DNV·GL

Certificate No:
MEDG00000RB

CERTIFICATE OF CONFORMITY – EC (MODULE G)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Electronic chart display and information system (ECDIS) with backup

with type designation and serial number
SEAS-NAVY ECDIS 450
Serial number: Ref product description page 2

Issued to
Seastema S.p.A.
Genova, Italy

is, by design assessment and product verification, found to comply with
Regulation **(EU) 2019/1397,**
item No. MED/4.30. SOLAS 74 as amended, Regulations V/18, V/19, V27 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.232(82), IMO Res. MSC.302(87), IMO MSC.1/Circ.1503 Rev.1

USCG Approval No: **165.123/EC0575/MEDG00000RB**
Further details of the equipment and conditions for certification are given overleaf.

Issued at **Høvik** on **2020-01-28**

DNV GL local station:
Høvik Electrical Systems

Approval Engineer:
Steinar Kristensen

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body

Based on the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of certificates of conformity for marine equipment" signed 17 October 2005, and amended by Decision No 1/2019 dated February 22nd, 2019, the manufacturer is allowed to affix the U.S. Coast Guard approval number.

0575/yyyy

0575: Notified Body number undertaking quality surveillance
yyyy: The year in which the mark is affixed

NORWEGIAN ACCREDITATION PROD 019

The product liability tests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate remains valid unless suspended, withdrawn, recalled or cancelled, provided this equipment is not modified without the acceptance of the notified body named herein.

This certificate authorises the manufacturer to affix the "Mark of Conformity" (wheelmark) to the product described herein.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

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Product description

The ECDIS system installed in "FREMM Fincantieri Hull 6209 consists of following:

Equipment	Description	Part no.	Serial no.
MFC1			
Computer	INDUSTRIAL PC, with Matrox card M9140 LP PCIe x16	HTC01STDA585	10010
MONITOR 1	MONITOR 20"	JH 20T17-SSD-AAE—AOBA	107
MONITOR 2	MONITOR 20"	JH 20T17-SSD-AAE—AOBA	106
Keyboard	Industrial Membrane Keyboard with trackball - 24 function keys	35564	A76 (batch)
MFC2			
Computer	INDUSTRIAL PC, with Matrox card M9140 LP PCIe x16	HTC01STDA585	10011
MONITOR 1	MONITOR 20"	JH 20T17-SSD-AAE-A0BA	109
MONITOR 2	MONITOR 20"	JH 20T17-SSD-AAE-A0BA	110
Keyboard	Industrial Membrane Keyboard with trackball - 24 function keys	35564	A76 (batch)
MFC3			
Computer	INDUSTRIAL PC, with Matrox card M9140 LP PCIe x16	HTC01STDA585	10012
MONITOR 1	MONITOR 20"	JH 20T17-SSD-AAE—AOBA	113
MONITOR 2	MONITOR 20"	JH 20T17-SSD-AAE—AOBA	117
Keyboard	Industrial Membrane Keyboard with trackball - 24 function keys	35564	A76 (batch)

Application/Limitation

- The operating system is Microsoft Windows XP.
- The installation shall be verified and tested onboard according to Installation, setup and maintenance manual
- The ECDIS is found to comply with the requirements for ECDIS with Back-up arrangements.
- The ECDIS has implemented the IEC61162-450 grouping functionality only for the VDO and VDM sentences
- The ECDIS is installed on a vessel (Hull 6209) without a IMO compliant Bridge Alert Management (BAM) system. Hence no interface to BAM according to MSC.302(87) is provided.

Type Examination documentation

DNV GL No	Drawing No	Rev.	Title
43	7511290222 A08 20	2 (H6209)	ECDIS Update test report
30	RET_102181204.01E	0	Performance test report FREMM ECDIS SW upgrade from 3.90 to 4.00
29	Cod. AF162693E	0	Software use and installation manual
19	RET102170202.01E	3	Performance test report SW upgrade from 3.62 to 3.90, incl. Appendix 1 and 2
15	11110012 A08 12	04	Acceptance test report
17	DOC102043-1	2015-09-08	Conformance Test Report of LCD for use in RADAR and ECDIS - JH 20T17 SSD-AAE-AOBA (HW06)
8	2010-3243	2	EMC AND ENVIRONMENTAL TESTING OF MARITIME COMPUTER HT C01 STD
7	2008-3511	02	EMC AND ENVIRONMENTAL TESTING OF JH 20T17
5	TesLab 10A166F	1.20	IEC60945 Test Report Keyborad VE035564
4	11110012 G01 13	1.3	Block diagram and functional description
3	11110012 G01 14	1	LAM Operator Manual

Tests carried out

- Performance testing, IEC 61174 Ed. 4.0 (2015)
- Environmental testing, IEC 60945 (2002) incl. Corr.1 (2008)
- Serial interface testing, IEC 61162-1 (2016)
- Serial interface testing, IEC 61162-450 (2011)
- Presentation of navigation information, IEC 62288 (2014)
- IHO S-52, Annex A (IHO ECDIS Presentation Library), Edition 4.0.1

Marking of product

The designation of Manufacturer and Type shall be fixed in a clearly visible location on the individual equipment. In addition the equipment shall be marked with serial number. Safe distance to magnetic compass and power consumption and/or supply voltage may be included on the label or stated in the individual installation manuals.