



EC TYPE EXAMINATION (MODULE B) CERTIFICATE (EC-US MRA)

No.	03-001517/031175
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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) 96/98/EC as last amended by directive 2015/559/EU, subject to any conditions in the schedule attached hereto.

TYPE AND DESCRIPTION OF PRODUCT

12 kW X-BAND – RADAR SYSTEM

with type designation **R3016 12U/6X**

ANNEX A.1 NO AND ITEM DESIGNATION

A.1/4.36 – Radar equipment CAT 3

MANUFACTURER:

NAVICO RBU ITALIA S.r.l.

Via Romita 26, 50025 Montagnana V.P. – Montespertoli (FI), ITALY

REGULATIONS AND STANDARDS (in accordance with Annex A.1, Directive)

SOLAS 1974 as amended, Reg. V/19

IMO Res. A.278(VIII), IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.192(79) and ITU-R M. 1177-4(04/11).

USCG Module B number: 165.116/EC2489 (see application/limitation of use)

NOTICE:

- Further details of the product and conditions for certification are given overleaf.
- 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.
- 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.
- 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 B of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.
- In case limitations of use apply, these should be indicated of in the Schedule of Approval.
- This product has been assigned U.S. Coast Guard Module B number as stated above to note type approval to Module B only as it pertains to obtaining US Coast Guard approval as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment" signed February 27th, 2004.

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

This certificate is valid until: 2020-05-09

Place and date: Split, 2016-05-09



Signature
Marinko Popović, dipl.ing.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

R3016 12 kW X-BAND RADAR SYSTEM consists of the following components:

	<i>Item name</i>	<i>Item number</i>
1.	<i>12 kW SRT X-Band Lan Transceiver</i>	<i>000-12383-001</i>
2.	<i>X-BAND 6FT ANTENNA</i>	<i>000-10324-001</i>
3.	<i>R3016, Radar Control Unit, 16"</i>	<i>000-12188-001</i>
4.	<i>R3000 Power Supply Unit</i>	<i>000-12384-001</i>
5.	<i>15 m Power Cable</i>	<i>000-12387-001</i>
6.	<i>15 m Ethernet Cable</i>	<i>000-12390-001</i>
7.	<i>R3016 Bracket Mounting Kit</i>	<i>000-12412-001</i>
8.	<i>High Speed NMEA0183 8WAY 2M</i>	<i>000-12393-001</i>
9.	<i>1.5 m HDMI DVI Cable</i>	<i>000-12427-001</i>
10.	<i>SI80 Simrad Signal Interface</i>	<i>000-10425-001</i>

2. APPLICATION/LIMITATION OF USE

R3016 12U/6X Radar is found to comply with the requirements for Radar carriage requirements on vessels up to 500 GT. This radar equipment fulfil Performance Requirements for CAT 3 Radar categories of ship/craft for SOLAS Ch. V:

<i>Minimum operational display area diameter</i>	<i>180mm</i>
<i>Minimum acquired radar target capacity</i>	<i>20</i>
<i>Minimum activated AIS target capacity</i>	<i>20</i>
<i>Minimum sleeping radar target capacity</i>	<i>100</i>
<i>Minimum total AIS target and reports capacity</i>	<i>120</i>

This product has been assigned U.S. Coast Guard Approval Category for the Automatic Tracking Aid (ATA) only. The manufacturer must obtain the Federal Communication Commission (FCC) certification on the Radar System before installation on board the U.S. vessel.

The system is tested for compliance to communicate with Bridge Alert Management System (BAM).

3. DESIGN DRAWINGS AND SPECIFICATIONS

R3016 12U/6X HW INST & SYSTEM WIRING MAN, item number 988-10912-XXX;

R3016 12U/6X SYSTEM CONFIG & MAINT MAN, item number 988-10913-XXX;

R3016 12U/6X OPERATOR MANUAL, item number 988-10911-XXX;

R2009/R3016 QSG Multlang, item number 988-10951-XXX;

SI80 - Radar Serial Interface Box – Installation Guide.

4. TYPE TEST RECORDS/LABORATORY RECOGNITION STATUS

Performance testing - IEC 62388 Ed. 2.0 (2013-06), CRS witness test - Montagnana, January/April 2016.;

Environmental testing - IEC 60945 Ed. 4.0 (2002-08) including Corrigendum 1(2008);

Serial interface testing - IEC 61162-1(2010) & IEC 61162-2 (1998), CRS witness test - Montagnana, January 2016.;

Presentation of navigation information - IEC 62288 Ed. 2.0 (2014-07), CRS witness test - Montagnana, January/April 2016;

CRS letter of approval - 1115/TSE/VB/031175 dated 2016-05-09 (All Technical Documents & Test Reports included).

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 SW numerical format.

Written details of any such modification shall be submitted to and accepted by the approvals authority.

6. OTHER MATERIALS AND/OR COMPONENT

For more demanding installation (use of BAM and INS system only) Serial Input Expansion Box - Simrad SI80 may be used.

7. PRODUCTION SURVEY 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.

8. ONBOARD INSTALLATION AND MAINTENANCE REQUIREMENTS

The R3016 12U/6X Radar shall be supplied by 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 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)

This product has been assigned US Coast Guard Modul B number 165.116/EC2489. 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.

Note: For product placed on board U.S. flagged ships there is not declaration of conformity required to meet U.S. Coast Guard required.

10. OTHERS

SOFTWARE:

Item name	SW version
R3016, 12U/6X Software	1.0.XX
Radar Application Software	6.0.XX
SRT Software Version	81.XX
SRT Protocol	I

OPTIONAL EQUIPMENT:

Item name	Item No.
R3000 Power Supply Unit	000-12384-001
Heater Upgrade kit for SRT Lan	000-12386-001
30 m Power Cable	000-12388-001
65 m Power Cable	000-12389-001
30 m Ethernet Cable	000-12391-001
65 m Ethernet Cable	000-12392-001

APPENDIX – TYPE EXAMINATION DOCUMENTATION

<i>Document title</i>	<i>Identification number</i>	<i>Revision index</i>
<i>R3016 Radar System (Block Diagram) - Navico RBU</i>	<i>992-21511-01A</i>	<i>17-Dec-15</i>
<i>R3016 CAT 3 Stand Alone Radar - BSH Test Report</i>	<i>BSH/4543/001/4372911/15</i>	<i>2015-11-27</i>
<i>R3016 CAT 3 Stand Alone Radar - BSH Test Report</i>	<i>BSH/4543/001/4372988/16-1</i>	<i>2016-02-03</i>
<i>R3016 CAT 3 Stand Alone Radar - BSH Test Report</i>	<i>BSH/4545/001/4372988/16-2</i>	<i>2016-04-29</i>
<i>Wind tunnel tests on Radar NAVICO - Politecnico di Milano</i>	<i>P036-15PC</i>	<i>2015-09-14</i>
<i>Technical Report following IEC 62288 Ed. 2.0 (2014-07), CNR - Istituto Nazionale di Ottica</i>	<i>3F-RT15008</i>	<i>2015-11-26</i>
<i>Radar Display 16" : Bracket and panel mounting Vibration test, Koncar Institute, Zagreb</i>	<i>21520-B-2015-164</i>	<i>2015-11-05</i>
<i>Radar Display 16" : Panel mounting Vibration test, Koncar Institute, Zagreb</i>	<i>21520-B-2015-164-1</i>	<i>2015-11-05</i>
<i>Radar Display 16" : Bracket mounting Vibration test, Koncar Institute, Zagreb</i>	<i>21520-B-2016-026</i>	<i>2016-02-19</i>
<i>12 kW SRT X-Band LAN Transceiver with 6' X-Band Antenna Vibration test, Koncar Institute, Zagreb</i>	<i>21520-B-2015-165</i>	<i>2015-11-05</i>
<i>SRT R3000 Power supply unit 24VDC Vibration test, Koncar Institute, Zagreb</i>	<i>21520-B-2015-166</i>	<i>2015-11-05</i>
<i>R3016 12U/6X Radar System, Resistance to environmental conditions, Koncar Institute, Zagreb</i>	<i>51-14515</i>	<i>2015-12-21</i>
<i>R3016 12U/6X Radar System, Electromagnetic Compatibility Test, Koncar Institute, Zagreb</i>	<i>21583EMC15046_v3</i>	<i>2015-11-10</i>
<i>R3016 Radar display, 16" - Electrical safety test, Protection against accidental access to dangerous voltages, Koncar Institute, Zagreb</i>	<i>21583SIG15031</i>	<i>2015-11-10</i>
<i>R3000 Power Supply Unit - Electrical safety test, Protection against accidental access to dangerous voltages, Koncar Institute, Zagreb</i>	<i>21583SIG15032</i>	<i>2015-11-10</i>
<i>12kW SRT X-BAND LAN transceiver - Electrical safety test, Protection against accidental access to dangerous voltages, Koncar Institute, Zagreb</i>	<i>21583SIG15033</i>	<i>2015-11-10</i>
<i>12 kW SRT X-Band LAN transceiver - Testing and verification of the degree of protection provided by enclosures, Koncar Institute, Zagreb</i>	<i>21583IP15015</i>	<i>2015-10-20</i>
<i>R3016 12kW/6X Radar - Compass safe distance, Laboratories G.S.D. S.r.l, Pisa</i>	<i>15822</i>	<i>2015-11-04</i>
<i>R3016 12U/6X Radar System - waivers to IEC 60945 ed 4.0 Paragraf 8.10 - Solar radiation Paragraf 8.12 - Corrosion/salt mist Paragraf 12.3 - Emission from visual displays, Paragraf 12.4 - X-Radiation</i>	<i>NAVICO</i>	<i>2015-10-29 2015-10-29 2016-01-22 2016-01-13</i>
<i>Test Report Antenna 6' X-BAND, according to IEC62388 Ed.2.0 Paragraf 6.10.2 , 6.10.3 and 6.10.4, FINMECCANICA, Land & Naval Defence Electronic Division</i>	<i>SANT6XL002-P152449-0-4</i>	<i>2016-03-14</i>
<i>Consilium Selesmar SELUX-ST – BSH Test Report</i>	<i>BSH/4612/4340779/08-1</i>	<i>2009-06-26</i>
<i>Selesmar Selux T-250 ARPA – BSH Test Report</i>	<i>BSH/4612/4340337/08</i>	<i>2008-01-25</i>

- END OF CERTIFICATE -