EC TYPE EXAMINATION (MODULE B) CERTIFICATE

No. 03-001578/031279

THIS IS TO CERTIFY:

That Croatian Register of Shipping did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with requirements of Marine Equipment Directive (MED) 2014/90/EU, subject to any conditions in the schedule attached hereto.

TYPE AND DESCRIPTION OF PRODUCT

Electronic chart display and information system - ECDIS
with type designation **Maris ECDIS900 MK5**

NUMBER AND ITEM DESIGNATION (in accordance with Annex of Regulation (EU) 2017/306)

MED/4.30 – Electronic chart display and information system (ECDIS) with backup, and raster chart display system (RCDS)

MANUFACTURER:

NAVICO HOLDING AS, Nyåskaiveien 2,
4374 Egersund – Norway

REGULATIONS AND STANDARDS (in accordance with Annex of Regulation (EU) 2017/306)

SOLAS 1974 as amended, Reg. V/19

IMO Res. A.694(17) , IMO Res. MSC.191(79) , IMO Res. MSC.232(82) , IMO Res.MSC.302(87) and IMO SN.1/Circ.266.

NOTICE:

1. Further details of the product and conditions for certification are given overleaf.
2. This certificate will not be valid if the manufacturer makes any changes or modifications to the approved equipment, which have not been notified to, and agreed with the notified body named on this certificate.
3. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply.
4. 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-control phase module (D, E, or F) of Annex II of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.
5. In case limitations of use apply, these should be indicated of in the Schedule of Approval.

Issued by Croatian Register of Shipping, notified body number 2489.

This certificate is valid until: 2021-04-09

Place and date: Split, 2017-04-10

Seal

Signature
Marinko Popović, dipl.ing.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Maris ECDIS900 MK5 system consists of the following components:

	Item name	item number
1.	Maris ECDIS900 MK5 PC	000-12425-xxx and 151-10462-xxx
2.	Bracket for Maris ECDIS900 MK5 PC Dell	000-12522-001
3.	Simrad Monitor M5024	000-11781-xxx and 151-10380-xxx
4.	Simrad Monitor M5027	000-12726-00x
5.	Hatteland 20"MMD	JH20T17
6.	Hatteland 23"MMD	JH23T14
7.	Hatteland 26"MMD	JH26T11
8.	Hatteland 27"MMD	JH27T11
9.	Hatteland Monitor 24 OEM Series-X	000-12521-xxx or 151-10463-xxx
10.	Hatteland Monitor 26 OEM Series-X	11559 or 151-10464-xxx
11.	Simrad E0102 – Alarm panel (with M5024 only)	000-12264-xxx and 151-10381-xxx
12.	Maris ECDIS900 CT&A Cable	000-12549-xxx
13.	Keyboard CHERRY – US/English, USB	11197
14.	Logitech Marble USB mouse	11008
15.	Logitech M570 mouse	000-12262-00x/151-10382-00x
16.	SIS4000 MK2-8CH Serial to LAN	11346

2. APPLICATION/LIMITATION OF USE

Maris ECDIS900 MK5 is tested for compliance with IEC 61174 Ed. 4.0 (2015-08) – Annex G (ECDIS in the RCDS mode of operation) and Annex H (Alarms and indicators in the RCDS mode of operation).

ECDIS system is not additionally tested for operation beyond the normal range between 85 degrees South latitude and 85 degrees North latitude.

New interface requirements have been added and tested for communication with BNWAS, VDR, BAM, MSI, INS as well as route transfer.

System is operational in a three different mode: ENC , C-MAP and RCDS mode.

System is to be installed in a protected environment.

3. DESIGN DRAWINGS AND SPECIFICATIONS

Maris ECDIS900 MK – System overview, rev 1.0;

Maris ECDIS900 System Installation Manual, item number 988-10960-xxx;

Maris ECDIS900 System Technical Manual, item number 988-10959-xxx;

Maris ECDIS900 System Operator Manual, item number 988-10958-xxx;

Alarm Panel E0102 User Guide, item number 988-10826-xxx;

Monitor M5000 Installation and Operation Manual, item number 988.10795-xxx;

MK6.0 – Radar Interface Box – Installation Manual.

4. TYPE TEST RECORDS/LABORATORY RECOGNITION STATUS

Performance testing – IEC 61174 Ed. 4.0 (2015-08), CRS witnessed – Egersund, May/August 2016 and March 2017;

Environmental testing – IEC 60945(2002) including Corrigendum 1(2008);

Serial interface testing – IEC 61162-1(2010) & IEC 61162-2 (1998);

Presentation of navigation information – IEC 62288 Ed.2 (2014-07), CRS witnessed – Egersund, December 2015 and March 2017;

Ethernet interconnection for VDR & Route Transfer – IEC61162-450 Ed.1.0 (2011-06), CRS witnessed – Egersund, May/August 2016;

CRS letters of approval – 055/TSE/VB/031199 and 1933/TSE/VB/031236.

5. MATERIALS OR COMPONENTS REQUIRED TO BE TYPE APPROVED OR TYPE TESTED

This approval remains valid for subsequent minor software amendments, as allowed by the 5.0.2.x.x.x. format (x=a numeral), where written details of any such modification have been submitted to and accepted by the approvals authority.

6. OTHER MATERIALS AND/OR COMPONENT

Maris ECDIS900 MK5 System dual installation is found to comply with the requirements for ECDIS with Back-up arrangements.

7. PRODUCTION SURVEY REQUIREMENTS

The Maris ECDIS900 shall be supplied by 110VAC / 230VAC / 24VDC in accordance with Installation Manual.
The installation on board shall be verified and tested according to Installation & Operation Manual.

8. ONBOARD INSTALLATION AND MAINTENANCE REQUIREMENTS

The manufacturer is allowed to affix the Mark of Conformity to equipment referred and to issue a Declaration of Conformity as long as either of the following is fulfilled:
Module D – The quality system for production and testing shall be approved by the Notified Body or,
Module E – The quality system for inspection and testing shall be approved by the Notified Body or,
Module F – Compliance of the product in this EC Type Examination Certificate is to be verified by the Notified Body who shall also issue a Certificate of Conformity.

9. MARKING AND IDENTIFICATION

Subject to compliance with the conditions in this Schedule of Approval which forms part of certificate, and those of Articles 10.1(i) and 11 of the Directive, the Manufacturer is allowed to affix the "Mark of Conformity" to the Product described herein.

2489/**yy** *(yy = last two digits of year mark affixed)*

10. OTHERS

SOFTWARE:

Item name	*SW version*
Maris ECDIS900 MK5 System	*5.0.2.x.x.x.*
IHO Presentation Library	*4.0*
Application Manager	*2.1.x.x.*
C-MAP SDK	*6.0.x*
Operating System	*Windows 7*

OPTIONAL EQUIPMENT:

Item name	*Item number*
Logitech Wireless Trackball M570	*000-12262-xxx*
Radar Interface Box – MK 6.0	*11393*
Keyboard OP2010	*11153*
Keyboard OP3000	*000-12524-xxx & 000-12525-xxx*
ECDIS Network Switch	*11298*

APPENDIX – TYPE EXAMINATION DOCUMENTATION

	Document title	Identification number	Revision index
1.	Desktop Computer – Dell OptiPlex XE2, Nemko Test Report	E14095.00	2014-04-02
2.	Desktop Computer – Dell OptiPlex XE2, Nemko Test Report	E15008.01	2015-02-26
3.	Dell OptiPlex XE2 - Corrosion waiver	-	27 Feb 2015
4.	Dell OptiPlexXE2 Small Form Factor DnV-GL Type Approval Certificate	A-14217	2015-03-11
5.	Composite Digital Video Converter - Maris VEM3 MK6, Nemko Test Report	E11095.00	2011-08-05
6.	SIS4000 MK2 Serial Interface unit - Maris Test report	-	06.2012
7.	Simrad display 24" – Optical measurements CNR Report	3F-RT14009	26 September 2014
8.	SIMRAD MO24-T, EMC Technologies, EN60945 Report	140122.1	10 June 2014
9.	AAC20140622-00 MO-24P – Comparative Declaration	AAC20140622-00	10 February 2014
10.	Monitor MO24P Pro Differences	Rev 3	08 Jan 2015
11.	Env-1-42271-LoC	42271-LoC	08 August 2014
12.	Env-2-ESLU42271-IEC Final	ESL42271-IEC	25 August 2014
13.	Env-3-EMCS42271-EN 60945 Final	EMCS42271-EN 60945	25 August 2014
14.	Corrosion wavier – MO24-P	DE20_FS181214	18.12.2014.
15.	NAVICO – M5024 Colour Calibration	0002 14B	16 Dec 2014
16.	NAVICO – M5024 Colour Calibration	0018 14B	16 Dec 2014
17.	BSH Compass Safe Distance	881	2014-10-30
18.	Maritime Display JH 23T14 MMD-MA1 DnV – EMC and Environmental Testing	2010-3124	2010-04-20
19.	Maritime Multi Display HD 24T21 DnV – EMC and Environmental Testing	2012-3372	2012-10-15
20.	Maritime Monitor JH 27T11MMD-AA1 DnV – EMC and Environmental Testing	2008-3464	18-09-2008
21.	HD 26T21 MMD-MA1-FOGA Applica – EMC and Environmental Testing	20282	2014-08-01
22.	HATTELAND – Conformance Test Report JH19T14MMD-AA1-AABA	DOC100904-1, rev1	04.11.2010
23.	HATTELAND – Conformance Test Report JH20T17MMD-AA1-AABA	DOC100904-2, rev1	04.11.2010
24.	HATTELAND – Conformance Test Report JH23T14MMD-MA1-AABA	DOC100904-3, rev1	04.11.2010
25.	HATTELAND – Conformance Test Report HD 24T21 STD-MA1-FAGA	DOC101763-1, rev1	18.02.2014
26.	HATTELAND – Conformance Test Report HD24T21MMC-MJD-AAB2	DOC101028-1, rev1	13.12.2011
27.	HATTELAND – Conformance Test Report JH26T11MMD-MA1-AABA	DOC100904-5, rev1	02.12.2010
28.	HATTELAND – Conformance Test Report JH26T21MMD-MA1-FOGA (HW04)	DOC101832-5, rev1	08.07.2014
29.	HATTELAND – Conformance Test Report JH27T11MMD-AA1-AABA	DOC100904-4, rev1	04.11.2010
30.	HATTELAND – Appendix IEC 62288 HD 19T21	DOC101900-1, rev2	2015-08-18

	Document title	Identification number	Revision index
31.	HATTELAND – Appendix IEC 62288 JH 20T17	DOC101936-1, rev2	2015-08-18
32.	HATTELAND – Appendix IEC 62288 JH 23T14	DOC101901-1, rev2	2015-08-18
33.	HATTELAND – Appendix IEC 62288 HD 24T21	DOC101896-1, rev2	2015-08-18
34.	HATTELAND – Appendix IEC 62288 HD 26T21	DOC101895-1, rev5	2015-08-18
35.	Navico Maris AS – ECDIS900 on HTC01PC and Color Calibration with HD26T21MMDMA4FAGA Monitor	0575/03	January 2015
36.	Hatteland TFT Displays – JH Series, DnV Type Approval Certificate	A-12836	2012-07-13
37.	Hatteland Maritime Multi Computer – Series X DnV Type Approval Certificate	A-12838	2012-07-13
38.	CT&A cable, Applica – Type testing	20689	2015-10-28
39.	AP50 – E0102 Power Failure Alarm Panel DnV MED-B certificate	8315 & 8346	2013-04-23
40.	Addendum for changes on alarm panel	-	2015-01-12
41.	Alarm Panel E01012 – sound level measure.	20244943	23.1.2015
42.	Elma 1350B sound-level instrument, Elma Instruments - Kalibrerings Attest	154317445	22.10.2015
43.	Logitech M570 Wireless USB Trackball, EMC Technologies – Test Report	140721.1	2 Sept. 2014
44.	ECDIS Keyboard NSI KSML92F1RLED-1077, Telefication Test Report	20094390200	22.04.2010
45.	NSI Backlighted keyboard with trackball, DELTA Test Report	DANAK-19/14501	19.09.2014
46.	Digital communication interfaces: Qwerty CN8E, N1E, 1N4B, NTG, N2P; Safety isolation Adveto ESIG & Keyboard Cherry XS Trackball – Intertek Semko AB – Test Report	913128	30.10.2009
47.	Mechanical test of Adveto, Qwerty and Cherry INNVENTIA AB – Test Report	279 693	12.01.2010
48.	EMC test on CN8E, N1E and 1N4B, SP Technical Research Institute of Sweden	F917800-A	2009-12-14
49.	EMC Test report on MC50 Computer with accessories, Nemko	200314148001	2004-11-05
50.	Compass Safe Distance Test of Computer System CSxx with accessories, DnV	2005-3102	2005-02-24
51.	Environmental Verification Test on CS accessories	310-04-0279	14.02.05
52.	Moxa Ethernet Switches and Video Servers, DnV TAC	A-13392	2013-08-20
53.	Koncar Institute – Zagreb, Simrad 27" monitor, EMC Test Report	21583EMC16051	17.6.2016.
54.	Koncar Institute – Zagreb, Simrad 27" monitor, IEC60945 Test Report	21580ALL008	28.06.2016.
55.	EMC Addendum - NAVICO	AEP20160630-00	30 June 2016
56.	M5027 ECDIS Colour Monitor – Colour Calibration & Visual Verification, Test Report	Part # 000-12726-001	Rev. 25 2016-05-04
57.	CNR – Istituto Nazionale di Ottica – Simrad 27" monitor, Optical test (IEC62288)	3F-RT16008	July 22, 2016
58.	Navico declaration – M5027 Optical tests	DAP20160720-01	20. July 2016
59.	Navico – M5027 Sound Test	EG-CE-20160705-01	2016-07-05

- END OF CERTIFICATE –