DNV·GL

Certificate No:
MEDB00005AG

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 type designation(s)
ECD-350, ECD-360

Issued to
G.E.M. ELETTRONICA S.R.L.
San Benedetto del Tronto, AP, Italy

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773,**
item No. MED/4.30. SOLAS 74 as amended, Regulations V/18, V/19 & 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

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-09-25**.

Issued at **Høvik** on **2019-09-26**

DNV GL local station:
Høvik Electrical Systems

Approval Engineer:
Arve Lepsøe

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by 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.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

NORWEGIAN ACCREDITATION PROD 019

Product description

ECDIS is available as ECD-350 and ECD-360.
ECD-350 ECDIS is a Panel Computer with integrated display, ethernet and serial line interfaces.
ECD-360 ECDIS is computer with integrated ethernet and serial line interface, and separate Display unit.

Hardware modules:

Unit	Description	Model name	Comment
ECD-350			
Panel PC	Computer with integrated 19'' display unit and embedded graphical processor, and serial line interface	MOXA MPC-2197Z 4 x NMEA 0183 (RS422) 2 x RS232/422/485, configurable ports	With touch
Keyboard	Keyboard with trackball	GEM elettronica TST-902 or TST-903	
ECD-360			
Computer	ECDIS Processor ISIC PCM4-Q87 incl serial line interface	MCU-3102B 8 x RS232/422, configurable ports	
Display	24'' Display Unit	GEM elettronica MLD-2400 DVI-D interface to computer	
Keyboard	Keyboard with trackball	GEM elettronica TST-902 or TST-903	

All units listed above are to be installed in a protected environment, i.e. indoor.

Software modules	**Version**
• Operating System:	Windows 7 Embedded 64bit
• ECDIS software:	ECD-350: CSCI2C0C v4.0x ECD-360: CSCI2C0E v4.0x
• C-Map kernel	ver. SDK 6.0.x
• IHO presentation library	ver. 4.0.x

Job Id: **344.1-009005-2**
Certificate No: **MEDB00005AG**

Application/Limitation

- ECD-350 and ECD-360 ECDIS shall be installed according to Installation, Set-up and Maintenance Manual.
- A dual installation ECD-350 and ECD-360 is found to comply with the requirements for ECDIS with Back-up arrangements.
- ECD-350 and ECD-360 supports reception of target information from AIS and Radar.
- ECD-350 and ECD-360 cannot be connected to an INS for reception of sensor data.

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) and IEC 61162-2 (1998)
- Presentation of navigation information: IEC 62288 (2014)

Type Examination documentation

DNV GL No	Document ID	Rev.	Description
37	RPL1908001	2019-08-29	Report: GEM, Over voltage protection - MLD-2400 Monitor
36	E18143101	2018-08-07	Report: CMC, Salt mist test for SeaEagle 200N
31	254991/Vi01	00	Report: NEMKO, ECD-350, Color verification test report
30	RET390190115.01E	2	Report: GEM, ECD-350, ECDIS SW Performance test report
29	RPL1905007		Report: GEM, ECD-350 Colour and Acoustic Alarm verification
26	MUIAF162693	2	MISC: GEM, Software Use and Installation Manual
24	RET390190121.01E	2	Report: GEM, ECD-360 ECDIS Software Performance Test Report
21	RPL1905001	2019-05-07	Report: GEM, ECD-360 Colour Verification test report
20	RPL1903001	2019-05-07	Report: GEM, ECD-360 Acoustic noise and signals
19	V18142901	1	Report: CMC, Test Report Vibration SeaEagle 200N incl MLD-2400 display (ECD-360)
16	R18183301	1	Report: CMC, Compass safe distance for SeaEagle 200N incl MLD-2400 display (ECD-360)
15	R18143201	1	Report: CMC, EMC Test Report for SeaEagle 200N incl MLD-2400 display (ECD-360)
13	5P05969-1		Report: SP, Type Approval testing report ISIC PCM4-Q87 (ECD-360)
12	E18142801	1	Report. CMC, Environmental testing - Climatic - SeaEagle 200N incl MLD-2400 display (ECD-360)
9	RET_102181204.01E	0	Report: GEM, Performance Test report FREMM UPGRADE to ver 4.00
7	TAA00001D5	2	Certificate: DNVGL, TA Certificate for MOXA M-Vision series (ECD-350)
3	120586TRFEMC	2009-07-09	Report: Nemko, EMC test report incl OEM-SL-KYB Keyboard
2	119609TRFENV	2009-09-11	Report: Nemko, Environmental test report incl OEM-SL-KYB Keyboard

Marking of product

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to the product. In addition the product shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage