



EC TYPE EXAMINATION (MODULE B) CERTIFICATE

No. 03-001700/031408

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 **Simrad - Maris ECDIS900 MK5A****NUMBER AND ITEM DESIGNATION** (in accordance with Annex of Regulation (EU) 2018/773)

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

MANUFACTURER:**NAVICO NORWAY AS, Nyåskaiveien 2,
4374 Egersund – Norway****REGULATIONS AND STANDARDS** (in accordance with Annex of Regulation (EU) 2018/773)

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 MSC.1/Circ.1503. Rev.1.

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: **2022-04-19**Place and date: **2019-08-13**

Seal

Signature

Marinko Popović, dipl.ing.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Simrad - Maris ECDIS900 MK5A system consists of the following components:

	<i>Item name</i>	<i>item number</i>
1.	<i>Simrad-Maris ECDIS900 MK5A Processor</i>	<i>000-14487-xxx</i>
2.	<i>Simrad Monitor M5024</i>	<i>000-11781-xxx and 151-10380-xxx</i>
3.	<i>Simrad Monitor M5027</i>	<i>000-12726-00x</i>
4.	<i>Hatteland 20" MMD</i>	<i>JH20T17</i>
5.	<i>Hatteland 23" MMD</i>	<i>JH23T14</i>
6.	<i>Hatteland 26" MMD</i>	<i>JH26T11</i>
7.	<i>Hatteland 27" MMD</i>	<i>JH27T11</i>
8.	<i>Hatteland Monitor 24 OEM Series-X</i>	<i>000-12521-xxx or 151-10463-xxx</i>
9.	<i>Hatteland Monitor 26 OEM Series-X</i>	<i>11559 or 151-10464-xxx</i>
10.	<i>Simrad E0102 – Alarm panel (with M5024 only)</i>	<i>000-12264-xxx and 151-10381-xxx</i>
11.	<i>Maris ECDIS900 CT&A Cable</i>	<i>000-12549-xxx</i>
12.	<i>Keyboard CHERRY – US/English, USB</i>	<i>11197</i>
13.	<i>Logitech Marble USB mouse</i>	<i>11008</i>
14.	<i>Logitech M570 mouse</i>	<i>000-12262-00x/151-10382-00x</i>
15.	<i>Hatteland FPC, NMEA0183, 4 port exp. USB</i>	<i>000-12564-xxx</i>

2. APPLICATION/LIMITATION OF USE

Simrad-Maris ECDIS900 MK5A 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(2016), CRS witnessed – Egersund August 2019;

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 – 871/TSE/VB/031350 dated 2018-04-20.

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

Simrad-Maris ECDIS900 MK5A System dual installation is found to comply with the requirements for ECDIS with Back-up arrangements.

7. PRODUCTION SURVEY REQUIREMENTS

Production items are to be manufactured in accordance with an approved Production Quality Assurance system (Module D) of the Marine Equipment Directive.

Each item is to have the "Mark of Conformity" affixed and be issued with a "Declaration of Conformity".

8. ONBOARD INSTALLATION AND MAINTENANCE 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.

9. MARKING AND IDENTIFICATION



Subject to compliance with the conditions in this Schedule of Approval which forms part of certificate, and those of Articles 9, 10 and 15 of the Directive, the Manufacturer is allowed to affix the "Mark of Conformity" to the Product described herein.

xxxx/yy *xxxx - the number of the Notified Body undertaking surveillance module (2489 in case of CRS)*
yy - the last two digits of year mark affixed

10. OTHER

SOFTWARE:

<i>Item name</i>	<i>SW version</i>
<i>Maris ECDIS900 MK15 System</i>	<i>5.0.2.x.x.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 7</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>Hatteland Display AS – EMC and Environmental testing of Compact Fanless Computer HT B30GH STC-A3x-M13200-ES, APPLICA Test & Certification</i>	<i>21111</i>	<i>2017-08-02</i>
2.	<i>Hatteland Display AS – EMC and Environmental testing of Maritime Multi Display HD 15T21 STD-MA1-FAGA, DnV Technical Report</i>	<i>2012-3081</i>	<i>2012-02-29</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>06.2012</i>
5.	<i>Simrad display 24” – Optical measurements CNR Report</i>	<i>3F-RT14009</i>	<i>26 September 2014</i>
6.	<i>SIMRAD MO24-T, EMC Technologies, EN60945 Report</i>	<i>140122.1</i>	<i>10 June 2014</i>
7.	<i>AAC20140622-00 MO-24P – Comparative Declaration</i>	<i>AAC20140622-00</i>	<i>10 February 2014</i>
8.	<i>Monitor MO24P Pro Differences</i>	<i>Rev 3</i>	<i>08 Jan 2015</i>
9.	<i>Env-1-42271-LoC</i>	<i>42271-LoC</i>	<i>08 August 2014</i>
10.	<i>Env-2-ESLU42271-IEC Final</i>	<i>ESL42271-IEC</i>	<i>25 August 2014</i>
11.	<i>Env-3-EMCS42271-EN 60945 Final</i>	<i>EMCS42271-EN 60945</i>	<i>25 August 2014</i>
12.	<i>Corrosion wavier – MO24-P</i>	<i>DE20_FS181214</i>	<i>18.12.2014.</i>
13.	<i>NAVICO – M5024 Colour Calibration</i>	<i>0002 14B</i>	<i>16 Dec 2014</i>
14.	<i>NAVICO – M5024 Colour Calibration</i>	<i>0018 14B</i>	<i>16 Dec 2014</i>
15.	<i>BSH Compass Safe Distance</i>	<i>881</i>	<i>2014-10-30</i>
16.	<i>Maritime Display JH 23T14 MMD-MA1 DnV – EMC and Environmental Testing</i>	<i>2010-3124</i>	<i>2010-04-20</i>
17.	<i>Maritime Multi Display HD 24T21 DnV – EMC and Environmental Testing</i>	<i>2012-3372</i>	<i>2012-10-15</i>
18.	<i>Maritime Monitor JH 27T11MMD-AA1 DnV – EMC and Environmental Testing</i>	<i>2008-3464</i>	<i>18-09-2008</i>
19.	<i>HD 26T21 MMD-MA1-FOGA Applica – EMC and Environmental Testing</i>	<i>20282</i>	<i>2014-08-01</i>
20.	<i>HATTELAND – Conformance Test Report JH19T14MMD-AA1-AABA</i>	<i>DOC100904-1, rev1</i>	<i>04.11.2010</i>
21.	<i>HATTELAND – Conformance Test Report JH20T17MMD-AA1-AABA</i>	<i>DOC100904-2, rev1</i>	<i>04.11.2010</i>
22.	<i>HATTELAND – Conformance Test Report JH23T14MMD-MA1-AABA</i>	<i>DOC100904-3, rev1</i>	<i>04.11.2010</i>
23.	<i>HATTELAND – Conformance Test Report HD 24T21 STD-MA1-FAGA</i>	<i>DOC101763-1, rev1</i>	<i>18.02.2014</i>
24.	<i>HATTELAND – Conformance Test Report HD24T21MMC-MJD-AAB2</i>	<i>DOC101028-1, rev1</i>	<i>13.12.2011</i>
25.	<i>HATTELAND – Conformance Test Report JH26T11MMD-MA1-AABA</i>	<i>DOC100904-5, rev1</i>	<i>02.12.2010</i>
26.	<i>HATTELAND – Conformance Test Report JH26T21MMD-MA1-FOGA (HW04)</i>	<i>DOC101832-5, rev1</i>	<i>08.07.2014</i>
27.	<i>HATTELAND – Conformance Test Report JH27T11MMD-AA1-AABA</i>	<i>DOC100904-4, rev1</i>	<i>04.11.2010</i>
28.	<i>HATTELAND – Appendix IEC 62288 HD 19T21</i>	<i>DOC101900-1, rev2</i>	<i>2015-08-18</i>
29.	<i>HATTELAND – Appendix IEC 62288 JH 20T17</i>	<i>DOC101936-1, rev2</i>	<i>2015-08-18</i>

	<i>Document title</i>	<i>Identification number</i>	<i>Revision index</i>
30.	<i>HATTELAND – Appendix IEC 62288 JH 23T14</i>	<i>DOC101901-1, rev2</i>	<i>2015-08-18</i>
31.	<i>HATTELAND – Appendix IEC 62288 HD 24T21</i>	<i>DOC101896-1, rev2</i>	<i>2015-08-18</i>
32.	<i>HATTELAND – Appendix IEC 62288 HD 26T21</i>	<i>DOC101895-1, rev5</i>	<i>2015-08-18</i>
33.	<i>Navico Maris AS – ECDIS900 on HTC01PC and Color Calibration with HD26T21MMDMA4FAGA Monitor</i>	<i>0575/03</i>	<i>January 2015</i>
34.	<i>Hatteland TFT Displays – JH Series, DnV Type Approval Certificate</i>	<i>A-12836</i>	<i>2012-07-13</i>
35.	<i>Hatteland Maritime Multi Computer – Series X DnV Type Approval Certificate</i>	<i>A-12838</i>	<i>2012-07-13</i>
36.	<i>CT&A cable, Applica – Type testing</i>	<i>20689</i>	<i>2015-10-28</i>
37.	<i>AP50 – E0102 Power Failure Alarm Panel DnV MED-B certificate</i>	<i>8315 & 8346</i>	<i>2013-04-23</i>
38.	<i>Addendum for changes on alarm panel</i>	<i>-</i>	<i>2015-01-12</i>
39.	<i>Alarm Panel E01012 – sound level measure.</i>	<i>20244943</i>	<i>23.1.2015</i>
40.	<i>Elma 1350B sound-level instrument, Elma Instruments - Kalibrerings Attest</i>	<i>154317445</i>	<i>22.10.2015</i>
41.	<i>Logitech M570 Wireless USB Trackball, EMC Technologies – Test Report</i>	<i>140721.1</i>	<i>2 Sept. 2014</i>
42.	<i>ECDIS Keyboard NSI KSML92FIRLED-1077, Telefication Test Report</i>	<i>20094390200</i>	<i>22.04.2010</i>
43.	<i>NSI Backlighted keyboard with trackball, DELTA Test Report</i>	<i>DANAK-19/14501</i>	<i>19.09.2014</i>
44.	<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>
45.	<i>Mechanical test of Adveto, Qwerty and Cherry INNVENTIA AB – Test Report</i>	<i>279 693</i>	<i>12.01.2010</i>
46.	<i>EMC test on CN8E, N1E and 1N4B, SP Technical Research Institute of Sweden</i>	<i>F917800-A</i>	<i>2009-12-14</i>
47.	<i>EMC Test report on MC50 Computer with accessories, Nemko</i>	<i>200314148001</i>	<i>2004-11-05</i>
48.	<i>Compass Safe Distance Test of Computer System CSxx with accessories, DnV</i>	<i>2005-3102</i>	<i>2005-02-24</i>
49.	<i>Environmental Verification Test on CS accessories</i>	<i>310-04-0279</i>	<i>14.02.05</i>
50.	<i>Moxa Ethernet Switches and Video Servers, DnV TAC</i>	<i>A-13392</i>	<i>2013-08-20</i>
51.	<i>Koncar Institute – Zagreb, Simrad 27” monitor, EMC Test Report</i>	<i>21583EMC16051</i>	<i>17.6.2016.</i>
52.	<i>Koncar Institute – Zagreb, Simrad 27” monitor, IEC60945 Test Report</i>	<i>21580ALL008</i>	<i>28.06.2016.</i>
53.	<i>EMC Addendum - NAVICO</i>	<i>AEP20160630-00</i>	<i>30 June 2016</i>
54.	<i>M5027 ECDIS Colour Monitor – Colour Calibration & Visual Verification, Test Report</i>	<i>Part # 000-12726-001</i>	<i>Rev. 25 2016-05-04</i>
55.	<i>CNR – Istituto Nazionale di Ottica – Simrad 27” monitor, Optical test (IEC62288)</i>	<i>3F-RT16008</i>	<i>July 22, 2016</i>
56.	<i>Navico declaration – M5027 Optical tests</i>	<i>DAP20160720-01</i>	<i>20. July 2016</i>
57.	<i>Navico – M5027 Sound Test</i>	<i>EG-CE-20160705-01</i>	<i>2016-07-05</i>

- END OF CERTIFICATE -