

**TENDER SPECIFICATION OF ACTION SPEED TACTICAL TRAINER (ASTT) FOR
BANGLADESH NAVY**

General

1. **Introduction.** Bangladesh Navy (BN) plans to establish a modern Action Speed Tactical Trainer (ASTT) at School of Maritime Warfare and Tactics (SMWT) in Chattogram. The ASTT shall be able to simulate complex naval tactical scenarios for providing procedural and tactical operations training to Command Teams at different levels. The scopes of work include development, supply, installation, integration, testing, debugging, training and commissioning of new state of the art ASTT including simulation software, equipment/ hardware, relevant network, system security appliances and setup of cubicle/ work stations.
2. **Eligibility of Bidders.**
 - a. Only the original manufacturers of ASTT or their authorized agent (principal/ bidder) can submit quotation through their authorized local agents enlisted at DGDP. In case of authorized agent (principal/ bidder), manufacturer's certificate(s) of authorization has to be submitted with the offer.
 - b. The manufacturer shall have at least 5 (five) years working experience on developing ASTT. A certificate in this regard is to be submitted with the offer.
 - c. The manufacturer shall have the experience of supplying, installing, commissioning and maintaining ASTT in at least 2 (two) navies by itself or through an authorized bidder. The client list of at least 2 (two) navies with general particulars of the supplied ASTT and year of supply are to be submitted with the offer.
 - d. The Bidder shall have ISO Certification ISO 9001/ ISO 14001/CMMI Level 3 Compliance Statement which is to be submitted with the offer.
 - e. The Bidder shall have the capability for providing online technical advisory support and other after sales service supports as mentioned in Article 42.
3. **Submission of Documents/Information.**
 - a. Bidders are to submit their offer in two envelopes namely Technical Offer and Financial Offer. Bidders who shall qualify in technical offer, only their financial offer shall be opened for further evaluation. During the process of technical evaluation, a BN team shall evaluate and assess their offered ASTT and its capability. Therefore, the evaluation team shall determine the final technical acceptance of any offer. The final selection of the bidder shall be done on the basis of financial competitiveness amongst the technically accepted bidders.
 - b. Bidders are to provide detailed explanation of the technical matters wherever necessary with reference to relevant pages of their offer with original supporting documents.
 - c. Bidders are to provide performance data, technical data, specific figures and information as asked against each article of this specification. Lack of supporting information may disqualify the Bidder.



- d. If any other features/ items not listed in the technical specification are required to fulfill performance of the ASTT that shall also be provided by the bidder within the quoted price.
- e. Bidders are to submit financial proposal on essential and optional items separately. BN reserves the right to accept or discard some or all optional features of the ASTT as per BN requirement.

Technical Specification

- 4. **Name of the Item.** Action Speed Tactical Trainer (ASTT) along with accessories for SMWT.
- 5. **Quantity.** 01 (One) Complete set.
- 6. **Desired Capabilities.**
 - a. The ASTT shall be capable of developing, running, recording, replaying and storing realistic war gaming scenarios in simulated environment.
 - b. The ASTT shall be capable to provide procedural and tactical operations training to command teams at different command levels which include Maritime Headquarters (MHQ), Task Force (TF), Task Group (TG), Task Unit (TU) and Task Element (TE). Therefore, its design shall be scalable to conduct training at operator, tactical and operational levels with realistic simulated environment encompassing surface, subsurface and air domains.
 - c. Architecture of each player cubicle of the ASTT shall be scalable to configure as Combat Information Centre (CIC) of generic single unit (ship/submarine/aircraft), Officer in Tactical Command (OTC) or Command Centre.
 - d. The ASTT shall be able to simulate tactical scenarios oriented towards all forms of naval warfare which include Anti-Air Warfare (AAW), Anti-Surface Warfare (ASuW), Anti-Submarine Warfare (ASW), Electronic Warfare (EW), Submarine Warfare, Mine Warfare (MW), Asymmetric Warfare, Amphibious Warfare and so on.
 - e. The ASTT shall be capable to provide procedural training on Bridge-CIC communication and tactical procedure.
 - f. The ASTT shall be capable to evaluate trainees at different command levels in planning and executing various tactical functions during the wargame.
 - g. The ASTT shall be able to evaluate effectiveness of operational plans, order of battles, operational concepts and newly designed platforms, sensors and weapons.
 - h. The ASTT shall be able to facilitate joint/ combined training between national/ multinational land, maritime and air forces.
 - j. The ASTT shall be designed to physically and/or remotely link to other DIS/ HLA compliant simulators e.g. ASTT, Bridge, Sonar and EW simulator of Bangladesh Navy.



7. **General Information.**

- a. **Name and Address of the Manufacturer(s).** Name and full address with telephone number and e-mail are to be mentioned.
- b. **Name and Address of the Principal/ Bidder and Local Agent.** To be mentioned.
- c. **Brand and Model.** To be mentioned for all equipment.
- d. **Country of Origin.** Australia, Canada, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Japan, UK and USA.
- e. **Country of Manufacture/ Assembly.** Australia, Canada, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Japan, UK and USA.
- f. **Year of Production.** 2024 or later (manufactured not earlier than one year from the date of signing the contract).
- g. **Equipment Quality.** All major items such as servers, workstation computer, network equipment, UPS, displays etc are to be from proven manufacturer, brand new, unused and of recent model (manufactured not earlier than one year from the date of signing the contract). The items are to be as per specification detailed at Article 34. The offered composition of ASTT shall satisfactorily operate in the environment and climatic conditions of Bangladesh. In case of hardware obsolescence, the system shall be maintained for at least 20 (twenty) years after commissioning by replacing the obsolete items with updated hardware. The Bidder is to submit a certificate in this regard.
- h. **Classification Standard.** The offered items under the scope of supply are to be designed, constructed/ manufactured and tested up to the requirement of IEEE/ IEC/ IMO or appropriate Military-Standard (IEEE.1a-1998, MIL-STD-188, MIL-STD-461, MIL-STD-810, MIL-STD-901 or equivalent). For interfacing/ future expansion, DIS/ HLA and other relevant international standards have to be maintained. The applicable classification standard(s) of offered items are to be mentioned and should be well supported by the certificates/ OEM brochures.
- j. **Design Philosophy.**
 - a. The ASTT is to be designed as modular in nature so that the hardware and software could be upgraded with ease in future.
 - b. It is to be designed by the maximum possible use of Commercial Off-The Shelf (COTS) equipment.
 - c. It shall be designed to support 3 (three) independent games simultaneously.
 - d. Consoles are to be designed with a light weight construction and considering ergonomic requirements.

k. **Future Expansion.** The ASTT system shall be capable of future expansion to integrate at least 8 (eight) more Player Cubicles and 2 (two) more game controller stations as well as interface with at least 4 (four) other DIS/ HLA compliant simulators of BN. Details of possible future expansion with the offered configuration of the system are to be mentioned.

l. **Additional Features Offered by the Bidders.** The bidder may suggest and/or offer features for the system additional to scope of supply described in this tender specification. In this case, bidders are to explain the detailed advantage of those features of the system with separately quoted price.

m. **Project Schedule.** Project schedule including timeline for software development, cubicle preparation, installation of hardware, integration, configuration, testing, training and commissioning is to be submitted with the offer.

8. **Environmental Condition.**

- a. Ambient Operating Temperature : 5^o C to 40^o C.
- b. Storage Temperature : To be mentioned.
- c. Relative Humidity : Up to 95 % non-condensing.

9. **Scope of Supply.** The system should be an integrated and scalable system which is to be offered on "Turn Key" basis including supply, configuration and installation/ integration among others. The essential items of the Scope of Supply are following:

Ser	Description	Qty	Remarks
1.	Player Cubicle (Type I – for Frigates or bigger units) (Room Size: L x B x H – 22'7" x 16'8" x 11'4.5")	8	<p><u>Each Player Cubicle (Type I) are to be composed of following:</u></p> <ul style="list-style-type: none"> a. 7 x Multi-function Operator Console (MOC) with interchangeable Role Profiles for: <ul style="list-style-type: none"> (1) Principal Warfare Officer (PWO). (2) Anti-Surface Warfare Officer (ASuWO). (3) Anti-Air Warfare Officer (AAWO). (3) Anti-Submarine Warfare Officer (ASWO). (4) Electronic Warfare Officer (EWO). (5) Surface Picture Compiler. (6) Air Picture Compiler. (7) Sonar Operator. (8) Pilot. (9) Air Controller. (10) Link Operator. <p>Details are at Article 14.a (1) and 14.a.(3).</p> <ul style="list-style-type: none"> b. 1 x OOW Console as per Article 14.b. c. 1 x Digital Plotting Table as per Article 14.c. d. 1 x Wall mounted Communication Control Terminal (CCT) with wireless headset for voice communication as per Article 19. e. 11 x Headset with Microphone and PTT for



Ser	Description	Qty	Remarks
			<p>internal and external voice communication with on-screen communication control terminal in the display of the station (fitted with MOCs, OOW Console and Digital Plotting Table with 2 additional).</p> <p>f. 6 x State board (Wall mounted consisting of frame and plexi cover with templates for OPGEN, OPTASK ASW, AAW, ASuW, EW/Comm, Damage Control).</p> <p>g. 10 x Revolving Chairs.</p> <p>h. 1 x Overhead Console displaying Game Time, Local Time, Wind Speed & Direction and Ship's Heading.</p> <p>j. 1x Laser Printer (B&W)</p>
2.	<p>Player Cubicle (Type II – For Medium or small units)</p> <p>(Room Size: L x B x H – 15'75" x 15'2" x 11'4.5")</p>	2	<p><u>Each Player Cubicle (Type II) are to be composed of following representing small/medium platforms/Headquarters function:</u></p> <p>a. 4 x Multi-function Operator Console (MOC) representing complete tactical functions of (interchangeable):</p> <ul style="list-style-type: none"> (1) Smaller/ medium ships (2) Aircraft (fixed and rotary wing). (3) Submarine (with periscope simulation). (4) Unmanned Surface Vehicle (USV)/ Unmanned Aerial Vehicle (UAV)/ Unmanned Underwater Vehicle (UUV). <p>Details are at Article 14.a (2), 14.A(3) and 14.e.</p> <p>b. 1 x Digital Plotting Table as per Article 14.c.</p> <p>c. 1 x Wall-mounted tactical Display in a LED screen (65 inch or suitable) as per Article 14.d.</p> <p>d. 1 x Wall mounted Communication Control Terminal (CCT) with wireless headset for voice communication as per Article 19.</p> <p>e. 7 x Headset with Microphone and PTT for internal and external voice communication with on-screen communication control terminal in the display (for MOCs and Digital Plotting Table with 2 additional).</p> <p>f. 6 x State board (Wall mounted consisting of</p>



Ser	Description	Qty	Remarks
			<p>frame and plexi cover with templates for OPGEN, OPTASK ASW, AAW, ASuW, EW/Comm, Damage Control).</p> <p>g. 6 x Revolving Chairs.</p> <p>h. 1 x Meeting Room table with 8 chairs.</p> <p>j. 1 x Overhead Console displaying Game Time, Local Time and Wind Speed & Wind Direction.</p> <p>k. 1 x Laser Printer (B&W).</p>
3.	<p>Game Controller Room</p> <p>(Room Size: L x B x H – 26'4" x 15'8" x 11'4.5")</p>	1	<p>a. 4 x Game Controller Station with:</p> <p>(1) Communication facilities for internal and external communication with player cubicles.</p> <p>(2) Trainee evaluation system.</p> <p>(3) Analysis of Real Exercise Data.</p> <p>Details are at Articles 15, 16, 17 and 18.</p> <p>b. 1 x Wall mounted Communication Control Terminal (CCT) for voice communication with wireless headset.</p> <p>c. 6 x Headset with Microphone and PTT for internal and external voice communication with on-screen communication control terminal.</p> <p>d. 6 x State board (Wall mounted consisting of frame and plexi cover with templates for OPGEN, OPTASK ASW, AAW, ASuW, EW/ Comm, Damage Control).</p> <p>e. 8 x Revolving Chairs.</p> <p>f. 1 x Overhead Console displaying Game Time and Local Time.</p> <p>g. 2 x Laser Printer</p>
4.	<p>Game Developer Room and Server Station</p> <p>(Room Size: L x B x H – 18'3" x 11'8" x 11'4.5")</p>	1 x Game Developer	<p>a. 3 X Game Developer Station as per Article 22.</p> <p>b. 1 X Laser Printer</p> <p>c. 6 X Revolving Chairs.</p> <p>d. 1 x Overhead Console displaying Game Time and Local Time.</p>
		1 x Server Set	<p>a. 3 X Game Server (capable to run three games simultaneously) as per Article 28 and 29.</p> <p>b. 1 X File Server/ DBMS with Backup/</p>



Ser	Description	Qty	Remarks
			<p>redundant facilities as per Article 28 and 29.</p> <p>c. 2 X Digital Communication Server. if not integrated with file server.</p> <p>d. 1 X DIS-Gateway.</p> <p>e. 1 X KVM System with Display.</p> <p>f. 1 X Dongle Server (if required).</p> <p>g. 1 X System Admin set up (if required).</p>
5.	General Support Station/ Debriefing Room	1	<p>a. Projection system for projection of tactical situation and debrief.</p> <p>b. 1 x De-Briefing Facilities (Player Station and Controller Station).</p> <p>c. 1 x PA System.</p> <p>d. 2 x Laptop.</p> <p>e. 120 x Chairs with folding writing desk for audience.</p>
6.	Firewall	2	<p>a. To ensure data security.</p> <p>b. Brand: To be mentioned.</p>
7.	Online UPS	1	1 X Online UPS system with 60 min backup.
8.	Customized ASTT Software	-	Software and backup software as mentioned in Article 32.b and 32.c.
9.	Training	-	Foreign and local training as per Article 43.
10.	Warranty	-	Minimum 24 months/ Manufacturer's standard warranty (whichever is higher) of all products and services from the date of final acceptance as per Article 47.
11.	ICD/ IRS	1	For interfacing with other system.
12.	Documents	3	As per Article 44.

10. Optional Items.

Ser	Description	Qty	Remarks
1.	Mobile ASTT/ Simulation Set	1	<p>Mobile ASTT/ Simulation set consists of following:</p> <p>a. 2 x cubicles/sets with 2 work stations each.</p> <p>b. 1 x Mobile simulation server.</p> <p>Details are at Article 20.</p>
2.	Source Code	1	Source Code of customized ASTT Software with suitable storage.
3.	Dongle	1	As redundant if the system is not dongle free.
4.	PIT (Project Implementation Team)	1	4 x members of BN team for not more than 06 (six) months at OEM Premises. Detail at Article 45.

System Overview

11. **System Architecture.** A layout of simulator system with configuration/ architecture showing network connectivity and interface/ integration options are to be provided with the offer for assessment. Provisions for future expansion and integration/ interfacing are to be mentioned in the layout as well.

12. **Provisional Layout of Cubicles.**

a. **Player Cubicle (Type I).** Player cubicle (Type I) is to be configured primarily to represent CIC of Large Platforms for operator training as well as TG/TU roles in multi-unit tactical operation training. Provisional layout is appended below:

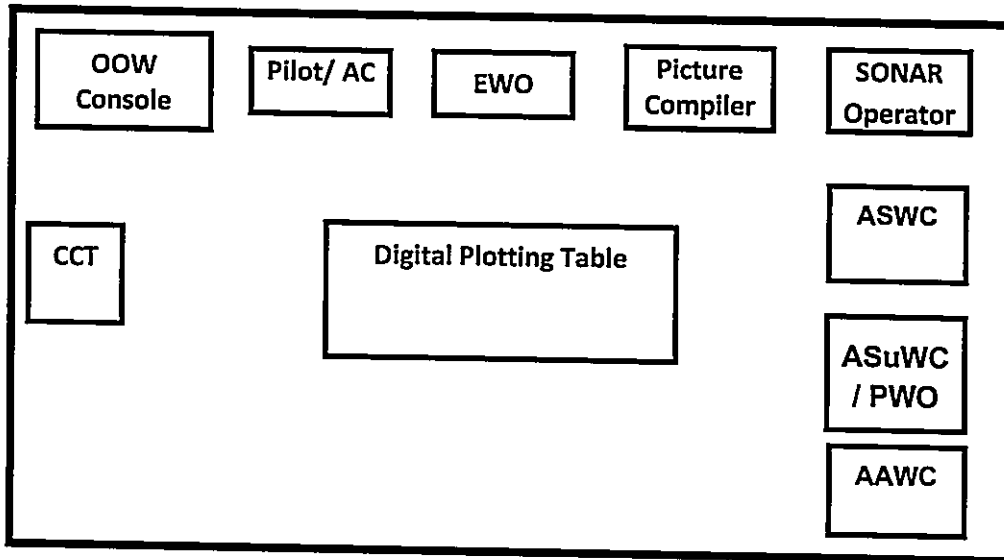


Figure – 1: Layout of Player Cubicle (Type I)

b. **Player Cubicle (Type II).** Player cubicle (Type II) is to be configured primarily to represent small/medium platforms where each MOC shall have the facilities of playing operational functions of one ship. It shall also be played as aircraft/submarine/unmanned vehicles. Alternatively, the cubicle shall have facilities to play the role of Maritime Headquarters in an operational level wargame. Provisional layout is appended below:

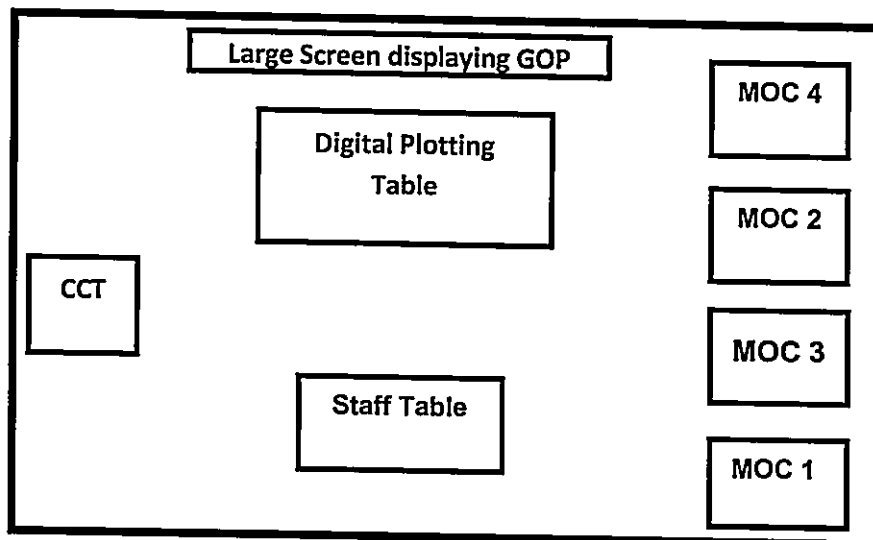


Figure – 2: Layout of Player Cubicle (Type II)

A

c. Game Controller Room.

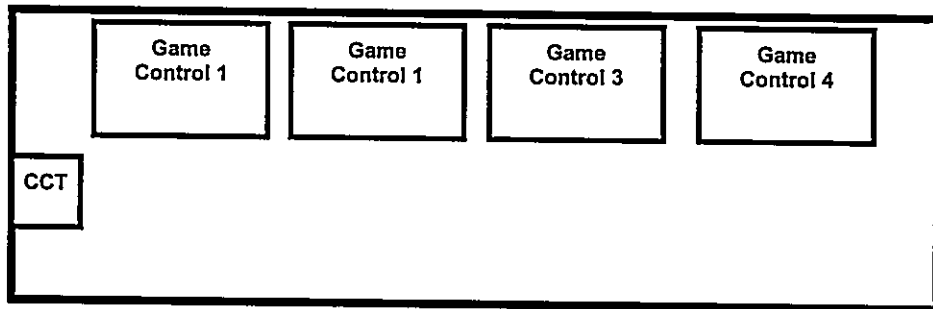


Figure – 3: Layout of Game Control Room

d. Game Developer Room.

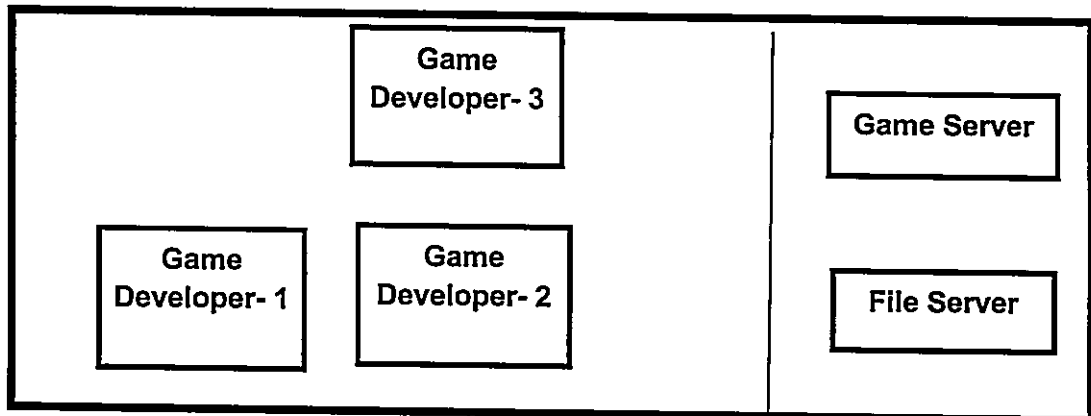


Figure – 4: Layout of Game Developer Station

13. Player Role Assignment. The ASTT is to be scalable in configuration to assign roles to player based on game design. The outline role assignments to player cubicles are as follows:

Serial	Type of Exercise	Player Role in Cubicle Type I	Player Role in Cubicle Type II
1.	Procedural Exercise	Each cubicle as a CIC of large units (e.g. frigate) with following roles: a. CO (at Digital Plotting Table). b. PWO. c. ASuW. d. AAWO. e. ASWO. f. Radar Operator/ Picture Compiler. g. EWO. h. Sonar Operator. j. Pilot. k. Air controller. l. OOW (at OOW Console).	Each console of a cubicle as a submarine/ aircraft/ small ship/ medium ship/ UAV/ USV/ UUV.



2.	Tactical Exercise	Each cubicle as a CIC of CTF/CTG unit with additional entities under control.	a. Each console as an individual entity/TE. b. Designated console as submarine/aircraft/unmanned vehicle.
3.	Operational Exercise	Each cubicle as a CIC of CTF/CTG	Each cubicle as Fleet/Maritime Headquarters.

14. **Player Console.** Each console is to be constructed using steel sheets/ Medium Density Fibre boards as suitable as per BN requirement. Following type of consoles are to be used in ASTT as detailed in Articles 9. Details of the items/functions are to be provided with the offer.

a. **Multi-function Operator Console (MOC).** The MOC aims to enhance operator practical training by providing a versatile, realistic and immersive learning environment while minimizing the time required to transition between different equipment and scenarios.

(1) **MOCs of Type I Player Cubicle.**

(a) MOCs of Type I cubicle are to be designed with interchangeable role profiles for Principal Warfare Officer (PWO), Anti-Surface Warfare Officer (ASuWO), Anti-Air Warfare Officer (AAWO), Anti-Submarine Warfare Officer (ASWO), Electronic Warfare Officer (EWO), Surface Picture Compiler, Air Picture Compiler, Sonar Operator, Pilot, Air Controller and Link Operator.

(b) Each MOC is to be designed with dual vertical screen for Tactical Plot in lower display and TOTE in the upper display. An alternative function for display and operation of specific Missile/Torpedo/Radar/ESM/ Countermeasures panel in upper display is to be provided with specific operator HMI panel. The type of specific Missile/Torpedo/Radar/ESM/ Countermeasures is to be mentioned which may be based on currently available modern systems.

(c) Each MOC is to be integrated with IFF, Link and Text Message Handling System capability with printing facility of text messages.

(d) The Sonar Operator Console is to have active and passive functions which can be selected interchangeably between dual vertical screens.

(e) The EW Operator Console is to have ESM and ECM functions which can be selected interchangeably between dual vertical screens.

(2) **MOCs of Type II Player Cubicle.**

(a) Each MOC of Type II Player Cubicle is to represent interchangeable complete tactical functions of Smaller/ medium ships, Aircraft (fixed/rotary wing), Submarine and Unmanned Surface Vehicle (USV)/ Unmanned Aerial Vehicle (UAV)/ Unmanned Underwater Vehicle (UUV).

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(b) Each MOC is to be designed with dual vertical screen for Tactical Plot in lower display and TOTE in the upper display. An alternative function for display and operation of specific Missile/Torpedo/Radar/ESM/Countermeasures panel in upper display is to be provided with specific operator HMI panel.

(c) Each MOC is to be integrated with IFF, Link and Text Message Handling System capability with printer.

(d) Each MOC shall also include selectable Periscope Simulation to be played as submarine as per Article 14.e.

(3) The requirements of Tactical Plot, Tote Display and specific Missile/Torpedo/Radar/ESM/Countermeasures panel are as below:

(a) **Tactical Plot.** It is the primary interface between player and MOC comprising tactical display, hooked contact status data and platform control functions among others. It shall display geographic positions in latitude/longitude and Cartesian Coordinate Grid. It is to use NTDS symbology to display all the tracks detected by own sensors and tracks received through link facilities from other units (if enabled). Players shall be able to control following functions among others:

- i. Platform guidance.
- ii. Sensor control.
- iii. Weapon/countermeasures launching control.
- iv. EMCON, IFF and communication functions.

(b) **TOTE Display.** The TOTE display is to provide additional status information of own ship or other units within assigned TG/TU. It includes among others platform, environment, emitter, weapon, damage and communication status.

(c) **Specific Missile/Torpedo/Radar/ESM/Countermeasures Panel.** The Player shall be able to use the upper display for specific Missile/Torpedo/ Radar/ESM/Countermeasures panels during procedural games as per . plan of the Game Controller. The specific Missile/Torpedo/Radar/ESM/ Countermeasures will be designed as an HMI of a generic modern Missile/Torpedo/Radar/ESM/Countermeasures panel to allow the players to practice procedural step by step actions of firing corresponding weapons/countermeasures and operating corresponding sensors.

b. **OOW Console.** Each Type I Cubicle is to be equipped with an OOW console. The purpose of the console is to enable players to exercise communications and interactions between bridge and CIC team of own ship. The console is to be designed in a dual screen with tactical plot in lower display and rotatable Binocular View in upper display with communication facilities to simulate realistic Bridge-CIC communication. The Binocular view at sea is to be fed by the ASTT system based on platform location and ships/aircraft/submarine in vicinity.



- c. **Digital Plotting Table.** Each player cubicles shall have a Digital Plotting Table equipped with a large horizontally mounted display. It shall be equipped with game map/ ENC Chart display and connected to simulator for manual or automatic plotting on the GOP or Paper Charts. It shall have a CCT/ Headsets. Normally, the CO of the ship will sit nearby the table for his situational awareness and directing ship/TG/TU actions.
- d. **Wall-Mounted Tactical Display.** The Player Cubicle Type II is to be equipped with 65" or larger wall-mounted tactical display which will display overall game area with tactical picture on S57 ENC chart. It will display all relevant information received from own force players enabled with link facility. Additional manual plotting facility may be incorporated to add contacts received over communication systems from non-link enabled entities.
- e. **Periscope Simulation.** The consoles of Player Cubicle Type II are to have Periscope Simulation to facilitate tactical training of submarine crews. The function will be exercised when the cubicle is assigned as submarine by the game controllers. It shall simulate all generic periscope facilities to detect, track, classify and identify contacts. Details of the Periscope Simulation facility is to be provided with the offer.
15. **Game Controller Room Console.** Game Controller Room is to be designed with 4 (four) Game Controller consoles. Game Controller console is to have dual screen (side-by-side) to allow viewing debriefing area (SMWT Auditorium). The functions of the console will be same like Players with additional facilities for loading/terminating exercise, monitor player activities, control all platforms, inject platform or events in the scenario, changing environmental conditions and injecting damage among others. For player monitoring, each game controller shall be able to review a selected players console in the Controller's Console and have an inset/stealth view within his screen to review the actual tactical situation. Additionally, each console shall be able to Role Play as Helicopter Pilot, Fixed Wing Pilot, Unmanned Aerial Vehicle (UAV)/Unmanned Surface Vehicle (USV)/Unmanned Underwater Vehicle (UUV)/Bridge of hooked cubicle) with communication facilities with player cubicles as per design of the wargame.
16. **Player Monitoring.** Game Controller Station is to be connected to player console during CIC mode operation to facilitate instructor to guide player using virtual mouse. Voice communication is to be integrated to make it powerful tool to monitor and influence player's activities.
17. **Trainee Evaluation System.** Game controllers are to be able to assess players during and after exercise based on roles and functions. The ASTT system is to have facilities for recording events and assessing players both manually and automatically on player's tactical plans and execution of various tactical/procedural actions. The Bidder is to provide details of the Trainee Evaluation System with the offer.
18. **Analysis of Real Exercise Data.** The ASTT will be used to analyze and evaluate data collected at sea during real time exercise. The system shall be able to replay the real time exercise scenario including entity position, movement, picture compilation, track data, engagement of weapons (missiles, torpedoes, guns and countermeasures) and assess weapon hits. The imported data would be transferred to ASTT in a standard format to evaluate plans, doctrines and strategies. Detailed procedure of evaluation is to be provided in the offer.

19. **Voice Communication System.** The ASTT (all player cubicles and game controller station) is to have a voice communication system to simulate internal and external communication channels simulating radio and underwater telephone communication. The game developer shall be able to specify all channels for scenario development according to the requirement of the exercise. The game controller shall be able to inject communication disruption/ jamming, background noise, communication quality variation due to weather etc. The detail architecture of voice communication system including internal and external communication and communication interference facility is to be explained in the offer.

20. **Mobile ASTT/ Simulation Set.** The mobile ASTT System comprising 2 (two) cubicles/sets with 2 (two) work stations each and 1 (one) mobile controller/server are to be offered as optional item. Each work station shall be able to serve as 1 (one) Player Console of ASTT Player Cubicle. The controller/server shall be able to control the game with all necessary server facility. The mobile ASTT System is to be suitable as standalone ASTT at any BN facility which could be remotely connected to main ASTT system of SMWT using BN network infrastructure to act as additional friendly force or hostile force. The mobile ASTT system could also be connected to SMWT ASTT network to act as additional cubicles. Detail facilities of mobile ASTT/Simulation set are to be given with the offer.

21. **Interfacing with other Simulators.** The ASTT is to be able to link with other DIS and/or HLA compliant simulators which includes Bridge, EW, Sonar and remotely located ASTT. Option is to be provided to link with the mentioned simulators through Local Area Network (LAN) and/or Synchronous Digital Subscriber Line (SDSL). The intended purpose of the interfacing is to share position and status information for conducting shared exercises as follows:

- a. **ASTT.** The cubicles of remotely located ASTT shall be linked as player station.
- b. **Bridge.** To act as own ship bridge of linked cubicle and exercise Bridge-CIC communication and procedure.
- c. **Sonar.** To act as own ship Sonar of linked cubicle.
- d. **EW.** To act as own ship EW system of linked cubicle.

Detail architecture of interfacing is to be provided with the offer.

Game Development

22. **Game Development Station.** Game Developer Room is to be equipped with 3 (three) Game Developer Station. Through Game Developer Interface software, the station shall be able to perform following functions:

- a. Defining game area by importing from worldwide cartographic database, ENC or drawing fictitious geographic area as per game design.
- b. Development of platforms, sensors and weapons.
- c. Game scenario generation which includes environment definition, platform deployment and TG definition among others.
- d. The game developer consoles may also be used to simulate as Neutral force during game play.

23. **Game Area Development.** The ASTT system is to allow Game Developers to import, modify and create map data that will be displayed on the tactical plots during the game play. The system should support wargame in a maximum 2000 nautical mile x 2000 nautical mile area. The Bidder is to provide Digital Charts of the World that provides global cartographic coverage for use by the Game Developers. The system should also have option to import BN supplied ENC (S57) chart data in the Digital Plotting Table, Wall-mounted tactical display board and designated player consoles. Additionally, Game Developers shall be able to draw/modify game area with relevant cartographic data (e.g. coastal landmass contours, depth contours, international boundary, wrecks, etc). Bidder is to provide details of offered game area development facilities with the offer.

24. **Environment Definition.** The Game Developer shall be able define environmental characteristics for the game area or use a preset environmental definition which includes weather, wind, visibility, sea state, ocean current, bathythermographic data, cloud height and underwater sound velocity profile among others.

25. **Platform Development.** Game Developers shall be able to use, develop, modify and create following types of platforms including their characteristics defined in the database (e.g. platform dimension, radar cross-section, acoustic cross-section, visual cross-section, infrared intensity, magnetic cross-section, acoustic source level, nav lights etc):

Ser	Domain	Platform
1.	Air	Fixed and Rotary Wing aircraft, Missiles, Chaffs and Decoys, Jammers and Drone/ UAV.
2.	Surface	Aircraft Carrier, Cruiser, Amphibious Vessel, Destroyer, Frigate, Corvette, LPC/ PC, MCM Vessel, Merchant Vessel, Oil Tanker, Fishing Boat, Trawlers, Hospital Ship, Cruise Ship, USV, Tug, AGI, FAC and Gun.
3.	Subsurface	Submarine, SONOBUOY, Torpedo, Mine, Acoustic Decoy, Depth Charges, UUV and Seal Delivery Vessel.
4.	Land	Command Centre, Air Field, Sea Port, Dockyard, Base/ Jetty, Fuel Reservoir, Armored Vehicle, Anti- Aircraft Artillery Battery, Surface to Air Missile Battery, Gun Battery, Surface to Surface Missile Battery, Coastal Surveillance Radar Station, Ammunition/ Missile/ Torpedo Storage and Armory.

The Bidder is to provide detail capacity of platform development including physical characteristics, motion/dynamics characteristics, sensor blind zones, aerial/observer heights, weapon blind zone and platform basing characteristics among others.

26. **Weapon Definition.** Game Developers shall be able to allocate at least 15 types of weapons in each platform with relevant characteristics which include guidance system, detection envelopes, motion and lethality characteristics.

27. **Sensor Definition.** Game Developers shall be able to allocate at least 25 in numbers of sensors in each platform with relevant characteristics.

28. **Server Station.** The server station, located inside Game Developer Room, is to be equipped with 1 (one) file, 3 (three) game and 1 (one) backup server. Additional servers as required for communication, DIS-Gateway, KVM and Dongle for trouble free operation of the system are to be provided as per design. All the servers will be administered by an admin station. The servers (file, game) of server station are to host all simulation system applications and database system while calculation is distributed during simulation. The communication server is to facilitate internal and external communication system of the



ASTT. The configuration of proposed server is to be 'RAID 10' in order to minimize the possibility of data losses. Additionally, there is to be a real-time synchronization-capable Network Attached Storage (NAS) or similar system for backup storage. The servers are to have the facility to connect with other remote places through secured connection with strong firewalls. UPS is to be incorporated for Power supply conditions as mentioned in Article 34.m. Detail feature of servers is to be provided with the offer.

29. **Database.** The Bidder is to deliver a comprehensive system database with pre-modelled platforms and scenarios based on Jane's Information Group and other open sources. The initial library is to include at least 400 defined entities (ships, submarines, aircrafts, UAV/USV/UUV, Radar, Sonar, ESM, Electro-Optic Devices, IFF, MAD, missiles, torpedoes,

guns, rockets, bombs, depth charges, mines and countermeasures among others).

30. **Power Fail Recovery.** In case of a power outage, a power failure recovery function is to be provided so that current game data is saved and the file server shuts down properly. The file server is to be supported by an Uninterruptible Power Supply (UPS) to provide temporary power and alert the recovery function of the outage.

31. **Training Record, Replay and Evaluation Functions.** Game times are to run for as long as needed with game recordings for at least sixteen hours. These recordings are to store the coordinates, altitude and validity of each entity, along with the time, to the system server's hard disk. Multiple saved games shall be stored on the HDD for reference or future training. Communications during the game are also to be stored on HDDs. Real-time data like training situations and video from installed equipment are to be recorded during training. After each session, the battlefield situation and video data can be replayed for evaluation.

Technical Features

32. The salient technical features are given below:

a. **Development Platform.** The ASTT is to be built on a reliable confrontation exercise engine, not a beta version. The software is to have the provision to incorporate future releases and patches for bug-fixing or up-gradation as mentioned in Article 42.c. The ASTT System is to be designed based on latest version of the below mentioned development platforms. The system is to be compatible with future version of the selected development platforms in case of upgradation within 15 (fifteen) years of commissioning as per Article 42.d.

Ser	System/ Platform	Recommended Software
1.	Operating System (Server)	Microsoft Windows Server
2.	Database	My SQL/ SQL Server
3.	Web Service (if applicable)	Apache Server/ IIS
4.	Development Language	Python/ Java

b. **Software for Game Developer Room.** The Operating System (OS) of the entire simulator (back and front end) including associated servers will be windows (latest/ perpetual licensed version) compatible network. If the licenses of the servers are not perpetual, then provision must be there to upgrade it by the user.



- c. **Software and Backup Software.** Necessary software and backup software with licensed copy of all related software for simulator are to be provided in portable HDD/SSD and portable memory device. Method of loading and recovery of software are to be provided through training. For loading necessary device, if any, is to be provided by the supplier.
- d. **Dongle/Macbind.** The system is to be free of Macbinded and Dongle. If not, Dongle is to be provided with redundant option.
- e. **Power Supply.** System Power: 220V AC ±10%, 50 HZ.
- f. **Standard Accessories.** Standard Accessories including item and accessories, which are essential to make the offered system operational, whether those are mentioned in the specification or not. A list of such items/ accessories will have to be provided inclusive of main equipment price.

33. **Maintenance Features.**

- a. **Reliability and Maintainability.** The system shall be highly reliable and easy to maintain with low maintenance cost. Following desirable feature should be included:
 - (1) **Built in Test (BIT).** Built in self-test facility for all section and sub section.
 - (2) **Performance Monitoring and Automatic Fault Detection.** Provision of remote test facility and off-line computer controlled (separately provided) hardware/ software tests. It should be able to monitor and localize the fault automatically.
- b. **Tools, Test Equipment and Accessories.** The bidder is to provide 1 (one) set of OEM standard Tools, Test Equipment and accessories for smooth operation, regular maintenance, testing and fault finding.
- c. **Mean Time Between Failure (MTBF).** The ASTT is to have the higher mean time between failures for lower life-cycle cost. It is to be mentioned for all offered major equipment.
- d. **Mean Time To Repair (MTTR).** Preferably not more than 30 minutes for all major equipment.
- e. **Expected Life.** The bidder is to mention the expected life of the offered ASTT, which shall not be less than 20 (twenty) years.

34. **Technical Specifications of Servers, Computer, Network Hardware, Software and Other Accessories.**

a. **Server.**

Ser	Name of Item	Description
1.	Type	Rack Mounted
2.	Quantity	5 (Type-I Hypervisor, 16 Core) which includes 3 x Game Server, 1 x File Server, 1 x Backup File Server. Additional Servers as required for Communication System, Dongle, KVM and DIS-Gateway for trouble



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Ser	Name of Item	Description
		free operation of the system are to be provided as per design.
3.	Brand	Dell or HP
4.	Model	To be mentioned
5.	Country of Origin	Canada/ USA/ EU Countries/ Japan
6.	Country of Manufacture	Canada/ USA/ EU Countries/ Japan
7.	Processor	2 x Intel Xeon, 16 core or higher, 2.8GHz or higher latest version for smooth operation of ASTT including reserve for future expansion as per Article 7.k.
8.	Motherboard	Intel motherboard compatible with the processor (Preferably compatible with 10 th generation)
9.	RAM	128 GB DDR5 ECC or Higher
10.	Storage with Disk Mirroring	a. 4 x 02 TB with HDD or Higher. b. 1x 01 TB SSD for running Operating System.
11.	Graphics	To be mentioned in compatible with the system performance
12.	Monitor	21" LED Monitor or Higher
13.	Keyboard	Standard Keyboard
14.	Mouse	Standard Mouse
15.	Network Card	Dual 10GB ASE-T Ethernet Ports
16.	I/O Expansions	As required
17.	Operating System	Microsoft Windows Server latest version with perpetual license
18.	Power Supply	Dual Power Supply

b. **Network Attached Storage (NAS).**

Ser	Name of Item	Description
1.	Type	Rack Mounted
2.	Brand	Seagate or equivalent
3.	Product Model	To be mentioned
4.	Country of Origin	Canada/ USA/ EU Countries/ Japan
5.	Quantity	1
6.	Storage Capacity	Minimum 3 x 10 TB HDD or higher

c. **Computers.**

Ser	Name of Item	Description
1.	Type	Industrial Type
2.	Quantity	As required for the whole system
3.	Brand	Dell or HP
4.	Model No	To be mentioned
5.	Country of Origin	Canada/ USA/ EU Countries/ Japan
6.	Country of Manufacture	Canada/ USA/ EU Countries/ Japan



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Ser	Name of Item	Description
7.	Processor	Intel Core i9 10 th generation or Higher
8.	Motherboard	To be mentioned (Compatible with processor)
9.	RAM	16 GB or Higher (Expandable)
10.	Hard Disk Drives	2 X 1TB SSD or Higher (Dual Storage).
11.	Graphics	To be mentioned
12.	Monitor	21" LED Monitor or Higher
13.	Keyboard, Trackball, Sound Card	Standard
14.	Network Card	Integrated 1 GE Network Card
15.	Interface	Includes all standard means of interfacing as required
16.	Operating System	Latest Windows with Perpetual License

d. **2/3 Layer Server Switch.**

Ser	Name of Item	Description
1.	Type	Rack Mounted
2.	Quantity	As required
3.	Brand	CISCO
4.	Product Model	To be mentioned
5.	Hardware Part	16/ 24/ 48 Port data, 4x10G, Network Essentials
		United Kingdom AC Type Power Cable
		Configuring 5 Power Supply Blank
		Blank Stack Module
6.	License	3 Years

e. **Router.**

Ser	Name of Item	Description
1.	Type, Brand, Model	To be mentioned
2.	Quantity	As required
3.	Country of Origin	Canada/ USA/ EU Countries/ Japan.
4.	WiFi Network Standards	IEEE 802.11b/g/n 2.4GHz, IEEE 802.11a/n/ac 5GHz
5.	Number of Concurrent User	Up to 30 User

f. **KVM Switch.** KVM switch is to be provided for connectivity/ communication. However, if the system is designed to connect/ communicate via software in lieu of KVM Switch then the KVM switch is not needed. Latest version KVM switch is to be provided but not limited to followings as appended below unless done via software:

Ser	Name of Item	Description
1.	Type	Rack Mounted with display
2.	Quantity	As required
3.	Brand and Model	To be mentioned
4.	Ports	To be mentioned
5.	Display	14-inch LED or Higher
6.	Resolution	Up to 1920 x 1080 VGA
7.	Control	Will be able to control 8/16 Servers/ PCs



- g. **Rack.** Latest version rack is to be provided as below:

Ser	Name of Item	Description
1.	Type	To be mentioned (Slot removable easy measure)
2.	Quantity	As Required for ASTT setup
3.	Rack Type	Standing Rack
4.	Doors	Compiled with front perforated & rear double/ single
5.	Fans	At least 4 unit of top fan tray with guard (Low noise)
6.	PDU	10 ports or Higher
7.	Main Material	SPCC cold rolled steel

- h. **Network Cable.**

Ser	Name of Item	Description
1.	Quantity, Type and Brand and Model	As required

- j. **Voice Communication System.**

Ser	Name of Item	Description
1.	Communication Control Terminal (CCT)	11xCCT, Brand and Model are to be mentioned.
2.	Wired Headsets with PTT	Qty 108, Brand and Model are to be mentioned.
3.	Wireless Headsets	Qty 11, Brand and Model are to be mentioned.
4.	Speaker	As required, Brand and Model are to be mentioned.
5.	Any Other	To be specified

- k. **LED Display.**

Ser	Name of Item	Description
1.	Type	65-inch 4K UHD Edu/Meeting Room Interactive Flat Panel Display
2.	Brand	LG/ SAMSUNG/ SONY
3.	Model	To be mentioned
4.	Country of Origin	Western Origin

- l. **Projector.** 2 in no projectors need to be provided with 16/16 Feet and 12/12 Feet screen. Detail specifications are as below.

- i. **Projector-1 (Screen 16x16 Feet).**

Ser	Name of Item	Description
1.	Type	DLP 0.67" WUXGA DC3 DMD Chip
2.	Brand	To be mentioned
3.	Model	LU9915 Blue Core Laser Projector
4.	Luminous	10000 ANSI
5.	Country of Origin	Western Origin
6.	Screen	16Fx16F Motorized Projection Screen

ii. **Projector-2 (Screen 12x12 Feet).**

Ser	Name of Item	Description
1.	Type	DLP Chip WUXGA
2.	Brand	To be mentioned
3.	Model	LU710 Laser 3D DLP Professional Projector
4.	Luminous	4000 ANSI
5.	Country of Origin	Westen Origin
6.	Screen	12Fx12F Motorized Projection Screen

m. **System Accessories.**

Ser	Item	Qty	Country of Origin and Manufacture	Description	Remarks
1.	Online UPS	1	EU, Japan, Korea, Thailand, Bangladesh	Power Capacity:30 KVA Backup Time: 60 min, Input Voltage: 220 VAC \pm 10% single phase, Output Voltage: 220 VAC	Battery Type: Maintenance free lithium-Ion Battery with Recharge, Overload and Over Voltage, Short Circuit, Spike, Surge etc. protection facility.

n. **Furniture.** Furniture is to be supplied from local market as per Article 9.

Miscellaneous

35. **System Study.** A system/ assessment study will be carried out and a detail report related to work plan, interfacing and integration, configuration, setting parameters, interfacing protocols, SRS of software etc are to be submitted to Naval Headquarters for further approval within three months of signing the contract.

36. **Design, Vetting and Approval of the Software.** The bidder is to give a presentation to explain the Critical Design Review of the simulation software with interface, network and integration. Then the reviewed design shall be approved by BN authority for final development works.

37. **Software Development and Debugging.** After getting the approved design, the manufacturer shall proceed for developing the software. All necessary tests and debugging are to be done by the developers.

38. **Site Preparation and Installation Works.** The Bidder shall be solely responsible for all the installation works including laying of cables and networking to ensure trouble free operation of the system. Ancillary civil works requirements are to be detailed during the system study/assessment period and jointly agreed by the Bidder and BN. The Bidder shall prepare the work plan containing detailed information of preparatory activities to be accomplished by both the Supplier and Buyer prior to system installation. BN will perform the necessary civil works prior/during installation of the system as suitable.

39. **Installation.** Technical documents (Installation drawings, Installation instruction, specifications etc) required for installation of the simulator are to be supplied by the manufacturer well in advance after the approval of the Critical Design Review by BN. All necessary hardware, network, workstation, MOC including all necessary cabling are to be installed by the bidder as per BN approved drawing and configuration.

40. **Interfacing, Test/ Trial and Final Acceptance.** On completion of installation and interfacing/ integration of the system, test and trial operation for at least 10 (ten) working days is to be conducted under direct supervision of OEM experts at BN site. The manufacturer is to

provide a detail test/ trial procedure incorporating all performance parameters as per the capability of the system at least 2 (two) months before the said trial. On completion of satisfactory test/ trial, both parties will sign a test report. After satisfactory test/ trial and successful local training, BN will provide Final Acceptance of the system.

41. **Confidentiality.** The system study report, software requirement specifications, critical design and executable databases (structures/ contents), which will be developed for this project, shall be classified 'materials'. None of these 'materials' (wholly or partly) shall ever be communicated by the bidder to any third-party (person or organization) by any means.

42. **After Sales Service Support.** The bidder shall provide following After Sales Service Support:

a. Troubleshooting of the system by online technical advisory service for minimum 5 (five) years after expiry of the warranty period. A Point of Contact (POC) between manufacturer/ bidder and SMWT shall be established for online technical advisory service.

b. In case of system failure which could not be solved by online technical advisory service, the manufacturer shall send a technical support team with necessary hardware/ software. The requirement of onsite technical support team shall be coordinated between manufacturer/ bidder and BN as case arises. Such service including hardware/ spares requirement shall be dealt by a separate agreement between the parties. Indicative cost of per member of onsite Technical Support Team per day for technical service is to be mentioned in the financial offer. A certificate of assurance for support of technical support team after expiry of warranty period for 10 (ten) years is to be submitted with the offer.

c. Supply of security patches, debugging etc for minimum 10 (ten) years after expiry of warranty period.

d. Upgradation of ASTT system in case of any major obsolescence or system failure issue. The terms and conditions for such upgradation shall be subject to agreement between the parties. A certificate of assurance for future support to upgrade ASTT system within 15 (fifteen) years of commissioning is to be submitted with the offer.

43. **Training.**

a. **Training Objective.** The objectives are to acquire in-depth knowledge of the inducted ASTT including its operation, maintenance, installation, interfacing, common failures, diagnosis of the faults and trouble shooting. The training will be combination of theoretical training, practical training and on-job training (OJT).

b. **Training Contents.** The contents of the training should include following:

(1) Comprehensive knowledge and orientation on system overview and its features and limitations.

(2) Operation of the ASTT including various software functions and applications.

(3) 1st, 2nd and 3rd level maintenance of all the simulator components which includes fault identification, diagnosis, troubleshooting, debugging application of

software patches, interfacing, replacement of module, remote monitoring and controlling among others.

(4) Periodical Preventive maintenance of ASTT.

(5) ASTT System Analysis and development.

(6) Platform development.

(7) Scenario development and database creation.

(8) Trainees' evaluation system management.

c. **List of Training.** The summary of required training is given below:

(1) **Foreign Training.** The objective of foreign training at OEM premises is to develop efficient operator and maintainer for BN who will be attached with the Manufacturer's Engineers during system integration, installation, test trial and commissioning in Bangladesh. The supplier will provide operators and maintainers training to the nominated BN personnel at manufacturer's premises. Cost of both way airfare (Dhaka to manufacturer's premises and back) will be borne by the purchaser. The cost of food, accommodation, training material and internal travel will be borne by the Supplier and the same is to be quoted with the offer. Training shall be provided in English Language as per the duration below:

Ser	Training	Remarks
1.	Maintainer's Training. a. 06 (six) BN personnel. b. Duration. 04 (four) weeks excluding journey time.	Broad overview of the training is to be provided with the offer
2.	Game Developer's/ Operator's Training. a. 06 (six) BN personnel. b. Duration. 04 (four) weeks excluding journey time.	Broad overview of the training is to be provided with the offer

(2) **Local Training.** A team of 20 BN personnel (10 x operators, 10 x maintainer) is to be trained locally in Bangladesh for 10 (ten) working days by the Manufacturer's Experts on completion of installation, test/ trial and commissioning.



44. **Documents and Deliverables.** 3 (three) sets of following document/ brochure/ booklet/ installation drawing/ manuals are to be supplied in English Language in hard and soft copies:

- a. Operator Manual.
- b. Maintenance Manual.
- c. Maintenance Schedule.
- d. System Architecture.
- f. Installation Drawing
- g. Network Topology and Layout Drawing.
- h. Parts catalog.
- j. List of Spare Parts.
- k. Server and Workstation setup drawing.
- l. Communication Network Drawing.

45. **Project Implementation Team (PIT).** A project team of 4 (four) BN members is to be attached with the Manufacturer at the OEM premises during the system and database development period for not more than 3 (three) months. The exact period will be decided upon finalizing the Project Schedule. International Airfare and Pocket Allowance for the Project Team will be borne by BN. The Supplier is to provide food, accommodation, internal transport, medical (except major surgery) and office space in OEM premises during their stay.

46. **Factory Acceptance Test (FAT).** FAT is to be carried out in the OEM premises. Details as follows:

a. **FAT of ASTT and Related Hardware.** Factory Acceptance Test of ASTT System will be carried out at OEM premises by a team of 04 (four) members of BN for a duration of 05 (five) working days, at the Buyer's expense. Both ways international airfare, accommodation and food for the FAT team will be borne by the Buyer. The supplier should inform the buyer about the date of FAT schedule and FAT procedure at least 08 (eight) weeks prior to the date of FAT. After FAT, a joint test report will be prepared and signed by both the Supplier/ OEM's and buyer's representative.

b. **Other Terms for FAT.**

(1) On return from the country of Supplier/ OEM, the FAT team will submit the report to concerned Directorate at Naval Headquarters. Naval Headquarters will, in turn, forward final decision along with FAT report, basing on which clearance letter will be issued for shipment of items/ equipment. The supplier will not make shipment of any item of the contract without clearance from Naval Headquarters.

(2) All types of movement/ transportation (air/ sea/ road) of the team within the manufacturer/ supplier's country, reception and arrangement for entry into the country/ concerned area for the FAT are also to be arranged by the supplier.

(3) During FAT, required tests will be carried out to fulfill the necessary condition mentioned in technical specification and FAT procedure. Various test results with performance are to be recorded.

47. **Warranty.**

a. **Warranty Service.** Minimum 24 months/ Manufacturer's standard warranty (whichever is higher) for all products and services from the date of Final Acceptance is to be provided. Any unserviceability more than 24 (twenty-four) hours after warranty notification to the OEM is to be added with the warranty period. Supplier is to replace any defective equipment of the ASTT within 90 (ninety) days from the date of reporting during the warranty period. Freights and Insurance charges for both the ways and cost for site visit by Manufacturer Engineer (if needed) are to be borne by the Supplier. Certificate to this effect is to be attached by the principal supplier/manufacturer. The supplied items/ equipment on warranty shall identify by attaching a warranty label/ disc or stenciling as shown below:

Contract No and Date
Warranty begins on
Expires on

b. **Bank Guarantee for Warranty.** The bidder shall provide a Bank Guarantee (BG) amounting 10% (Ten percent) of total LC value as a guarantee for warranty. BG shall remain valid till expiration of the warranty period.

48. **Certificate.** Following certificates are to be provided by the bidder/ supplier:

a. **Bidder.** The concerned bidder must provide following original certificate(s)/ document(s) as applicable with the tender offer and during delivery of items for the originality of source of item(s) in order to establish chain of links from the original source to supply of items:

- (1) One Original Equipment Manufacturer (OEM) certificate.
- (2) One Authorization certificate by OEM to authorized Principal/ Bidder.
- (3) One authorization certificate by OEM/ Bidder to Local Agent.
- (4) A certificate of at least 5 (five) years of experience on ASTT development.
- (5) A certificate mentioning the experience of supplying, installing, commissioning and maintaining ASTT in at least 2 (two) navies by itself or through an authorized bidder.
- (6) ISO certification compliance.
- (7) A certificate to the effect that the same/ similar hardware and software shall be available for at least next 15 years.
- (8) IEEE/ Classification Standard Certificate.
- (9) A certificate for troubleshooting of the system by online technical advisory service for minimum 5 (five) years after expiry of the warranty period.
- (10) A certificate of assurance for support of technical support team after expiry of warranty period for 10 (ten) years.
- (11) A certificate for supplying of security patches, debugging etc for minimum 10 (ten) years after expiry of warranty period.
- (12) A certificate of assurance for future support to upgrade ASTT system within 15 (fifteen) years of commissioning.
- (13) MTBF Certificate.
- (14) Quality Assurance certificate.
- (15) Any other certificate which is not mentioned above, but required for the smooth operation of the system must be given.

b. **Supplier.**

- (1) Warranty/ Guarantee Certificate.
- (2) Pre-delivery Inspection Certificate.
- (3) A certificate mentioning that the export license has been issued for the main items and associated items/ equipment.
- (4) A certificate mentioning that the main orders for the sub supplier has been issued.
- (5) Year of production Certificate.
- (6) Hardware and software validity certificate.
- (7) Software service update certificate.
- (8) Any other certificate which is not mentioned above, but required for the smooth operation of the system must be given.

49. **Lead Time.** All items are to be shipped to Bangladesh within **09 months (nine months)** after signing of the contract. The installation works including commissions and test/ trial is to be completed within **09 (nine) months** of arrival of items in Bangladesh.

50. **Liquidated Damage (LD).** As per DGDP Rules.

51. **Grace Period.** As per DGDP Rules.

52. **Force Maieure.** As per DGDP Rules.

53. **Arbitration.** As per DGDP Rules.

54. **Performance Guarantee (PG).** As per DGDP Rules.

55. **End User Certificate (EUC).** As per DGDP Rules.

56. **Port of Shipment.**

a. **For main equipment.** Any port of county of origin/ manufacturer.

b. **For network related equipment/ accessories.** Any port of country of origin/ manufacturer/ assembly.

57. **Packing.** Simulator and its equipment should be packed in such a way that/ those should be transported by air, land and sea (as applicable). Package is to provide simulator (and its components) protection from the external mechanical and environmental factors exposure during its transportation and storage. The manufacturer shall pack the equipment in accordance with the packaging instruction. Packaging shall be done in accordance GOST 9.014-78 as for the inner packaging VU-1 for a long-term storage for 2 (S) conditions and in accordance with GOST 15150-69 for 3 conditions. In case total or partial preservation is required, the manufacturer shall apply a temporary anti-corrosive protection (preservation) to the equipment in accordance with the correspondent instructions.

58. **Transportation.** The complete system shall be transported by ship/ air from the OEM premises. The bidder is to quote the cost of shipment by sea and/ or by air separately. In addition, the supplier is to ship the system and its associated items within the time specified in the contract. Before shipment the supplier is to get a written clearance from DGDP for shipment of the system. The contracted simulator system and its associated items are to be delivered to BN site at Chattogram in case of shipment by sea and at NSSD, Dhaka in case of shipment by air. All removable segments must have appropriate safe packaging for transportation. The supplier is also to bear the expenditure for internal transportation from the port of entry to respective BN sites. Insurance expenditure related to shipment shall be borne by the Buyer.

59. **Shipment and Delivery.**

a. All items (as per scope of supply) are to be delivered to the following consignee:

The Commanding Officer Naval Stores Depot New Mooring, Chattogram, Bangladesh BIN-002349278-0503	or	Officer In Charge Naval Stores Sub Depot Dhaka Naval Unit Khilkhet Namapara, Dhaka-1229, Bangladesh
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b. Place of Delivery: NSD, Chattogram.

c. In case of CFR the supplier will carry the items from Chittagong Sea port/ airport (as applicable) to NSD Chittagong at the cost and risk of supplier.

60. **Special Condition.** As per DGDP Rules.

61. **Miscellaneous Terms and Conditions.** A bidder must mention the name and full address of the local agent (if any) in the offer, due to the fault of the supplier, if any changes/ amendment is required in the contract/ LC, all such expenses/ charges shall be borne by the supplier, the cost of simulator and additional equipment/ FOB including all charges is to be "Firm and Fixed". No increase of price at any stage after signing the contract shall be accepted. If any item other than those already contracted is required during assembly of simulator, those are to be provided by the supplier within the contracted price, freight charges shall be paid at actual, but not more than the contracted freight charge. As such, freight charge is to be mentioned in appropriate column of AWB/ BL. Otherwise, FOB value of the simulator and supplied simulator shall be paid, cost of freight/ transportation charge and insurance for any surplus spares/ accessories, which shall be taken back after completion of assembly of simulator, is to be borne by the supplier, bidders have to quote charges for sea/ air up to Chattogram/ Dhaka, Bangladesh. The transportation of the simulator and associated equipment in Bangladesh (from port of arrival to BN site) is to be arranged and paid by the bidder. Bidders must mention the prices in foreign currency which is to be firm and fixed. No increase of price at any stage shall be accepted by BN after submission of offer, Bidders are to mention the port/ country of shipment of the offer, the transshipment is not allowed but if the bidder needs transshipment, then they are to mention it in their offer about their requirement. In case of such requirements, transshipment shall only be allowed under single AWB/ BL. BN shall reserve the right to accept or reject any items/ tools/ accessories/ test equipment from the offer. In addition, BN shall also reserve the right to ask the bidder to supply any provisioning/ equipment whose price are asked to quote in the financial offer, any other terms and conditions not covered here shall be as per standing rules of BN/ DGDP. BN/ DGDP have all the rights to select any bidder or cancel the whole tender process at any time without assigning any reason (Part shipment may be allowed).



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62. **Price.** Price is to be quoted without import duties as per DGDP rules. Price of each element of the total offer is to be shown separately (e.g. price of the main items, additional and optional items, Installation and Integration, Training, Warranty/ Guarantee etc.) and then the grand total of the foreign currency to be shown on the original offer submitted by the supplier.

63. **Financial Offer.** The Bidder shall comply with the price/quotation as asked in the tender specification. The Bidder may mention the price of additional items (if required) and services in the financial offer. Item-wise price is to be mentioned for each item and services. The Bidder may also explain the financial terms and conditions in the financial offer as appropriate. To evaluate the financial competitiveness, Bidder has to submit the summary of financial offer as per following format:

Ser	Description of Item	Qty	Unit Price	Total Price
1.	System Hardware			
	a. Player Cubicle, (Type-I), (As per Article 9 & 14)	8	To be mentioned	To be mentioned
	b. Player Cubicle, (Type-II) (As per Article 9 & 14)	2	To be mentioned	To be mentioned
	c. Game Controller Arrangement (As per Article 9 & 15)	1	To be mentioned	To be mentioned
	d. Game Developer Station arrangement (As per Article 9 & 34-I)	1	To be mentioned	To be mentioned
	e. General Support Station/ Debriefing Room Arrangement	1	To be mentioned	To be mentioned
	f. Server (As per Article 9 & 34)	10 or as required	To be mentioned	To be mentioned
	g. Network Device	As Required	To be mentioned	To be mentioned
	h. CCT (As per Article 34-j)	11	To be mentioned	To be mentioned
	j. Headsets (As per Article 34-j)	119	To be mentioned	To be mentioned
	k. Auxiliary/ Ancillary Equipment (Setting up of cubicles, Power connections, fittings and accessories)	As Req	To be mentioned	To be mentioned
	l. Online UPS	1	To be mentioned	To be mentioned
	FOB value			To be mentioned
2.	Freight			To be mentioned
	CFR value (FOB+Freight, except software and other price)			To be mentioned
3.	Package price of ASTT Software and Database Management System			
	a. Development of SRS (Software Requirement Specification)	-	To be mentioned	
	b. Development of ASTT Software	-	To be mentioned	
	c. ICD & IRS	-	To be mentioned	
	Sub Total			To be mentioned



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4.	Training (as per Article 43)		
	a. Foreign Training Package		To be mentioned
	b. Local Training Package		
	Sub Total		To be mentioned
5.	After Sales Service Support (as per Article 42)	-	To be mentioned
6.	Local Supplied items		To be mentioned
	Total LC Value		To be mentioned
7.	Optional Items		
	a. Mobile ASTT/Simulation Set	1	To be mentioned
	b. Source code	1	To be mentioned
	c. Dongle	1	To be mentioned
	d. Cost of Project Implementation Team (PIT) per month (as per Article 45)	-	To be mentioned
	e. Cost of per member of onsite Technical Support Team per day for technical service	-	To be mentioned

Note:

1. PURCHASER reserves the right to select items/equipment/spares/service from among those offered by the BIDDER.
2. In the financial offer, price of all mandatory/ essential and optional items is to be shown separately.
3. Total price for determining lowest BIDDER shall be determined as per the existing rules of DGDP.
4. Breakdown of each training and administrative costs of trainee are to be mentioned separately.

④

64. **Terms of Payment.** 100% Payment shall be made through an irrevocable Letter of Credit (LC) opened with scheduled bank in Bangladesh under the following terms and conditions:

a. **Installment – 1.** 20% (twenty percent) of the total CFR price shall be released after signing the contract and upon presentation of the following document to the bank:

(1) Bank Guarantee (BG) for the total amount (20% of the total CFR price) to be issued from any schedule bank of Bangladesh and shall be submitted in favour of The Senior Finance Controller (Navy), Sailors Colony, Lalasarai, Mirpur-14, Dhaka-1206 and shall remain valid until the final acceptance of the items by the PURCHASER.

(2) Performance Guarantee (PG) in the form of Bank Guarantee (BG) for 10% of the total of the LC value from any schedule Bank of Bangladesh in favour of the Senior Finance Controller (Navy), Sailors Colony, Lalasarai, Mirpur-14, Dhaka-1206. The PG shall remain valid until the final acceptance of the items and it shall be submitted to the PURCHASER by the SUPPLIER/BIDDER on signing the contract.

(3) A certificate by the SUPPLIER/ BIDDER that the main orders for the sub supplier has been issued.

(4) A certificate by the SUPPLIER/ BIDDER that the export license has been issued for the main items and associated items/ equipment.

b. **Installment – 2.** 20% of the ASTT Software for Data Management System price shall be paid when following documents shall be submitted to the bank:

(1) Acceptance Certificate of the Software Requirement Specification (SRS) by the PURCHASER.

(2) Confirmation note from the PURCHASER upon receiving the ASTT System layout/ architecture.

c. **Installment – 3.** 60% of the CFR value shall be paid upon submission of the following documents to the bank:

(1) Original Bill of Lading /Airway Bill.

(2) SUPPLIER/BIDDER's Signed Invoice.

(3) Packing List.

(4) Certificate of Origin.

(5) Manufacturer's/Supplier's Warranty/Guarantee Certificate.

(6) Certificate of satisfactory completion of FAT.

(7) Shipment clearance letter of DGDP.

(8) Pre-shipment Inspection Report (if held).

d. **Installment – 4.** 60% cost of ASTT software shall be paid upon presentation of following documents to the bank:

(1) Certificate of satisfactory completion of FAT.

(2) Acceptance Certificate of Setting to Work in PURCHASER location.

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e. **Installment – 5.** 20% of CFR value and 20% of ASTT software value shall be released on presentation of following documents to the bank:

- (1) Final Acceptance Certificate of ASTT system by the PURCHASER.
- (2) Submission of Warranty Guarantee as Bank Guarantee (BG) for an amount of 10% of the LC value valid until the warranty period is over.

f. 100% of the total price of training shall be paid on Completion Certificate from the PURCHASER and clearance from DGDP to the Bank.

g. 100% price of the After Sale Service Support shall be released on submission of a certificate to this effect from the PURCHASER and clearance from the DGDP to the Bank.

h. 100% price of the Project Implementation Team (PIT) shall be released on submission of a completion certificate to this effect from the PURCHASER and clearance from the DGDP to the Bank.

j. 100% Payment for locally supplied items (if any) shall be released on completion of the installation and acceptance of the items and on production of job completion certificate from BN.

65. **Offer Validity.** Offer must be valid until 30 June 2025 as per tender terms and conditions from the date of opening the tender. Within the validity of the offer, withdrawal of offer or un-willingness to sign the contract by the bidder shall not be accepted and in such cases, actions would be taken against the principal bidder and local agent as per Directorate General Defense Purchase (DGDP) rules. DGDP/ BN also reserve the right to get the offer validity extended with the consent of the bidder.

66. **Compliance Statement.** A compliance statement fulfilling all the requirement of the tender is to be submitted for evaluation of the quotations. Stating mere 'Yes or No' shall not suffice and detailed evidences with description/ information, brochures/ booklet, drawing and diagram as required are to be given. An incomplete compliance statement may attribute to cancellation of the offer. If any clause of this specification does not commensurate with offered simulator, the deviation has to be spelt out clearly.

