



TENDER DOCUMENT
FOR
ECDIS, RADAR- ARPA , GMDSS AND
HIGH VOLTAGE ENGINEERING SIMULATOR

PAKISTAN MARINE ACADEMY, KARACHI



Government of Pakistan
Pakistan Marine Academy
Karachi



INTERNATIONAL TENDER NOTICE

Pakistan Marine Academy intends to invite worldwide International Tenders from the manufacturers/authorized representatives for procurement of following Simulators:

- (i) ECDIS Simulators
- (ii) Radar- ARPA Simulators
- (iii) GMDSS Simulators
- (iv) High Voltage Simulators

Tender Documents can be obtained from the office of **Administrative Officer, Pakistan Marine Academy, Hawks Bay Road Mauripur, Karachi** within One Month of publication on any working day, during office hours on payment of **Rs. 10,000/- (non-refundable)** through a bank draft/pay order in favor of Pakistan Marine Academy.

Tenders along with 2% Bid Security of total value to be submitted to the Undersigned in the sealed envelope, bearing the name of work **before 1100 hours on 16 Aug 2017. No tender will be entertained after 16 Aug 2017.** The same will be opened publically **at 1230 hours on the same date** as per Single Stage – Two Envelope bidding procedure according to rule 36(b) of PPRA Rules-2004 of Pakistan in the presence of bidders or their representatives who may like to be present.

The Commandant Pakistan Marine Academy reserves all rights including rejecting of any one or all tenders as per **PPRA Rule No. 33(1)**. This tender notice is also available on the websites of Pakistan Marine Academy (www.marineacademy.edu.pk) and Public Procurement Regulatory Authority (PPRA) (www.ppra.org.pk)

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TENDER SPECIFICATIONS FOR MULTI-FUNCTIONAL CLASS ROOM SIMULATOR (ECDIS-RADAR ARPA-GMDSS)

PAKISTAN MARINE ACADEMY, KARACHI

1. **General.**

1.1 The requirement is for one Multi-Functional Class Room Training Simulator for ECDIS, Radar-ARPA and GMDSS trainings in 1 Instructor + 10 Trainee configuration each. The simulator is to be hardware and software based system operating under the instructor station control based on standard desktop personal computers and server connected to form a local computer network. The instructor workplace should enable him/her to work with computers and servers designed for the preparation of exercise areas, mathematical models and exercises, control and monitoring of training stations operation and debriefing.

1.2 These specifications describe the basic requirements for equipment for Multi-Function Simulator Class Room. The tenderers MUST submit with their offers the detailed specifications, drawings, illustrations diagrams, part numbers, etc for the components they intend to use in manufacturing the simulator. Failure to submit components details as specified SHALL lead to automatic disqualification.

1.3 Tenderers must indicate on the compliance specifications sheets whether the equipment offered comply with each specific requirement.

1.4 All the functionalities and capacities of the equipment to be supplied shall not be less than those required in these specifications. Deviations from the basic requirements, if any, shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. The procuring entity reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.

1.5 The tenderers are requested to present information along with their offers as follows:-

- (a) Shortest possible delivery period of each product
- (b) Information on proper local representative with an existing and established local service support for atleast 3 years and/or for back-up service/repair and maintenance including their names, addresses, experience details and company profile.

2. **Technical Requirements and Specifications - Supply, Installation & Commissioning of Multifunctional Class Room simulator in 1 + 10 configuration each.**

2.1 A 'turnkey' solution for a professional Desktop based Multi-functional Class Room simulator, Instructor Station and desktop stations. The simulator solution should include 1-year warranty and remote support services from OEM, a local point of contact in Karachi, Pakistan as first contact point to provide local support services is mandatory.

2.2 The simulator manufacturer OEM shall be Quality certified ISO 9001. The proposed simulator shall have certification from at least two reputable (2) international classification societies who shall be a member of IACS. Simulator must be compliant with STCW latest version 2010 regulation, certified and compliant with DNV/Class NK standards for simulator systems and certified for conduct of IMO specified model courses.

2.3 The proposed system should be capable of conducting and certified for IMO ECDIS model course 1.27; IMO Radar model courses 1.07, 1.08 and 1.09 and IMO GMDSS model course 1.25 and shall be fully compliant for ROC and GOC GMDSS trainings.

2.4 The Multi-Functional Class Room simulator should atleast comprise of following:-

- One (01) Radar ARPA Instructor Workplace software
- One (01) GMDSS Instructor workplace software

- One (01) ECDS Instructor workplace software Both Generic and Type specific
- Ten (10) Trainee student station software systems. each
- MFC Classroom simulator Software should include :-
 - Conning Display Module
 - Conning Visualization Channel Module
 - Navi Sailor 4000 ECDIS Module simulating real ECDIS
 - Navi Planner Module capable of advance route planning functionalities
 - RADAR/ ARPA Module capable of simulating Bridge master E or Furnho radar.
 - GMDSS Trainee workstation Module
 - Evaluation & Assessment Functionality Module
- Atleast 3 PCs and 4 LCD Displays at each Trainee workstation. Out of 4 monitors, 1 LCD display will be 32" LCD/LED display for visualisation.
- Type specific ECDIS keyboard with trackball atleast at one Trainee station
- GMDSS Handsets & USB audio Units
- Sound Effects Equipment (PC Speakers & Headsets with microphone)
- 01 System server with Network equipment for each simulator
- 01 large 60"/65" LED display for Briefing/ Debriefing and connected to Instructor station.

2.5 Bidders are free to propose their layout of the MFC Class room, instructor and desktop stations. The final system arrangement will be agreed between the purchaser and the seller according the available space in the installation site. Basic furniture, such as desk, seats, Briefing display support shall be included.

Component Specification Descriptions

3. Instructor Station and Briefing/ Debriefing

(a) Instructor Station, showing a 3D view and a 2D chart view of the training environment, incl. exercise recording, communication real-time monitoring, graphical and numerical view of the scenario, insert failures and error in Trainee stations equipment, control environment and target units, etc.

(b) A system controller software will provide remote control and monitoring of the simulator PCs (shutdown, restart the simulation programs, restart the computer etc).

(c) The same instructor software must capable to be used for briefing and debriefing, debriefing station shall use the same instructor interface. It will be possible to replay an exercise on bird eye view, to reload an exercise in the bridge, and to monitoring the progress of a running exercise.

(d) It will be possible to record and visualize for debriefing purpose during debriefing ship data such as rudder value, speed value in form of data versus time, plus replay all the communications in sync with the exercise.

(e) It will be possible to load an exercise and start an automatic evaluation of such exercise that, based on instructor defined navigation parameters, can give a score to the student, and prepare an evaluation card. The final data should be available in MS Excel format for archiving and record purposes.

(f) GMDSS Instructor Station for controlling the simulation and acting as Coast Station.

- (g) Instructor shall be capable of monitoring the voice radio communications, insert pre-recorded messages, control the audio channel quality, visualize the radio coverage range, activate a communication channel, selected which channels to record for debriefing.
- (h) Instructor should be able to create, save, edit play, monitor, record and replay exercises. Some of the available features for “real-time”, on-line control and monitoring during exercises.
- (i) Control and monitoring of the available environmental conditions such as current, fog, visibility, wind, waves, sea state, precipitation, clouds etc.
- (j) Easy monitoring of the own-ship parameters and student actions.
- (k) Start, stop, pause, continue, and restart of exercises.
- (l) Replay of recorded exercise data both in real time and faster than real time.
- (m) Control of the target ship shapes, signals, lights, etc.
- (n) Control for target ships` course, speed, light and sound etc.
- (o) Creating of hazardous and challenging conditions for trainee by fault injection in navigational equipment and machineries.
- (p) Recording and replay for debriefing.
- (q) Communication with the own ship.
- (r) Introduce faults and failures in the ship equipment.
- (s) Analysis of trainee action.
- (t) Informatics components such as: hubs, network cables, keyboards and mouse, OS windows7/ 10 or the latest windows edition licenses, video splitters, support and any required components for a complete turn-key solution shall be included in the proposal.

4.0 **Desktop Trainee Stations description.** The requested Trainee stations will comprise of following items:-

- (a) Conning display console for readout of visualizing ship’s data (speeds, engine/screw, rudder, winds, position, ship name, thrusters, depth, etc). Visualization must be dependent on ship model loaded.
- (b) 1 Radar simulation module (software and or hardware if needed) to being able to simulate Bridge Master or Furuno radar devices with ARPA functionalities.
- (c) 1 Type Approved ECDIS with radar overlay and complete integration with simulated environment and capable of loading SENC chart formats. Navtext messages should be integrated and displayed from GMDSS on ECDIS display.
- (d) 1 GMDSS module complete with interactive replica active capability one display with handset, speakers and headset with microphone.
- (e) **All 10 trainee stations should be capable, to simulate as own ships are requested. The stations will have the capability to be engaged in single separate exercises or be included in a common exercise between them.**

- (f) **Each Trainee stations will have one 32" LED display exclusively** showing external view. Another 22 – 24" LCD/LED display to show maneuvering data and conning readout.
- (g) The Maneuvering data display shall be divided in tabs for selecting maneuvering, view controls, echo sounder, anchor controls, signaling, fog and day signal, winds indicators and alarms (same control possibilities of main bridge).
- (h) The **Maneuvering data display** shall also display ships data including conning, including Heading, Speed, depth, data and time, position, rate of turn, ruder(s) angle(s), propeller RPM or RPM and pitch, ship indication of stern and aft lateral speed. Indication can vary accordingly the ship model in use.
- (i) One **Display** showing Radar ARPA, with generic interface, but with the same performance as actual radar onboard ships.
- (j) One display showing the type specific ECDIS with radar overlay features.
- (k) One display showing an interactive GMDSS station with the same software as the actual equipment.
- (l) GMDSS handset, Headset with microphone, mouse, keyboards, etc as requested.

5. **Database.**

(a) **Area library.**

- (i) **Bidders will provide a detailed list of available ports and navigation areas, with indication of the area coverage.**
- (ii) **Provided models shall include 2D maps (instructor/ecdis/radar, depth, etc) and 3D view of the area suitable for offshore and inshore navigation, as well details for harbor operations and docking.**
- (iii) **At least 10 different Ports should be included as part of the bid and will be selected by PMA after contract award.**
- (iv) **The library shall include minimum 350 gaming areas and includes common route and Harbours, like Hong Kong, Singapore, English channel, Malacca straits, Straits of Hormuz, etc, which shall be chosen by PMA in consultation with the bidder.**

(b) **Ship Models**

- (i) **Bidders will provide a detailed list of available Own ship models and target platforms and objects in consultation with PMA.**
- (ii) **Provide models shall include hydrodynamic models, with 3D view of the unit.**
- (iii) **The library shall include minimum 350 ship models and includes common ships, such as VLCC, cargo, tanker, containers, tugs, pilot boats, fishing boats/trawlers, etc**
- (iv) **Ship models shall be high realistic ship models based on 3 Degrees of Freedom (DOF) and 6 Degrees of Freedom (DOF), having the same behaviors of real ships (same class of ship/same ship).**

6. **Delivery, Documentation and Support.**

(a) The system will be supplied with a complete set of manuals, in English in electronic form .pdf as follows:-

- (i) User manual for all simulators (ECDIS, Radar, GMDSS etc.)
- (ii) User manual for instructor, debriefing, including additional modules
- (iii) Maintenance manual
- (iv) System description and system schematic, including connection manual, electrical manual, etc.

(b) It **will** be possible to activate a service of remote support so the OEM can check the system remotely, training shall include also how to set up such channel and equipment for the same is to be included.

(c) Testing procedure shall be executed in factory pre-shipment and after on-site installation. Bidders shall describe their standard procedure.

(d) Training shall be included in the proposed offer for instructors and maintainers after on-site installation and commissioning.

(e) Bidders shall provide a preliminary project plan Gantt showing the project duration (can be modified and will be defined in detail with the selected supplier)

(f) Shipment time for the system shall not exceed 6 months, commissioning/entering in service shall not exceed 10 months. Shorter time is preferable.

7. The MFC Simulator shall be capable to simulate a realistic environment for all of the applicable STCW competence requirements referred in Table 1

Table 1: Competencies addressed by bridge operation simulator class		
<i>STCW-2010 reference</i>	<i>Competence</i>	<i>Compliance</i>
Table A-II/1.1	Plan and conduct a passage and determine position	
Table A-II/1.2	Maintain a safe navigational watch	
Table A-II/1.3	Use of radar and ARPA to maintain safety of navigation	
Table A-II/1.4	Respond to emergencies	
Table A-II/1.5	Respond to a distress signal at sea	
Table A-II/1.8	Manoeuvre the ship	
Table A-II/2.1	Plan a voyage and conduct navigation	
Table A-II/2.2	Determine position and the accuracy of resultant position fix by any means	
Table A-II/2.3	Determine and allow for compass errors	
Table A-II/2.5	Establish watchkeeping arrangements and procedures	

Table 1: Competencies addressed by bridge operation simulator class

<i>STCW-2010 reference</i>	<i>Competence</i>	<i>Compliance</i>
Table A-II/2.6	Maintain safe navigation through the use of radar and ARPA and modern navigation systems to assist command decision-making	
Table A-II/2.7	Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making	
Table A-II/2.10	Maneuver and handle a ship in all conditions	
Table A-II/3.1	Plan and conduct a coastal passage and determine position	
Table A-II/3.2	Maintain a safe navigational watch	
Table A-II/3.3	Respond to emergencies	
Table A-II/5.2	Contribute to berthing, anchoring and other mooring operations	

8. INSTRUCTOR FUNCTIONALITY

The common instructor and assessor functionalities are tabulated below:-

Table 1.1 : Instructor/Assessor Functionality		
Item	Requirement	Compliance
1. The following simulator system operating facilities shall at least be provided by the Instructor station:		
1.1	Simulation system configuration editor tool: The Instructor shall be provided with the necessary tools for creation, editing, saving loading and unloading of configurations of the simulation tasks in a user friendly format. This should include a list of computers in the simulator domain, and registered on the server. The windows file tree structure shall be used to display tasks distributed amongst simulator system computers.	
1.2	Simulation task controller (Router): The Instructor shall be provided with the necessary tools for auto start / auto stop / auto shutdown Training System and manual start or manual stop modes for system structural modules.	
1.3	Instructor monitor shall provide four Training and Debriefing Sessions modes: <ul style="list-style-type: none"> • Stop should be used when leaving the simulator for any length of time. In this mode, all instrument illumination is turned down. Video is removed from the radars and no picture is shown on the visual scene. • Ready should be used for familiarization trainees with watchkeeping conditions. In this mode everything is operational but the simulator is not running. • Run should be used for normal system operation when the exercise is running. • Pause (should be used for Instructor's comments and advising. The instructor monitor shall be designed for operation on two monitors simultaneously: one monitor for chart window and another one for alpha-numeric information. Chart windows of the instructor monitor shall at least show: <ul style="list-style-type: none"> • all standard SENC layers • exercise objects' realistic top view with all of their architectural details • object's control context menu which can be applied to them 	
1.4	The simulator shall record and save at least three types of log files for conduct debriefing sessions in the synchronized mode: <ul style="list-style-type: none"> • Main object moving log. • Radio communication log • Evaluation and assessment (e-Tutor) log 	
2. The Instructor Stations shall at least display the following data:		
2.1	Position and track of own ships with identification	
2.2	Position and track of traffic ships and other dynamic objects with identification	
2.3	Route of traffic ships	
2.4	Instructor generated information/cues (lines, symbols etc.)	
2.5	Own ship specifications	
2.6	Traffic ships specifications and routing	
2.7	Environmental control	

Table 1.1 : Instructor/Assessor Functionality		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
2.8	Own ship monitoring	
2.9	AIS info	
2.10	Failure control	
2.11	Control over tugs and mooring lines (also controlled from Bridge)	
2.12	Control over anchors (also controlled from Bridge)	
2.13	Exercise time (absolute and relative)	
2.14	Depth with tide, wind, wave and current conditions at any point and at any time	
2.15	Chart scale, coordinates, bearing and distance from selected reference point	
3. A number of automatic functions shall be programmed on the instructor station:		
3.1	When specifying the date and the position of an own ship, the transition from day to night must come as in real life for this latitude at that time of the year (override feature exists).	
3.2	Automatic change of all weather conditions over time.	
3.3	Exercise recording must proceed automatically. Everything should be always recorded with step at reasonable short interval not exceeding 3 seconds.	
3.4	Route planning system	
3.5	System for pre-program own ship's equipment faults & failures	
3.6	Exercise information system should allow the instructor to focus on student performance rather than just getting through the exercise.	
3.7	Automatic entries of tidal and astronomic data must come as in real life for current ship position and at that time of the exercise	
3.8	Automatic appearance of targets navigation lights, shapes and sounds during changing of day/night and visibility conditions.	
3.9	Automatic display of exercise mission for trainees	
3.10	Automatic display of trainees' violations for evaluation and assessment system	
3.11	For self-training a script system should allow the instructor to create from log file the short briefing scenario with his written or voice comments for automatically playing on a Bridge or in the Briefing / Debriefing Room	
4. Prior the exercise the instructor shall be able to:		
4.1	Operate with customized toolbars with the following capabilities: <ul style="list-style-type: none"> • creating of a user toolbar which contains the most frequently executed commands and provides a prompt access to the necessary functions • having of an arbitrary number of customized toolbars • listing and setting of dedicated group toolbar commands • saving of all the created customized toolbars 	
4.2	Prepare a description of the exercise scenario, training objectives and necessary prompts on the fulfillment of the scenario. Main characteristics of the exercise description editor are: <ul style="list-style-type: none"> • Exercise description should contain both, text data and pictures 	

Table 1.1 : Instructor/Assessor Functionality

<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
	<ul style="list-style-type: none"> output document should be created in HTML format and saved together with the exercise 	
4.3	Select gaming area for each of the own ships	
4.4	Select pre-programmed exercises	
4.5	Select hydrodynamic model to be simulated in the own ships	
4.6	Give the own ship initial positions, courses and speeds	
4.7	Save all ship parameters and settings of all its sensors, instruments and lights/shapes, etc as a template (new object category) and use this object in any exercises and areas	
4.8	Specify radar parameters (initial status)	
4.9	Select type of AIS information, i.e. on Radar/ECDIS	
4.10	Specify failures to own ships, both as an initial status and to be activated at a specific time (time-controlled pre-programmed and be event dependent).	
4.11	Specify type of traffic ships, including range and size dependent sound signals (whistle, bell and gong) and navigation lights.	
4.12	Set the maximum visibility range within which the navigational lights turn on automatically on the target ships	
4.13	Route traffic ships and own ships. It must be possible to pre-program a minimum of 50 turn points for the traffic ships (up to a minimum of 25 for any single traffic ship). Route object should be independent, with possibility to move/rotate it within the exercise area; any ownship or traffic ship can be assigned to it.	
4.14	Plot user information (line, text, ellipse and zone) on the chart (visible on the instructor display only). Should be possible to change font type, size	
4.15	Display any exercise object by means of a customized "Tactical image" on the instructor chart.	
4.16	Pre-playing scenarios in quick mode from a selected starting point.	
4.17	Specify environmental conditions to include wind, current, cloud layers of different types, rain, snow (with selectable intensity), lightnings and visibility e.g. in fog it must be possible to set the visibility to a desired range.	
4.18	Save environmental condition settings as a template and to load previously saved template in any exercise and area.	
4.19	Show Horizontal depth cross-sections	
4.20	For common scenario mode it must be possible to assign all stations/bridges to the same mathematical model of own ship in order to reduce modeling workload.	
4.21	Rename the exercise objects after plotting on the chart	
4.22	Turn on the display of a track in the form of a succession of contours (Track mode) and to set the track prediction mode (Trend mode) for all the exercise objects (Global settings) and for one object (Local settings). Should be possible to set a color and scale of tracks and trends.	
4.23	Have graphic and tabular presentation of the routes associated data	
4.24	Export and import a route in the ECDIS format	
4.25	Import tidal currents in the text format and from the Admiralty Total Tide database	

Table 1.1 : Instructor/Assessor Functionality

<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
4.26	Set global scale factor for all current fields in exercise	
4.27	Set multi-level currents with the following capabilities: <ul style="list-style-type: none"> • arbitrary number of current levels • capability to set independently the properties of a field of currents for each level • capability to set the direction and speed of current varying in time for each level • the effect of current distributed in depth is taken into account in the mathematical model 	
4.28	Set squally wind	
4.29	Exclude hydrodynamic interaction with mooring walls in the required region / area	
4.30	Display and print out a new pilot card and a table of the ship manoeuvring characteristics	
5. During an exercise the instructor shall be able to:		
5.1	Supervise the exercise (run, freeze and reset)	
5.2	Maintain overall control (on the chart) over the process of exercise fulfillment by all trainees (to display on the chart the planned routes, positions and tracks of all the vessels including targets for the current moment of time, the status of Trainee workplaces, operation of their vessels' controls and navigational aids, navigation lights and sounds signals).	
5.3	Monitor own ship specifications (name, type, displacement, service speed, length, breadth, max draft, etc.)	
5.4	Have a single display of the ship motion parameters and environmental conditions: ship course and speed, course over the ground, speed transverse component on the bow and on the stern, gyro heading, rate of turn, speed and direction of the current and wind, wave height and direction, depth.	
5.5	Have graphic presentation of ship motion parameters: simultaneous display of min. 6 parameters, unlimited number of such display panels to be shown simultaneously, special graphical print out representation. It should be possible to create mark points during monitoring of parameters.	
5.6	Monitor/change own ships positions and parameters (including control over radar)	
5.7	Insert, add, delete new or existing waypoints. It shall be possible to move a traffic vessel to another point, to stop a traffic vessels motion.	
5.8	Monitor route information (number of current WP, course, bearing, distance, XTE, TTG, new course)	
5.9	Turn on/off the representation on chart of dynamically changing rotation center and pivot points	
5.10	Control traffic ships; Manual control, modify routes, create new routes, monitor route parameters (waypoint number, coordinates, waypoint arrival time, etc.)	
5.11	Monitor Dangerous targets ships list on CPA, TCPA criteria (target type, status, current course, speeds, CPA, TCPA)	
5.12	Turn on/off graphic presentation of CPA/TCPA values for any traffic or ownships	
5.13	Apply virtual force to any traffic or own ship. Virtual force to include direction, power, torque relative to vertical axis. It shall be possible to create virtual forces reports.	
5.14	Add new traffic ships without stopping the exercise	

Table 1.1 : Instructor/Assessor Functionality

Item	Requirement	Compliance
5.15	Monitor traffic ships specification (type, length, current course and speed, CPA, TCPA)	
5.16	Give sound signals from traffic ships, manually or automatically	
5.17	Control assisting tugs	
5.18	Control mooring lines	
5.19	Display on the instructor chart of the part of the anchor chain lying on the bottom	
5.20	Failure control of all own ship's equipment and hardware controls	
5.21	Have an advanced lights control tool including: <ul style="list-style-type: none"> • Capability to control main and backup lights • Capability to input faults • Capability to control lights / shapes via: Predefined state, Table, Directly on the graphic picture interface • Capability to switch on/off deck lights on the target ships 	
5.22	Control external equipment/facilities	
5.23	Control environmental conditions wind, current, tide level, wave height and direction, visibility e.g. in fog it must be possible to set the visibility to a desired range.	
5.24	Change textures and scene objects states (winter/summer).	
5.25	Control various types of alarms	
5.26	Control VHF communications of any Trainee station, interfere, input noise background sound, keep listening watch, keep additional watch on other channel, call ship VHF on any VHF frequency	
5.27	Monitor the work on the Trainee stations	
5.28	Use ERBL instrument from any object within an exercise area, attach ERBL to the center of a ship	
5.29	Take screen captures	
5.30	Print out selective reports or any of the open dialog boxes or panels.	
5.31	In addition to running of exercise in the real time the instructor must have the possibility to input fast (2:1, 5:1, 10:1) or slow (1:2, 1:5, 1:10) time coefficient.	
5.32	The Instructor shall have an ability to input different faults and errors to: <ul style="list-style-type: none"> Navigational equipment (Gyro Log, GPS, AIS, etc.) Engine Steering gear ARPA/Radar GMDSS 	
6. After the exercise is completed the Instructor shall be provided with:		
6.1	Capability to use the debriefing system for analyzing the results and debriefing of the exercise completed by each trainee and to print associated results	
6.2	Capability to stop the playback of the completed exercise in at least 2 location of interest and to re-run it from this spot on any of the training bridges or to save this situation as a new exercise.	

9. GMDSS SIMULATOR - SIMULATION OBJECTIVES

Radio communication simulator shall be capable of simulating a realistic environment for all of the applicable STCW competence requirements referred to the Table 2.

It shall be possible to perform practical examination of all competencies identified in Annex 1 of International Telecommunication Union (ITU) Recommendation T/R 31-03 E (revise Bonn 1994) "Harmonized Examination Procedures for GOC and ROC" and IMO Model course 1.25.

Table 2: Competencies addressed by radio communication simulator class		
<i>STCW-2010 reference</i>	<i>Competence</i>	<i>Compliance</i>
Table A-IV/2.1	Transmit and receive information using GMDSS subsystems and equipment and fulfilling the functional requirements of GMDSS	
Table A-IV/2.2	Provide radio services in emergencies	

10. GMDSS SIMULATOR REQUIREMENTS

The GMDSS communication simulator shall fulfil the requirements given in Table 3.1, Table 3.2 and Table 3.3.

The requirement number shall consist of table number and item number.

Table 3.1: Physical realism		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
1. General requirements		
1.1	The simulator shall be a networked, PC-based training system which includes up to 1 (one by default) instructor workplaces and up to 10 fully interactive trainee workplaces.	
1.2	The radio communication station shall simulate a typical station found on merchant ships in accordance with Module B in the Directive and as applicable SOLAS 74 as amended, IMO Res. A. 570 (14), IMO Res. A. 694 (17), IMO Res. A. 808 (19), IMO MSC/Circ. 862	
1.3	The following sub-sets of GMDSS units produced by S.P. Radio, Thrane&Thrane and various other manufacturers shall be simulated: <ul style="list-style-type: none"> • SAILOR 2000 • SAILOR 4000, • SAILOR 4000 (A1) – for GMDSS Sea Area A1 only, • SAILOR 4000 (A2) – for GMDSS Sea Areas A1 and A2, • SAILOR 5000, • SAILOR 6000, • Furuno (A1) – for GMDSS Sea Area A1 only. 	
1.4	Each piece of sub-set equipment is to be arranged in a ship-like manner	
1.5	Each Trainee workplace shall be equipped with a compact console with real-size equipment control panels, thus satisfying the requirements of several national certifying authorities regarding training systems for GMDSS Training Centers. These control panels shall be interfaced with standard PCs which generate the communication flow between workstations, as well as providing all the functionality of the simulated units.	
1.6	All required and telephone communication shall be provided with S.P. Radio handsets connected to a PC via special USB Audio Unit.	
1.7	The instructor shall have the possibility to record voice / communication of the learner(s) in an exercise for future playback	
1.8	The instructor shall have the selective slave monitor of all trainee workstations	
1.9	The simulator shall simulate the operation of INMARSAT -B and -C ship earth stations, MF/HF NBDP, MF-HF DSC, VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the General Operator's Certificate (GOC)	
1.10	The simulator shall simulate the operation of VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the Restricted Operator's Certificate (ROC)	
1.11	The simulator shall provide a printed text communication facility	
1.12	The simulator shall provide coastal stations' database and zones of radio wave propagation on electronic chart	
1.13	The simulator shall provide text of GMDSS handbook and other relevant GMDSS publications.	

Table 3.1: Physical realism

<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
1.14	The simulator shall provide Tutor SW for self education and self assessment exams	
2. <i>The radio communication station shall at least consist of the following main components where all necessary sub-systems are to be included:</i>		
2.1	VHF radiotelephone with DSC (digital selective call).	
2.2	VHF DSC modem with channel 70 receiver	
2.3	At least two handheld VHF set	
2.4	MF/HF radiotelephone with DSC (digital selective call) and NBDP (narrow band direct printing) (telex).	
2.5	Inmarsat A, or B ship earth station (Telephone, telex, including a distress priority telephone and telex service to/from RCC).	
2.6	Inmarsat C ship earth station (Store-and-forward data and telex messaging, with EGC (enhanced group call), reception of MSI (maritime safety information), the capability for sending preformatted distress messages to a RCC and the Safety NET service).	
2.7	Inmarsat Fleet77 station	
2.8	Inmarsat Fleet Broadband station	
2.9	COSPAS/SARSAT satellite EPIRB (emergency position-indicating radio beacon).	
2.10	NAVTEX receiver	
2.11	SART (search and rescue transponder).	
2.12	Radar for receiving SART signals	
2.13	AIS-SART	
2.14	Portable VHF GMDSS radio	
2.15	Airborne VHF radio station	
2.16	GPS receiver	
2.17	Glonass/ GPS receiver	
2.18	AIS Transponder Class A	
2.19	Radio Direction Finder	
2.20	Ship Security Alert System (SSAS)	
2.21	Watch receiver on 2182 kHz	
2.22	GMDSS Distress Alarm panel	
2.23	Power switchboards	

Table 3.1: Physical realism		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
2.24	Charging unit control panel	
2.25	Steering panel for changing of ship speed and course	
2.26	Virtual printer	
2.27	Real printer	

Table 3.2: Behavioral realism		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
<i>1. The simulator shall provide the instructor with the following capabilities:</i>		
1.1	to join the trainees in the training groups where each trainee is assigned parameters (identifiers) of a specific object (some ship or coast radio station)	
1.2	to register the trainees, providing for the registration a list of any of the previously compiled groups; to monitor the registration process	
1.3	to select and run independent sessions in a training group	
1.4	if required, switch any of the trainees from the group operation mode to the Standalone mode	
1.5	to monitor the “ether” in the process of the exercise conduct, at any of the frequencies used by the trainees, and interfere in their traffic; to introduce noise	
1.6	to perform functions of a coast telex or phone subscriber, coast radio station and RCC operator	
1.7	to playback radiotelephone communications	
1.8	to look through the log of messages transmitted by using the DSC, radio telex, satellite communication systems	
1.9	to set and promptly change the trainee ships’ positions by using an electronic chart	
1.10	to generate exercise scenarios, to use these scenarios during the classes	
1.11	to interrupt the conduct of an exercise at any time	
1.12	to disable HELP-system on the trainee workplaces	
1.13	to disable automatic DSC acknowledgement	
1.14	at any time after the end of work with a group, to view the exercise log containing the list of messages transmitted by using the DSC, radio telex, satellite communication systems, as well as some of the trainee actions; to print out the exercise log	
1.15	to edit the database on objects (ships or coast radio stations) and use it in the compiling of new groups and scenarios	
1.16	to monitor the operator procedures at any workplace on the real time scale	
1.17	to use the status window of all the instruments at any workplace	
1.18	to use database on the coast radio stations, NAVTEX stations and INMARSAT shore based stations plotted on the chart	

Table 3.2: Behavioral realism		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
1.19	to display information on the GMDSS Sea Areas and division of search and rescue regions (SRR)	
1.20	a rough estimate of the radio waves propagation in the selected frequency band by using electronic chart	
<i>2. The behavior realism of radio communication station:</i>		
2.1	When simulating real equipment the behavior of such simulated equipment should behave as identical as possible as the original. Critical functionality shall be documented	
2.2	The simulated equipment should resemble especially important radio-technical variables, such as but not limited to: <ul style="list-style-type: none"> • Distance limitations • VHF line of sight communication • VHF/MF/HF power limitation • MF ground wave propagation • HF atmospheric propagation and reflection • Inmarsat Link Test and log on/off various satellites • EGC test • EPIRB/SART/Port VHF/Navtex functions 	
2.3	The simulated equipment should resemble especially important radio-technical variables, such as but not limited to: <ul style="list-style-type: none"> • Distance limitations • VHF line of sight communication • VHF wattage limitation 	
2.4	It shall be possible to use different communication systems at the same time	

Table 3.3: Operating environment		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
1	The simulator shall create a real-time operating environment, consisting of an integrated system, incorporating at least one instructor/assessor station and at least two GMDSS ship or shore stations	
2	The communication station shall be able to receive and transmit messages to the “real world” as virtualized by the simulator (instructor or other learner).	
3	The instructor shall be able to position the learner in “real” position all around the world	
4	The simulator shall provide voice communication	
5	The instructor shall be able to introduce variable background noise, relevant to the location and time of day, for each frequency used	

11. ECDIS SIMULATOR REQUIREMENTS

The ECDIS simulator shall fulfil the requirements given in the IMO Model Course 1.27 “Operational Use of ECDIS” (2012 Edition) and summarized in the Table 4

Table 4: ECDIS simulator requirements		
<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
<i>1. The following training facilities shall at least be included in the simulator:</i>		
1.1	<p>Trainee Workstation:</p> <ul style="list-style-type: none"> • Workstation with dual/triple monitor display to meet minimum ECDIS display requirements, compatible operating system sufficient to run ECDIS software and electronic chart data • Workstation to be integrated into server network with navigational and ship control functionality to allow trainee to interact with other trainees and the instructor’s workstation • The ECDIS display is to be provided on one monitor • The other monitor to provide information on <ul style="list-style-type: none"> ➤ (simplified) ship controls ➤ Navigational instruments ➤ Radar <p>This could be on either a split screen or menu selection or both. For added realism and taking of visual bearings, the system may also show visuals from a bridge lookout perspective if split-screen functionality is provided</p> <ul style="list-style-type: none"> • The ECDIS display to be able to show both radar and AIS data along with chart data and Navtext messages. 	
1.2	<p>Instructor Workstation:</p> <ul style="list-style-type: none"> • Single workstation with either dual monitor display to meet minimum ECDIS display requirements or a single larger display able to offer display requirement equivalent functionality through split screen capability • Workstation with simulator instructor controls and monitoring software that is able to design exercises locally and execute and playback these exercises at any workstation • Instructor’s workstation and server/network may be contained in one unit 	
1.3	<p>Server/Network</p> <ul style="list-style-type: none"> • Server system of sufficient capability to store and run the required software and data • Simulator system software installed with suitable own ship models of different characteristics and geographical sea and coastal training areas including Fictitious area. • Full network control, which is interfaced with installed simulator software 	
1.4	<p>Projection Display</p> <p>A projection or other visual system to be provided so that exercises for group demonstration of ECDIS functionality, own ship control and techniques of ECDIS-based navigation can be displayed for instruction and feedback.</p>	
<i>2. The following specific equipment training shall at least be provided by the simulator:</i>		
2.1	Familiarization with available functions	

Table 4: ECDIS simulator requirements

Item	Requirement	Compliance
2.2	Familiarization with the menu structure	
2.3	Display setup	
2.4	Setting of safety values	
2.5	Recognition of alarms and malfunction indicators and the actions to be taken	
2.6	<p>Chart handling:</p> <ul style="list-style-type: none"> • request/order licenses and updates, selected by <ul style="list-style-type: none"> ➤ electronic chart catalogue ➤ country(ies) chart folios ➤ pre-planned route • request/order specified weather forecast, selected by <ul style="list-style-type: none"> ➤ area ➤ pre-planned route • installing licences including permits, electronic navigational charts (ENC/SENC format) and update files • installing raster navigational charts (ARCS format) including permits and update files • installing admiralty information overlays (AIOs) • installing weather forecast • presenting weather forecast on the chart display • all chart handling topics done in real-time on a real-time working system 	
2.7	<p>Advanced route planning including:</p> <ul style="list-style-type: none"> • route plotting • schedule calculation • tidal and surface current • weather routing • creating user maps 	
2.8	Route monitoring, including manual corrections	
2.9	<p>Changing over to backup systems.</p> <p>Explain the intent of regulations on ECDIS back-up arrangements:</p> <ul style="list-style-type: none"> • The regulations on ECDIS back-up arrangements intend that backup is ensured through electronic and/or paper chart options • The installation of a duplicate set of ECDIS equipment combined in a single computer network where each ECDIS workstation is connected to the navigational sensors and assigned “Master” or “Slave” status, guarantees interchangeability without loss of data in case of failure of one of the systems • The availability of an updated paper chart collection is required where a single set of ECDIS equipment is installed (standalone), or when ENC coverage for the intended route is unavailable, such as when raster or proprietary chart data is provided instead of ENC data • The purpose of the backup arrangement is to preserve the safety of navigation in the event of degradation or loss of the ECDIS as the primary means of navigation 	
2.10	The opportunity of updating software	

12. RADAR - ARPA SIMULATOR REQUIREMENTS

The Radar/ARPA simulator shall fulfil the requirements given in the IMO Model Course 1.07 “Radar Navigation – Operational level” (2012 Edition) and summarized in the Table 5

Table 5: Radar/ARPA classroom simulator requirements		
Item	Requirement	Compliance
1. The following training facilities shall at least be included in the simulator:		
1.1	<p>Trainee Workstation:</p> <ul style="list-style-type: none"> • Workstation with dual monitor display to meet minimum Radar/ARPA display requirements, compatible operating system sufficient to run Radar/ARPA software and electronic chart overlay • Workstation to be integrated into server network with navigational and ship control functionality to allow trainee to interact with other trainees and the instructor’s workstation • The Radar/ARPA display is to be provided on one monitor • The another monitor to provide information on <ul style="list-style-type: none"> ➢ (simplified) ship controls ➢ Navigational instruments This could be on either a split screen or menu selection or both. For added realism, the system may also show visuals from a bridge lookout perspective if split-screen functionality is provided • The Radar/ARPA display to be able to show both radar and AIS data along with chart data 	
1.2	<p>Instructor Workstation:</p> <ul style="list-style-type: none"> • Single workstation with either dual monitor display to meet minimum Radar/ARPA display requirements or a single larger display able to offer display requirement equivalent functionality through split screen capability • Workstation with simulator instructor controls and monitoring software that is able to design exercises locally and execute and playback these exercises at any workstation • Instructor’s workstation and server/network may be contained in one unit 	
1.3	<p>Server/Network</p> <ul style="list-style-type: none"> • Server system of sufficient capability to store and run the required software and data • Simulator system software installed with suitable own ship and target ship models of different characteristics and geographical sea and coastal training areas. • Full network control, which is interfaced with installed simulator software 	
1.4	<p>Projection Display</p> <p>A projection or other visual system to be provided so that exercises for group demonstration of Radar/ARPA Radar/ARPA functionality, own ship control and</p>	

Table 5: Radar/ARPA classroom simulator requirements

Item	Requirement	Compliance
	techniques of radar-based navigation can be displayed for instruction and feedback.	
<i>2. The following specific radar display functionality shall at least be provided by the simulator:</i>		
2.1	Range scales from 0.125 to 96 nautical miles	
2.2	Display modes: Head Up, North Up, Course Up, TM, RM (T), RM(R)	
2.3	Graphic display elements: Heading line, Cursor, ERBL, VRM, Parallel index lines dropped and carried, Marks dropped and carried, Range rings, Guard zones, Track history, Vectors (true, relative), Rotating cursor, Root (WP), User charts, ARPA marks, AIS targets, Consistent Common Reference Point (CCRP)	
2.4	Video display effects: Sea and rain clutters, Noises, Blind sectors, Ice echoes, Radar shadowing effect, Target trails, , Zoom, Ship roll and pitch effect.	
2.5	Video display controls: Tx/StBy, X/S-band, Center and ERBL shift, Pulse length, Gain, Tune, Anti-Clutters, Video Boost, Correlation, Echo stretch, Echo average, Echo multi colors	
2.6	Up to 4 pallets types with common and individual brightness adjustment	
2.7	Electronic chart overlay	
2.8	Quality of radar picture representation must not be dependent on the set range scale (e.g. short ranges representation has to be of the same quality as long ranges representations)	
2.9	The radar image generator Software must be independent of the monitor resolution and show the same representation quality without any distortions on different resolutions including wide screens	
<i>3. The following specific ARPA functionality shall at least be provided by the simulator:</i>		
3.1	Acquisition modes: manual, automatic (Guard zone)	
3.2	Target canceling modes: manual, automatic	
3.3	Acquisition boxes and alarm symbols	
3.4	Tracking data output time: inaccurate data – 50 sec, accurate data – 3 min	
3.5	Simultaneous tracking of up to 50 targets	
3.6	Display of target information: RANGE, BEARING, CPA, TCPA, COURSE, SPEED, CBR and CBT	
3.7	Visual and acoustic alarms: BOW CROSSING, CPA/ TCPA, GZ1 GZ2, LOST TARGET, and TARGET STORE FULL	
3.8	Interception targets functionality	

Table 5: Radar/ARPA classroom simulator requirements

<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
3.9	Output of target information in NMEA format	
3.10	Selectable CPA, TCPA, BCR and TBC limits	
3.11	Tracking history	
3.12	Trial maneuver	
3.13	AIS targets' static, dynamic and voyage data	
3.14	Sleeping AIS targets	
<i>4. The following specific radar transmitter functionality shall at least be provided by the simulator:</i>		
4.1	Operating ranges (S-band, X-band)	
4.2	Antenna rotation from 20 to 48 RPM	
4.3	Selectable width of directivity pattern, both vertical and horizontal	
4.4	Selectable antenna height	
4.5	Selectable antenna tilt angle	
4.6	3 blind sectors	
<i>5. The simulated video signal shall at least contain the following components:</i>		
5.1	Direct echo from ships (tugboats, barges, etc.)	
5.2	Direct echo from helicopters	
5.3	Indirect echo (echoes from own ships superstructures)	
5.4	Multiple echo (echoes from own ships hull)	
5.5	Echoes, coming from side lobes	
5.6	Echo from the coast and coastal objects	
5.7	Echo from aids to navigation (buoys, lighthouses)	
5.8	Racon signals	
5.9	SART signals	
5.10	Echo from rain cloud (rain clutter)	
5.11	Echo from waves (sea clutter)	
5.12	Interference from other radars	

Table 5: Radar/ARPA classroom simulator requirements

<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
<i>6. Video signal shall at least exhibit the following effects:</i>		
6.1	Attenuation of signal with distance	
6.2	Additional attenuation of signal as a rain cloud is passed	
6.3	Shadowing of a ship by another ship	
6.4	Shadowing of a ship by the coast	
6.5	Shadowing of a costal object by another one	
6.6	Curvature of the earth surface	
6.7	Tidal height	
6.8	Reflection from ship structures (multiple and indirect echo)	
6.9	Shadowing by ship structures (blind sectors)	
6.10	Transmitting power	
6.11	Antenna directivity (vertical and horizontal)	
6.12	Bandwidth	
6.13	Pulse length	
6.14	Repetition frequency	
6.15	Radar gain	
6.16	Radar sea clutter suppression	
6.17	Radar rain clutter suppression	
6.18	Video boost	
6.19	Interference rejection	
6.20	Influence of ship own ship roll and pitch	
<i>7. Instructor controlled ARPA/Radar effects shall at least include:</i>		
7.1	Initiate display of multiple echoes from any target	
7.2	Initiate display of indirect echo from any target	
7.3	Initiate display of interference from other radars	
7.4	Increase receiver noise	

Table 5: Radar/ARPA classroom simulator requirements

<i>Item</i>	<i>Requirement</i>	<i>Compliance</i>
7.5	Hide visibility of targets	
7.6	Switch video signal on\off	
7.7	Switch ARPA on\off	



TENDER SPECIFICATIONS FOR
HIGH VOLTAGE ENGINEERING
SIMULATOR

PAKISTAN MARINE ACADEMY, KARACHI

1. **General.**

1.1 The 2010 Manila amendments to the STCW code has brought in the requirement for Marine engineers to undergo education and training in High Voltage systems for ships, at both the operational and management levels. This requirement has already come into force from 01 January 2017. A High Voltage system on board a ship is where high voltage is generated and distributed or transformed to and distributed at high voltage. Marine engineers employed on board such ships are mandatorily required to undergo High Voltage training course. The practical element of training requires safety training on real equipment, which does not necessarily have to be live equipment.

1.2 The requirement is for one High Voltage Engineering simulator for training on high voltage electric propulsion ships. These specifications describe the basic requirements for the equipment for the High Voltage Engineering simulator. The tenderers MUST submit with their offers the detailed specifications, drawings, illustrations diagrams, part numbers, etc for the components they intend to use in manufacturing the simulator. Failure to submit components details as specified SHALL lead to automatic disqualification.

1.3 Tenderers must indicate on the compliance specifications sheets whether the equipment offered complies with each specific requirement.

1.4 All the functionalities and capacities of the equipment to be supplied shall not be less than those required in these specifications. Deviations from the basic requirements, if any, shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. The procuring entity reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.

1.5 The tenderers are requested to present information along with their offers as follows:-

- (c) Shortest possible delivery period of each product
- (d) Information on proper local representative with an existing and established local service support for at least 3 years and/or for back-up service/repair and maintenance including their names, addresses, experience details and company profile.

2. **Technical Requirements & Specifications.**

2.1 The proposed high voltage training breaker shall be capable of meeting following training objectives:-

- Understanding safety as personal responsibility
- Electricity and work planning
- Identification of hazards
- Emergency procedures and contacts/ location of emergency gear
- Knowledge of circuits/ power feeds/ emergency shutdown and isolation devices
- Company protocols
- Isolation of breakers in ships electrical systems
- The use of test equipment
- Personal protective equipment
- Definition and identification of circuit condition/ energized work conditions
- Practical assessment of personnel and assignment of work/ qualification of worker

2.2 The simulator should be capable of complete safe removal and replacement procedure to be conducted for training and assessment. These include the isolation of both mechanical and electrical isolation of generator system prior to the start of work. All tools, test equipment

and personal protective equipment required to carry out the operation are to be supplied with the breaker. This should also include a breaker cart.

2.3 A 'turnkey' simulation solution for a professional High voltage breaker using real hardware from a reputed company like ABB (HD4 or VD 4), Hyundai, Siemens or Mitsubishi. The simulation breaker shall be capable of operating up to 6600 V and fitted with earthing arrangements and safety interlocks meeting following criteria:-

- (a) 3 phase
- (b) 60hz
- (c) Generators 3350 to 4000 KW

2.4 The simulator manufacturer OEM shall be ISO 9001 Quality certified. The proposed simulator should be inter-connected and integrated with the existing Full mission engine room simulator installed at Pakistan Marine Academy, Karachi. Necessary required hardware for integrating the High voltage simulator with Full Mission engine room simulator is to be included in the proposal.

2.5 The lower part of the breaker should consist of a real breaker operated by the simulator electrical system mathematical model. The upper panel should contain the instruments and controls for a typical high voltage generator. The controls and instruments should be connected to the simulator model via a digital analogue interface.

2.6 In order to simulate LCD type Power Management System controllers a specially developed small touch screen display should be available simulating the controller functionality.

2.7 Due to safety reasons high voltages are not to be used within the training breaker. The presence of high voltages is to be simulated using low powered radio signals. A specially adapted high voltage probe should be able to signal the presence of voltage on the bus bars using a specially adapted test probe with neon light indication.

2.8 The tenderer is to supply mandated High voltage Personal Protective Equipment as part of the training breakers equipment, viz, Safety kit (Rating-40cal/cm²) : jacket and trousers, helmet and visor, storage bag, balaclava, kit bag. Gloves (Rating-Class 2).

2.9 The type of ship model with suitable propulsion system high voltage training and detailed technical specifications of the proposed simulated ship model installed with High voltage breaker are to be provided along with tender proposal.

2.10 A trolley for the proposed High voltage breaker (in the middle section) should also be included in the scope of delivery.

2.11 The proposed equipment scope of supply may also include following items:-

- (e) Rubber mat (Rating - 27kV)
- (f) Earthing clamps (Rating-23,7kA/1 sec, Size – 3 x 120mm² - 1x 70mm²)

2.12 Detailed drawings of the proposed HV engineering simulator are to be provided along with tender proposal.

3. **Warranty Support and Trainings.**

3.1 The proposal should include details of instructor and maintainer trainings proposed to be conducted for on site at PMA Karachi post installation of the simulator.

3.2 At least 12 months of warranty support is to be provided post installation and commissioning of the simulator at PMA Karachi.

3.3 The detailed proposal is to include packing, delivery and installation charges on site at PMA Karachi.

Invitation for Tender and Instructions to Bidders

M/S _____

Subject: - **PROCUREMENT OF ECIDIS , GMDSS, RADAR-ARPA AND HIGH VOLTAGE SIMULATORS**

Dear Sir,

We are pleased to invite your sealed tenders for the items listed in the attached schedule-A.

The terms & conditions of the tender / supplies are given below:-

A) SUBMISSION OF TENDER

1. You are required to send / drop your sealed tender by observing the following:
 - It is on **Single Stage Two Envelope Basis**.
Both envelopes should be separately sealed, (and marked as) Technical Proposal and Financial Proposal.
 - Bids should be submitted to undersigned:
Latest by (16th August, 2017), Wednesday, until (1230) Hrs.
Bids shall be opened on the same day at (1230 hours).
 - Bids may also be sent through registered A/D mail / Courier, which must reach before the closing date and time (mentioned above) on the following address:
Nazir Ahmed Lanjwani
Administrative Officer
Pakistan Marine Academy
Hawks bay Road, Mauripur
Karachi.
021-99241201-05
 - Tenders received after stipulated date & time shall not be considered. The Academy will not be responsible for postal delays. The decision of Commandant PMA in this respect shall be final and binding.

Sign & Official Seal of Bidders

Invitation to Tender and General Instructions

1. **Conditions Governing Contracts.** The 'Contract' made as result of this I/T shall mean the agreement entered into between the parties i.e. the 'Purchaser' and the 'Seller' on PMA contract Form in accordance with the law of contract Act, 1872 and other special conditions that may be added to given contract for the supply of special Stores specified herein.
2. **Delivery of Tender.** The offer is to be submitted as under:-
 - a. **Commercial Offer.** The offer will indicate prices quoted in figures as well as in words along with essential literature/brochure. It should be clearly marked in fact on the envelope "Commercial Offer", tender number and date of opening. Taxes, duties, freight/transportation, insurance charges etc. are to be indicated separately. Total price of the items quoted against the tender is to be clearly mentioned.
 - b. **Technical Offer: (Where Applicable).** Technical offer should contain all relevant specifications along with essential literature/ brochures and drawings in an envelope and clearly marked "Technical Offer" without prices, tender number and date of opening.
 - c. **Special Instructions.** Tender documents and its conditions may please be read point by point and understood properly before quoting. All tender conditions should be responded clearly. In case of any deviation due to non-acceptance of tender conditions(s), the same should be highlighted along with your changed offer/conditions. Tender may however be liable to be rejected.
 - d. Firms shall submit their offers in two separate envelopes (i.e. One containing commercial offer and second containing technical offer. The commercial offer will include rates of items/services called for and the technical offer will not indicate the rates. Both types of offers are to be enclosed in separate covers and each envelope shall be properly sealed bearing the signature of the bidder. Each cover shall indicate type of offer, number and date of International Tender and its opening date. Thereafter both the envelopes (technical and commercial offer) shall be placed in one envelope (second cover) duly sealed and signed. This cover should bear the address of the procurement agency indicating, issuance date of IT and No, with its opening date. This should be further placed in another cover (third cover), addressed as indicated in the tender documents, without any indication that there is a tender within it.
 - e. The tender duly sealed will be addressed to the following:-

Administrative Officer
Pakistan Marine Academy
Hawksbay Road
Karachi, PAKISTAN

Telephone: +92-21-99241201-5 (five lines)

Fax No. +92-21-99241206

E-Mail: commandant@marineacademy.edu.pk

3. **Date and Time For Receipt of Tender.** Tender must reach this office by the date and time specified in the Tender. Delay occurring due to post would not be considered. Tenders received after the appointed/ fixed time will NOT be entertained. The appointed time will, however, fall on next working day in case of closed/forced holiday. Only legitimate/registered representatives of firm will be allowed to attend tender opening.

4. **Tender Opening.** Tenders will be opened as mentioned in the schedule to tender. Commercial offers will be opened at later stage if Technical Offer is found acceptable on examination by technical authorities. Date and time for opening of Commercial offer shall be intimated later. Only legitimate / registered representative of firm will be allowed to attend tender opening.

5. **Validity of Offer.**

a. The validity period of quotations must be indicated and should invariably be 90 days extendable to 120 days from the date of opening of Tender. Conversion rate of FE/LC components will be considered w.e.f. opening of commercial offer.

b. The quoting firm will certify that in case of an additional requirement of the contract items (s) in any qty(s) with in a period of 12 month from the date of signing the contract, these will also be supplied (at the ongoing contract rates) with discount.

6. **Part Bid.** Firm must quote for the complete portion, Partial Bids are not acceptable

7. **Quoting of Rates.** Only one rate will be quoted for entire quantity.

8. **Return of I/T.** In case you are not quoting, please return the tender inquiry stating the reason of NOT quoting. In case of failure to return the ITs either quoted or not quoted consequently on three occasions, in the interest of economy, may result in the exclusion of your firm's name from our future distribution list of invitation to tender.

9. **Withdrawal of Offer.** Firms shall not withdraw their commercial offers before signing of the contract and within validity period of their offers. In case the firm withdraws its offer within validity period and before signing of the contract, Earnest Money of the firm shall be confiscated and disciplinary action may also be initiated for embargo up to 01 year.

10. **Provision of Documents in case of Contract.** In case any firm wins a contract, it will deposit following documents before award of contract:

- a. A copy of letter showing firm's financial capability.
- b. Foreign Seller has to provide its Registration Number issued by respective Department of Commerce authorizing export of subject stores.
- c. Principal/Agency Agreement.

11. **Purchase of Tender**

- a. Technical Offers must be accompanied with purchase of Tender receipt

12. **Inspection Authority.** Inspection will be carried out by PMA, Specialist User or a team nominated by PMA. .

13. **Condition of Stores.** Brand new stores will be accepted on Firm's Warranty/Guarantee

14. **Marking.** Stores should be clearly marked to make it easy to identify.

15. **Documents Required.** Following documents are required to be submitted along with the quote:

a. OEM/Authorized Dealer/Agent Certificate along with OEM Dealership Evidence.

b. The firm/supplier shall provide correct and valid Telephone, e-mail and Fax No to PMA. Supplier/contracting firm shall either provide OEM Conformance Certificate to PMA or is to be e-mailed to PMA. Hard copy of COC must follow in any case through courier. On receipt, PMA shall approach the OEM for verification of Conformance Certificates issued by OEM. Companies/firms rendering false OEM Conforming Certificates will be blacklisted.

c. Original quotation/proforma invoice.

d. In case of bulk proforma invoice, a certificate that prices indicated in the bulk proforma invoice have not been decreased since the date of bulk proforma invoice from the manufacturers/suppliers.

e. Submit breakup of cost of stores/services on the following lines:

(1) Imported material with break down item wise along-with import duties.

(2) Variable business overheads like taxes and duties imposed by the federal/provincial government as applicable:-

(i) General Sales Tax

(ii) Income Tax

(iii) Custom Duty. PCT code along with photocopy of the related page is to be attached where applicable.

- (iv) Any other tax/duty.
- (3) Fixed overhead charges like labour, electricity etc.
- (4) Agent commission/profit, if any.
- (5) Any other expenditure/cost/service/remuneration as asked for in the tender.

16. **Rejection of Stores/Services.** The stores/services offered as a result of contract concluded against this tender may be rejected as follows:

- a. 1st rejection on Govt. expense
- b. 2nd rejection on supplier expense
- c. 3rd rejection contract cancellation will be initiated.

17. **Correspondence.** All correspondence will be addressed to the Purchaser.

18. **Pre-shipment Inspection.** PMA may send a team of officers for the inspection of major equipment and machinery items at OEM premises as per terms of contract.

19. **Amendment to Contract.** Contract may be amended/modified to include fresh clause (s) modify the existing clauses with the mutual agreement by the supplier and the purchaser; such modification shall form an integral part of the contract.

20. **Discrepancy.** The consignee will render a discrepancy report to all concerned within 60 days after receipt of stores for discrepancies found in the consignment. The quantities found short are to be made good by the supplier, free of cost.

21. **Price Variation.**

- a. Prices offered against this tender are to be firm and final.
- b. Where the prices of the contracted stores/raw material are controlled by the government or an agency competent to do so on government behalf then price increase/decrease will be allowed at actual on case to case basis on production of government notification by the Supplier for the subject stores where the firms are contractually obliged and bound to produce the stores from raw materials supplied by government/State controlled departments in consultation with Military Finance.

c. Except for calculation or typographical errors, the rates of the contracts not having a price variation clause PVC clause will not be increased subsequently. But when such an increase is considered desirable in the interest of expeditious supply of stores and is necessitated by the circumstances beyond the control of the Supplier, the case may be decided accordingly.

22. **Price Reduction (PR).** In case the stores on inspection are found to be below the stipulated specification and these are proposed to be accepted by the inspector under deviation subject to be certain price reduction, the relevant Inspection Note may be released and stores dispatched to the consignee with the following endorsement on the Inspection Note:

“Accepted under deviation with certain price reduction, as recommended on deviation form, which is subject to final approval/decision by the Purchaser”

The supplier will not submit the bills unless price reduction aspect is finally decided upon by the purchaser and formal amendment to this effect is issued in the contract.

23. **Buy back.** The seller will buy back the spares/items supplied as a part of this tender at the selling price, which are no longer required as indicated by the buyer within five years from the final acceptance of the spares/items.

24. **Force Majeure.** The supplier will not be held responsible for any delay occurring in supply of equipment due to event of Force Majeure such as acts of God, War, Civil commotion, Strike, Lockouts, Act of Foreign Government and its agencies and disturbance directly affecting the supplier over which events or circumstances the supplier has no control. In such an event the supplier shall inform the purchaser within 15 days of the happening and within the same timeframe about the discontinuation of such circumstances/happening in writing. Non-availability of raw material for the manufacture of stores, or of export permit for the contracted stores from the country of its origin, shall not constitute Force Majeure.

25. **Arbitration.** All matters of dispute or difference regarding rejection of stores by the inspector or cancellation of the contract by the Purchaser, arising out of the contract finalized between the parties thereto, the settlement of which is not otherwise specially provided for in the contract, shall be referred to arbitration as under:

Indigenous (FOR etc) Contracts. The settlement of dispute is not otherwise specially provided for in the contract, through arbitration clause in the contract shall be referred to the decision of Secretary, Ministry of Port and Shipping. His decision shall be final and binding on both the parties. Work under the contract shall if reasonably

possible continue, under the proceedings before the said Secretary and no payments payable by the Director shall be withheld on the account of such proceeding unless they are subject of the dispute.

26. **Court of Jurisdiction.** In case of any dispute only court of jurisdiction at Karachi shall have jurisdiction to decide the matter. (1). The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party. Who before entering upon the reference shall appoint an umpire by mutual agreement and if they do not agree a judge of the Superior Court will be requested to appoint the umpire. The arbitration proceedings shall be held in Pakistan and under Pakistan Law.

(2). The venue of arbitration shall be the place from which the contract is issued or such other places as the Purchaser at his discretion may determine.

(3). Arbitration award so given will be firm and final.

27. **Liquidated Damages(LD).** Liquidated Damages upto 2% per month are liable to be imposed on the suppliers by the purchaser, if the stores supplied after the expiry of the delivery date without any valid reasons. Total value of LD shall not exceed 10% of the contract value.

28. **Risk Purchase.** In the event of failure on the part of supplier to comply with the contractual obligations the contract will be cancelled at the Risk and Expense of the supplier.

29. **Penalty.** In case of wrong supply of the item or any breach of the contractual terms & conditions by the supplier, a penalty may be imposed by PMA

30 **COMPENSATION BREACH OF CONTRACT.** If the contractor fails to supply the contracted stores or contract is cancelled either on RE or without RE or contract become ineffective due to default of supplier / seller or stores / equipment declared defective and caused loss to the Government, contractor shall be liable to pay to the Government compensation for loss or inconvenience resulting for his default or from the rescission of his contract when such default or rescission take place such compensation will be in excess to the RE amount, if imposed by the competent authority. Compensation amount in terms of money will be decided by the purchase officer and will be deposited by contractor / seller in Government treasury in the currency of contract.

31. **Gratuities/Commission/Gifts.** No commission, rebate, bonus, fee or compensation in any form shall be paid to any local or foreign agent, consultant representative, sales promoter or any intermediary by the Manufacturer/Supplier except the agent commission payable as per the agent commission policy of the government and as amended from time to time and given in the contract. Any breach of such clause(s) of the contract by Manufacturer/Supplier and/or their sole nominated representative may result in cancellation

of the contract blacklisting of the Manufacturer/Supplier financial penalties and all or any other punitive measure which the purchaser may consider appropriate.

32. **Termination of Contract.**

a. If at any time during the currency of the contract the Purchaser decides to terminate the contract for any reason whatsoever (other than for reasons of Non-Delivery) he shall have right to do so by giving the Supplier a registered notice to that effect. In that event the Purchaser will accept delivery at the contract price and terms of such stores/goods/services which are in the actual process of manufacture that is completed and ready for delivery within thirty days after receipt by the Supplier of such notice.

b. In the case of remainder of the undelivered stores/goods/services the Purchaser may elect either:

(1). To have any part thereof completed and take the delivery thereof at the contract price or.

(2). To cancel the remaining quantity and pay to the Supplier for the articles or sub-components or raw materials purchased by the Supplier and are in the actual process of manufacture at the price to be determined by the Purchaser. In such a case materials in the process of manufacture shall be delivered by the Supplier to the Purchaser.

(3). No payment shall however be made for any materials not yet in the actual process of manufacture on the date notice of cancellation is received.

c. Should the Supplier fail to deliver goods/services in time as per quality terms of contract or fail to render Bank Guarantee within the stipulated time period or any breach of the contract the Purchaser reserves the right to terminate/cancel the contract fully or any part thereof at the risk and expense (RE) of the Supplier.

33. **Rights Reserved.** Commandant Pakistan Marine Academy, Karachi reserves full rights to accept or reject any or all offers including the lowest, by giving the reasons in writing to the participants.

34. **Application of Official Secrets Act, 1923.** All the matters connected with this enquiry and subsequent actions arising there from come within the scope of the Official Secrets Act, 1923. You are, therefore, requested to ensure complete secrecy regarding documents and stores concerned with the enquiry and to limit the number of your employees having access to this information.

35. **Acknowledgment.** Firms will send acknowledgement slips within 07 days from the date of downloading of IT from the PPRA Website i.e. WWW.PPRA.ORG.PK

36. **Disqualification.** Offers are liable to be rejected if:-

- a. Received later than appointed/fixed date and time.
- b. Offers are found conditional or incomplete in any respect.
- c. There is any deviation from the General /Special/Technical Instructions contained in this tender.
- d. Taxes and duties, NOT indicated separately as per required price breakdown mentioned at Para 17.
- e. Purchase of tender receipt is NOT attached with the offer.
- f. Multiple rates are quoted against one item.
- g. Manufacturer's relevant brochures and technical details on major equipment assemblies are not attached in support of specifications.
- j. Subject to restriction of export license.
- k. Offers (commercial/technical) containing non-initialed/ unauthenticated amendments/corrections/overwriting.
- l. If the validity of the agency agreement is expired.
- m. The commercial offer against FOB/CIF/C&F tender is quoted in local currency and vice versa.
- n. Principals invoice in duplicate clearly indicating whether prices quoted are inclusive or exclusive of the agent commission is not enclosed.
- p. Earnest money is not provided.
- q. Earnest Money is not provided with the technical offer (or as specified).
- r. If validity of offer is not quoted as required in IT or made subject to confirmation later.
- s. Offer made through Fax/E-mail/Cable/Telex.
- t. If offer is found to be based on cartel action in connivance with other sources/ participants of the tender.
- u. If OEM and principal name and complete address is not mentioned.

37. **Appeals by Supplier/Firm.** Any aggrieved Supplier/Firm against the decision or any other problematic area towards the execution of the contract may prefer an Appeal to Standing Appeal to the Competent Authority Pakistan Marine Academy, Karachi. The detail and timeline for preferring appeals is given below:

S.No.	Cetegary of Appeal	Limitation Period
1.	Appeals for liquidated damages	Within 30 days decision
2.	Appeals for reinstatement of contracts	Within 30 days decision
3.	Appeals for risk & expense amount	Within 30 days decision
4.	Appeals for rejection of stores	Within 30 days decision
5.	Appeals in all other Cases	Within 30 days decision

38. **Limitation.** Any appeal received after the laps of timelines given in para 37 above shall not be entertained.

39. The above terms and conditions are confirmed in total for acceptance.

Sincerely yours,

(To be Signed by Officer Concerned)

Rank: _____

NAME: _____

NOTES

1. **FORM and Questionnaires.** Form and Questionnaires duly filled in are to be returned with the offer duly signed by the authorized signatory/person. It is pertinent to mention that all these are mandatory requirement for participation in the tender.

(Signatures of Tenderer)

.....
(Capacity in which signing)

INVITATION TO TENDER FORM

1. Schedule to Tender No _____ dated _____. This tender will be closed for acceptance at _____ hours and will be opened at _____ hours on _____. Please drop tender in the Tender Box No _____.

2. You are requested to please use this Performa for price quotation, fill in the prices, affix your stamp on the same and forward it in original as your Commercial offer along with the covering letter of your firm. If you do not use this form for price quotations your offer might be rejected.

S NO	DETAIL OF STORES	QTY/ UNIT	UNIT PRICE	TOTAL PRICE
1.	ECDIS , GMDSS, RADAR –ARPA AND HIGH VOLTAGE SIMULATORS	01 No		
2		01 No		
	<u>SPECIFICATIONS AND SPECIAL INSTRUCTIONS:</u> AS PER ANNEX 'A'			
	<u>GENERAL REQUIREMENTS/CONDITIONS:</u> AS PER ANNEX 'C'			
	<i>Above mentioned price includes taxes if any (Please tick Yes or No)</i>			
	Yes	No		
	<u>Grand Total</u>			

Terms & Conditions

1. **Special Instructions.** Attached Special Instructions.

2. **Terms of Payment.**

a. 75% payment on delivery of

stores/equipment/software after
installation.

c. 25% payment on completion of
satisfactory training/trials and
subsequent acceptance by PMA after
copy of certified receipt voucher (CRV)
issued by Consignee.

3. **Origin of Stores.** EU/US
4. **Origin of OEM.** To be indicated
5. **Technical Scrutiny Report.** Required.
6. **Delivery Period.** 06 Months from the date of signing of contract.
7. **Currency.** Pak Rupees
8. **Basis for acceptance.** FOR Basis
9. **Bid validity.** At least 90 Days, extendable to 120 Days.
10. **Tendering procedure** Single Stage- Two Envelop bidding procedure will be followed. PPRA Rule 36 refers.
11. **Earnest Money/Bid Security:** Earnest Money/Bid Security **shall be submitted along with the technical offer in shape of Pay Order. Technical offers received without Earnest Money shall not be accepted and render for rejection.** Therefore, your tender must be accompanied by a Pay Order in favour of Commandant Pakistan Marine Academy, Karachi at the rate of 2% of total quoted amount
12. **Return of Earnest Money.**
 - a. The offers along with Earnest Money of the firms not qualified during technical scrutiny shall be returned within 03 days of receipt of TSR.

b. Earnest Money of the unsuccessful bidders other than the first three lowest quotes shall be returned instantly on the next day of commercial opening.

c. Earnest Money of the first lowest firm will be returned after the finalization of the contract.

13. **Special Note.**

a. All Participating firms must submit technical offers in Commercial offers separately

b. Firms are to submit a certificate along with their Technical offer stating that the firm is not black listed by any government organization and not under disciplinary trial or embargo.

d. Only registered suppliers on Active Taxpayers List (ATL) of FBR are eligible to participate in the Tender and submit quote.

e. Release of payments is subject to mandatory submission of Filer Certificate duly issued by FBR showing the name of supplier on Active Taxpayers List (ATL). No payment will be released by PMA unless latest Filer Certificate duly issued by FBR showing the name of supplier on its Active Taxpayers list is submitted along with payment documents.

f. In case of Pakistani firms, sales tax, NTN and income tax registration certificates are to be attached with the offer. These certificates are mandatory with the BID, otherwise offer shall be REJECTED.

g. Company registration certificates are to be attached with offer.

h. Requisite amount of earnest money (in shape of Pay Order in the favour of PMA) is to be attached with the Commercial offer. Cheques/crossed cheques shall not be accepted.

j. Duly completed Form are to be attached with Technical Offer.

Note: In case of failure to comply above instructions, Terms and conditions, offer will liable for rejection.

ANNEX 'A'
TENDER NO. _____

<u>S NO</u>	<u>GENERAL REQUIREMENTS/CONDITIONS</u>	<u>FIRM'S REPLY /REMARKS</u>
1.	<p align="right"><u>GENERAL</u></p> <hr/> <p>1. Genuine OEM parts are acceptable only. OEM certificate of conformity is to be provided at the time of delivery of stores. Non-genuine replacement/parts/spares are not acceptable.</p>	
2.	<p><u>TRAINING:</u></p> <p>Appropriate dedicated without any additional cost training by Supplier/Firms certified rep on equipment operation, safeties, theory of operation/software and appropriate maintenance, at the time of commissioning/trails. The offer must include following main features:</p> <ul style="list-style-type: none"> a. 5 days system operator training for 4 operators at Karachi, Pakistan. b. System maintainers training for 4 maintainers for onboard/depot level maintenance (as applicable) for technical officer/technicians at Karachi, Pakistan. 	
3.	<p>The Maintainer/Operator training should be such that the trainees are able to attain the following standards:</p> <ul style="list-style-type: none"> a. All training mentioned at Para-2 a & b must be complemented with requisite practical 'ON JOB' training. b. Supplier is to provide complete details of the syllabi for the categories of training stated in Para-2a & b to the buyer for agreement. c. On completion of the operator training; the trainees should be able to integrate/install the system. d. On completion of training for onboard maintainers; the trainees should be able to carry out all maintenance routines, fault diagnoses upto onboard/intermediate level, as applicable. e. The seller will provide all the training material including course notes/handouts and practical on job training. 	
4.	<p><u>TECHNICAL ASSISTANCE:</u></p>	

	<p>The OEM/OEM Principal will provide the services of its own qualified engineers and technicians to undertake all activities mentioned below.</p> <p>a. Installation of the equipment along with all the accessories/ancillaries including the feasibility study, design and interfacing, as applicable.</p>	
5.	<p><u>SYSTEM UPDATION:</u> 01 year system updation/services/software (as applicable) are to be provided by the manufacturer.</p>	
6.	<p><u>SOFTWARE SUPPORT:</u></p> <p>Backups of all software programmes including operating software/firmware (As applicable) software and requisite procedure (s) are to be provided.</p>	
7.	<p><u>INTERFACING/INSTALLATION:</u> The Supplier/Firm's is to initiate correspondence with the users soon after the contract to finalize/work out all installation/interfacing of equipment with the existing software (as applicable).</p>	
8.	<p><u>SYSTEM MAINTENANCE:</u> Supplier/firm's is to forward the list of special tools and test equipment and to indicate the levels of maintenance of the equipment, Technical publications/number and qualification of personnel required for each level,</p>	
9.	<p><u>INSTALLATION MATERIAL:</u> All requisite installation/rigging/interfacing materials/gears are to be provided by the supplier.</p>	
10.	<p><u>LOCAL MAINTENANCE SUPPORT:</u> Manufacturer is to indicate the local source of maintenance for the said equipment in Pakistan. Suitable means of support services must be indicated and its use is to be authorized to the buyer/PMA after purchase.</p>	
11.	<p><u>DOCUMENTATION:</u></p> <p>Following requisite documents alongwith circuit diagrams (if applicable) are to be provided both in printed form and on CD:</p> <p>a. Operator, User and Training Manuals. b. Maintenance Manual c. Technical/Workshop Manual (depot level maintenance, if applicable). d. Provision of Spare parts Catalogue with prices.</p>	

12.	<p><u>SPARES:</u></p> <p>The supplier will provide onboard/ready use spares including consumable (if applicable) to keep the system functional at its optimum performance for an operational period of one (01 year and depot level spares for three (03) years along with following information for each item and the same is also to be made part of the contract:</p> <ul style="list-style-type: none"> a. Part/Patt/Stock Number. b. Description/Nomenclatur c. Denomination. d. Shelf Life. e. OEM. f. Main Equipment. g. Price. h. Quantity Required. j.Special storage <p>requirement.</p>	
13.	<p><u>OEM Recommended Spares:</u></p> <p>The supplier shall provide OEM recommended list of spares and consumables based on maintenance routine for 03 years of operation of the indented item along with cost and procurement details with in 02 moths of signing of the contracts..</p>	
14.	<p><u>Post Spares/Support Services:</u></p> <p>Manufacturer should clearly certify that requisite spares/services would be available for at least next 10 years.</p>	
15.	<p><u>OBSOLESCENCE CLAUSE:</u></p> <p>Following obsolescence clauses will also be included in the contract as part of continuous logistic support:</p> <ul style="list-style-type: none"> a. In case of equipment becoming obsolete/obsolescent and the inability of the seller/OEM to provide spares support of equipment and repair of components/sub-systems, the seller undertakes to provide technical drawings and details of manufacturing processes to the buyer, free of charge, to enable the later to become self sufficient, should the buyer choose to so. b. In case of equipment becoming obsolete the supplier will replace the equipment with modified/substitute and shall charge from the buyer the difference of price of substitute/modified equipment and the previously supplied equipment (on case to case basis). 	
16.	<p><u>ACCEPTANCE CRITERIA:</u></p> <p>The seller will provide Setting of Work (STW) and Acceptance trails procedures (in English) three months The equipment will be checked/tested as per contract of the time of delivery at country of origin and at PMA and trials will be completed within 02 months after inspection.</p>	

17.	The final acceptance certificate will be signed by PMA only after successful completion of all acceptance.	
18.	<p><u>WARRANTY</u></p> <p><u>Hardware.</u></p> <p>Supplier should indicate the life expectancy of the equipment. Warranty for repairs/replacement of parts or whole system and services for minimum of 01 year and preferably 10 years period is required from the date of acceptance/trials, including free of cost replacement of required parts. Price catalogue of all spares/parts used in the equipment are to be forwarded by the manufacturer.</p>	
19.	<p><u>Software.</u> The software provided is to be under warranty for minimum of 01 year and preferably 05 years period from the date of final acceptance by PMA for any bugs found in operations. The supplier will guarantee that the software/firmware supplied under the terms of this contract are of the latest version and all modifications/updation have been incorporated in the software being supplied.</p>	
20.	<p><u>PAYMENT & PENALTY:</u></p> <p>In case the equipment/machinery does not pass the test/trials, the buyer has the right to out rightly reject the services or impose penalty at the rate of 2% to 5% of the value of the relevant equipment/items.</p>	
21.	The penalty shall not absolve the supplier to undertake the repairs in Pakistan or abroad at his cost and expenses including freight charges. This shall be in addition to other penalties and obligations covered in the contract like warrant/guarantee obligations	
22.	<p><u>PAYMENT SCHEDULE:</u></p> <p>a. 75% payment will be made on delivery of stores. b. 25% payment on completion of satisfactory trials/training/acceptance and handing over to PMA</p> <p>.</p>	
23.	<p><u>DELIVERY SCHEDULE:</u></p> <p>The Stores are to be delivered, installed and commissioned within 06 months after contract effective (CED). Training by Supplier on equipment operation, safeties, theory of operation/software and appropriate maintenance is to be delivered at the time of commissioning/trials.</p>	
24.	The seller will make the shipment on Local Delivery basis.	

25.	<p><u>TECHNICAL SCRUTINY (TSR):</u></p> <p>Technical scrutiny of the offers to be carried out by the PMA. Only those offers will be considered/scrutinized which are strictly prepared in a way where all required information as per tender is given in a clear reply i.e. complying/non complying followed by technical remarks/brief justification.</p>	
26.	<p><u>LOST/DAMAGE OF EQUIPMENT/SYSTEM:</u></p> <p>Pakistan Marine Academy will not be responsible for damage/loss of equipment partly/wholly and or corruption of softwares. The same will be provided/replaced free of cost by OEM/Supplier.</p>	
27.	<p><u>CONSIGNEE:</u></p> <p>Pakistan Marine Academy, Hawks bay Road, Karachi</p>	
28.	<p><u>END USER:</u></p> <p>Pakistan Marine Academy, Hawks bay Road, Karachi.</p>	
29.	<p><u>PACKING, HANDLING, STORAGE AND TRANSPORTATION</u></p> <p>The resources, processes, designs, methods and techniques to assure that all systems and equipment items, including support and training equipment are adequately protected during movement and storage.</p>	
30.	<p><u>INSPECTION:</u></p> <p>Joint inspection is to be carried out by PMA and Bidder, Karachi.</p>	
34.	<p><u>ADDITIONAL PURCHASE</u></p> <p>Buyer may procure/order additional sets and accessories within 01 year of successful trials of the initially procured system under this indent on the same/quoted price. The price for later system shall not be more than the price of the system initially procured under this indent.</p>	

CONTRACT

Tender No.....

Name of the Firm.....

Address.....

Date.....

Telephone No.

Official E-Mail.....

Fax No

Mobile No of contact person.....

To:

Pakistan Marine Academy
Karachi

Dear Sir

1. I/We hereby offer to supply to the PMA the stores detailed in schedule to the tender inquiry as you may specify in the acceptance of tender at the prices offered against the said schedule and further agree that this offer will remain valid up to **120 days** and will not be withdrawn or altered in terms of rates quoted and the conditions already stated therein or on before this date. I/we shall be bound by a communication of acceptance to be dispatched within the prescribed time.

2. I/We have understood the Instructions to Tenders and General Conditions Governing Contract and have thoroughly examined the specifications/drawings and/ or patterns quoted in the schedule hereto and am/are fully aware of the nature of the stores required and my/our offer is to supply stores strictly in accordance with the requirements.

3. The following pages have been added to and form part of this tender:

a.

b.

c.

Yours faithfully,

.....
(Signature of Tenderer)

.....
(Capacity in which signing)

Address:.....

Date.....

Signature of Witness.....

ADDRESS.....

*Individual signing tender and/or other documents connected with a contract must specify:-

- (a) Whether signing as “Sole Proprietor” of the firm or his attorney.
- (b) Whether signing as a “Registered Active Partner” of the firm or his attorney.
- (c) Whether signing for the firm “per procuracy”.
- (d) In the case of companies and firms registered under the Act, 1913 as amended up-to-date and under the Partnership Act 1932, the capacity in which signing e.g., the Director, Secretary, Manager, Partner, etc. or their attorney and produce copy of document empowering him so to sign, if called upon to do so.

- (e) Earnest money
- (f) Tender Purchase Receipt