ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Maritime & Coastguard Agency

Notified body authorised by the MCA

TÜV SÜD BABT

Marine Equipment Directive
EC Type Examination Module B Certificate

No: BABT-MED000111

This is to certify that TUV SUD BABT did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with the Marine Equipment Directive (2014/90/EU) requirements under the following Implementing Regulation for the listed types of equipment:

Implementing Regulation	**(EU)2018/773**
Certificate Holder and Manufacturer	**Kelvin Hughes Ltd Voltage Mollison Avenue Enfield Middlesex United Kingdom, EN3 7XQ,**
Product(s)	**S & X Band Radar Navigation System**
Product Sector	**Navigation Equipment**
Product Type	**MED/4.35 Radar Equipment CAT 2 and MED/4.38b Radar Equipment CAT 2 with Chart Option**

and on the basis of the Technical Data and information detailed in the Annex to this certificate.

T. J. Twynam

Valid from: 19 December 2018 (Tom Twynam) Expiry Date: 14 December 2021

This certificate has been issued in accordance with the Certification Regulations of TUV SUD BABT (Notified Body Number 0168) and constitutes page 1 of the combined Certificate and Annex.
The Conditions for the validity of this certificate are listed in the Annex.
For further details, related to this certification please contact BABT@TUV-SUD.co.uk

0168

Issued by TUV SUD BABT under document number BABT-MED000111 Issue 06

TÜV SÜD BABT • TÜV SÜD Group • Octagon House • Concorde Way • Fareham • Hampshire • PO15 5RL • Unted Kingdom

TÜV®

Marine Equipment Directive Module B Type Examination Certificate

Description of Equipment:

Shipborne Category 2 Radar Equipment (Item MED/4.35)
and Category 2C Radar Equipment with Chart Option (Item MED/4.38b).

Model: **S & X Band Radar Navigation System**

System Components:

Above deck sensor options:	
DTX-A40-xAAA Note 1	Mk11 SharpEye X Band Transceiver
DTX-A40-xBBA Note 1	Mk11 SharpEye X Band Transceiver
DTX-A40-xBEA Note 1	Mk11 SharpEye X Band Transceiver
DTX-A40-xBEB Note 1	Mk11 SharpEye X Band Transceiver
with LPA-A25-x Note 2	2.5m X Band Antenna
DTX-A40-xDBA Note 1	Mk11 SharpEye X Band Transceiver
with LPA-A25-x-C Note 2	2.5m X Band Antenna
DTX-A30-xAAA Note 1	Mk11 SharpEye S Band Transceiver
DTX-A30-xBCA Note 1	Mk11 SharpEye S Band Transceiver
DTX-A30-xDCA Note 1	Mk11 SharpEye S Band Transceiver
with LPA-A3-x-C Note 2	3.9m S Band Antenna
DTX-A1-xNKA Note 1	Mk7 SharpEye S Band Transceiver
with LPA-A3-x Note 2	3.9m S Band Antenna
E70351	X Band 12kW Transceiver
with E70350	1.9m X Band Antenna

Below deck equipment:	
Minimum system components	
MDC-A22-1 Note 3	22" Panel PC
MDC-A201-1 Note 3&4	Managed Network Switch
MDC-A200 Note 3	Serial Network Convertor
MDC-A202-1 Note 5	Desktop Keyboard and Trackerball Assembly
E70352 Note 6	X Band 12kW Power Supply
GTX-A24 Note 7	Drive Control Unit Assembly
Optional system components:	
MDC-A202	Console Keyboard and Trackerball Assembly
MDC-A203	Console Keyboard Assembly
MDC-A204	Console Trackerball Assembly
17610398 Note 8	Keyboard and Trackerball Assembly
DTX-A50-xAAA Notes 9 & 10	Power Control Unit
NAN-A27-x Note 10	Man Aloft Switch
MDC-A100-22	22" Desktop Stand

Software:	Code Identity	Version[Note 11]
Navigation Software	**ZM-2300**	**2.2**
SharpEye Software (Mk 11 X Band)	**ZM-2762**	**1.92**
SharpEye Software (Mk 11 S Band)	**ZM-2808**	**1.4**
X Band 12kW Transceiver	**E70351**	**5.11**
SharpEye Software (Mk 7 S Band)	**ZM-2849**	**1.4**
SharpEye Software (Mk 11 S Band)	**ZM-2847**	**1.6**
SharpEye Software (Mk 11 X Band)	**ZM-2844**	**1.5**
SharpEye Software (Mk 11 X Band) [Note 12]	**ZM-2845**	**1.5**

NOTES:-

1 x denotes a letter referencing the final colour of the unit; A signifies white, B signifies grey.
2 x denotes a number referencing the final colour of the unit; -1 signifies white, -2 signifies grey.
3 Each sensor requires a dedicated Panel PC (MDC-A22-1). Where the system includes more than one sensor it shall include a minimum of two Serial Network Convertors (MDC-A200) and two Managed Network Switches (MDC-A201-1)
4 This item provides a dedicated Kelvin Hughes navigation network. There are no user accessible networking functions. Connection of any third party network services to the Kelvin Hughes navigation network may invalidate the Type Approval and must be pre-approved by Kelvin Hughes prior to connection and use.
5 Each display must be connected to a Trackerball assembly, the use of a keyboard is optional.
6 Required only for use with E70351, X Band 12kW Transceiver.
7 Required only for with DTX-A1-ANKA, Mk7 SharpEye S Band Transceiver
8 Keyboard and Trackerball is Keytouch Technology AS Part No. 17610398 and may also be identified by Kelvin Hughes Part No. 45-975-0731-001.
9 The Power Control Unit is an optional unit which can be used to protect and control the AC mains supply to the DTX-A40-xxxx and DTX-A30-xxxx turning units. If not used the mains supply should be connected via suitable breakers.
10 x is a numeral signifying different colour variants.
11 This approval remains valid for equipment including subsequent minor software amendments which have been formally accepted in accordance with the Certification Regulations of TÜV SÜD BABT.
12 SharpEye Software (Mk 11 X Band) ZM-2844 contains an additional Helo Mode of operation which is outside of the system type approval. Refer to Kelvin Hughes for advice on use.
13 This system follows the general requirements of IMO Resolution MSC.302(87), Module C, and the alert requirements of IEC 62288 Edition 2.
14 (EU)2018/773 gives a last placing on board date of 31/08/2019 for equipment approved against the test standards listed below. See Conditions of Validity

Compliance Matrix For (EU)2018/773 Item MED/4.35 and MED/4.38b

IMO Resolutions	International Testing Standards	
Resolution MSC.192(79)*	IEC 62388:2013*	Marine Shipborne Radar Equipment
Resolution MSC.191(79) Resolution MSC.302(87)	IEC 62288:2014	Presentation of navigation-related information
Resolution A694(17)	IEC 60945:2002	General Requirements for Marine Navigation Equipment (Inc. Corr1:2008)
	IEC 61162-1:2010	Digital Interfaces – Part 1, single talker
	IEC 61162-2:1998	Digital Interfaces – Part 2 High Speed interface
ITU-R Recommendations	M.1177-4:2011	Unwanted Emissions from Radar Systems

* Full requirement for Chart Radar are integrated into the IMO Resolution and IEC Standard and form an optional enhancement on standard radar which when enacted qualify the radar for the "C" suffix and MED Item MED/4.38.

Relevant Technical Documentation

Supplier's Declaration(s) of Conformity: DOC-2093, Revision 4

Manuals:

Navigation Display Operators Handbook	HBK-2300-1, Revision 5
Kelvin Hughes Navigation Display Installation & Commissioning	HBK-2300-2, Revision 4
Kelvin Hughes X-band 12kW Upmast Transceiver	HBK-2300-3, Revision 5
Kelvin Hughes MK 7 S-Band Transceiver (Asterix)	HBK-2300-4, Revision 1
Kelvin Hughes MK 11 S-Band Transceiver (Asterix)	KH-1605-3, Revision 3
Kelvin Hughes MK 11 X-Band Transceiver (Asterix)	KH-1605-1, Revision 3

Technical Document File Indexes:

DTX-K40-BAAA Revision 5, 2016-11-18	DTX-K40-BDBA, 2018-05-03
LPA-K25-1 Revision 3, 2016-11-17	LPA-K25-1-C Revision 1, 2018-05-03
DTX-K30-BAAA Revision 4, 2016-11-18	LPA-K3-1-C Revision 1, 2018-05-03
DTX-K1-ANKA Revision 2, 2016-11-18	E70350-K Revision 1, 2016-11-17
LPA-K3-1 Revision 2, 2016-11-17	E70351-K Revision 1, 2016-11-17
MDC-K1-22-1 Revision 1, 2016-12-15	E70352-K, Revision 1, 2016-11-17
DTX-K30-BBCA Revision 1, 2016-11-17	MDC-K201-1 Revision 2, 2016-11-17
DTX-K40-BBBA Revision 1, 2016-11-17	MDC-K200 Revision 2, 2016-11-17
DTX-K40-BBEA Revision 1, 2017-03-01	MDC-K202 Revision 2, 2016-11-17
DTX-K40-BBEB Revision 1, 2017-03-01	NAN-K27-1 Revision 2, 2016-11-17
DTX-K50-BAAA Revision 1, 2016-11-17	45-975-0731-001-TDF Revision 1, 2018-09-27
DTX-K30-BDCA Revision 1, 2018-05-03	-

The above being comprehensive listings of documentation relevant to type examination: including:-Test reports and details of Approved Hardware defining Overall Build Level and including Circuit diagrams, technical drawings and Parts listings (BoM).

U.S. Coast Guard Number :

This product has been assigned U.S. Coast Guard Module B number

165.111/EC0168

(This is only applicable to operation Target Tracking (ARPA) aspect of the radar)

Note: The US Coastguard approval number above is issued in accordance with 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

Conditions of Validity

This issue of the Annex to the referenced Marine Equipment Module B Certificate relates to Issue 6 of the Certificate.

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 TÜV SÜD BABT or a person appointed by TÜV SÜD BABT to perform that role.

Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be reapproved prior to it/them 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.

Signed:.. T J Twyman ..... Date: 19th December 2018

on behalf of TÜV SÜD BABT