



Bundesrepublik Deutschland

Federal Republic of Germany

Bundesamt für Seeschifffahrt und Hydrographie

Federal Maritime and Hydrographic Agency



BUNDESAMT FÜR
SEESCHIFFFAHRT
UND
HYDROGRAPHIE

EC TYPE EXAMINATION (MODULE B) CERTIFICATE

This is to certify that:

Bundesamt für Seeschifffahrt und Hydrographie, specified as a "notified body" under the terms of „Schiffssicherheitsgesetz“ of 9. September 1998 (BGBl. I, p. 2860) modified last 31. October 2006 (BGBl. I, p. 2407), did undertake the relevant type approval procedures for the equipment identified below which was found to be in compliance with the Navigation requirements of Marine Equipment Directive (MED) 96/98/EC as modified by Directive 2002/75/EC.

Applicant **Kelvin Hughes Ltd.**
 Address **New North Road, Hainault, Ilford, Essex, IG6 2UR, UK**
 Manufacturer **Kelvin Hughes Ltd.**
 Address **New North Road, Hainault, Ilford, Essex, IG6 2UR, UK**
 Annex A.1 Item (No & Item designation) **4.30, Electronic chart display and information system (ECDIS) with backup, and raster chart display system (RCDS)**
 Product Name **MantaDigital ECDIS**
 Trade Name(s) **MantaDigital 2300 ECDIS, MantaDigital 2000 ECDIS, MantaDigital 1700 ECDIS, MantaDigital ECDIS, MantaDigital VDR/ECDIS, MantaDigital S-VDR ECDIS, MantaDigital HAP**

Specified Standard(s)

IMO Resolution A.817(19)	IEC 61174 (2001), ECDIS, Edition 2
IMO Resolution A.694 (17)	IEC 60945 (2002), Environmental conditions, Edition 4
IMO Resolution MSC.97 (73) 13.17.1, 13.8 (2000 HSC Code)	IEC 61162-1 (2000), Serial Interface, Edition 2
SOLAS Regulation V/18.1, V/19.2.1.4, V/19.2.1.5	IEC 61162-2 (1998), Serial Interface, Edition 1

This certificate remains valid unless cancelled, expired or revoked.

Date of issue: 2007-02-23

Issued by: Bundesamt für Seeschifffahrt und Hydrographie
Bernhard-Nocht-Str. 78, 20359 Hamburg, Germany
Notified body 0735

Expiry date: 2012-02-22

Certificate No.: BSH/4612/4300391/07

This certificate consists of 2 pages.



by order

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Schulz-Reifer



Components necessary for operation:

See Annex to EC type examination (Module B) certificate No.: BSH/4612/4300391/07

Approval Documentation:

BSH Testreport No. 6579 / 080330 / 2003 / S3330

BSH Testreport No. BSH/4612/4300391/07

- Operator's Manual, Operation Information for the MantaDigital ECDIS System
Document No. KH2062, Issue 1
Issue date February 2006, containing references to ECDIS software version V3.7
- Ship's Manual, Installation and Commissioning Manual for the MantaDigital ECDIS System
Document No. KH2063, Issue 1
Issue date February 2006, containing references to ECDIS software version V3.7
- Operating Information for the Electronic Chart Display (ECDIS) Software
Document No. KH3100, Issue 5
Issue date January 2006 containing references to ECDIS software version V3.7
- Operator's Manual, Operation Information for the MantaDigital VDR/ECDIS System
Document No. KH2080, Issue 1
Issue date November 2006, containing references to ECDIS software version V3.7
- Ship's Manual, Installation and Commissioning Manual for the MantaDigital VDR/ECDIS System
Document No. KH2081, Issue 1
Issue date November 2006, containing references to ECDIS software version V3.7
- Operator's Manual, Operation Information for the MantaDigital S-VDR/ECDIS System
Document No. KH2082, Issue 1
Issue date November 2006, containing references to ECDIS software version V3.7
- Ship's Manual, Installation and Commissioning Manual for the MantaDigital S-VDR/ECDIS System
Document No. KH2083, Issue 1
Issue date November 2006, containing references to ECDIS software version V3.7

Reports for IEC 60945 tests, see Annex to EC type examination (Module B) certificate No.: BSH/4612/4300391/07

Limitations on the acceptance or use of the product:

See Annex to EC type examination (Module B) certificate No.: BSH/4612/4300391/07

Notes:

The manufacturer shall inform Bundesamt für Seeschifffahrt und Hydrographie, as the notified body, of any modifications to the type-tested product(s) that may affect compliance with the requirements or conditions laid down for use of the product(s).

In case the specified regulations or standards are amended during the validity of this certificate, the product(s) must be re-certified before being placed on board vessels to which such amended regulations or standards apply.

The Mark of Conformity (wheelmark) may only be affixed to the type approved equipment, and a Manufacturer's Declaration of Conformity may only be issued, if the product quality system fully complies with the Marine Equipment Directive and is certified by a notified body against ANNEX B module D, E, or F of the Directive.

Notice on legal remedies available:

Objection to this document may be filed within one month after notification. The objection must be filed in writing to, or put on record at, Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Str. 78, 20359 Hamburg, Germany

ANNEX TO EC TYPE EXAMINATION (MODULE B) CERTIFICATE No.: BSH/4612/4300391/07

Components necessary for operation:

Device	Type	Comments	Conditions
main processing units (alternatively)			
MantaDigital ECDIS Processor	MDP-A2		Software version: V3. xx to display and use digital chart data in the following formats: <ul style="list-style-type: none"> • S-57 (IHO), • ARCS (UK-HO) • CM-93/2 (C-MAP) • BSB (NOAA)
MantaDigital Processor HAP	MDP-A6	Combined functionality (for ECDIS backup arrangements only)	
MantaDigital Processor VDR/ECDIS	MDP-A7	Combined functionality (for ECDIS backup arrangements only)	
MantaDigital Processor S-VDR/ECDIS	MDP-A8	Combined functionality (for ECDIS backup arrangements only)	
Display units (alternatively)			
Manta 1700 ECDIS Desktop	FSD-A8	Desktop version	One colour display for each electronic unit
Manta 1700 Console	FSD-A9	Console version	
Manta 2000 ECDIS Desktop	FSD-A2	Desktop version	
Manta 2000 Console	FSD-A3	Console version	
Manta 2300 ECDIS Desktop	FSD-A5	Desktop version	
Manta 2300 Console	FSD-A6	Console version	
Operating units (alternatively)			
Keyboard + Remote Desktop Control Pod	45-975-0083-001	Console version	Each ECDIS processor unit shall be equipped with one ECDIS control panel, consisting of keyboard and trackball (operating unit).
Keyboard + Remote Desktop Control Pod	NNR-A10-6	Console version	
Keyboard + Remote Desktop Control Pod	FSD-A156	Console version	
Keyboard + Remote Desktop Control Pod	NNR-A10-6	Console version	
Additional devices			
Data Interface Unit	VDR-A4		optional
Data network hub	DE-816TP		optional

Approval documentation:

Testreport BSH No. 6579/080 330/2003/S3330
Testreport BSH No. BSH/4612/4300391/07
Testreport QINETIQ/FRASER No. QINETIQ/S&E/SPS/MATS/R/TT 01/01, January 2002
Testreport QINETIQ/FRASER No. QINETIQ/S&E/SPS/MATS/R/TT 23/01, April 2002
Testreport QINETIQ/FRASER No. QINETIQ/S&E/SPS/MATS/R/TT 23/03, September 2004
Testreport QINETIQ/FRASER No. QINETIQ/S&TS/SS/CR0605238/1.0, April 2006
Testreport Phoenix Test-Lab No. S20149b, April 2002
Testreport Senton No. 50310-30017, February 2003
Testreport BSH No. 6542/080 238/2002/S3330 23" Display unit (FSD-A)
Testreport BSH No. 6542/080 296/2003/S3330 20" Display unit (FSD-A2)
Testreport BSH No. 6542/080318/2003/S3330 17" Display unit (FSD-A8)
Testreport BSH No. 6542/318/002/03 – S4230

Limitations on the acceptance or use of the product:

To avoid manual re-initialisation of the system for the case of change of the power source or any interruption of power supply for a period of up to 45 seconds the power supply of the ECDIS system type: MantaDigital and the components necessary for its normal functioning has to be maintained by an uninterruptable power supply unit (UPS).

MantaDigital Processor HAP (MDP-A6),
MantaDigital Processor VDR/ECDIS (MDP-A7) and
MantaDigital Processor S-VDR/ECDIS (MDP-A8)
are limited to installation as ECDIS backup arrangements or ECS.

System interfaces:

Data exchange with sensors, additional devices, external data receiver:

as a minimum 3 (three) up to 16 (sixteen) serial interfaces for reception and transfer of data from connected sensors and radar devices according to IEC 61162-1 (Edition 2, 2000) and IEC 61162-2 (Edition 1, 1998)

and optional via

Data Interface Unit (DIU), type: VDR-A4,
for reception and transfer of analogue data from connected sensors according the relevant equipment standards in use.

1. for reception of sensor data at least delivered by the following sources:

1.1. for the reception of sensor data from one up to three

radio navigation receiver assessed as conform with requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:

- geographic position,
- status of geographic position,
- speed and course over ground

1.2. for the reception of sensor data from a

gyro compass assessed as conform with requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information,

- gyro compass heading

1.3. for the reception of sensor data from a speed and distance measurement device assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:

- speed over ground
- and /or
- speed through the water

2. and optional for the receiving of data from the following sensor devices:

2.1 to receive data from an echo sounder assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:

- water depth

2.2. to receive data from one:

Radar/ARPA device assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined there which transmits the following information:

- track data of ARPA targets,
- own ship data,

2.3 to receive and display of Radar-video signals from one of the following Radar devices:

RADAR/ARPA devices of company Kelvin Hughes Ltd., UK assessed as conform with the requirements of Marine Equipment Directive (MED) 96/98/EC and marked as defined:

- Nucleus 2 series
- Nucleus 3 series
- MANTA series

2.4 to receive and display data from one

AIS Transponder assessed as conform with requirements of Marine Equipment Directive (MED) 96/98/EC as modified by Directive 2002/75/EC and marked as defined there which transmits the following information:

- Information about other ships within the operation area received by AIS,
- information about aids to navigation within the operation area received by AIS,

Note: AIS information will be displayed according IMO guideline SN/Circ.217, 11. July 2001

2.5 for the data exchange with one additional Electronic chart display and information system (ECDIS) type: MantaDigital ECDIS via local system area network connection (Ethernet):

- chart data
- track data
- system data

Backup arrangements:

In order to continue ships navigation in the case of a primary system failure the following back up arrangements are allowed:

Installation of a secondary system type: MantaDigital ECDIS Processor (MDP-A2) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital Processor HAP (MDP-A6) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital Processor VDR/ECDIS (MDP-A7) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

The approval status of this unit is defined in certificate QQ-MED-26/06-01 issued by QinetiQ, UK.

Installation of a secondary system type: MantaDigital Processor S-VDR/ECDIS (MDP-A8) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

The approval status of this unit is defined in certificate QQ-TAN-01/04-01R5 issued by QinetiQ, UK.



**SUPPLEMENT TO EC TYPE EXAMINATION
(MODULE B) CERTIFICATE No.: BSH/4612/4300391/07**

Additional Components necessary for operation:

Device	Type	Comments	Conditions
Combined display and control units (alternatively)			
MantaDigital 20" Desktop Display (incl. keyboard & trackball)	MDD-A30-20	Desktop version	One colour display for each electronic unit
MantaDigital 26" Desktop Display (incl. keyboard & trackball)	MDD-A30-26	Desktop version	
Display units (alternatively)			
MantaDigital 20" Console Display	MDD-A20-20	Console version	One colour display for each electronic unit
MantaDigital 26" Console Display	MDD-A20-26	Console version	
Operating units (alternatively)			
MantaDigital Keyboard & Trackerball	MDD-A101		Each ECDIS processor unit shall be equipped with one ECDIS control panel, consisting of keyboard and trackball (operating unit)
MantaDigital Remote Keyboard; and MantaDigital Remote Trackerball	MDD-A130 MDD-A110		

Device	Type	Comments	Conditions
Combined pedestal display, processor and control units (alternatively)			
MantaDigital 20" Display & ECDIS Processor (incl. keyboard & trackerball)	MDD-A2-20		These units combine main processing unit, display unit and operating unit.
MantaDigital 26" Display & ECDIS Processor (incl. keyboard & trackerball)	MDD-A2-26		
MantaDigital 20" Display & HAP Processor (incl. keyboard & trackerball)	MDD-A6-20	Combined functionality (for ECDIS backup arrangements only)	
MantaDigital 26" Display & HAP Processor (incl. keyboard & trackerball)	MDD-A6-26		
MantaDigital 20" Display & VDR/ECDIS Processor (incl. keyboard & trackerball)	MDD-A7-20		
MantaDigital 26" Display & VDR/ECDIS Processor (incl. keyboard & trackerball)	MDD-A7-26		
MantaDigital 20" Display & S-VDR/ECDIS Processor (incl. keyboard & trackerball)	MDD-A8-20		
MantaDigital 26" Display & S-VDR/ECDIS Processor (incl. keyboard & trackerball)	MDD-A8-26		

Additional approval documentation:

Certificate of type approval QQ-MED-16/08-01i,
 Certificate of type approval QQ-MED-16/08-03i,
 Test report, QinetiQ/MS/EES/TSTR0800419/1.1

Display unit 26" (MDD-A20-26)
 Display unit 20" (MDD-A20-20)
 Colour testing (MDD-Axx-20 and
 MDD-Axx-26)

Notice on legal remedies available:

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Additional Limitations on the acceptance or use of the product:

MantaDigital 20" Display & HAP Processor (incl. operating unit) (MDD-A6-20),
MantaDigital 26" Display & HAP Processor (incl. operating unit) (MDD-A6-26)
MantaDigital 20" Display & VDR/ECDIS Processor (incl. operating unit) (MDD-A7-20)
MantaDigital 26" Display & VDR/ECDIS Processor (incl. operating unit) (MDD-A7-26)
MantaDigital 20" Display & S-VDR/ECDIS Processor (incl. operating unit) (MDD-A8-20)
MantaDigital 26" Display & S-VDR/ECDIS Processor (incl. operating unit) (MDD-A8-26)
Are limited to installation as ECDIS backup arrangements or ECS.

Additional Backup arrangements:

In order to continue ships navigation in the case of a primary system failure the following back up arrangements are allowed:

Installation of a secondary system type: MantaDigital 20" Display & ECDIS Processor (incl. operating unit) (MDD-A2-20), with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 26" Display & ECDIS Processor (incl. operating unit) (MDD-A2-26), with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 20" Display & HAP Processor (incl. operating unit) (MDD-A6-20), with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 26" Display & HAP Processor (incl. operating unit) (MDD-A6-26), with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 20" Display & VDR/ECDIS Processor (incl. operating unit) (MDD-A7-20) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 26" Display & VDR/ECDIS Processor (incl. operating unit) (MDD-A7-26) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 20" Display & S-VDR/ECDIS Processor (incl. operating unit) (MDD-A8-20) with one (1) up to 16 (sixteen) system interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

Installation of a secondary system type: MantaDigital 26" Display & S-VDR/ECDIS Processor (incl. operating unit) (MDD-A8-26) with one (1) up to 16 (sixteen) system

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interfaces. At least with it's own independent connection to a position sensor according 1.1 and connected to the primary system for transmission of route data.

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Bernhard-Nocht-Str. 78, 20359 Hamburg, Germany
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This supplement consists of 4 pages.



by order

A handwritten signature in blue ink, appearing to read 'Eckert', is written over a horizontal line.

Eckert

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