



## STATEMENT

No. 202000186

To whom it may concern

It is hereby stated that the maritime bridge operation simulator identified as:

### **"Ship Bridge Simulator (v.2.0, Full Mission)"**

is in compliance with the RINA guide GUI34-ENG "Guide for Maritime Bridge Operation Simulators", which is based on the requirements of the IMO Standard of Training, Certification and Watchkeeping (STCW) Code, Section A-I/12, with the functionality and performance details, notes and remarks indicated in Annex I to this statement.

This statement is issued for the uses allowed by the law.

Issued at **GENOVA** on **July 14, 2020**



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## ANNEX I to Statement No. 202000186

Legenda:

C. Compliant

N.C. Not Compliant

N.A. Not Applicable

1. Layout		EVALUATION		
		C.	N.C.	N.A.
1.1	Equipment, consoles and workstations shall be installed, mounted, and arranged in a ship-like manner that would physically resemble a ship's navigating bridge. These hardware panels should have operational resemblance to actual shipboard equipment.	✓		
Evidence / note				
2. Simulator capabilities		EVALUATION		
		C.	N.C.	N.A.
2.1	The simulation of own ship shall be based on a mathematical model with 6 degrees of freedom.	✓		
2.2	The model shall realistically simulate own ship hydrodynamics in open water conditions, including the effects of wind forces, wave forces, tidal stream and currents.	Note 1		
2.3	The model shall realistically simulate own ship hydrodynamics in restricted waterways, including shallow water and bank effects, interaction with other ships and direct, counter and sheer currents.	✓		
2.4	The simulator shall include mathematical models of at least the types of own ship relevant to the training objectives.	✓		
2.5	The target ships shall be equipped with navigational — lights, shapes and sound signals, according to the "Rules of the Road". The signals shall be individually controlled by the instructor and the sound signals shall be directional and fade with range.	✓		
2.6	The simulator shall provide an own ship engine sound reflecting the power output.	✓		
2.7	The simulator shall be capable of providing environmental sound (e.g. wind) according to conditions simulated.	✓		
2.8	The simulation shall include the depth according to charts used, reflecting water level according to tidal water situation.	✓		
2.9	The simulator shall provide waves, variable in direction and strength.	✓		
2.10	It shall be possible to simulate usage of at least 4 tugs having different characteristics and response times for the purpose of mooring the vessel with the capability to control the power and orientation of the tugs (push and pull).	✓		

2.11	It shall be possible to berth and unberth a vessel using mooring lines with the capability to control run out, heave, slack, stop, let go the various mooring lines bearing in mind their breaking stress.	✓		
2.12	It shall be possible for Own ship to let go the bower anchors and control is pay-out as per the strain on the cable. The simulator shall have the capability to read the number of shackles out and the strain at any time	✓		
Evidence / note				
Note 1: Each ship model intended for use according to STCW A-I/12 should be tested before delivery, including, but not limited to, aspects related to maneuvering characteristics in open waters, emergency conditions, shallow waters, mooring and berthing.				
<b>3. Visualization</b>		<b>EVALUATION</b>		
		<b>C.</b>	<b>N.C.</b>	<b>N.A.</b>
3.1	The visual system shall show objects with sufficient realism (detailed enough to be recognized as in real life).	✓		
3.2	The simulator shall provide a realistic visual scenario by day, dusk or by night, including variable meteorological visibility, changing in time. It shall be possible to create a range of visual conditions, from clear to dense fog.	✓		
3.3	It shall be possible to take accurate bearings of objects seen on the screen.	✓		
3.4	It shall be possible to use magnified view for observations	✓		
3.5	The visual system shall present at least 25 degrees of vertical field view. In addition by any method, it shall be possible to observe the ship's side and the dock during mooring operations	✓		
3.6	There should be a proper correspondence between the visual picture, radar and ECDIS	✓		
3.7	The view shall be updated with a frequency of at least 30 Hz measured in a typical visual scene for the intended exercises and have an angular resolution of $\leq 2.5$ arc minutes.	✓		
3.8	The projection of the view shall be placed at such a distance and in such a manner from the bridge windows that accurate visual bearings may be taken to objects in the scene. It shall be possible to use binocular systems for observations.	✓		
3.9	The visual system shall present the outside world by a view around the horizon (360 degrees). The horizontal field of view may be obtained by a view of at least 240 degrees and where the rest of the horizon may be panned (to move the camera).	✓		
3.10	The visual system shall present a vertical view from the workstations for navigation, traffic surveillance and maneuvering enabling the navigator to detect and monitor objects visually on the sea surface up to the horizon within the required horizontal field of view when the ship is pitching and rolling.	✓		
3.11	The visual system shall present all navigational marks according to charts used.	✓		
3.12	The visual system shall show mooring and towing lines with sufficient realism in accordance with the forces effecting the tension and orientation.	✓		

3.13	The visual system shall provide a realistic set of bow wave, sea spray and wakes in accordance with ships power output, speed and weather conditions.	✓		
3.14	The visual system shall provide a realistic set of flue gas emission and waving flag effect in accordance with ships power output, speed and weather conditions.	✓		
Evidence / note				
<b>4. Navigation and watchkeeping simulation</b>		<b>EVALUATION</b>		
		<b>C.</b>	<b>N.C.</b>	<b>N.A.</b>
4.1	The navigated waters shall include a current pattern, changeable in time, according to the charts used. Tidal waters shall be reflected.	✓		
4.2	The simulator shall provide at least two different wave spectra, variable in direction height and period.	✓		
4.3	The visual system shall provide a realistic set of wind waves including white caps according to the Beaufort wind force scale. A ship under way shall provide relevant bow- and stern wave.	✓		
4.4	The simulator shall provide capabilities for realistically simulate the function of mooring and tug lines and how each line functions as part of an overall system taking into account the capacities, safe working loads, and breaking strengths of mooring equipment including mooring wires, synthetic and fiber lines, winches, anchor windlasses, capstans, bits, chocks and bollards.	✓		
The simulator shall be equipped with targets enabling search and rescuing persons from the sea, assisting a ship in distress and responding to emergencies which arise in port. Such targets shall be at least:				
4.5	<ul style="list-style-type: none"> <li>rocket parachute flares</li> </ul>	✓		
4.6	<ul style="list-style-type: none"> <li>hand flares</li> </ul>	✓		
4.7	<ul style="list-style-type: none"> <li>buoyant smoke signals</li> </ul>	✓		
4.8	<ul style="list-style-type: none"> <li>Search And Rescue Transponder (SART)</li> </ul>	✓		
4.9	<ul style="list-style-type: none"> <li>satellite Emergency Position-Indicating Radio Beacon (EPIRB)</li> </ul>	✓		
4.10	<ul style="list-style-type: none"> <li>lifeboat</li> </ul>	✓		
4.11	<ul style="list-style-type: none"> <li>life raft</li> </ul>	✓		
4.12	<ul style="list-style-type: none"> <li>rescue helicopter</li> </ul>	✓		
4.13	<ul style="list-style-type: none"> <li>rescue aircraft</li> </ul>	✓		
4.14	<ul style="list-style-type: none"> <li>people in water.</li> </ul>	✓		
Evidence / note				

5. Ship handling and maneuvering		EVALUATION		
		C.	N.C.	N.A.
5.1	The simulator shall include mathematical models of at least 10 types of own ship. The models shall resemble accurately the behavioural characteristics of an actual ship of that size, power and type, and realistically behave as per the hydrodynamic effects of wind, current and swell.	✓		
5.2	The simulator shall be able to present at least 20 different types of target ships, each equipped with a mathematical model, which accounts for motion, drift and steering angles including forces induced by current, wind and wave, where the instructor shall be able to program voyage routes for each target ship individually.	✓		
5.3	The simulator should be able to provide at least 8 international geographical visual areas for exercises which include open sea and high density traffic areas.	✓		
5.4	The simulator shall include exercise areas including correct data for landmass, depth, buoys tidal streams and visuals as appropriate to the nautical charts and publications used for the relevant training objectives.	✓		
5.5	The simulator shall provide capabilities for realistically conduct anchoring operations by any method. The model shall realistically simulate own ship hydrodynamics in interaction with applicable anchor and chain dimensions with different bottom holding grounds, including the effects of wind forces, wave forces, tidal stream and currents.	✓		
Evidence / note				
6. Propulsion Controls		EVALUATION		
		C.	N.C.	N.A.
6.1	Controls of propulsion plant operations, including engine telegraph, pitch-control and thrusters. There shall be indicators for shaft(s) revolutions and pitch of propeller(s). There shall be controls for at least one propeller and one bow thruster.	✓		
Evidence / note				
7. Steering Console		EVALUATION		
		C.	N.C.	N.A.
7.1	Steering console, including recognized facilities for hand steering and automatic steering with controls for switch over. There shall be indicators of rudder angle and rate of turn.	✓		
There shall be provision for the following, at or near the console:				
7.2	<ul style="list-style-type: none"> <li>Steering wheel</li> </ul>	✓		
7.3	<ul style="list-style-type: none"> <li>Steering motors (at least two)</li> </ul>	✓		

7.4	• Hand, auto-pilot and non-follow up steering.	✓		
7.5	• Compass Repeater able to depict gyro and/or magnetic heading.	✓		
7.6	• Gyro failure alarm	✓		
7.7	• Auto-pilot	✓		
The Auto-Pilot should have the following capabilities :				
7.8	• Weather adjustment (yawing and course control)	✓		
7.9	• Rudder limit setting	✓		
7.10	• Counter Rudder	✓		
7.11	• Off-course alarm	✓		
7.12	• Setting of constant rate of turn	Note 2		

Evidence / note

Note 2: Possible, not yet implemented.

8. Engine Alarm Panel		EVALUATION		
		C.	N.C.	N.A.
The Engine Alarm Panel should give audible and visual alarm in case of:				
8.1	• Start fail	✓		
8.2	• Shutdown	✓		
8.3	• Slow down	✓		
8.4	• Overspeed	✓		
8.5	• Overload	✓		

Evidence / note

9. Radar simulation		EVALUATION		
		C.	N.C.	N.A.
9.1	The radar simulation equipment shall be capable of model weather, tidal streams, current, shadow sectors, spurious and false echoes and other propagation effects, and generate coastlines, navigational buoys and search and rescue transponders (see STCW Section A-1/12.4.2).	✓		
9.2	Radar simulation equipment shall be capable of simulating the operational capabilities of navigational radar equipment which meets all applicable performance standards adopted by the Organization and incorporate facilities to:			
9.3	• operate in the stabilized relative-motion mode and sea- and ground-stabilized true-motion modes;	✓		
9.4	• model weather, tidal streams, current, shadow sectors, spurious echoes and other propagation effects, and generate coastlines, navigational buoys and search and rescue transponders; and	✓		

9.5	<ul style="list-style-type: none"> <li>create a real-time operating environment incorporating at least two own-ship stations with ability to change own ships course and speed, and include parameters for at least 20 target ships and appropriate communication facilities</li> </ul>	Note 3		
Evidence / note Note 3: Possible, not yet implemented				
10. Radar set with Automatic Radar Plotting Aids (ARPA)		EVALUATION		
		C.	N.C.	N.A.
	ARPA simulation equipment shall be capable of simulating the operational capabilities of ARPAs which meet all applicable performance standards adopted by the International Maritime Organization, and shall incorporate the facilities for:			
10.1	<ul style="list-style-type: none"> <li>manual and automatic target acquisition;</li> </ul>	✓		
10.2	<ul style="list-style-type: none"> <li>past track information;</li> </ul>	✓		
10.3	<ul style="list-style-type: none"> <li>use of exclusion areas;</li> </ul>	✓		
10.4	<ul style="list-style-type: none"> <li>vector/graphic time-scale and data display; and</li> </ul>	✓		
10.5	<ul style="list-style-type: none"> <li>trial maneuvers.</li> </ul>	✓		
10.6	It shall be possible to simulate both 3 cms and 10 cms radar. The radar shall be capable of being operated in the sea stabilized relative motion mode and sea and ground stabilized true motion modes.	✓		
10.7	The radar simulation equipment shall be capable of generation of interference, noise, Radar/ARPA failure, yawing, clutter, spurious echoes, blind sector, parallel index lines.	✓		
Evidence / note				
11. ECDIS		EVALUATION		
		C.	N.C.	N.A.
11.1	Vector charts should be available for the exercise areas. It should be possible to edit existing areas and be able to generate chart database of any area and scale if desired at a later stage. Normal features for ECDIS system should be available including cart scaling and zooming, review, selectable layer, route planning and monitoring.	✓		
	The ECDIS simulation equipment shall incorporate the facilities for:			
11.2	<ul style="list-style-type: none"> <li>integration with other navigation systems</li> </ul>	✓		
11.3	<ul style="list-style-type: none"> <li>own position</li> </ul>	✓		
11.4	<ul style="list-style-type: none"> <li>sea area display</li> </ul>	✓		
11.5	<ul style="list-style-type: none"> <li>mode and orientation</li> </ul>	✓		
11.6	<ul style="list-style-type: none"> <li>chart data displayed</li> </ul>	✓		



11.7	<ul style="list-style-type: none"> <li>route monitoring</li> </ul>	✓		
11.8	<ul style="list-style-type: none"> <li>user-created information layers</li> </ul>	✓		
11.9	<ul style="list-style-type: none"> <li>contacts (when interfaced with AIS and/or radar tracking)</li> </ul>	✓		
11.10	<ul style="list-style-type: none"> <li>radar overlay functions (when interfaced).</li> </ul>			✓

Evidence / note

12. GMDSS		EVALUATION		
		C.	N.C.	N.A.
12.1	Communication equipment in accordance with Global Maritime Distress Safety System(GMDSS) framework, covering at least the requirements for relevant area.	✓		

Evidence / note

13. VHF Communication System		EVALUATION		
		C.	N.C.	N.A.
13.1	Communication between ships and port VTS shall be simulated on VHF sets which will have at least the following channels: 16, 6, 8, 9, 10, 12, 13, 14, 75, 77, 69, 67.	✓		
13.2	The following realism should be depicted:			
13.3	<ul style="list-style-type: none"> <li>Volume control</li> </ul>	✓		
13.4	<ul style="list-style-type: none"> <li>Squelch</li> </ul>	✓		
13.5	<ul style="list-style-type: none"> <li>Dual watch.</li> </ul>	✓		
13.6	<ul style="list-style-type: none"> <li>Pressel switch when speaking</li> </ul>	✓		
13.7	<ul style="list-style-type: none"> <li>Simplex communication system.</li> </ul>	✓		

Evidence / note

14. Intercom / Telephone		EVALUATION		
		C.	N.C.	N.A.
14.1	The simulator shall include a communications system that will allow for internal ship communications to be conducted.	✓		

Evidence / note



15. General Emergency Alarm		EVALUATION		
		C.	N.C.	N.A.
15.1	There shall be a facility provided for activating the General Emergency Alarm from the wheelhouse.	✓		
Evidence / note				
16. Indicators		EVALUATION		
		C.	N.C.	N.A.
Each own ship station shall have at least the following indicators:				
16.1	• Wind direction and speed indicator	✓		
16.2	• Rudder Angle Indicator	✓		
16.3	• Rate of Turn Indicator	✓		
16.4	• RPM /Pitch Indicator	✓		
16.5	• Clock (Exercise time indicator)	✓		
16.6	• Depth indicator	✓		
16.7	• Doppler Speed Log	✓		
16.8	It should be capable of indicating fore / aft and athwart ship speed. Depending upon the depth, speed shall be indicated on ground or water track.	✓		
Evidence / note				
17. Instruments and controls		EVALUATION		
		C.	N.C.	N.A.
17.1	Instrument for indication of navigational lights.	✓		
17.2	Controls of propulsion plant for mooring operations. By any method, it shall be possible to observe the ship's side and the dock during operation of such controls.	✓		
17.3	Steering compass and bearing compass (or repeater) with an accuracy of at least 1 degree.	✓		
17.4	AIS (automatic identification system).	✓		
Evidence / note				
18. Electronic Navigation Aids		EVALUATION		
		C.	N.C.	N.A.
18.1	Global Position System (GPS) - Simulation of all facilities of a standard GPS receiver shall be available. This should include display of latitude, longitude, course and speed over ground by the	✓		



	own ship, UTC, normal navigational calculation functions such as Great Circle, Rhumb line sailing, 100 way points, Alarms for X-track error, anchor drag, approaching way point, etc.			
Evidence / note				
<b>19. Echo Sounder</b>		<b>EVALUATION</b>		
		<b>C.</b>	<b>N.C.</b>	<b>N.A.</b>
19.1	Simulation of complete echo sounder shall be provided. Facility to change gain adjustment, change over from DBS to DBK and vice versa etc, shall be provided. Alarm for shallow water depth should be provided.	✓		
Evidence / note				
<b>20. Anchor Control</b>		<b>EVALUATION</b>		
		<b>C.</b>	<b>N.C.</b>	<b>N.A.</b>
	Anchor Control capable of simulating anchoring with 2 anchors (port and starboard - Bower anchors) and:			
20.1	<ul style="list-style-type: none"> <li>Means to let go and heave up own ship's anchor</li> </ul>	✓		
20.2	<ul style="list-style-type: none"> <li>Indicators for amount of cable paid out, direction of cable and strain on cable.</li> </ul>	✓		
Evidence / note				
<b>21. Sound Signal Generator</b>		<b>EVALUATION</b>		
		<b>C.</b>	<b>N.C.</b>	<b>N.A.</b>
21.1	Ship horn to be provided on the wheelhouse console as a pushbutton.	✓		
	Facilities shall be available to generate fog signals manually or automatically operated by own ship(s) independently, as well as for each target separately by the Instructor console. The fog signals should be interactive and the intensity and direction at own ship stations shall correspond to relative range and position of the station generating the sound signal. The fog signal generator shall be capable of generating the sound signals for the following:			
21.2	<ul style="list-style-type: none"> <li>Vessel making way through water.</li> </ul>	✓		
21.3	<ul style="list-style-type: none"> <li>Vessel making no way through water.</li> </ul>	✓		
21.4	<ul style="list-style-type: none"> <li>Vessel restricted in her ability to manoeuvre</li> </ul>	✓		
21.5	<ul style="list-style-type: none"> <li>Vessel at anchor</li> </ul>	✓		
21.6	<ul style="list-style-type: none"> <li>Vessel aground</li> </ul>	✓		
21.7	<ul style="list-style-type: none"> <li>Vessel not under command.</li> </ul>	✓		



Evidence / note

## 22. Navigation Lights and Shapes Display

### EVALUATION

C.

N.C.

N.A.

22.1

Full set of Navigation, Christmas tree lights and shapes shall be available, which the own ship can select for display depending upon the prevailing circumstances.

✓

Evidence / note