

**EC TYPE EXAMINATION (MODULE B) CERTIFICATE
(EC-US MRA)**No. **03-001965/031661****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 ECDIS900 MK5****NUMBER AND ITEM DESIGNATION** (in accordance with Annex of Regulation (EU) 2022/1157)

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

MANUFACTURER:**NAVICO RBU ITALIA S.r.l.****Via Romita 26, 50025 Montagnana VP, Firenze – ITALY****REGULATIONS AND STANDARDS** (in accordance with Annex of Regulation (EU) 2022/1157)

SOLAS 1974 as amended, Reg. V/18, Reg. V/19, Reg. V/27, Reg. X/3

IMO Res.A.694(17), IMO Res.MSC.36(63)-(1994 HSC Code) 13, IMO Res.MSC.97(73)-(2000 HSC Code) 13, IMO Res.MSC.191(79), IMO Res.MSC.232(82), IMO Res.MSC.302(87) and IMO MSC.1/Circ.1503. Rev.1.

USCG Module B number: **165.123/EC2489/03-001965**
165.124/EC2489/03-001965**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.
6. This product has been assigned **U.S. Coast Guard Module B number** in accordance with the European Council Decision 2004/425/EC dated 21 April 2004 on the conclusion of an Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment, as amended by Decision No.1/2018 of the Joint Committee established by the Agreement of the European Community and the United States of America of 18 February 2019.



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

This certificate is valid until: **2024-01-01**Place and date: **Split, 2023-06-27**

Seal

Signature

Marinko Popović, dipl.ing.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Simrad ECDIS900 MK5 system consists of the following components:

	<i>Item name</i>	<i>item number</i>
1.	<i>Simrad ECDIS900 MK5 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 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(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 – 056/TSE/VB/031199 and 1933/TSE/VB/031236;

Ethernet interconnection for VDR & Route Transfer – IEC61162-450 Ed.1.2 (2018), CRS witnessed – Genova June/July 2021;

Bridge alert management testing – IEC 62923-1 Ed. 1.0 (2018) & IEC 62923-2 Ed. 1.0 (2018), Genova June/July 2021;

CRS letter of approval – 1490/TSE/NP/031540 dated 2021-07-14, CRS letter of approval – 1500/TSE/NP/031661 dated 2023-06-27.

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 5.1.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 ECDIS900 MK5 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 Simrad 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
 xxx - the number of the Notified Body undertaking surveillance module(2489 in case of CRS)
 yy - the last two digits of year mark affixed

This product has been assigned US Coast Guard Module B number **165.123/EC2489/03-001965, 162.124/EC2489/03-001965**. In those instances where the Notified Body conducting the conformity assessment in accordance with either Module D, E or F of the Marine Equipment Directive is not CRS, such Notified Body would use the above U.S. Coast Guard Module B number to provide the manufacturer with the U.S. Coast Guard approval number by noting it on the Certificate of Conformity, thereby authorizing the manufacturer to mark the product accordingly.

10. OTHER

SOFTWARE:

<i>Item name</i>	<i>MK5A SW version</i>	<i>MK5B SW version</i>
<i>Simrad ECDIS900 MK5 System</i>	<i>5.1.x.x.</i>	<i>5.1.x.x</i>
<i>IHO Presentation Library</i>	<i>4.0</i>	<i>4.0</i>
<i>Application Manager</i>	<i>2.1.x.x.</i>	<i>1.0.x.x</i>
<i>C-MAP SDK</i>	<i>6.0.x</i>	<i>-</i>
<i>Operating System</i>	<i>Windows 7</i>	<i>Windows 10</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>
<i>NSI trackball E38</i>	<i>000-14278-001</i>
<i>EDS-405A 5-Port Managed Ethernet Switch</i>	<i>000-15936-001</i>

APPENDIX – TYPE EXAMINATION DOCUMENTATION

	Document title	Identification number	Revision index
1.	Hatteland Display AS – EMC and Environmental testing of Compact Fanless Computer HT B30GH STC-A3x-M13200-ES, APPLICA Test & Certification	21111	2017-08-02
2.	Hatteland Display AS – EMC and Environmental testing of Maritime Multi Display HD 15T21 STD-MA1-FAGA, DnV Technical Report	2012-3081	2012-02-29
3.	Composite Digital Video Converter - Maris VEM3 MK6, Nemko Test Report	E11095.00	2011-08-05
4.	SIS4000 MK2 Serial Interface unit - Maris Test report	-	06.2012
5.	Simrad display 24" – Optical measurements, CNR Report	3F-RT14009	26 September 2014
6.	SIMRAD MO24-T, EMC Technologies, EN60945 Report	140122.1	10 June 2014
7.	AAC20140622-00 MO-24P – Comparative Declaration	AAC20140622-00	10 February 2014
8.	Monitor MO24P Pro Differences	Rev 3	08 Jan 2015
9.	Env-1-42271-LoC	42271-LoC	08 August 2014
10.	Env-2-ESLU42271-IEC Final	ESLU42271-IEC	25 August 2014
11.	Env-3-EMCS42271-EN 60945 Final	EMCS42271-EN 60945	25 August 2014
12.	Corrosion wavier – MO24-P	DE20_FS181214	18.12.2014.
13.	NAVICO – M5024 Colour Calibration	0002 14B	16 Dec 2014
14.	NAVICO – M5024 Colour Calibration	0018 14B	16 Dec 2014
15.	BSH Compass Safe Distance	881	2014-10-30
16.	Maritime Display JH 23T14 MMD-MA1 DnV – EMC and Environmental Testing	2010-3124	2010-04-20
17.	Maritime Multi Display HD 24T21 DnV – EMC and Environmental Testing	2012-3372	2012-10-15
18.	Maritime Monitor JH 27T11MMD-AA1 DnV – EMC and Environmental Testing	2008-3464	18-09-2008
19.	HD 26T21 MMD-MA1-FOGA, Applica – EMC and Environmental Testing	20282	2014-08-01
20.	HATTELAND – Conformance Test Report JH19T14MMD-AA1-AABA	DOC100904-1, rev1	04.11.2010
21.	HATTELAND – Conformance Test Report JH20T17MMD-AA1-AABA	DOC100904-2, rev1	04.11.2010
22.	HATTELAND – Conformance Test Report JH23T14MMD-MA1-AABA	DOC100904-3, rev1	04.11.2010
23.	HATTELAND – Conformance Test Report HD 24T21 STD-MA1-FAGA	DOC101763-1, rev1	18.02.2014
24.	HATTELAND – Conformance Test Report HD24T21MMC-MJD-AAB2	DOC101028-1, rev1	13.12.2011
25.	HATTELAND – Conformance Test Report JH26T11MMD-MA1-AABA	DOC100904-5, rev1	02.12.2010
26.	HATTELAND – Conformance Test Report JH26T21MMD-MA1-FOGA (HW04)	DOC101832-5, rev1	08.07.2014
27.	HATTELAND – Conformance Test Report JH27T11MMD-AA1-AABA	DOC100904-4, rev1	04.11.2010
28.	HATTELAND – Appendix IEC 62288 HD 19T21	DOC101900-1, rev2	2015-08-18
29.	HATTELAND – Appendix IEC 62288 JH 20T17	DOC101936-1, rev2	2015-08-18
30.	HATTELAND – Appendix IEC 62288 JH 23T14	DOC101901-1, rev2	2015-08-18
31.	HATTELAND – Appendix IEC 62288 HD 24T21	DOC101896-1, rev2	2015-08-18
32.	HATTELAND – Appendix IEC 62288 HD 26T21	DOC101895-1, rev5	2015-08-18

	<i>Document title</i>	<i>Identification number</i>	<i>Revision index</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, Applicata – 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 KSML92F1RLED-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>
58.	<i>NAVICO – Test Report on IEC 61162-450 (2018), IEC 62923-1 (2018) and IEC 62923-2 (2018), CRS witnessed, 2021-07-07</i>	<i>Navico TestLink</i>	<i>07.07.2021.</i>
59.	<i>NSI E38 trackball, DELTA Test Report, Project No. 117-22712</i>	<i>DANAK-19/18561</i>	<i>14.12.2020.</i>

- END OF CERTIFICATE -