

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00008CA

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

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

with type designation(s)

ECD-60010, ECD-60010A, ECD-10000(V)3, ECD-700, ECD-700(V)1 and ECD-700(V)2

Issued to

GEM elettronica S.r.l.
San Benedetto del Tronto AP, AP, Italy

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2022/1157,

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

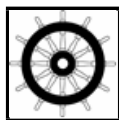
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2028-07-20**.

Issued at **Hamburg** on **2023-07-21**

DNV local unit:
Italy/Malta CMC

Approval Engineer:
Jörg Rebel



Notified Body
No.: **0098**

for **DNV GL SE**

Christine Mydlak-Röder
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) 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 SE 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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.



Product description

The GEM elettronica ECD-ECDIS systems are composed of the following units:

Hardware for ECD-60010:

Component	Type designation	Description
ECDIS module	ECD-60011/LK	ECDIS module for rack console, 3 x serial interfaces acc. to IEC 61162-1, 3 x serial interfaces acc. to IEC 61162-2
Display	DL-20500	20" Monitor assembly
	DL-21500	21" Monitor assembly

Hardware for ECD-60010A:

Component	Type designation	Description
ECDIS module	ECD-60012/LK	ECDIS module for rack console, 3 x serial interfaces acc. to IEC 61162-1, 3 x serial interfaces acc. to IEC 61162-2
Display	DL-20500	20" Monitor assembly
	DL-21500	21" Monitor assembly

Hardware for ECD-10000(V)3:

Component	Type designation	Description
ECDIS module	ECD-60012B/LK	ECDIS module for rack console, 3 x serial interfaces acc. to IEC 61162-1, 3 x serial interfaces acc. to IEC 61162-2
Display	DL-20500	20" Monitor assembly
	DL-21500	21" Monitor assembly

Hardware for ECD-700:

Component	Type designation	Description
ECDIS module	ECD-701/LK	ECDIS console with integrated computer, 20" display, keyboard with trackball
Interface unit	RUGB70-26	8 x serial interfaces acc. to IEC 61162-1, 2 x serial interfaces acc. to IEC 61162-2

Hardware for ECD-700(V)1:

Component	Type designation	Description
ECDIS module	DU-200/LK	20" Display unit with integrated computer
Operator unit	TST-900	Keyboard with trackball
Interface unit	IU80-18	8 x serial interfaces acc. to IEC 61162-1, 2 x serial interfaces acc. to IEC 61162-2

Hardware for ECD-700(V)2:

Component	Type designation	Description
ECDIS module	DU-210/LK	20" Display unit with integrated computer
Operator unit	TST-900	Keyboard with trackball
Interface unit	IU80-18	8 x serial interfaces acc. to IEC 61162-1, 2 x serial interfaces acc. to IEC 61162-2

All units listed above are to be installed in a protected environment, i.e. indoor (location class "Protected" according to IEC 60945) .

Software:

Software modules

Operating System:

Version

Windows 10 Enterprise LTSC 2019 Version 1809

ECDIS Software:

ECD-60010: CSCI2C44 v1.2x
ECD-60010A: CSCI2C45 v1.2x
ECD-10000(V)3: CSCI2C46 v1.2x
ECD-700: CSCI2C40 v1.2x
ECD-700(V)1: CSCI2C41 v1.2x
ECD-700(V)2: CSCI2C42 v1.2x

Presentation library:

IHO Pres. Lib. 4.0(.2)

Cartographic kernel:

SevenCs EC2007 5.22.53.0

Application/Limitation

- A dual installation of GEM elettronica ECD-ECDIS systems covered by this Certificate is found to comply with the SOLAS requirements for "ECDIS with back-up arrangements".
- IMO SN.1/Circ.MSC.1/Circ.1503: ECDIS that is not updated for the latest version of IMO Standards may not meet the chart carriage requirements as set out in SOLAS regulation V/19.2.1.4.

The systems support the display and use of digital chart data in the following formats:

- S-52 Ed. 6.1 and Pres. Lib. 4.0 (IHO)
- S-57 Ed.3.1.1 (IHO)
- S-63 Ed.1.2 (IHO),
- S-64 Ed. 3.0 (IHO).

Type Examination documentation

DNV No.	Document ID	Rev.	Description
10	AF166612E	0	Manual: Technical manual of installation and maintenance for ECD-700(V)1 and ECD-700(V)2
9	AF166611E	0	Manual: Technical manual of installation and maintenance for ECD-700
8	AF166610E	0	Manual: Technical manual of installation and maintenance for ECD-60010, ECD-60010A and ECD-10000(V)3
7	AF165154E	0	Manual: User and installation manual for ECD series
6	RET390230317.01E	0	Report: GEM, Presentation tests for ECD-60010, ECD-60010A, ECD-10000(V)3, ECD-700, ECD-700(V)1 and ECD-700(V)2 according to IEC 62288 (2021)
5	233086F	2023-06-27	Report: TesLab, Environmental and EMC tests for ECD-60011/LK according to IEC 60945, Clauses 8.2 to 8.4, 8.7, 9 and 10
4	233077F	2023-04-17	Report: TesLab, Environmental and EMC tests for DU-200/LK and IU80-18 according to IEC 60945, Clauses 8.2 to 8.4, 8.7, 9 and 10
3	233076F	2023-04-17	Report: TesLab, Environmental and EMC tests for ECD-701/LK and RUGB70-26 according to IEC 60945, Clauses 8.2 to 8.4, 8.7, 9 and 10
31*	2010-0411	01	ECDIS Performance test report ECD-700(V)1 and ECD-700(V)3
19*	RPL0911026	0	Monitor calibration ECDIS ECD-700(V)1 – Display DU-200
22*	RPL1001001	0	Dry Heat Test IU80-18
17*	RPL1001002	0	Damp Heat Test IU80-18
18*	RPL1001003	0	Low Temperature Test IU80-18
20*	RPL1001004	0	Vibration Test IU80-18
21*	RPL1001005	0	Voltage and Current Test IU80-18
26*	RPL1002029	0	Dry Heat Test ECD-710
27*	RPL1002030	0	Low Temperature Test ECD-710
25*	RPL1002031	0	Damp Heat Test ECD-710
28*	RPL1002032	0	Vibration Test ECD-710
24*	100312R1TRFEMC	0	EMC Test Report ECD-700(V)3
29*	120586TRFEMC	0	EMC Test Report ECD-700(V)1
23*	119609TRFENV	0	Environmental Test Report ECD-700(V)1
32*	RPL1104003	0	Vibration Test ECD-700(V)2
32*	RPL1104004	0	Dry Heat Test ECD-700(V)2
32*	RPL1104005	0	Low Temperature Test ECD-700(V)2
32*	RPL1104006	0	Damp Heat Test ECD-700(V)2

DNV No.	Document ID	Rev.	Description
35*	188136TRFEMC	0	EMC Test Report ECD-700(V)2
33*	RPL1101001	0	Monitor calibration ECDIS ECD-700(V)2 – Display DU-210
**	AF600857	0	Talker-Listener interface section ECD-700
**	AF600856	0	Talker-Listener interface section ECD-60010
**	AF600873	2	Talker-Listener interface section ECD-700(V)1
3+	RET390200707.01E	0	WECDIS System Test Report in accordance with IEC-62288
3+	RET390200709.01E	0	WECDIS System Test Report in accordance with IEC-61174
3+	RET390200710.01E	0	WECDIS System Test Report in accordance with IEC-62923 series

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Presentation testing: IEC 62288 (2021)
- Bridge alert management testing: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Performance testing: IEC 61174 (2015)

Marking of product

According to IEC 60945, Sect.4.9:

The product to be marked with following information, where practicable:

- Identification of the manufacturer,
- Equipment type number or model identification under which it was type tested,
- Serial number of the unit,
- Compass safe distance.

Alternatively, the marking may be presented on a display at equipment start-up, and in case of fixed equipment compass safe distance may be given in the equipment manual.

END OF CERTIFICATE