NOTIFIED BODY
No 0191

CERTIFICATE OF TYPE APPROVAL

(EC Certificate of Type Examination - Module B)
(Marine Equipment Directive - 96/98/EC, as amended*[1])

Applicant:-
Kelvin Hughes Ltd
New North Road, Hainault
Ilford, Essex IG6 2UR
United Kingdom

Manufacturer:-
Kelvin Hughes Ltd
New North Road, Hainault
Ilford, Essex IG6 2UR
United Kingdom

This is to certify that the applicant has submitted details of a:-

Electronic Chart Display And Information System (ECDIS)
With Backup, and Raster Chart Display System
(COMMISSION DIRECTIVE 2011/75/EU – ITEM A.1/4.30)

Of system type known and designated as:-

MantaDigital™, 20", 22" or 26" Widescreen ECDIS
(Software Version 2.x.x)

(Comprising component parts and having technical characteristics shown in schedules 1 to 4)

and that these have been assessed, tested and when used in a combination of component parts as described in the attached schedules, is CERTIFIED as complying with the relevant parts of:

IEC 61174:2008, "Electronic Chart Display And Information System (ECDIS)"
IEC 60945 : 2002 "General Requirements for Marine Navigation Equipment"
IEC 62288 : 2008"Presentation of navigation-related information on shipborne navigational displays"
(being testing standards listed in column 5 of Annex A.1 of Directive 2011/75/EU for Item 4.30)

Note: IEC 62288:2008 covers the presentation standard of all navigational equipment and appropriate assessment for ECDIS equipment has confirmed standards required for IMO Resolution MSC.191 (79).

It is also RECOGNISED that the equipment conforms to performance standards not inferior to those adopted by the International Maritime Organisation, and which are contained in Resolution MSC.232(82), Resolution MSC.191(79) and Resolution A694(17).

DATE of ISSUE: ***5th December 2011***

SIGNED: *R A Sharp* ***DATE of EXPIRY:*** ***31st August 2016***

R A Sharp **Authorised Signatory** **Certificate Number:** ***QQ-MED-09/11-01R***

EU/USCG Mutual Recognition Agreement
Council Decision 2004/425/EC

This equipment category is not yet covered by the MRA

This Certificate is Valid until expiry date shown, subject to the standard conditions of issue printed on page 6
QinetiQ
Cody Technology Park
Ively Road, Farnborough
Hampshire. GU14 0LX

Maritime and Coastguard Agency
The MCA is an Executive Agency of the Department for Transport.

Under the terms of the United Kingdom Statutory Instrument, No 1957 : 1999, QinetiQ Ltd has been Notified to the European Commission by the Maritime and Coastguard Agency as a Body authorised to conduct Conformity Assessment procedures under the provisions of the European Council Directive 96/98/EC (as amended) on Marine Equipment and issue Certificates of Type Approval.

*1 Commission Directives 2010/68/EU, 2009/26/EC, 2008/67/EC & 2002/84/EC 2011/75/EU, 2010/68/EU

Certificate of Type Approval - Schedule 1
MantaDigital™ 26" Widescreen ECDIS

The applicant declared that the following units when combined form an operational Marine Shipborne ECDIS equipment. The units below have been assessed & tested and satisfactory details of these units were included in the technical file..

SYSTEM comprising of:-

MantaDigital™ 26" Display Navigation Pedestal		**MDD-A1-26**	***1, 2, 3, 4**
or MantaDigital™ 26" Display Navigation Pedestal Basic		**MDD-A1-2-26**	***1, 4, 5**
or MantaDigital™ 26" Desktop Display (incorporating MDD-A101)		**MDD-A30-26**	***4**
and MantaDigital™ Navigation Processor		**MDP-A1**	***2, 3**
or MantaDigital™ Navigation Processor Basic		**MDP-A1-2**	***5**
or MantaDigital™ 26" Console Display		**MDD-A20-26**	
and MantaDigital™ Navigation Processor		**MDP-A1**	***2, 3**
or MantaDigital™ Navigation Processor Basic		**MDP-A1-2**	***5**
and MantaDigital™ Trackerball & Keyboard		**MDD-A101**	***4**
SOFTWARE:-MantaDigital™ Core Software	(ZM-2144)	**Version 2.x.x**	***6, 7**
Manta Display interface Firmware	(ZM-2007)	**Version 1.x.x**	***7**
Manta Systems interface Firmware	(ZM-2008)	**Version 1.x.x**	***7**

---------- End of List ----------

The system may include ancillary items from the list found in Schedule 4 on Page 5.

NOTES:-

1 -- Fully integrated Deck mount Pedestal unit incorporating Processor unit, Trackerball & Keyboard

2 -- This forms a Multi-Function workstation. This means the operator may 'Hot Switch' between Radar, Chart Radar, ECDIS and Conning Display (All share identical hardware elements) as limited & controlled by a Kelvin Hughes supplied 'Security Dongle'. Multi-Function operation may be subject to 'Flag' or 'Class' installation approval for a particular vessel's bridge operating plan. The approval status conferred by this certificate only applies when the operation mode is set to "ECDIS".

3 -- For Radar Type Approval see Certificates QQ-MED-11/10-01. QQ-MED-12/10-01, QQ-MED-13/10-01 or QQ-MED-14/10-01

4 -- The Trackerball unit integrated into the control area may be replaced with another control options listed in Schedule 4.

5 -- This 'Basic' Processor model does not have Radar display capability and so only provides ECDIS, Backup & route planning.

6 -- Version 2.0.0 is the first production issue following successful type testing, Note 7 below applies to increments above this.

7 -- This approval remains valid for equipment including subsequent Minor software amendments, as allowed by the N.x.x format (x.x represents numerals), where written details of any such modifications have been submitted to and accepted by the notified body.

Technical Characteristics

PARAMETER	PROVISION	COMMENT
PRESENTATION DISPLAY TYPE	26" Colour LCD	IEC 62288:2008 Category :- Operational display - ECDIS Dedicated Keyboard, Trackerball and on-screen controls allows quick & easy control functions and data entry.
DISPLAYED CHART AREA	**Chart Size 344mm x 436mm**	In Route Monitoring Mode 26" Widescreen Colour Liquid Crystal Display (LCD).
IEC 61162-1 SERIAL (NMEA) PORTS	**Listner 16** **Talker -16**	Conformity to IEC 61162-1:2007. Presence & fault check on messages provide warning status
ANALOGUE SIGNAL PORTS	**Log & Gyro**	Pulse log input and Syncro/Stepper Gyro input
RADAR INTERCONNECTIONS	**1 Channel (Not Basic models)**	Radar Overlay facility tested at QinetiQ Shoeburyness test range. Declared for operation with Manta & MantaDigital™ series radar.
Back-Up Arrangements	**Via Ethernet link to 2nd ECDIS**	A second MantaDigital™ ECDIS running software as listed above may form a back-up. MantaDigital™ Chart Radar operating in ECDIS mode could also form an ECDIS Back-up.
TEMPERATURE RANGE & IEC 945 CLASS Protected Exposed	**-15°C to +55°C.** **-25°C to +70°C**	-- All units -- None
POWER SOURCE	**110V / 220V AC 50-60Hz**	Selection between voltage is automatic. Internal provision for Short term operation (≥45s) on power failure to avoid manual re-initialisation.

Conditions of Issue of this certificate are printed on page 6.

QinetiQ
Cody Technology Park
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Certificate Number ***QQ-MED-09/11-01R***

Certificate of Type Approval - Schedule 2
MantaDigital™ 20" Widescreen ECDIS

The applicant declared that the following units when combined form an operational Marine Shipborne ECDIS equipment. The units below have been assessed & tested and satisfactory details of these units were included in the technical file..

SYSTEM comprising of:-

MantaDigital™ 20" Display Navigation Pedestal		**MDD-A1-20**	***1, 2, 3, 4**
or MantaDigital™ 20" Display Navigation Pedestal Basic		**MDD-A1-2-20**	***1, 4, 5**
or MantaDigital™ 20" Desktop Display (incorporating MDD-A101)		**MDD-A30-20**	***4**
and MantaDigital™ Navigation Processor		**MDP-A1**	***2, 3**
or MantaDigital™ Navigation Processor Basic		**MDP-A1-2**	***5**
or MantaDigital™ 20" Console Display		**MDD-A20-20**	
and MantaDigital™ Navigation Processor		**MDP-A1**	***2, 3**
or MantaDigital™ Navigation Processor Basic		**MDP-A1-2**	***5**
and MantaDigital™ Trackerball & Keyboard		**MDD-A101**	***4**
SOFTWARE:-MantaDigital™ Core Software	(ZM-2144)	**Version 2.x.x**	***6, 7**
Manta Display interface Firmware	(ZM-2007)	**Version 1.x.x**	***7**
Manta Systems interface Firmware	(ZM-2008)	**Version 1.x.x**	***7**

---------- End of List----------

The system may include ancillary items from the list found in Schedule 4 on Page 5.

NOTES:-

1 -- Fully integrated Deck mount Pedestal unit incorporating Processor unit, Trackerball & Keyboard

2 -- This forms a Multi-Function workstation. This means the operator may 'Hot Switch' between Radar, Chart Radar, ECDIS and Conning Display (All share identical hardware elements) as limited & controlled by a Kelvin Hughes supplied 'Security Dongle'. Multi-Function operation may be subject to 'Flag' or 'Class' installation approval for a particular vessel's bridge operating plan. The approval status conferred by this certificate only applies when the operation mode is set to "ECDIS".

3 -- For Radar Type Approval see Certificates QQ-MED-11/10-02. QQ-MED-12/10-02, QQ-MED-13/10-02 or QQ-MED-14/10-02

4 -- The Trackerball unit integrated into the control area may be replaced with another control options listed in Schedule 4.

5 -- This 'Basic' Processor model does not have Radar display capability and so only provides ECDIS, Backup & route planning.

6 -- Version 2.0.0 is the first production issue following successful type testing, Note 7 below applies to increments above this.

7 -- This approval remains valid for equipment including subsequent Minor software amendments, as allowed by the N.x.x format (x.x represents numerals), where written details of any such modifications have been submitted to and accepted by the notified body.

Technical Characteristics

PARAMETER	PROVISION	COMMENT
PRESENTATION DISPLAY TYPE	**20" Colour LCD**	IEC 62288:2008 Category :- Operational display - ECDIS Dedicated Keyboard, Trackerball and on-screen controls allows quick & easy control functions and data entry.
DISPLAYED CHART AREA	**Chart Size 270mm x 345mm**	In Route Monitoring Mode 20" Widescreen Colour Liquid Crystal Display (LCD).
IEC 61162-1 SERIAL (NMEA) PORTS	**Listner 16** **Talker -16**	Conformity to IEC 61162-1:2007. Presence & fault check on messages provide warning status
ANALOGUE SIGNAL PORTS	**Log & Gyro**	Pulse log input and Syncro/Stepper Gyro input
RADAR INTERCONNECTIONS	**1 Channel** **(Not Basic models)**	Radar Overlay facility tested at QinetiQ Shoeburyness test range. Declared for operation with Manta & MantaDigital™ series radar.
Back-Up Arrangements	**Via Ethernet link to 2nd ECDIS**	A second MantaDigital™ ECDIS running software as listed above may form a back-up. MantaDigital™ Chart Radar operating in ECDIS mode could also form an ECDIS Back-up.
TEMPERATURE RANGE & IEC 945 CLASS Protected Exposed	**-15°C to +55°C.** **-25°C to +70°C**	-- All units -- None
POWER SOURCE	**110V / 220V AC 50-60Hz**	Selection between voltage is automatic. Internal provision for Short term operation (≥45s) on power failure to avoid manual re-initialisation.

Conditions of Issue of this certificate are printed on page 6

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Certificate Number ***QQ-MED-09/11-01R***

Certificate of Type Approval - Schedule 3
MantaDigital™ 22" Widescreen ECDIS

The applicant declared that the following units when combined form an operational Marine Shipborne ECDIS equipment. The units below have been assessed & tested and satisfactory details of these units were included in the technical file..

SYSTEM comprising of:-

MantaDigital™ 22" Display Navigation Pedestal		**MDD-A1-22**	***1, 2, 3, 4**
or MantaDigital™ 22" Display Navigation Pedestal Basic		**MDD-A1-2-22**	***1, 4, 5**
or MantaDigital™ 22" Desktop Display (incorporating MDD-A101)		**MDD-A30-22**	***4**
and MantaDigital™ Navigation Processor		**MDP-A1**	***2, 3**
or MantaDigital™ Navigation Processor Basic		**MDP-A1-2**	***5**
or MantaDigital™ 22" Console Display		**MDD-A20-22**	
and MantaDigital™ Navigation Processor		**MDP-A1**	***2, 3**
or MantaDigital™ Navigation Processor Basic		**MDP-A1-2**	***5**
and MantaDigital™ Trackerball & Keyboard		**MDD-A101**	***4**
SOFTWARE:-MantaDigital™ Core Software	(ZM-2144)	**Version 2.x.x**	***6, 7**
Manta Display interface Firmware	(ZM-2007)	**Version 1.x.x**	***7**
Manta Systems interface Firmware	(ZM-2008)	**Version 1.x.x**	***7**

---------- End of List ----------

The system may include ancillary items from the list found in Schedule 4 on Page 5.

NOTES:-

8 -- Fully integrated Deck mount Pedestal unit incorporating Processor unit, Trackerball & Keyboard

9 -- This forms a Multi-Function workstation. This means the operator may 'Hot Switch' between Radar, Chart Radar, ECDIS and Conning Display (All share identical hardware elements) as limited & controlled by a Kelvin Hughes supplied 'Security Dongle'. Multi-Function operation may be subject to 'Flag' or 'Class' installation approval for a particular vessel's bridge operating plan.
The approval status conferred by this certificate only applies when the operation mode is set to "ECDIS".

10 For Radar Type Approval see Certificates QQ-MED-11/10-02. QQ-MED-12/10-02, QQ-MED-13/10-02 or QQ-MED-14/10-02

11 The Trackerball unit integrated into the control area may be replaced with another control options listed in Schedule 4.

12 This 'Basic' Processor model does not have Radar display capability and so only provides ECDIS, Backup & route planning.

13 Version 2.0.0 is the first production issue following successful type testing, Note 7 below applies to increments above this.

14 This approval remains valid for equipment including subsequent Minor software amendments, as allowed by the N.x.x format (x.x represents numerals), where written details of any such modifications have been submitted to and accepted by The notified body.

Technical Characteristics

PARAMETER	PROVISION	COMMENT
PRESENTATION DISPLAY TYPE	**22" Colour LCD**	IEC 62288:2008 Category :- Operational display - ECDIS Dedicated Keyboard, Trackerball and on-screen controls allows quick & easy control functions and data entry.
DISPLAYED CHART AREA	**Chart Size 296mm x 372mm**	In Route Monitoring Mode 22" Widescreen Colour Liquid Crystal Display (LCD).
IEC 61162-1 SERIAL (NMEA) PORTS	**Listner 16 Talker -16**	Conformity to IEC 61162-1:2007. Presence & fault check on messages provide warning status
ANALOGUE SIGNAL PORTS	**Log & Gyro**	Pulse log input and Syncro/Stepper Gyro input
RADAR INTERCONNECTIONS	**1 Channel (Not Basic models)**	Radar Overlay facility tested at QinetiQ Shoeburyness test range. Declared for operation with Manta & MantaDigital™ series radar.
Back-Up Arrangements	**Via Ethernet link to 2nd ECDIS**	A second MantaDigital™ ECDIS running software as listed above may form a back-up. MantaDigital™ Chart Radar operating in ECDIS mode could also form an ECDIS Back-up.
TEMPERATURE RANGE & IEC 945 CLASS Protected Exposed	**-15°C to +55°C. -25°C to +70°C**	-- All units -- None
POWER SOURCE	**110V / 220V AC 50-60Hz**	Selection between voltage is automatic. Internal provision for Short term operation (≥45s) on power failure to avoid manual re-initialisation.

Conditions of Issue of this certificate are printed on page 6.

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Certificate Number ***QQ-MED-09/11-01R***

Certificate of Type Approval - Schedule 4
MantaDigital™ ECDIS Systems - Optional Control Units

The applicant declared that the following units may be added to the basic ECDIS systems illustrated in schedules 1, 2 & 3. These units have been assessed & tested in conjunction with MantaDigital™ series radar and ECDIS systems, and satisfactory details are included in the technical files.

ANCILLARY UNITS:-

MantaDigital™ Trackerball	**MDD-A110**	
MantaDigital™ Trackerball & pencil tray	**MDD-A100**	
MantaDigital™ Trackerball & Keyboard	**MDD-A101**	
MantaDigital™ Trackerball & MCI Panel	**MDD-A102**	
MantaDigital™ Remote Keyboard	**MDD-A130**	
Ergonomic Trackerball (Ergopod, right handed)	**NRR-A18**	
Ergonomic Trackerball (Ergopod, left handed)	**NRR-A18-2**	
Serial Interface Module (provides 8 additional serial ports)	**FSD-A198**	***1**
Dual DNC Unit	**FSD-A10**	***2**
Network Audio & Video Control Unit	**FSD-A13**	***2**
NTI Audio & Video Switch Matrix	**IT-SM-8‡-AV-LCD**	***2, 3**

----------End of List----------

***** NOTES:-

1 This option is an internal module installed inside the MantaDigital™ processor units.

2 These items form a display/control interconnection system and may be used to form configurable workstation system between MantaDigital processors and displays. The exact configuration enabled for a system is fixed on commissioning in accordance with an agreed ships operating plan.

3 The **‡** is a numeral in the range 2 to 8 and denotes the number of display units which can be included in the interconnection system.

Conditions of Issue of this certificate are printed on page 6.

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Hampshire. GU14 0LX

Certificate Number ***QQ-MED-09/11-01R***

Certificates of Type Approval
Conditions of Issue

1. Each Certificate will be used in its entirety and not reproduced in part.

2 This certificate remains valid until the date shown (normally 5 years) unless cancelled or revoked, provided:-

   i) the design and manufacture remain unmodified from the specimen tested and recorded in the Technical Construction File;

   ii) any conditions contained in the schedule are complied with;

   iii) 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;

   iv) and, the equipment remains satisfactory in service.

3. The mark of conformity may only be affixed to the equipment listed on this certificate and a manufacturer's Declaration of Conformity issued when the production Quality Assurance requirements laid down in Annex B, of the Directive (96/98/EC) is fully complied with and controlled by a written inspection agreement with a Notified Body.

   The use of the QinetiQ Notified Body Number (0191) in combination with the Wheelmark implies that the manufacturer is Registered with the QinetiQ Quality Assurance Scheme. A Certificate of Registration is issued to the manufacturer and should be made available on request. The manufacturer is responsible for ensuring that certification renewal and periodic surveillance are maintained.

4. USCG Approval Number, A Mutual Recognition Agreement (MRA) on marine equipment exists between the European Commission and the US Coastguard but only applies to equipment types included in the listing of marine equipment annexed to the MRA. For included equipment a USCG Approval number may be issued. This can be found under the MED certificate number on the first page and should be used on the main identity label of the equipment. Radio and Radar equipment continues to need separate or additional approval by the USA FCC.

5. This certificate does not confer any approval status to this equipment other than defined by, and tested according to the specifications listed on Page 1.

6. The labeling requirements of IMO Resolution A694(17) shall be met. Descriptions of each unit of apparatus forming part of the equipment will be as given on this Certificate. Each unit of equipment will be marked with the minimum safe distance at which it should be mounted from a standard and steering magnetic compass.

7. No unit of apparatus shall be advertised or labeled as "approved" or "certified" on behalf of the Maritime and Coastguard Agency, the Department of Transport or the QinetiQ Group in any sense other than that it is a type that has been assessed as satisfactory against the specification;

8 The manufacturer must advise QinetiQ of any intended changes to the design or production of the equipment which might affect the equipment performance.

9 Minor Modifications to the equipment will be considered on a case-by-case basis. QinetiQ will review any factory test results, in consultation if necessary, with the test facility that conducted the original Type Approval testing on the equipment. QinetiQ will advise the manufacturer if any further testing is required to maintain valid certification.

10 If an equipment manufacturer wishes to have the type approved equipment designated under alternative names (e.g. agent/distributor's name and model number), a separate application should be completed and sent to QinetiQ.

QinetiQ Ltd
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