

MEMORANDUM OF COOPERATION

Parties

ZhangJunDong, Marine Engineering College, Dalian Maritime University

Efstathios Zogopoulos, Engineer Education Consultant based in B Athens

Nikolaos Diakakis, Mechanical Engineer teacher, 4th Vocational High School Piraeus

Purpose

The purpose of this memorandum is to support, strengthen research activity, exchange know-how and upgrade the quality of Secondary Technical Vocational Education (EPA.L) as well as Vocational Education and Training (VET) in general, for the benefit of local and regional development and of society, without affecting the mission and role of each cooperating body.

Areas of cooperation

The utilization of the logistical infrastructure of the schools of my responsibility in which the Merchant Marine Engineer specialty of the Maritime Professions Sector operates, with the use of free simulators <http://www.ers3d.com> in order to carry out laboratory exercises when the logistical infrastructure of the EPA.L laboratories cannot serve. Base School is the 4th Vocational high school in Piraeus that already uses your own free program.

Online training activities between the Marine Engineering College, Dalian Maritime University and the teachers who teach in the Merchant Marine Engineer specialty in Greece which will be coordinated by the Mechanical Education Consultant Mr. Efstathios Zogopoulos for the teachers and the schools under his responsibility.

The collaboration for the implementation of student assignments by making use of the laboratories, know-how and support of the educational potential of the Marine Engineering College, Dalian Maritime University in collaboration with the teacher of the course and the Education Advisor.

The collaboration to identify innovative actions with the participation of Vocational High School students and students of the Marine Engineering College, Dalian Maritime University in various programs.

The use of the electronic library of the Marine Engineering College, Dalian Maritime University by students and teachers of Vocational High Schools in Greece.

The co-organization of educational seminars.

The investigation of cooperation in the context of the post-secondary year - apprenticeship class in terms of curricula.

Training Certification.



The period of validity temporarily is seted as two (2) years. After the end time, we will renew it.

The signatories and details of the contracting parties

ZhangJunDong, Marine Engineering College, Dalian Maritime University



Efstathios Zogopoulos, Dr. NTUA Engineer, Education Consultant



Nikolaos Diakakis, Deputy Director of the 4th Vocational High School of Piraeus



Date : 30/06/2023

CERTIFICATE

This certificate is awarded to Mr. **Efstathios Zogopoulos of Athanasios**,
Dr. NTUA Enginner, Mechanical
Engineer Training Consultant, in order
to certify that he is a certified trainer
- instructor in use of the following
types of certified maritime simulators

Date *January 3rd, 2024*

Signature



Efstathios Zogopoulos





STATEMENT OF COMPLIANCE

Statement No:
n1914365-bzq MAN
B&W 7S80ME
DNV ID no.:
10755750

Particulars of Product

Function Area:	MACHINERY OPERATION SIMULATOR
Name and type designation:	VLCC MAN B&W 7S80ME with cargo handling simulator with 3-D Visualization for ERS

Particulars of Manufacturer

Manufacturer:	Dalian Haida Smartship Technology Co., Ltd. Dalian Maritime University
Manufacturer address:	2406, A, No.523, Huangpu road, High-Tech Industrial Zone, Dalian, Liaoning, China. 116026

This is to confirm:

That the above product is found to comply with Class A - Standard for Certification of Maritime Simulators No. DNV-ST-0033 August 2023.

Application

The above Standard is based on requirements in the STCW Convention, Regulation I/12 and corresponding industry standard and guidelines.

This Statement is valid until **2028-11-22**, provided the requirements for the retention of the Statement will be complied with.

Issued at **Dalian, China** on **2023-11-22**



This document is signed electronically in accordance with IMO FAL 5/Circ. 39/Rev. 2. Validation and authentication can be obtained from trust.dnv.com by using the Unique Tracking Number (UTN): n1914365-bzq and ID: 10755750

Akser David Nordholm
Approval Expert

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Statement no.: n1914365-bzq MAN B&W
7S80ME
DNV ID no.: 10755750

Application/Limitation

The simulator can simulate a realistic environment for selected STCW competence requirement referred to in Table 4-2.

Table 4-2 Competencies addressed by machinery operation simulator class.

STCW reference	Competence	Class A (ENG)	Class B (ENG)	Class C (ENG)
Table A-III/1.1	Maintain a safe engineering watch.	A	B	
Table A-III/1.3	Use internal communication systems.	A	B	
Table A-III/1.4	Operate main and auxiliary machinery and associated control systems.	A	B	C
Table A-III/1.5	Operate fuel, lubrication, ballast and other pumping systems and associated control systems.	A	B	C
Table A-III/1.6	Operate electrical, electronic and control systems.	A	B	C
Table A-III/1.11	Maintain seaworthiness of the ship.	A	B	
Table A-III/2.1	Manage the operation of propulsion plant machinery.	A	B	
Table A-III/2.2	Plan and schedule operations.	A	B	
Table A-III/2.3	Operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery.	A	B	
Table A-III/2.4	Manage fuel, lubrication and ballast operations.	A	B	C
Table A-III/2.5	Manage operation of electrical and electronic control equipment.	A	B	
Table A-III/2.6	Manage troubleshooting restoration of electrical and electronic control equipment to operating condition.	A		
Table A-III/2.8	Detect and identify the cause of machinery malfunctions and correct faults.	A		
Table A-III/2.10	Control trim, stability, and stress.	A	B	
Table A-III/2.11	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and protection of the marine environment.	A	B	
Table A-III/2.14	Use leadership and managerial skills.	A		
Table A-III/4.2	For keeping a boiler watch: Maintain the correct water levels and steam pressures.	A	B	C
Table A-III/6.1	Monitor the operation of electrical, electronic and control systems.	A	B	
Table A-III/6.2	Monitor the operation of automatic control systems of propulsion and auxiliary machinery.	A	B	
Table A-III/6.3	Operate generators and distribution systems.	A	B	
Table A-III/6.4	Operate and maintain power systems in excess of 1,000 Volts.	A	B	
Table A-III/6.5	Operate computers and computer networks on ships.	A	B	
Table A-III/6.6	Use internal communication systems.	A	B	
Table A-III/6.8	Maintenance and repair of automation and control systems of main propulsion and auxiliary machinery.			S
Table A-III/6.9	Maintenance and repair of bridge navigation equipment and ship communication systems.			S
Table A-III/6.10	Maintenance and repair of electrical, electronic and control systems of deck machinery and cargo-handling equipment.			S
Table A-III/6.11	Maintenance and repair of control and safety systems of hotel equipment.			S
Table A-III/7.5	Contribute to the maintenance and repair of electrical systems and machinery on board.			S

Sec. 4, Table 4-4 Behavioural realism, the following additional requirements for simulators used for training ship's electrical officers (STCW Table A-111/6 -7) Class S apply.

Sec. 4, Table 4-4 reference	Competence	Class A (ENG)	Class B (ENG)	Class C (ENG)	Class S (ENG)
2.2.1	It shall be possible to demonstrate systematically the tests that are made on the UMS (unmanned machinery space) alarm system.				S
2.2.2	It shall be possible to simulate auto slow-down and emergency shutdown.				S
2.2.3	It shall be possible to simulate safe methods to test inert gas generator (IG) alarms and controls.				S
2.2.4	It shall be possible to simulate testing of the 24V DC power supply to the navigation, communication and engine room control console in event of power failure.				S
2.2.6	It shall be possible to simulate of reading a power factor metre with reference to four segments.				S
2.2.7	It shall be possible to simulate testing of the devices and relays provided for generator protection.				S
2.2.9	It shall be possible to simulate routine tests on an emergency generator.				S
2.2.10	It shall be possible to simulate how a generator circuit breaker OCR (over current relay) is set and tested.				S
2.2.11	It shall be possible to simulate the process of connecting a shaft generator on load and specific conditions for taking off load.				S
2.2.13	It shall be possible to simulate paralleling of generators using synchro-scope and demonstrate the method to parallel, if synchro-scope is faulty.				S
2.2.15	It shall be possible to simulate recovery from dead ship condition.				S
2.2.16	It shall be possible to simulate methods to test the preferential tripping sequence				S
2.2.17	It shall be possible to simulate methods to test auto cut in of stand by generator.				S
2.2.18	It shall be possible to simulate methods of diagnosing single phasing fault.				S
2.2.19	It shall be possible to simulate operation and maintenance of variable speed motor starters				S
2.2.20	It shall be possible to simulate operational test methods of oily water separator monitors				S
2.2.21	It shall be possible to simulate test methods for level alarms and function tests of bilge pumping arrangement.				S
2.2.22	It shall be possible to simulate the functional tests of ODMCS (oil discharge monitoring and control system) and ODME (oil discharge monitoring equipment) system.				S
2.2.23	It shall be possible to simulate the function test of OWS (oily water separator) and PPM (parts per million) unit.				S



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7S80ME
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Table 6-2 Competencies addressed by liquid cargo handling simulator class.

STCW reference	Competence	Class A (CGO)	Class B (CGO)	Class C (CGO)
Table AII/ 1.9 Table AII/ 3.6	Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage.	A	B	C
Table A-II/1.11 Table A-II/3.8 Table A-III/1.11	Maintain seaworthiness of the ship.	A	B	C
Table A-II/2.11	Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes.	A	B	
Table A-II/2.12	Carriage of dangerous goods.	A	B	C
Table AII/ 2.13 Table AIII/ 2.12	Control trim, stability and stress.	A	B	
Table AII/ 2.14 Table AIII/ 2.13	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and protection of the marine environment.	A	B	C
Table A-II/2.17	Use of leadership and managerial skill.	A	B	
Table A-II/5.3	Contribute to the handling of cargo and stores.	A	B	C
Oil tanker				
Table A-V/1-1-2.1	Ability to safely perform and monitor all cargo operations.	A	B	
Table A-V/1-1-2.2	Familiarity with physical and chemical properties of oil cargoes.	A	B	C
Table A-V/1-1-2.3	Take precautions to prevent hazards.	A	B	C
Table A-V/1-1-2.4	Apply occupational health and safety precautions.	A	B	C
Table A-V/1-1-2.5	Respond to emergencies.	A	B	C
Table A-V/1-1-2.6	Take precautions to prevent pollution of the environment.	A	B	C
Table A-V/1-1-2.7	Monitor and control compliance with legislative requirements.	A	B	C

This Statement of Compliance is for the manufacturer offering the simulator for examination or mandatory simulator training and complies with the requirements of DNV-ST-0033 Maritime Simulator Systems. Based on this statement of compliance, maritime training providers in possession of simulators that comply with the requirements of the standard can apply for a product certificate for "Maritime simulator". The simulator's function area and the simulator class according to the standard will be stated on the certificate.



STATEMENT OF COMPLIANCE

Statement No:
n1914365-msb MAN
B&W 7S80ME C9.X
DNV ID no.:
10755750

Particulars of Product

Function Area: MACHINERY OPERATION SIMULATOR
Name and type designation: VLCC ship MAN B&W 7S80ME C9.X

Particulars of Manufacturer

Manufacturer: Dalian Haida Smartship Technology Co., Ltd.
Dalian Maritime University
Manufacturer address: 2406, A, No.523, Huangpu road, High-Tech Industrial Zone,
Dalian, Liaoning, China. 116026

This is to confirm:

That the above product is found to comply with Class D - Standard for Certification of Maritime Simulators No. DNV-ST-0033 August 2023.

Application

The above Standard is based on requirements in the STCW Convention, Regulation I/12 and corresponding industry standard and guidelines.

This Statement is valid until 2028-11-22, provided the requirements for the retention of the Statement will be complied with.

Issued at Dalian, China on 2023-11-22



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Aksel David Nordholm
Approval Expert

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Statement no.: n1914365-msb MAN B&W
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DNV ID no.: 10755750

Application/Limitation

VLCC ship with MAN B&W 7S80ME C9.X main engine type (Propulsion Control System of NABTESCO M-800-V), integrated with crude oil cargo handling simulator and main engine mantling and dismantling 3D software.

ERS's will have a high realistic 3D Version for engine room, engine control room, emergency generator room, steering gear room, separators room, funnel view, etc. Most of operations like in the real ship can be done in the environment. The 3D software can support for virtual reality in walk through and operation.

The simulator can simulate a realistic environment for selected STCW competence requirement referred to in Table 4-2.

Table 4-2 Competencies addressed by machinery operation simulator class.

STCW reference	Competence	Class A (ENG)	Class B (ENG)	Class C (ENG)	Class D (ENG)
Table A-III/1.4	Operate main and auxiliary machinery and associated control systems.	A	B	C	D
Table A-III/1.5	Operate fuel, lubrication, ballast and other pumping systems and associated control systems.	A	B	C	D
Table A-III/1.6	Operate electrical, electronic and control systems.	A	B	C	D
Table A-III/2.4	Manage fuel, lubrication and ballast operations.	A	B	C	D
Table A-III/4.2	For keeping a boiler watch: Maintain the correct water levels and steam pressures.	A	B	C	D

Table 6-2 Competencies addressed by liquid cargo handling simulator class.

STCW reference	Competence	Class A (CGO)	Class B (CGO)	Class C (CGO)	Class D (CGO)
Table A-II/1.9 Table A-II/3.6	Monitor the loading, stowage, securing and unloading of cargoes and their care during the voyage.	A	B	C	D
Table AII/1.11 Table AII/ 3.8 Table AIII/1.11	Maintain seaworthiness of the ship.	A	B	C	D
Table A-II/2.12	Carriage of dangerous goods.	A	B	C	D
Table AII/ 2.14 Table AIII/ 2.13	Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea and protection of the marine environment.	A	B	C	D
Table A-II/2.17	Use of leadership and managerial skill.	A	B		
Table A-II/5.3	Contribute to the handling of cargo and stores.	A	B	C	D
Oil tanker					
Table A-V/1-1-2.2	Familiarity with physical and chemical properties of oil cargoes.	A	B	C	D
Table A-V/1-1-2.3	Take precautions to prevent hazards.	A	B	C	D
Table A-V/1-1-2.4	Apply occupational health and safety precautions.	A	B	C	D
Table A-V/1-1-2.5	Respond to emergencies.	A	B	C	D
Table A-V/1-1-2.6	Take precautions to prevent pollution of the environment.	A	B	C	D
Table A-V/1-1-2.7	Monitor and control compliance with legislative requirements.	A	B	C	D

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Statement no.: n1914365-msb MAN B&W
7S80ME C9.X
DNV ID no.: 10755750

This Statement of Compliance is for the manufacturer offering the simulator for examination or mandatory simulator training and complies with the requirements of DNV-ST-0033 Maritime Simulator Systems.

Based on this statement of compliance, maritime training providers in possession of simulators that comply with the requirements of the standard can apply for a product certificate for "Maritime simulator". The simulator's function area and the simulator class according to the standard will be stated on the certificate.

