

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00000K0**  
Revision No:  
**1**

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 the Kingdom of Norway.

**This is to certify:**

**That the Electronic chart display and information system (ECDIS)**

with type designation(s)  
**Navmaster ECDIS**

Issued to  
**PC Maritime Ltd.**  
**PLYMOUTH DEVON, United Kingdom**

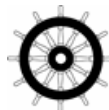
is found to comply with the requirements in the following Regulations/Standards:  
Regulation **(EU) 2015/559,**  
**Annex A.1, item No. A.1/4.30 and Annex B, Module B in the Directive. IMO Resolutions A.694(17), MSC.191(79) & MSC.232(82)**

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

This Certificate is valid until **2021-11-02.**

Issued at **Høvik** on **2016-11-03**

DNV GL local station:  
**Southampton**



for **DNV GL AS**

Approval Engineer:  
**Steinar Kristensen**

Notified Body  
No.: **0575**

**Vidar Dolonen**  
**Head of Notified Body**



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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## Product description

Navmaster ECDIS consists of the following modules:

### Hardware modules:

Unit	Description	Model name	Comment
Computer	Computer with integrated graphical processor	LGP36	LAN: 2 x RJ 45 USB*: 4 x USB 3.0
Monitors	ECDIS display	LGM 24 V3 or HD19T21STD-MA1-FAGA or HD19T21 PCS-MAE-FAGA or HD24T21STD-MA4-FAGA	
Keyboard	USB keyboard	LGKB-2	
Trackball	USB trackball	LGT-TB2	
Interface unit	NMEA breakout box	BOB PC84	8x RS485/RS422 input 4x RS485/RS422 outputs
<b>Options</b>			
Radar interface	Radar processing unit	LG-RPU-x	

\*) USB interfaces may not be used for direct inter-connection to other systems

### Software modules:

- Navmaster ECDIS software ver. 8.0.0.X
- C-Map SDK ver. 6.0.x.x
- IHO presentation library ver. 4.0.x
- Microsoft Windows 7 Operating System

### Notes

- A dual installation of Navmaster ECDIS is found to comply with the requirements for ECDIS with Back-up arrangements.
- The Navmaster ECDIS is found to comply with the requirements for ECDIS in RCDS mode of operation when using HCRF navigational chart data format.

### Application/Limitation

- The installation shall be installed and tested on board in accordance with the procedures stated in the Navmaster User Manual.
- Navmaster ECDIS cannot be connected to an INS for reception of sensor data.

### Tests carried out

- Performance testing: IEC 61174 (2015)
- Environmental testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Serial interface testing: IEC 61162-1 (2016)
- Presentation of navigation information: IEC 62288 (2014)

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## Type Examination documentation

<b>DNV GL No</b>	<b>Document ID</b>	<b>Rev.</b>	<b>Description</b>
233		2016-11-02	Report: PC Maritime, Navmaster Test Report for IHO S-64 Ed. 3.0.1 for PresLib 4.0.1
232		2016-10-18	Report: PC Maritime, Navmaster Test Report for IEC 62288 edt 2
231		2016-10-21	Report: PC Maritime, Navmaster Test Report for IEC61174 edt 4
229	INB100535-1	15	Manual: Hatteland, User manual - Series X - Standard Display (STD) Models
227	DOC101763-1	Rev 1	Report: Hatteland, Conformance Test Report of LCD for use in RADAR and ECDIS
222	3448-A3-42	Iss1	Drawing: General Connection Diagram Navmaster 800 HT24T21 System with optional LG-RPU-1
219	DOC101330-2		Conformance test report HD 24T21 MMD-MA4-FOGA
218	DOC102002-1		LGP36 GPU Similarity Report
211	LGM24V3/UG/RA/215	2	Manual: Lilley&Gillie, LGM24V3 Monitor - Navmaster ECDIS - User Guide
210	LGP36/UG/RA-JT/247	2	Manual: Lilley&Gillie, LGP36 Processor - Navmaster ECDIS - User Guide
209	LGP36-0414	2	Report: PC Maritime, Selected ECDIS performance tests for new computer
207	LGS213-NME-ITF-1	2014-04-26	Report: Lilley&Gillie, NMEA Interface test report for ECDIS processor LGS213
206	LGP36-NME-ITF-1	2014-04-26	Report: Lilley&Gillie, NMEA Interface test report for ECDIS processor LGP36
203	LGP36-0414	2014-04-03	Report: PC Maritime, Selected performance tests for Navmaster ECDIS with LGP36 computer
201	LGP36-EMC-SRG-1	2014-02-04	Report: Lilley&Gillie, Immunity to surges test report
200	LGP36-EMC-RAI-1	2014-02-04	Report: Lilley&Gillie, Radiated immunity test report
199	LGP36-EMC-RAE-1	2014-02-04	Report: Lilley&Gillie, Radiated emissions test report
198	LGP36-EMC-PSV-1	2014-02-04	Report: Lilley&Gillie, Immunity to power supply short-term variations test report
197	LGP36-EMC-PFA-1	2014-02-04	Report: Lilley&Gillie, Immunity to power supply failure test report
196	LGP36-EMC-FTR-1	2014-02-05	Report: Lilley&Gillie, Immunity to fast transients test report
195	LGP36-EMC-ESD-1	2014-02-04	Report: Lilley&Gillie, ESD immunity test report
194	LGP36-EMC-COI-1	2014-02-05	Report: Lilley&Gillie, Conducted immunity test report
193	LGP36-EMC-COE-1	2014-02-04	Report: Lilley&Gillie, Conducted emissions test report
190	3448-A3-51	1	Drawing: Lilley&Gillie, General Connection Diagram Navmaster 1200 ECDIS
188	LGP36-SPT-CSD-1	2014-02-05	Report: Lilley&Gillie, Compass Safe distance test report
187	LGP36-SPT-ANS-1	2014-02-06	Report: Lilley&Gillie, Acoustic noise and signals test report
186	LGP36-SPF-ADV-1	2014-02-06	Report: Lilley&Gillie, Protection against accidental access to dangerous voltages test report
185	LGP36-PWS-NOR-1	2014-02-04	Report: Lilley&Gillie, Normal power supply test report
184	LGP36-PWS-EXT-1	2014-02-04	Report: Lilley&Gillie, Extreme power supply test report
183	LGP36-PWS-EXC-1	2014-02-06	Report: Lilley&Gillie, Excessive power supply test report
182	LGP36-ENV-VIB-1	2014-02-06	Report: Lilley&Gillie, Vibration test report
181	LGP36-ENV-LOP-1	2014-02-07	Report: Lilley&Gillie, Low Temperature test report
180	LGP36-ENV-DHF-1	2014-02-07	Report: Lilley&Gillie, Dry heat test report

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179	LGP36-ENV-DAM-1	2014-02-05	Report: Lilley&Gillie, Damp heat test report
177		v7.1	MANUAL: PC Maritime, Navmaster User Guide v7.1
164	DOC101134-1	2012-09-14	REPORT: Hatteland, Conformance test report HD19T21STD-MA1-FAGA
163	A-12839		CERTIFICATE: DNV, Type approval of Hatteland MMD Series X displays
153	N/A	2011-06-23	Report: PC Maritime, Navmaster ECDIS, Radar Processor Unit 1.2
152	DANAK-1911050	2010-09-16	Report: DELTA, Test for Marine Type Approval of Radar Processor Unit, RPU-1.2
150	N/A	1.0	Manual: Jeppesen, Radar Processor Unit 1.2, Installation Guide
149	N/A	1.0	Manual: Jeppesen, Radar Processor Unit 1.2, Technological Indicator, User's Manual
148	N/A	1.0	Manual: Jeppesen, Radar Processor Unit 1.2 - Connection Guidelines
146	3448-A3-20	1	General Connection Diagram - Navmaster ECDIS 1000 System
145	OPT-CAL0006	2010-09-21	Report: Lilley&Gillie, ECDIS Optical Test Report - LGS213
144	PWS-NOR-LGS213	28-09-2010	Report: Lilley&Gillie, Environmental and EMC test reports IEC 60945
143	LGS213/ug/ra/213	1	User Guide - LGS213 Monitor/CPU: NavMaster ECDIS 1000
118	OPT-CAL0003	2009-09-17	Report: Lilley&Gillie, Ecdis Optical Test Report for LGM24 V2
117	OPT-CAL0005	2009-09-29	Report: Lilley&Gillie, Ecdis Optical Test Report for LGM24 V2
84	NME-ITF-LGP30	2009-06-22	Report: Lilley&Gillie, NMEA Interface test report
57	OPT-CAL0003		Report: Lilley&Gillie, ECDIS Optical test report
56			Manual: PC Maritime, Navmaster ECDIS Hardware Installation Guide v8
54		2.0	Manual: PC Maritime, Navmaster User Guide for v8
23		2009-03-26	Report: PC Maritime, Navmaster Test Results IEC61174 edt 3
22		2009-03-26	Report: PC Maritime, IEC 61174 Edt 3 Performance Test Results
21			Report: PC Maritime, IEC 62288 Edt 1 Test Results
20		2009-03-26	Description: PC Maritime, S-63 Test Definitions and Scripts for Encrypted ENC

## 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.