

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00000A6**  
Revision No:  
**8**

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)  
**DM800 ECDIS G2 and DM700 ECDIS**

Issued to  
**Danelec Marine A/S**  
**Birkerød, Hovedstaden, Denmark**

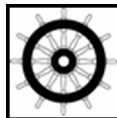
is found to comply with the requirements in the following Regulations/Standards:  
Regulation **(EU) 2018/773**,  
**item No. MED/4.30. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.232(82), IMO Res. 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 **2024-09-09**.

Issued at **Høvik** on **2019-09-10**

DNV GL local station:  
**Denmark CMC**



for **DNV GL AS**

Approval Engineer:  
**Frederik Tore Elter**

Notified Body  
No.: **0575**

.....  
**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.



Job Id: **344.1-004782-9**  
Certificate No: **MEDB00000A6**  
Revision No: **8**

## Product description

Danelec Marine A/S DM800 ECDIS G2 (commonly referred to as DM800 ECDIS) and DM700 ECDIS, consisting of the following components:

- Computer
- Monitor
- Keyboard/ Trackball
- Alarm panel (for DM800)
- DVD Drive (for DM800) - Optional

### Hardware modules DM800 ECDIS G2:

#### Computer:

- DM800 ECDIS G2 DPU Type Designator: 1303413
- DVD Drive (Optional) Type Designator: 2301387

#### Monitor:

- Sealine MK3 SL231-02, or Type Designator: 1301414
- Sealine MK3 SL213-01, or Type Designator: 1301415
- Sealine MK3 SL190-02, or Type Designator: 1302867
- Sealine MK3 SL190-01, or Type Designator: 1301416
- Wave 19" WA190-01, or Type Designator: 1302913
- Wave 24" WA240-01, or Type Designator: 1302914
- Wave 27" WA270-01, or Type Designator: 1302915
- ISIC DuraMON 19", or Type Designator: 1304494
- ISIC DuraMON 24", or Type Designator: 1304495
- ISIC DuraMON 27" Type Designator: 1304496

Alarm Panel Type Designator: 1301365

### Hardware modules DM700 ECDIS:

#### Computer:

- DM700 ECDIS DPU Type Designator: 1303952

#### Monitor:

- Wave 19" WA190-01, or Type Designator: 1302913
- Wave 24" WA240-01, or Type Designator: 1302914
- Wave 27" WA270-01, or Type Designator: 1302915
- ISIC DuraMON 19", or Type Designator: 1304494
- ISIC DuraMON 24", or Type Designator: 1304495
- ISIC DuraMON 27" Type Designator: 1304496

#### with HMI:

- Wave Monitor HMI for hinge, or Type Designator: 1303942
- Wave Monitor HMI for panel mount Type Designator: 1303943

Job Id: **344.1-004782-9**  
 Certificate No: **MEDB00000A6**  
 Revision No: **8**

**Common hardware DM800 ECDIS G2/DM700 ECDIS:**

Keyboard/ Trackball (one of below listed):

- KSLM106F1USB-WLED, or Type Designator: 2301384
- Cortron 564-0094, or Type Designator: 2301514
- Cortron 564-0095, or Type Designator: 2301927
- EK 03-001 KEYBOARD, or Type Designator: 2303578
- NSI RKCT92Sxxxx-N-MC1, or Type Designator: 2304633
- NSI RKCT92Fxxxx-N-MC1 Type Designator: 2304634

Ethernet switch (optional)

- 5 port managed Gb Ethernet switch Type Designator: 1303974

Network RADAR Processor (optional)

- NRP 01-001 Type Designator: 1304537

**Software modules (common for DM800 ECDIS G2/DM700 ECDIS):**

- System Software version 3.xx
- Operating System: Proprietary Embedded Linux
- IHO presentation library ver. 4.0.x

**Application/Limitation**

- ECDIS shall be installed, verified and tested on board according to Installation Manual.
- ECDIS supports interface to radar for presentation of radar targets.
- ECDIS may present Navtex information when interfaced to a Navtex.
- Monitors are to be interfaced via DVI only, and monitor serial line interface to be connected to the ECDIS computer.
- A dual installation of ECDIS is found to comply with the requirements for ECDIS with Back-up arrangements.
- ECDIS may interface to Navtor Navbox.
- ECDIS may optionally present Radar overlay by installation of NRP 01-001 in accordance to Danelec Marine instructions in "Installation Manual for NRP 01-001" and "Connection and setup of Radar overlay in ECDIS with 3<sup>rd</sup> party Radar's".  
Interface to a 3<sup>rd</sup> party Radar is to be in accordance to the Radar manufacturer's instructions.

**Tests carried out**

- Performance testing, IEC 61174 (2015)
- Environmental testing, IEC 60945 (2002)
- Serial interface testing, IEC 61162-1 (2016)
- Serial interface testing, IEC 61162-2 (1998)
- Presentation of navigation information, IEC 62288 (2014)

**Type Examination documentation**

<b>DNV GL No</b>	<b>Title</b>	<b>Document No</b>	<b>Rev</b>
202	Report: Test report for transport of NMEA sentences over IEC 61162-450 with DM800 ECDIS V2/DM700 ECDIS	DBS12938-10D	
201	Report: Test report for Non-retransmittable Binary Data Transfer for DM800 ECDIS G2/DM700 ECDIS	DBS12933-10D	

Job Id: **344.1-004782-9**  
 Certificate No: **MEDB00000A6**  
 Revision No: **8**

<b>DNV GL No</b>	<b>Title</b>	<b>Document No</b>	<b>Rev</b>
200	Report: Test specification for RTZ Route Exchange for ECDIS	DBS12923-10E	
185	Manual: Installation Manual for NRP 01-001, Network RADAR Processor	MAN12499-10	1.0
184	Manual: Connection and setup of RADAR overlay in ECDIS with 3 <sup>rd</sup> party RADARs	MAN12447-10	1.0
183	Manual: User Manual for Danelec Marine ECDIS Software V3.xx	DBS11425-26	2.6
180	Report: Test cases for NRP 01-001 type approval, IHO S-64, IEC 61174, 4 IEC 62288, IEC 62388, inc. NRP 01-001 type approval documentation	DBS12565-10	1.0
176	Report: IEC60945 DELTA, Test for Marine Type Approval of Backlighted keyboard with trackball RKCT92S0001-W-MC1	DELTA-T208006-5	
173	Report: IEC 60945 - FORCE - Marine type testing of NRP 01-001 Network Radar Processor	118-28327-1	rev. 1
172	NRP 01-001 type approval documentation	DBS12468-10	Date: 2018-09-24
171	Certificate: Marine Monitors IEC60945	MRA000000S	2
170	Manual: Installation manual for DM700 ECDIS G2 hardware	MAN11805-14	1.4
167	Report: Type approval documentation for ISIC DuraMON 19", 24" and 27" monitor	DBS12439-12	1.2
166	Manual: Installation manual for DM800 ECDIS G2 hardware	DBS11427-25	2.5
165	Manual: User manual for DM800 ECDIS G2 hardware	DBS11426-22	2.2
164	Report: NEMKO IEC62288 Display Performance (DuraMON 27 GLASS + Classic)	355288	r02
163	Report: NEMKO IEC62288 Display Performance (DuraMON 19 Classic + Glass) (DVI)	298985-4	r01
162	Report: NEMKO IEC62288 Display Performance (DuraMON 24 Glass + Classic) (VGA + DVI)	298985-2	r03
149	Report: DELTA IEC61162-1/2 Test Report, Interface test of DM700 ECDIS DPU, DPU 700-01	T600466 - DANAK 1917171	
141	Report: Delta IEC 60945 Test for Marine Type Approval of VRI 002 Vessel Remote Interface	T220720 - DANAK 1916673	
132	Report: IEC 60945 Test for Marine Type Approval of DM700 ECDIS DPU, DPU 700-001 and DM700 ECDIS DPU, DPU 700-001 (OVP version)	DANAK 1917003 T600250	Rev A
127	DM700 ECDIS and DM800 ECDIS G2 comparative report	DBS11817-10	
113	Statement regarding previous tested IEC 61174 tests of DM800 ECDIS G2	GWD11775-10	
108	Report: IEC61174 ed.4 Danelec DM ECDIS		
101	Report: Test IHO S-64, Preslib 4.0 Danelec DM ECDIS		

Job Id: **344.1-004782-9**  
 Certificate No: **MEDB00000A6**  
 Revision No: **8**

<b>DNV GL No</b>	<b>Title</b>	<b>Document No</b>	<b>Rev</b>
90	Report: DELTA Test Report - Test for Marine Type Approval of Scorpius V1 (Tesoro) keyboard with 2" trackball	DANAK-19/16049-T211751	
79	Report: Test report for Binary Image transfer for DM800 ECDIS G2	DBS11453-10	1.0
78	Report: Performance testing DM800 ECDIS G2		
70	Report: Flicker 19 report	L102692-4176	
69	Report: North Invent 19 DVI report	L102692-4206	
68	Report: Delta, Supplementary EMC tests for Marine Type Approval of MK3 monitor	DANAK-19/12130	
67	Report: Delta, High temperature tests of 19" MK3 monitor	DANAK-19/12367	
66	Report: Report: BSH, Assessment report for 19" TFT LED display	BSH 4542/002/0072555/14	
65	Report: Delta, Environmental test for SL190 monitor	DANAK-1910139-rev-1	
64	Report: Monitors 21,24,27"	DANAK 1914088	
63	Report: Delta, Environmental test for SL190 monitor	DANAK-1910139	
62	Report: BSH SL231 Report	BSH_46162_0071113_09	
61	Report: North Invent 24 Flicker report	L102733-4323	
60	Report: North Invent 27 DVI report	L102733-4324	
59	Report: North Invent 27 Flicker report	L102733-4326	
58	Report: Cortron TM-361 Corrosion-Humidity IEC60945	TM-361/ Q04154	
57	TE A-14092 page 1-2	TE A-14092	
56	TE A-14092 page 3-4 appendix	TE A-14092	
55	Report: Cortron TM-344 Dry Heat IEC 60945 Model 80	TM-344/ Q04150	
54	Report: Cortron TM-345 Low Temp-25C IEC 60945 Model 80	TM-345/ Q04152	
53	Report: Cortron TM-349 Vibration IEC 60945 Model 80	TM-349/ Q04153	
52	Report: Cortron TM-350 Damp Heat IEC 60945 Model 80	TM-350/ Q04151	
51	Report: Cortron TM-351 Immunity IEC60945	TM-351/ Q04163	
50	Report: North Invent 24 DVI report	L102733-4321	
49	Report: BSH SL231 Report	BSH_46162_0071113_09	
48	Report: Delta, Calibration of FPD for use as ECDIS monitor with DVI connection	DELTA-L102692-4206	
47	Report: Delta, Test of flicker from a 19inch monitor for use as ECDIS monitor	DELTA-L102692-4176	
46	Report: Environmental and display testing of 23" monitor	A506792-01	
45	Report: Type approval testing of Sea Line Monitors	DBS10558-10	
44	Report: Type approval testing of Sea Line Monitors	A505354	
43	Report: Calibration of FPD for use as ECDIS monitor - SL213-01, 21" TFT FPD, Day mode	L102043-3236	

Job Id: **344.1-004782-9**  
Certificate No: **MEDB00000A6**  
Revision No: **8**

<b>DNV GL No</b>	<b>Title</b>	<b>Document No</b>	<b>Rev</b>
42	Report: DELTA - SL213-01, 21" TFT FPD, Dusk mode	L102043-3237	
41	Report: Calibration of FPD for use as ECDIS monitor - SL213-01, 21" TFT FPD, Night mode	L102043-3238	
40	Report: Calibration of FPD for use as ECDIS monitor - SL190-01, 19" TFT FPD, Day mode	L102043-3233	
39	Report: Calibration of FPD for use as ECDIS monitor - SL190-01, 19" TFT FPD, Dusk mode	L102043-3234	
38	Report: Calibration of FPD for use as ECDIS monitor - SL190-01, 19" TFT FPD, Night mode	L102043-3235	
36	Report: Test for Marine Type Approval of DM800 ECDIS G2 (DPU 800-	DELTA-T211067	
31	Report: Rejection test of UDP datagrams with incorrect CRC DM800 ECDIS G2	GWD11472-10	1
3	IEC61162-1 - A506681 - Interface test of ECDIS	DANAK-1910793	
1	IEC60945 - A506510-1 - Type approval testing of ECDIS (DM800E)	DANAK-1910792	

## Marking of product

The name and contact address of the manufacturer and type designation of the product is to be affixed to the equipment in a clearly visible location. In addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.