



EC TYPE EXAMINATION (MODULE B) CERTIFICATE

No. 03-001577/031279

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 MK4 & MK10**

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 MK4

System consists of the MK4 Rack Computer in combination with different Displays and following components:

	<i>Item name</i>	<i>item number</i>
COMPUTER		
1.	<i>Maris ECDIS900 MK4 PC</i>	<i>11291</i>
DISPLAY with Buzzer		
1.	<i>Hatteland 20" MMD</i>	-
2.	<i>Hatteland 23" MMD</i>	<i>11211</i>
3.	<i>Hatteland 26" MMD</i>	<i>11281</i>
4.	<i>Hatteland 27" MMD</i>	-
5.	<i>Hatteland Monitor 24 OEM Series-X</i>	<i>000-12521-xxx or 151-10463-xxx</i>
6.	<i>Hatteland Monitor 26 OEM Series-X</i>	<i>11559 or 151-10464-xxx</i>
7.	<i>Hatteland 19" MMD (JH19T14)</i>	<i>11240</i>
8.	<i>Hatteland 24" Industrial Display HD24T21 STD-MA4-FAGA</i>	<i>11506</i>
INTERFACES		
1.	<i>Serial: External SIS4000 (8 x RS485/RS422 ports)</i>	<i>11346</i>
2.	<i>Serial: Internal Moxa CP114/118 (4/8 x RS485/RS422 ports)</i>	-
3.	<i>Network: External switch LAN4000 (10 x RJ45)</i>	<i>11298</i>
4.	<i>USB ports: Internal 10 x USB 2.0 and 1.1 Type-A</i>	-
ACCESSORIES		
1.	<i>Keyboard CHERRY – US/English, USB</i>	<i>11197</i>
2.	<i>Logitech Marble USB mouse</i>	<i>11008</i>
3.	<i>SIS4000 MK2-8CH Serial to LAN</i>	<i>11346</i>

Maris ECDIS900 MK10

System consists of Flat Panel Computer and following components:

	<i>Item name</i>	<i>item number</i>
COMPUTER + DISPLAY		
1.	<i>SmartLine FPC MK10</i>	<i>11037</i>
INTERFACES		
1.	<i>Serial: Internal Moxa CP114/118 (4/8 x RS485/RS422 ports)</i>	-
2.	<i>Serial: External SIS4000 (8 x RS485/RS422 ports)</i>	<i>11346</i>
3.	<i>Network: External switch LAN4000 (10 x RJ45)</i>	<i>11298</i>
4.	<i>USB ports: Internal 10 x USB 2.0 and 1.1 Type-A</i>	-
ACCESSORIES		
1.	<i>Maris ECDIS900 CT&A Cable</i>	<i>000-12549-xxx</i>
2.	<i>Keyboard CHERRY – US/English, USB</i>	<i>11197</i>
3.	<i>Logitech Marble USB mouse</i>	<i>11008</i>
4.	<i>Logitech M570</i>	<i>000-12262-00x /151-10382-00x</i>
5.	<i>SIS4000 MK2-8CH Serial to LAN</i>	<i>11346</i>

APPLICATION/LIMITATION OF USE

Maris ECDIS900 MK4 & MK10 are 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 systems are 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 – 054/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 4.9.2.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 MK4 & MK10 Systems dual installation are 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:

<i>Item name</i>	<i>SW version</i>
<i>Maris ECDIS900 MK4/MK10 System</i>	<i>4.9.2.x.</i>
<i>IHO Presentation Library</i>	<i>4.0</i>
<i>Application Manager</i>	<i>2.1.x.x.</i>
<i>C-MAP SDK</i>	<i>6.0.x</i>
<i>Operating System</i>	<i>Windows XP</i>

OPTIONAL EQUIPMENT:

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

APPENDIX – TYPE EXAMINATION DOCUMENTATION

	<i>Document title</i>	<i>Identification number</i>	<i>Revision index</i>
1.	<i>Panel PC Smartline MK10, Analogue Interface SAS4000 and UPS MGE Pulsar 700, DnV – EMC and Environmental Testing</i>	<i>2009-3395, rev.01</i>	<i>2009-07-15</i>
2.	<i>Maris MK10 ECDIS, Nemko – Color Calibration Verification</i>	<i>129073/Vi01</i>	<i>2009-10-07</i>
3.	<i>Composite Digital Video Converter – Maris VEM3 MK6, Nemko Test Report</i>	<i>E11095.00</i>	<i>2011-08-05</i>
4.	<i>SIS4000 MK2 Serial Interface unit – Maris Test report</i>	<i>-</i>	<i>06.2012</i>
5.	<i>MOXA – Ethernet Switches and Video Servers, DnV – Type Approval Certificate</i>	<i>A-13392</i>	<i>2013-08-20</i>
6.	<i>HATTELAND Display – Maritime Computer HT C01 STD, DnV – EMC and Environmental Testing</i>	<i>2009-3161, rev.02</i>	<i>2009-03-17</i>
7.	<i>HATTELAND Display – Maritime Computer HT C01 STD-D100, DnV – EMC and Environmental Testing</i>	<i>2010-3243, rev.04</i>	<i>2010-05-12</i>
8.	<i>ECDIS900 on HTC01PC with HD26T21MMDMA4FAGA Monitor, Maris – Color Calibration</i>	<i>0575/03</i>	<i>January 2015</i>
9.	<i>HATTELAND – Conformance Test Report JH19T14MMD-AA1-AABA</i>	<i>DOC100904-1, rev1</i>	<i>04.11.2010</i>
10.	<i>HATTELAND – Conformance Test Report JH20T17MMD-AA1-AABA</i>	<i>DOC100904-2, rev1</i>	<i>04.11.2010</i>
11.	<i>HATTELAND – Appendix IEC 62288 JH 20T17</i>	<i>DOC101936-1, rev2</i>	<i>2015-08-18</i>
12.	<i>HATTELAND – Conformance Test Report JH23T14MMD-MA1-AABA</i>	<i>DOC100904-3, rev1</i>	<i>04.11.2010</i>
13.	<i>HATTELAND – Appendix IEC 62288 JH 23T14</i>	<i>DOC101901-1, rev2</i>	<i>2015-08-18</i>
14.	<i>HATTELAND – Conformance Test Report HD 24T21 STD-MA1-FAGA</i>	<i>DOC101763-1, rev1</i>	<i>18.02.2014</i>
15.	<i>HATTELAND – Appendix IEC 62288 HD 24T21</i>	<i>DOC101896-1, rev2</i>	<i>2015-08-18</i>
16.	<i>HATTELAND – Conformance Test Report JH26T11MMD-MA1-AABA</i>	<i>DOC100904-5, rev1</i>	<i>02.12.2010</i>

	<i>Document title</i>	<i>Identification number</i>	<i>Revision index</i>
17.	<i>HATTALAND Display – JH 19T14 MMD-AA1-AOAA, DnV – EMC and Environmental Testing</i>	<i>2008-3528, rev.02</i>	<i>2008-10-31</i>
18.	<i>Maritime Display JH 23T14 MMD-MA1, DnV – EMC and Environmental Testing</i>	<i>2010-3124</i>	<i>2010-04-20</i>
19.	<i>Maritime Display JH 24T21, DnV – EMC and Environmental Testing</i>	<i>2012-3372</i>	<i>2012-10-15</i>
20.	<i>Maritime Display JH 27T21 MMD-MA1, DnV – EMC and Environmental Testing</i>	<i>2008-3464</i>	<i>18-09-2008</i>
21.	<i>Hatteland TFT Displays – JH Series, DnV Type Approval Certificate</i>	<i>A-12836</i>	<i>2012-07-13</i>
22.	<i>Hatteland Maritime Multi Computer – Series X, DnV Type Approval Certificate</i>	<i>A-12838</i>	<i>2012-07-13</i>
23.	<i>BSH Compass Safe Distance</i>	<i>881</i>	<i>2014-10-30</i>
24.	<i>Logitech M570 Wireless USB Trackball, EMC Technologies – Test Report</i>	<i>140721.1</i>	<i>2 Sept. 2014</i>
25.	<i>ECDIS Keyboard NSI KSML92FIRLED-1077, Telefication Test Report</i>	<i>20094390200</i>	<i>22.04.2010</i>
26.	<i>NSI Backlighted keyboard with trackball, Delta Test Report</i>	<i>DANAK-19/14501</i>	<i>19.09.2014</i>
27.	<i>Digital communication interfaces: Qwerty CN8E, N1E, 1N4B, NTG, N2P; Safety isolation Adveto ESIG & Keyboard Cherry XS Trackball Intertek; Semko AB – Test Report</i>	<i>913128</i>	<i>30.10.2009</i>
28.	<i>Mechanical test of Adveto, Qwerty and Cherry, INNVENTIA AB – Test report</i>	<i>279 693</i>	<i>12.01.2010</i>
29.	<i>EMC test on CN8E, N1E and 1N4B, SP Technical Research Institute of Sweden</i>	<i>F917800-A</i>	<i>2009-12-14</i>
30.	<i>EMC and Environmental Testing of Maritime Panel Computer JH 19T14 MMC-AA1-AABR – DnV Technical Report</i>	<i>2009-3442</i>	<i>2009-08-11</i>
31.	<i>Appendix to IEC62288 Ed.2 for HD 26T21 – Hatteland Display</i>	<i>DOC101895-1R5</i>	<i>2015-08-18</i>
32.	<i>Appendix to IEC62288 Ed.2 for JH 26T11 – Hatteland Display</i>	<i>DOC102254-1R1</i>	<i>2016-06-02</i>
33.	<i>HD 26T21 MMD-MA1-FOGA (HW04), Conformance Test Report, Hatteland Display</i>	<i>DOC101832-5R1</i>	<i>08.07.2014</i>
34.	<i>HD 26T21 MMD-MA1-FOGA, EMC and Environmental Testing – Applica</i>	<i>20282</i>	<i>2014-08-01</i>
35.	<i>EMC Test Report on Logitech Trackball M570 – MET Laboratories, Inc</i>	<i>EMCS42271</i>	<i>August 25, 2014</i>
36.	<i>Environmental Test Report on Logitech Trackball M570 – MET Laboratories, Inc</i>	<i>ENV-2-ESLU42271</i>	<i>August 25, 2014</i>
37.	<i>EMC Test report on MC50 Computer with accessories – Nemko</i>	<i>200314148001</i>	<i>2004-11-05</i>
38.	<i>Environmental Verification Test on CS accessories</i>	<i>310-04-0279</i>	<i>14.02.05</i>
39.	<i>Compass Safe Distance Test of Computer System CSxx with accessories, DnV</i>	<i>2005-3102</i>	<i>2005-02-24</i>

- END OF CERTIFICATE -