) Brand : To be mentioned.
- (b) Model : To be mentioned.
- (c) Type : Flat panel TFT/LED.
- (d) Screen Size : 26" or more (to be mentioned).
- (e) Display Variant : Pedestal.

(3) **Remote Display Unit.** (Price to be quoted separately).

- (a) Brand : To be mentioned.
- (b) Model : To be mentioned.
- (c) Type : Flat panel TFT/LED
- (d) Screen Size : 26" or more (to be mentioned).
- (e) Display Variant : Bridge/Ops Room (internal).

(4) **Keyboard.** : To be mentioned.

(5) **Tracker Ball and Buttons.** To be mentioned.

b. **Software and License.**

(1) The system is to be preloaded with the necessary software and chart data. Necessary software (like operating system, application software, driver software etc) are to be provided in flash memory.

(2) **License and Update.** License must be perpetual. Details to be mentioned.

c. **Chart Management.**

- (1) **Chart Format.** As per Para 20b.
- (2) **Chart Management and Update Facility.** To be mentioned.

d. **WECDIS Backup and Recovery Facility.** The facilities to back-up all software of WECDIS including chart data and their recovery are to be provided. The details of backup and recovery procedures/technology including storage device (External HDD/Suitable media) are to be mentioned.

24. **Original Software and Back-up Software.** Supplier shall provide related original software (lifetime license version) with backup software, maintenance/fault finding software to BN and step by step procedure for installation. In case of software crash, BN personnel should be able to install the back-up software to restore the whole system using step by step procedure. A list of all required software is to be mentioned.

25. **Interface Control Documents (ICD).** The supplier shall provide necessary ICD (Interface Control Documents) and interface protocol during delivery/ installation of the item. The ICD and interface protocol will be utilized (in future) to integrate any sub-systems. The ICD will be tested and shown to the buyer's representative during installation.

26. **Power and Control Cables.** Necessary power and control cable required to operate the WECDIS are to be supplied.

27. **Cabinets.** All cabinets should be made of chromium plating or similar and painted sea water resistant aluminum to prevent corrosion.

28. **Integration/ Interfaces.** The WECDIS shall be integrated with navigation equipment as mentioned below (including but not limited to, additional integration scopes to be mentioned):

Ser	Description	BN Ship
1.	Mandatory integration/interfacing	a. RADAR (SEA EAGLE 200N & HSAR-100).
		b. Geyro Compass (SURF-100/M & RAYTHEON ANSCHUTZ STD-22).
		c. GPS (LEICA MX 420 & FURUNO GP 150).
		d. Anemometer (WALKER 2080 MK 2).
		e. AIS (FURUNO FA-100 & NSR, NSI-1000).
		f. Echo Sounder (KODEN CRV-010 & F-3000W JMC).
2.	Optional integration/interfacing	a. SONAR ASO 94-2 Hull Mounted.
		b. WAIS (To be installed in future, Western Origin).
		c. Tactical Data Link (BANGLA-22).
		d. XBT/XSV (To be installed future, Western Origin).
		e. EM Speed Log (Option for integration in future, Western Origin).
		f. Combat Management System (To be fitted in future, Western Origin).
		g. Surveillance Radar (To be fitted in future, Western Origin).

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29. **Interfacing/Integration Responsibility.** Interfacing/Integration with ship's systems as stated above will be done under the full responsibility of supplier/bidder. Complete cost of addition/ alteration of any kind of hardware, software and document of any interfaced/ integrated systems or ship's system/ items are to be borne by the supplier. The supplier may visit the ship and collect necessary information with due consent from BN before submitting the offer. Buyer will not be responsible for interfacing/integration work. The supplier shall provide all types of protocol and ICD to interface other sensors/systems during installation.

30. **Ship's Power Supply.** The ship's available power supply is as follows:

Ser	Description	BN Ship	Remarks
1.	Ship's Power Supply	415V, 50Hz, 3 Phase/115V, 50Hz, 3 Phase	Necessary converter is to be provided (If needed).
2.	Power Consumption	The total power consumption of the offered WECDIS system is to be mentioned	-

31. **Lifetime of the WECDIS.** Minimum 10 years.

32. **Condition of Equipment while Supplying.** The offered equipment must be brand new and in full operational condition.

33. **Certificate/Document of Authentication.** The local supplier must provide following original certificate/document with the offer/quotation to ascertain the ingenuity of source and items in order to establish chain of links from the original source to supply items:

a. One certificate/document by the manufacturer in favour of the supplier (In case of manufacturer as direct source).

b. Two certificates/documents, one by the manufacturer to authorized agent and other by the authorized agent to supplier (In case of authorized agent as immediate source).

34. **Standard Accessories.** Standard Accessories which are essential to install and operate the WECDIS whether those are mentioned in the specification or not also to be supplied. A list of such essential accessories with item wise price must be included in the quotation for each set separately.

35. **Optional Items.** Optional Items/accessories if needed to be quoted separately with item wise price for each set separately.

36. **Spares.** OEM recommended spares for five years trouble free operation is to be quoted showing item wise price for each set separately.

37. **Tools/ Test Equipment.** Special tools/ equipment for maintenance of the equipment (if required) to be quoted separately indicating item wise price for each set separately.

38. **Installation and Setting to Work.** The manufacturer's representative will install the WECDIS on board BNS KHALID BIN WALID, Chattogram. The following requirements should be completed:

- a. **Assembling of System Components.** The system components of the WECDIS and sensors should be assembled by the manufacturer's experts.
- b. **Other Requirements.** Interfacing the whole system and sensors with onboard Facilities should be ensured by the manufacturer's experts.
39. **Site Visit.** The bidder may visit the installation site at Chattogram Naval Area before submission of tender prior permission to avoid any difficulties/confusion after placing order.
40. **Installation Materials.** All Installation materials, like junction boxes, brackets, nuts, bolts, securing tie clips, slips, channels etc. are to be provided by the supplier.
41. **Pre Shipment Inspection (PSI) and Factory Acceptance Test (FAT).**
- a. Pre Shipment Inspection (PSI) and Factory Acceptance Test (FAT) will be carried out by a team of two BN officers for a duration of 03 (three) working days excluding journey period, at the buyer's expense (including return air ticket, food and accommodation). The supplier should inform the buyer about the date and schedule of PSI and FAT at least 08 (eight) weeks prior to the date of commencement of the said PSI and FAT. After inspection, a joint inspection report will be prepared and signed by both the seller and buyer's representatives.
- b. All types of movement/transportation of the PSI/ FAT team within the manufacture/supplier's country, reception and arrangement for entry into country/concerned area for the PSI and FAT are to be arranged by the supplier. The PSI and FAT will be carried out at manufacturer's factory premises.
- c. On return from the country of manufacturer, the PSI and FAT team will submit report to the concerned directorate of Naval Headquarters (NHQ). NHQ will, in turn, forward final decision along with PSI and FAT report at the earliest, basing on which DGDP will render clearance for shipment of stores to the supplier concerned. The supplier will not make shipment of any item of the contract without clearance from the DGDP.
- d. During PSI/FAT, tests will be carried out to fulfill the required conditions mentioned in the technical specification of the WECDIS. Various tests for checking performance are to be carried out and recorded.
42. **HAT and SAT Protocol.** The HAT and SAT protocol/procedures shall be approved by BN at least 06 (Six) weeks prior to commencement of individual schedule.
43. **Test and Trial.** Manufacturer representative will carry out test and trial of the WECDIS on board BNS KHALID BIN WALID, Chattogram. Initial test and trial will be done at Harbour. Final trial will be conducted at sea with manufacturer representative onboard. Cost of test and trial to be quoted separately.
44. **Acceptance.** On completion of satisfactory test and trial final acceptance certificate will be signed jointly by the representative of manufacturer and the buyer.

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45. **Training.** 07 (Seven) working days training for BN personnel on the operation and maintenance of the equipment. Its troubleshooting must be conducted by manufacturer's authorized engineer/ trainer at BNS KHALID BIN WALID, Chattogram (Price to be quoted separately). Tentative training contents against each day should be mentioned in the offer. The outcome of the training should encompass following:

- a. Trainees should gain sufficient knowledge to use the equipment and related software efficiently and effectively to operate the equipment.
- b. Have general trouble shooting knowledge on equipment and software.

46. **Manuals.** Two (02) set of following manuals in English (both hard & soft copy) are to be provided with each set of the WECDIS:

- a. Operation/User Manual.
- b. Technical Manual with Circuit Diagram.
- c. Installation Manual with Installation Drawing and ICD (Interface Control Document).
- d. Parts Catalogue.

47. **Documents.** Following documents are to be submitted with the offer:

- a. Original Catalogue.
- b. List of Standard Accessories.
- c. List of Optional Accessories.
- d. List of 10 years spares parts.
- e. List of Tools.
- f. User list.
- g. Manufacturer's authenticity certificate.
- h. Design/drawing of portable installation method and associated fittings (if not included in original catalogue).

48. **Warranty.**

- a. Minimum 12 (twelve) months warranty after satisfactory acceptance by BN is to be provided.
- b. For warranty repair/replacement, the supplier will collect the defective item from NSD Chattogram and re-supply the same to collecting place after warranty repair or replacement within 90 (ninety) days from the date of defect. Cost of the replaced unit/component including air freight is to be borne by the supplier.
- c. Warranty period will be extended for the duration of non-operational time for the equipment.

49. **Guarantee.** The supplier is to give guarantee of continued supply of spares for at least 05 (five) years at a reasonable price.



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50. **Brochure/Booklet.** Two sets of original brochure/ booklets in English having detail technical information about the equipment are to be provided along with the quotation for evaluation/ assessment.
51. **Record of Sale.** Record of sale for last five years indicating year and name of the user to be provided in the offer.
52. **Validity.** The offer is to remain valid till 30 June 2026.
53. **Shipments and Delivery.** The following requirements should be completed:
- a. The supplier will arrange shipment of all items by sea/air to Chattogram sea/airport, Bangladesh within 180 days from the date of contract signed.
 - b. All items are to be delivered in proper packing to ensure safe transit by sea/air.
 - c. All packages are to have packing notes showing their contents in detail and all packages shall be marked with the name and address of the consignee and gross weight.
 - d. The supplier will supply the item at NSD Chattogram. While delivering, the supplier will carry the items from Chattogram sea/airport (as applicable) to NSD Chattogram at the cost and risk of supplier.
54. **Source of Supply.** The bidder is to mention the name, address and contact detail of original source from where the WECDIS will be imported.
55. **Port of Shipment.** To be mentioned. Port of shipment is to be from the country of manufacturer or country of origin.
56. **Consignee.** The Commanding Officer, Naval Store Depot, New Mooring Chattogram.
57. **Price without Import Duties.** Quoted price is to exclude all import duties as those will be consigned against BN.
58. **Price and Other Cost.** Price of each item of the total offer is to be shown separately (e.g., price of the main items, consumables, additional and optional accessories, Installation, FAT, PSI, local training, warranty/ guarantee etc) and then grand total of the foreign currency to be shown on the original offer submitted by the bidder.
59. **Terms of Payment.** Necessary letter of credit will be opened for full purchase amount in favor of the principal with the following terms of payment.
- a. 80% of CFR value will be paid on delivery of the items described under the scope of supply on production of necessary shipping document.
 - b. Remaining 20% CFR value and 100% cost of test/trial & training amount will be paid after satisfactory acceptance by BN.



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60. **Condition for Acceptance of Quotation.** Quotation may not be considered if detailed information/Specification, original maker's books and catalogue about the same model/version of the offered software, accessories, scope of supply etc. are not provided.

61. **Compliance Statements.** A clear and complete compliance statement fulfilling all the requirements of the tender is to be submitted for evaluation as required:

- a. Article wise compliance report must be given. "Yes/No/Complied" will not be enough. An incomplete compliance statement will attribute to cancellation of the offer.
- b. If any clause of this specification dose not commensurate with offered items, the deviation has to be spelt out clearly.

