

EC Type Examination (Module B) Certificate

This is to certify that:

LLOYD'S REGISTER VERIFICATION LIMITED (LRV), designated as a "notified body" under the terms of the Merchant Shipping (Marine Equipment) Regulations 2016 (S.I. 2016 No.1025), as amended, did undertake the relevant type approval procedures for the type of equipment identified below which was found to be in compliance with the requirements of Marine Equipment Directive (MED) 2014/90/EU, subject to any conditions in the Design Appraisal Document attached hereto.

Manufacturer	KELVIN HUGHES Ltd
Address	Voltage Mollison Avenue, Enfield, Middlesex, EN3 7XQ, United Kingdom
Reference	Regulation (EU) 2019/1397
Regulation Item (No. & Item Designation)	MED/4.59 Integrated Navigation System
Product Type	Integrated Navigation System
Product Description	Kelvin Hughes Integrated Navigation System
Specified Standard	IEC 60945 (2002) incl. IEC 60945 Corr. 1 (2008), IEC 61162-1 (2016), IEC 61162-2 ed1.0 (1998-09), IEC 61162-450 ed1.0 (2011-06) with am1(2016), IEC 62288 Ed. 2.0 (2014-07), IEC 61924-2 Ed. 1.0 (2012-12)
Trade Name	Kelvin Hughes Navigation software ZM-2300, iXblue software for GECDIS, and iXblue NETANS N7 data distribution unit

The attached Design Appraisal Document (schedule) forms part of this certificate. This certificate remains valid unless suspended, expired or withdrawn, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory in service.

This certificate is issued under the authority of the MCA. This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to and agreed with the notified body named on this certificate. The manufacturer should notify LRV of any modification or changes to the equipment in order to obtain a valid Certificate.

Should the specified regulations or standards be amended during the period of validity of this certificate, the product is to be re-approved prior being placed on the market and on board vessels to which the amended regulations or standards apply.

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Peter Huntley-Hawkins

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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.

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ATTACHMENT TO EC TYPE EXAMINATION (MODULE B) CERTIFICATE No. LR2001375MB

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions and European Union legislation for the EC Type Examination of Marine Equipment for use on Merchant Ships Registered in the European Economic Area.

This Design Appraisal Document (schedule) forms part of the Certificate.

APPROVAL DOCUMENTATION

ISO 9001:2015 Certificate (189928-2015-AQ-GBR-UKAS)	29.10.2018
MED B Certificate Kelvin Hughes Ltd ECDIS Navigation System (ZM-2300) No. DK-MED000112, Issue 04	22.10.2019
Kelvin Hughes Navigation Display Radar Operators Handbook No. HBK-2300-1 Issue 7	
ZM-2300 software V3.x and higher	07.2019
Kelvin Hughes Navigation Display ECDIS Operators Handbook No. HBK-2300-7 Issue 3	
ZM-2300 software V3.x and higher	02.2019
Kelvin Hughes Integrated Navigation Systems (INS) System Handbook No. HBK-2300-8 Issue 3 ZM-2300 software V3.x and higher	11.2019
Kelvin Hughes Navigation Display Installation & Commissioning No. HBK-2300-2 Issue 5	
ZM-2300 SOFTWARE V3.x	04.2019
Kelvin Hughes Navigation Display Radar Operators Handbook No. HBK-2300-1 ISSUE 7	
ZM-2300 Software V3.X and higher	07.2019
Bridge Alert Management System BAM le guardian 3000 user manual (rev.1.01)	22.05.2013
Bridge Navigational Watch Alarm System BNWAS le guardian 3000 user manual (rev.1.01)	17.06.2016
NETANS N7 Data Distribution Unit User's Manual, edition D No. NIX-D01026E_KH_NZ_P158	02.2019
NETANS N7 Data Distribution Unit Maintenance Manual, edition B NIX-D01027B_System_NZ_P158	12.2018
NETANS Multi-Function Display Interface Guide, edition C No. NIX-D01349C_G_KH_MAN	02.2019
GECDIS-W Kelvin Hughes Version User's Manual, edition A No. NIX-D01530A	01.2019
MED B Certificate EMRI SEM300 No. MEDB00003SJ	13.04.2018
MED B Certificate Kelvin Hughes Ltd S&X Band Radar Navigation System No. DK-MED000103 Issue 11	22.10.2019
MED B Certificate Kelvin Hughes Ltd S&X Band Radar Navigation System No. DK -MED000111 Issue 08	22.10.2019
MED B Certificate iXblue SAS ECDIS (GECDIS-8 / SENIN) No. 36533/B1 MED	27.12.2018
MED B Certificate Kelvin Hughes Ltd Track Control System No. MED 1800019	27.06.2018
MED B Certificate sm electrics GmbH (BNWAS with integrated BAM) No. MEDB000034B	01.03.2019
EU RO Mutual recognition type approval certificate Hatteland Display AS No. MRA0000007	08.05.2018
DNVGL Type approval certificate Powerbox AB No. TAE00001CN	07.03.2018
Integrated Navigation System Diagram, rev.5 No. INS-01909	24.10.2018
Data distribution unit & Gyrocompass system diagram, rev.4 No. INS-01910	05.06.2018
Failure Modes & Effect Analysis (FMEA) Integrated Bridge System – P158 Issue 4 No. INS-02053	Undated
TN-2864 Compliance matrix for IEC61924-2 INS Type Approval Issue 1	Undated
Accreditation details for EMITECH laboratory No. 1-0107, rev. 3	15.04.2014
Accreditation details for LNE laboratory No. 1-0606, rev. 13	09.07.2018
Works Instruction WI-4526, Issue 5	Undated
Processing Unit software design document NETANS, Edition A	27.06.2014
Procedure de development, Edition C	07.07.2017
TN-2968 iXblue Netans N7 statement of compliance, Issue 1	Undated

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TN-2974 Type Approval justification for ZM-2300 v3.1, Issue 1	Undated
TN-2978 INS System capability in the event of total DDU failure, Issue 1	Undated

TEST REPORTS

Test Report No. TAR-2145, rev.1	15.08.2014
NETANS Test Report IEC-61162-1 IEC-61162-2 No. NIX-D01690A, edition A	20.02.2019
LR Statement No. PRJ1109987564/1	11.04.2019
TAR-2170 ZM-2300 Navigation Software Compliance to IEC 62388 Section 11 Test Report Revision 1	18.05.2016
TAR-2275 Compliance Matrix for Integrated Navigation System to IEC 61924-2 Ed 1 Issue 1	04.04.2019
TAR-2305 ZM-2300 Navigation Software Test Report showing compliance to IEC 61924-2 Ed 1 Clauses 7.2.4.3 and 7.2.4.4 (Target Association and Identification) Revision 2	21.08.2019
Test procedure for Bridge Alert Management System le guardian 3000	20.08.2014
Test report No. P183911 – Document DMSI/5 (Sound pressure levels)	17.10.2018
Test report No. P183911 – Document DE/1 (Cold, dry and damp heat)	12.09.2018
Test report No. RC-032-BNC-15-107090-2-A (EMC)	11.04.2016
Test report No. P183911 – Document DE/3 (IP rating)	04.09.2018
Test report No. P183911 – Document DE/2 (Vibration)	25.09.2018
TAR 2306 2306 Compliance Matrix for Integrated Navigation System to IEC 61162-450 Edition 2 Maritime navigation and radiocommunication equipment and systems	
Digital Interfaces -Part 450: Multiple talkers and multiple listeners Ethernet interconnection	23.08.2019
TAR 2314 ZM-2300 v3.0 IEC 61162-1 Edition 5 Message Handling Test Report Revision 1	21.08.2019
TAR 2311 iXblue Netans DDU IEC 61162-1 & -2 Message Handling Test Report Revision 2	10.10.2019
TAR 2316 Compliance Matrix for NETANS N7 to IEC 61162-450 Edition 2 Revision 1	09.10.2019

SOFTWARE VERSION:

v.3.x – ZM-2300 Kelvin Hughes Navigation Software
 v.8.18.x – GECDIS
 v.2.0.x – NETANS DDU

CONDITIONS OF CERTIFICATION

1. Production items of the subject equipment are to be manufactured in accordance with either an approved Production Quality Assurance system (Module D), a Product-Quality assurance system (Module E) or Product Verification Process (Module F). The wheelmark cannot be affixed to the product until a conformity assessment module is in place
2. Each item, batch or lot of the equipment is to be issued with a “Declaration of Conformity” and have the “Mark of Conformity” affixed after a conformity assessment module is in place
3. If the specified standards are amended during the validity of this Certificate, this product type is to be reapproved prior to it being supplied to vessels to which the amended standards apply

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4. Should a change of Place of Production from that stated below be required, i.e. where the final stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to us prior to the change taking place. This Certificate will require to be updated for Approval to be maintained
5. Installation on board: The arrangements and installation of the track control system on board the vessel are not part of this design appraisal and certificate. All such arrangements are to be to the satisfaction of the Surveyors attending on board; the fitting of the track control system to be in accordance with the manufacturer's instructions and any additional requirement of the State whose flag the vessel is entitled to fly
6. The following standard is not applicable:
 - IEC 61162-3 ed1.2 Consol. with am1 ed. 1.0 (2010-11) and am2 ed. 1.0 (2014-07)
7. The following aspects of IEC 61924-2 standard are not implemented:
 - Checks against meteorological information;
 - Other route-related information (Section 7.2.3.3).;
 - Combined radar signals (Section 7.2.4.5);
 - Optional data display functions (Section 7.2.7.3);
 - Speech output (Section 8.4.2.2.2);
 - Alert command refused sentence (Section 8.9.4.2.2)
8. The following aspects of IEC 61162-450 standard are not implemented:
 - Grouping Control Parameter -g (Section 8.9.4.1 and 8.9.4.2);
 - N parameter (Section 8.9.4.1);
 - General Authentication (Section 8.9.5);
 - Binary files transfer using TCP point-to-point (Section 8.14)

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COMPONENTS OF INTEGRATED NAVIGATION SYSTEM

MDC-A26-1	26" Multi-Function Display	Required CAT1 or CAT2
MDC-A22-1	22" Multi-Function Display	
MDC-A1	Fan-less Computer Server	Optional
GECDIS8	GECDIS Software only (Runs on MDC-A1)	Optional
PAA00833_3	NETANS N7 (DDU)	Required
HD 12T21 MMC-M3E	CDU (Hatteland PC running CDU software)	Optional
MDC-A202	Console keyboard and trackball	Each MFD requires a trackball Keyboard is optional
MDC-A202-1	Desktop keyboard and trackball	
MDC-A203	Console keyboard assembly	
MDC-A204	Console trackball assembly	
17610398	Keyboard and trackball assembly (alternative)	
MDC-205-2	24V DC Power Supply	Required
MDC-A201-1	Managed Network Switch	Required
SEM300	EMRI Auto Pilot Display MIP211	Optional
SEM300	EMRI Auto Pilot AEU	
le guardian BAM	Bridge Alert Management system	Required
le guardian BNWAS	Bridge Navigational Watch Alarm System	Required

PLACE OF PRODUCTION

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