



中国船级社
CHINA CLASSIFICATION SOCIETY

证书格式号/Form: T01.01-DB000039

型式认可证书
CERTIFICATE OF TYPE APPROVAL

证书编号/Certificate No. LD12T00012

兹证明本证书所述制造厂生产的下列产品能够满足下面列明认可标准的要求。

This is to certify that the following products produced by the manufacturer stated in the certificate can meet the requirements of the approval standards listed below.

认可产品/ Product Approved

电子海图显示与信息系统
ECDIS

制造厂/ Manufacturer

KELVIN HUGHES LTD

KELVIN HUGHES LTD

NEW NORTH ROAD, HAINAULT, ILFORD, ESSEX, IG6 2UR
NEW NORTH ROAD, HAINAULT, ILFORD, ESSEX, IG6 2UR

认可标准/ Approval Standard

1.IEC62288:2008《海上导航和无线电通信设备和系统--相关航行信息在船载导航显示器上的显示--通用要求--试验方法和试验结果要求》

IEC62288:2008, Maritime navigation and radiocommunication equipment and systems -Presentation of navigation-related information on shipborne navigational displays - General requirements, methods of testing and required test results

2.IEC61174:2008《海上导航和无线电通信设备和系统--电子海图显示和信息系统--功能和性能要求, 试验方法和试验结果要求》

IEC61174:2008, Maritime navigation and radiocommunication equipment and systems - Electronic chart display and information system (ECDIS) - Operational and performance requirements, methods of testing and required test results

3.MSC.191(79) 决议: 船载航行显示器有关航行信息显示的性能标准

IMO RESOLUTION MSC.191(79) Performance standards for the presentation of navigation-related information on shipborne navigational displays

4.IMO A.694(17) 作为全球海上遇险和安全系统(GMDSS)组成部分的船载无线电设备和电子助航设备的一般要求

IMO A.694(17) General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids

证书有效期至/ This Certificate is valid until 2014年3月24日 / Mar. 24, 2014

发证机构 中国船级社伦敦办事处
Issued by CCS London Office

签发日期 2012年7月2日
Date Jul. 2, 2012

本证书根据中国船级社《钢质海船入级规范》及有关程序规定签发。关于证书的有关规定见本证书背面的说明。当本证书包括多页纸张时, 则所有证书页为一个整体, 必须同时使用。每一页证书均须由本社盖章方为有效。证书复印件无效。任何单位和个人均不应摘录或节选本证书的部分内容。本认可证书不代表本社对个体产品质量的检验。有关各方对所持证书的真实性有疑问时, 可以向我社检验机构咨询。
This Certificate is issued pursuant to the Rules for Classification of Sea-going Steel Ships and related procedures of the Society. Refer to the back of the certificate for detailed requirements of the certificate. When the certificate consists of more than one page, all pages of the certificate are taken as a whole and are used simultaneously. No certificate page is valid without bearing the stamp of the Society and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. This approval certificate does not constitute the inspection of the Society about the quality of the unit/batch product. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



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LD63249190
Nº 12642536

1. 证书通用条件

- 1.1. 经本社设计认可、型式认可或工厂认可的产品及其生产厂，本社将颁发产品证书。当 CCS 规范要求产品证书的情况下，认可证书不能替代产品证书。
- 1.1.1. 设计认可系指 CCS 准予设计在特定条件下适用于规定用途的认定过程，一般包括图纸审查和原型/型式试验（如适用时）。
- 1.1.2. 型式认可系指 CCS 通过产品的设计认可和制造管理体系审核，以确认申请认可的制造厂具备持续生产符合 CCS 规范要求的产品的能力的评定过程。根据产品制造管理体系的证实程度，为型式认可 A 和 B 两级，其中申请型式认可 B 的制造厂应具有申请认可产品的生产和试验能力，并具有有效的质量控制制度；申请型式认可 A 的制造厂除具备型式认可 B 的条件外，还应建立并保持一个至少符合 ISO9000 标准的质量保证体系，使其产品的质量保持持续稳定。
- 1.1.3. 工厂认可系指 CCS 通过制造厂的资料审查，认可试验和生产制造过程的审核，对产品制造厂的生产生产条件和能力予以确认的评定过程。
- 1.2. 入级和法定产品经本社单件/单批检验完成后，本社将颁发产品证书或等效证明文件。
- 1.2.1. 产品证书是由 CCS 验船师签发的文件以证明 a) 产品符合规范要求；b) 产品已进行规定的检验和试验；c) 检验样品取自检验产品本身；d) 产品的试验在验船师参加或监督特别商定的情况下进行。
- 1.2.2. 等效证明文件是由制造厂出具并经 CCS 盖章和验船师签署的文件以证明 a) 产品符合规范要求；b) 产品已进行规定的检验和试验；c) 检验样品取自检验产品本身；d) 产品的试验在验船师参加或监督特别商定的情况下进行。
- 1.3. 对于要求型式认可和/或工厂认可而不要求持有产品证书的入级和法定产品，可由制造厂证明形式予以证明。
- 1.3.1. 制造厂证明由制造厂签发，以证明：a) 该产品经 CCS 型式认可或工厂认可；b) 产品符合规范要求；c) 产品已进行规定的检验和试验；d) 检验样品取自检验产品本身；e) 产品的试验在制造厂授权的部门在场的情况下进行。
- 1.4. 法规和法定要求以外的产品经本社单件/单批检验完成后，由检验证书或试验证书予以记录和证明。
- 1.4.1. 检验证书是由 CCS 验船师签署的文件，以证明 a) 符合申请方确定的产品标准；b) 检验和试验经验船师见证和/或试验报告经验船师审查；c) 试验样品取自现有产品生产中。
- 1.4.2. 试验证书是由 CCS 验船师签署的文件，以证明 a) 产品的试验在验船师在场下进行；b) 试验样品取自现有产品生产中。

2. 证书的自动失效

- 本社通过认可、检验工作所签发的证书或相关的证明文件，在发生下列情况时即自动失效：
- 2.1. 证书或证明文件严重破损，内容无法辨认，或证书页缺失；
 - 2.2. 证书或证明文件的内容被涂改；
 - 2.3. 申请方、制造厂、提供服务方或其他相关各方，在取得本社签发的证书或证明文件的过程中使用欺诈、作假、故意隐瞒事实等不正当手段或存在违法行为，致使本社在认证工作中无法客观、全面地了解必要的认可信息；
 - 2.4. 由于发证依据变化，经本社或国家主管机关认定并公布予以废止的。（例如：相关产品或证明文件的发证依据发生重大改变，且原使用的发证依据被证实为对产品或服务的使用安全性存在重大影响）；
 - 2.5. 由于其他原因，经本社认定并通知相关方予以废止的；
 - 2.6. 有关认可证书的保持和失效见本社规范。

3. 责任

- 3.1. 本社承担的认可/检验服务是在所涉及的产品设计方、制造方、拥有方、销售方、供应方、修理方、使用方以及其他方履行各自职责的基础上进行的。无论本社及所属验船师采用何种认可/检验方式，也不论在本社名义下颁发、签署的任何报告、文件和证书在内容上如何，均不意味着可减轻或解除上述任何一方应承担的任何责任。
- 3.2. 本社签发的与认可/检验有关的任何文件，只反映检验当时的技术状况，并不表明被认可的工厂和产品的所有权和知识产权归属，与被认可的工厂和产品的所有权和知识产权有关的任何争议，与本社无关。
- 3.3. 本社的认可/检验不影响、替代与本社授权或检验无关的各方对上述工厂的认可/发证，并且不对与本社授权或检验无关的各方负责，不承担其未经应允而承认、接受本社认可/检验所导致的法律和经济责任。
- 3.4. 本社仅对由于自身疏忽行为而直接造成的合同关系方的损失或损害承担责任。在任何情况下，本社均不对合同关系方的间接损失或随后引发的附加损失或损害承担责任，也不对非合同关系方的任何损失承担责任。
- 3.5. 尽管有上述规定，如依法判定合同关系方所遭受的损失或损害，仅仅是由于本社或其雇员、代理人或本社其他代表方的疏忽行为造成的，本社将承担责任，并将支付赔偿，但此赔偿的数额不超过该项服务收费的 5 倍，且最大不超过人民币 200 万元。但对该损失或损害系由如下行为造成，本社将不承担任何责任：
 - 1) 本社雇员超越其授权权限的行为；
 - 2) 本社代理人或其他代表方，超越本社对其书面授权范围的行为。
- 3.6. 对本社承担责任的损失或损害的索赔，应以书面形式，在损害最初发现或损失形成的 6 个月内提出，否则将被视为彻底放弃索赔权。

4. 适用法律和仲裁

- 4.1. 本证书条款的生效、解释、执行、争议的解决均适用中华人民共和国法律。
- 4.2. 除与本社另有约定外，凡因对本社提供的服务有关的任何争议，均应提交中国海事仲裁委员会，按照申请仲裁时该会现行有效的仲裁规则进行仲裁。仲裁裁决是最终的，对争议当事双方均有约束力。

1. THE APPLICATION OF CERTIFICATES

- 1.1. Approval, Certificate of Design Approval, Certificate of Type Approval or Certificate of Works Approval will be issued by the Society for the products and manufacturers. Where a products certificate is required by CCS' rules, the Approval Certificate cannot replace it.
- 1.1.1. Design approval means the process whereby permission is granted by CCS for the design to be used for a stated purpose under specific conditions, generally comprising drawing approval and prototype/type test (if applicable).
- 1.1.2. Type approval means the evaluation process whereby the requesting manufacturer's ability to produce consistent products in compliance with CCS' rules is confirmed by CCS through Design Approval of products and audit of manufacturing management system. Depending on the validation of the manufacturing management system, the type approval is to be classified as A or B.

A manufacturer requesting type approval B is to be capable of producing and testing the products to be approved and have an effective quality control system. A manufacturer requesting type approval A is to be qualified for type approval B and in addition, to establish and maintain a quality assurance system complying at least with ISO 9000 so as to meet the specified level of product quality consistently.

- 1.1.3. Works approval means the evaluation process whereby the manufacturer's production conditions and ability is confirmed by CCS through document review, approval testing and verification of manufacturing process.
- 1.2. A unit/batch inspection of classed or statutory products is to be documented as Certificate of Product or Equivalent document.
- 1.2.1. Certificate of Product issued by the Surveyor to show that: i) the product complies with rules; ii) required inspection and test have been carried out; iii) the sample is taken from the product to be inspected; iv) the product has been tested in the presence of the Surveyor or in a specially agreed condition.
- 1.2.2. Equivalent document issued by the manufacturer and endorsed by the Surveyor to show that: i) the product complies with rules; ii) required inspection and test have been carried out; iii) the sample is taken from the product to be inspected; iv) the product has been tested in the presence of the Surveyor or in a specially agreed condition.
- 1.3. The classed and statutory products of which the type approval and/or works approval is required but the products certificate is not required, may be certified as Manufacturer's document.
- 1.3.1. The manufacturer's document is issued by the manufacturer to show that: i) the product is type approved or works approved by CCS; ii) the product complies with rules; iii) required inspection and test have been carried out; iv) the sample is taken from the product to be inspected; v) the product has been tested in the presence of the department authorized by the manufacturer.
- 1.4. A unit/batch inspection Products other than those specified in rules or statutory requirements is to be documented as Inspection Certificate or Test Certificate.
- 1.4.1. Inspection Certificate issued by the Surveyor to show that: i) the product standards as determined by the applicant has been complied with; ii) the inspection and test has been witnessed by the Surveyor and/or the test report has been reviewed by him; iii) the test sample has been taken from the existing products.
- 1.4.2. Test Certificate issued by the Surveyor to show that: i) the product has been tested in the presence of the Surveyor; ii) the test sample has been taken from the existing products.

2. AUTOMATIC INVALIDATION OF CERTIFICATE

- The certificates or equivalent documents issued by the Society by means of approval or certification will be invalidated automatically under the following circumstances:
- 2.1. The certificate or equivalent document is severely damaged and illegible or with missing page(s).
 - 2.2. The certificate or equivalent document is altered.
 - 2.3. The applicant, manufacturer, service supplier or other interested parties deceive, swindle and hide facts or even dare to violate the laws in the process of obtaining the certificate or equivalent document issued by the Society, so that the Society can not get hold of the certification information fully and objectively.
 - 2.4. Due to the change of the certification basis, the certificate or equivalent document is revoked as advised by the Society or the national administrations. (e.g. The certification basis for relevant certificate or equivalent document are significantly changed and the original certification basis are substantiated to badly affect the safety of the product or service used).
 - 2.5. Due to other reasons, the certificate or equivalent document is revoked as confirmed and advised by the Society to relevant parties.
 - 2.6. Please refer to CCS' Rules for the maintenance and invalidation of Approval Certificate.

3. LIABILITY

- 3.1. The service of approval / inspection undertaken by the Society is carried out on the basis that the designers, manufacturers, owners, sellers, suppliers, repairers, operators and other parties fulfill their respective responsibilities. The contents of any reports, documents and certificates issued by the Society do not mean to diminish any liability of any party mentioned above or absolve it therefrom, whatever the module of approval/inspection adopted by this Society and its surveyors.
- 3.2. Any approval/inspection-related documents issued by the Society only reflect the status at the time when the approval/inspection is carried out. They do not constitute the description for ownership and intellectual property rights of the approved/inspected factory and product. This Society should not be affected by any dispute over ownership and intellectual property rights of the approved/inspected factory and product.
- 3.3. The approval/inspection of the Society does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.
- 3.4. The Society will be liable only for the loss or damage of contract parties resulting directly from its negligent act. In no event shall the Society be liable for any indirect or consequential losses or damage, and any loss of non-contract parties.
- 3.5. Notwithstanding the previous paragraph, the Society will be liable for the loss or damage due to negligent act judicially attributed exclusively to the Society and its employees, agents or other parties acting on behalf of the Society. And in no case shall the amount of this liability exceed five times the fee(s) charged by the Society in respect of the service(s) in question or 2,000,000 RMB in maximum. The Society liability for the loss or damage is specially excluded when such loss or damage arises out of an act:
 - (1) by an employee of the Society acting outside the terms or scope of his/her employment; or
 - (2) by any agent or other parties acting on behalf of the Society, when such act exceeds the authority granted in writing by the Society to such agent or parties.
- 3.6. Any claim for any loss or damage set forth above is to be made in writing within six months of the date the damage first discovered or the loss occurred; failure of doing so will be deemed as an absolute waiver of this right.

4. APPLICABLE LAWS AND ARBITRATION

- 4.1. The laws of the People's Republic of China shall apply to the coming into force, explanation, implementing, and resolution of dispute of the clause of the certificate.
- 4.2. Unless otherwise agreed with the Society, any dispute of whatsoever nature in respect to the service(s) provided shall be referred to China Maritime Arbitration Commission and arbitrated in accordance with its arbitration rules effective at the time of request for arbitration. The arbitration award shall be final and binding upon both interested parties.

产品明细/ Product Description

电子海图显示与信息系统的/ECDIS
型号/Type

: MantaDigital 20 “, 22 “ and 26 “
ECDIS System

批准的图纸和设计计算书/ Approved Drawings and Design Calculations

图纸批准号/ Drawings Approval No. : LD12T00012

产品认可试验报告/ Approval Test Report

试验报告编号/Test Report No. : BSH/6579/080330/2003/S3330
 试验报告日期/Test Report Date : 2004-01-28
 试验单位/ Laboratory : Federal Maritime and Hydrographic Agency(BSH)
 试验单位地址/ Test Address : Bernhard-Nocht-Str. 78, D-20359 Hamburg, Germany

试验报告编号/Test Report No. : BSH/4612/4300391/07
 试验报告日期/Test Report Date : 2006-09-28
 试验单位/ Laboratory : Federal Maritime and Hydrographic Agency(BSH)
 试验单位地址/ Test Address : Bernhard-Nocht-Str. 78, D-20359 Hamburg, Germany

试验报告编号/Test Report No. : QinetiQ/D&TS/SS/CR0605238/1.1
 试验报告日期/Test Report Date : 2006-12-06
 试验单位/ Laboratory : QinetiQ
 试验单位地址/ Test Address : Farnborough, Hampshire, GU14 0LX, UK

试验报告编号/Test Report No. : QinetiQ/MS/EES/TSTR0800419/1
 试验报告日期/Test Report Date : 2008-09-16
 试验单位/ Laboratory : QinetiQ
 试验单位地址/ Test Address : Farnborough, Hampshire, GU14 0LX, UK

试验报告编号/Test Report No. : 14658-01791-2 (Edition 2)
 试验报告日期/Test Report Date : 2010-04-14
 试验单位/ Laboratory : TUV SUD SENTON GmbH
 试验单位地址/ Test Address : Aeussere Fruehlingstrasse 45, 94315 Straubing, Germany

试验报告编号/Test Report No. : TS1000-3707
 试验报告日期/Test Report Date : 2012-06-06
 试验单位/ Laboratory : KELVIN HUGHES
 试验单位地址/ Test Address : HAINAULT, ILFORD, UK

产品适用范围/ Application of the Product

Marine application.

认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval conditions.

2. 工厂的专业质量管理体系应保持有效运行, 并且与认可时一致。如果质量管理体系发生改变, 应经原体系认证机构审核并报告本社批准。

The professional quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 认可证书有效期内, 如果出现可能导致本社取消认可的情况, 工厂应及时采取有效的纠正措施。
Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

4. 在认可证书有效期内, 本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核, 以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。
Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

认可后的产品检验方式/ Method of Product Inspection after Approval

按照规范每批抽样检验的产品/The product inspected by sampling in term of the rules:

认可后的产品检验应由本社验船师根据本社规范规定每批抽样按批准的产品检验计划进行检验, 经检验合格后由本社颁发产品证书。

After approval, product inspection should be carried out by sampling by the Surveyor of the Society in accordance with the approved product inspection scheme, and the Product Certificate will be issued by the Society upon satisfactory inspection.

对于原材料和零部件的检验要求/ Inspection Requirements for Materials and Components

产品如下原材料和零部件应由本社认可的制造厂生产/The following materials and components of the product should be manufactured by the factory approved by the Society: Nil.

产品如下原材料和零部件应经本社检验, 持有本社产品证书/The following materials and components of the product should be inspected and certificated by the Society: Nil.

产品如下原材料和零部件的制造厂清单, 经本社批准方可变更/The list of manufacturer for the following materials and components of the product should not be changed without the Society's approval: Display monitors.

责任声明/ Statement of Responsibility

本社的认可不影响、替代与本社授权或检验无关的各方对上述工厂的认可和发证, 并且不对与本社授权或检验无关的

各方负责, 不承担其未经应允而承认、接受本社认可所导致的法律和经济责任。

The approval of the Society does not affect and replace any approval and certification of the manufacturer by any parties that bear no relation with this Society's authorization or survey and therefore takes no responsibility for these parties. The Society does not undertake any legal and economic liabilities arising from accepting this Society's certificate without prior permission from this Society.

其他/Others

1. This certificate replaces the previous type approval certificate in No. LD10T00002.

2. MantaDigital 26" Widescreen ECDIS comprising of:

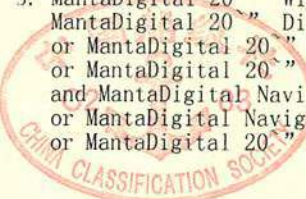
MantaDigital 26" Display Navigation Pedestal	MDD-A1-26
or MantaDigital 26" Display Navigation Pedestal Basic	MDD-A1-2-26
or MantaDigital 26" Desktop Display (incorporating MDD-A101)	MDD-A30-26
and MantaDigital Navigation Processor	MDP-A1
or MantaDigital Navigation Processor Basic	MDP-A1-2
or MantaDigital 26" Console Display	MDD-A20-26
and MantaDigital Navigation Processor	MDP-A1
or MantaDigital Navigation Processor Basic	MDP-A1-2
and MantaDigital Trackerball & Keyboard	MDD-A101

Software: MantaDigital Core Software (ZM-2144)	Version 2. x. x
Manta Display Interface Firmware (ZM-2007)	Version 1. x. x
Manta Systems Interface Firmware (ZM-2008)	Version 1. x. x

For technical specifications, please refer to the attached page of this Certificate.

3. MantaDigital 20" Widescreen ECDIS comprising of:

MantaDigital 20" Display Navigation Pedestal	MDD-A1-20
or MantaDigital 20" Display Navigation Pedestal Basic	MDD-A1-2-20
or MantaDigital 20" Desktop Display (incorporating MDD-A101)	MDD-A30-20
and MantaDigital Navigation Processor	MDP-A1
or MantaDigital Navigation Processor Basic	MDP-A1-2
or MantaDigital 20" Console Display	MDD-A20-20



and MantaDigital Navigation Processor MDP-A1
 or MantaDigital Navigation Processor Basic MDP-A1-2
 and MantaDigital Trackerball & Keyboard MDD-A101

Software: MantaDigital Core Software(ZM-2144) Version 2. x. x
 Manta Display Interface Firmware(ZM-2007) Version 1. x. x
 Manta Systems Interface Firmware(ZM-2008) Version 1. x. x

For technical specifications, please refer to the attached page of this Certificate.

4. MantaDigital 22" Widescreen ECDIS comprising of:
- | | |
|---|-------------|
| MantaDigital 22" Display Navigation Pedestal | MDD-A1-22 |
| or MantaDigital 22" Display Navigation Pedestal Basic | MDD-A1-2-22 |
| or MantaDigital 22" Desktop Display(incorporating MDD-A101) | MDD-A30-22 |
| and MantaDigital Navigation Processor | MDP-A1 |
| or MantaDigital Navigation Processor Basic | MDP-A1-2 |
| or MantaDigital 22" Console Display | MDD-A20-22 |
| and MantaDigital Navigation Processor | MDP-A1 |
| or MantaDigital Navigation Processor Basic | MDP-A1-2 |
| and MantaDigital Trackerball & Keyboard | MDD-A101 |

Software: MantaDigital Core Software(ZM-2144) Version 2. x. x
 Manta Display Interface Firmware(ZM-2007) Version 1. x. x
 Manta Systems Interface Firmware(ZM-2008) Version 1. x. x

For technical specifications, please refer to the attached page of this Certificate.

5. MantaDigital ECDIS Systems-Optional Control 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 |
| Dual DNC Unit | FSD-A10 |
| Network Audio & Video Control Unit | FSD-A13 |
| NTI Audio & Video Switch Matrix | IT-SM-8-AV-LCD |

6. The approved Drawings in No.LD08T00039 and the new monitor had been reviewed, the ECDIS Systems described in this certificate have fully complied with the applicable requirements as the said standards described in page 1 and 2 of this CCS Type Approval Certificate also the following standards:

- (1) IEC 60945:2002
- (2) IACS UR E10
- (3) IACS UR E22

7. Unit inspection and certification by this Society before delivery is necessary.

8. When any major changes made to the QMS of the Manufacturer, this Society should be informed in time and an additional audit may be asked.

9. When any major changes made resulting in different performance of the ECDIS, this Society should be informed in time, Drawings reviewing, Type test and/or performance test and additional audit may be asked.

10. This ECDIS also hold a EC Certificate of Type Examination - Module B in QQ-MED-09/11-01R valid to August 31st, 2016.

---End---

中国船级社伦敦办事处

CCS London Office



*****本证书正文完/ End of Text*****

注: 本证书含有附页, 共1页

Note: The certificate is attached with 1 additional page(s)

Technical Characteristics

Parameter	Provision	Remarks
Presentation Display Type	26" color LCD	
Displayed Chart Area	Chart Size 344 x436 mm	
IEC61162-1 Serial (NEMA) Ports	Listener 16, Talker -16	
Analogue Signal Ports	Log & Gyro	Pulse log input and Syncro/Stepper Gyro input
Radar Interconnections	1 Channel (not basic models)	
Back-up Arrangements	Via Ethernet link to 2 nd ECDIS	A 2 nd MantaDigital ECDIS running software as listed in this Certificate form a back-up. MantaDigital Chart Radar operating in ECDIS mode could also form an ECDIS Back-up.
Temperature range Protected & IEC945 Class Exposed	-15°C to + 55 °C -25°C to + 70	-All units -None
Power Source	110V/220VAC,50-60Hz	Selection between voltage is automatic.

Parameter	Provision	Remarks
Presentation Display Type	20" color LCD	
Displayed Chart Area	Chart Size 270 x345 mm	
IEC61162-1 Serial (NEMA) Ports	Listener 16, Talker -16	
Analogue Signal Ports	Log & Gyro	Pulse log input and Syncro/Stepper Gyro input
Radar Interconnections	1 Channel (not basic models)	
Back-up Arrangements	Via Ethernet link to 2 nd ECDIS	A 2 nd MantaDigital ECDIS running software as listed in this Certificate form a back-up. MantaDigital Chart Radar operating in ECDIS mode could also form an ECDIS Back-up.
Temperature range Protected & IEC945 Class Exposed	-15°C to + 55 °C -25°C to + 70	-All units -None
Power Source	110V/220VAC 50-60Hz 110V/220VAC,50-60Hz	Selection between voltage is automatic.

Parameter	Provision	Remarks
Presentation Display Type	22" color LCD	
Displayed Chart Area	Chart Size 296 x372mm	
IEC61162-1 Serial (NEMA) Ports	Listener 16, Talker -16	
Analogue Signal Ports	Log & Gyro	Pulse log input and Syncro/Stepper Gyro input
Radar Interconnections	1 Channel (not basic models)	
Back-up Arrangements	Via Ethernet link to 2 nd ECDIS	A 2 nd MantaDigital ECDIS running software as listed in this Certificate form a back-up. MantaDigital Chart Radar operating in ECDIS mode could also form an ECDIS Back-up.
Temperature range Protected & IEC945 Class Exposed	-15°C to + 55 °C -25°C to + 70	-All units -None
Power Source	110V/220VAC,50-60Hz	Selection between voltage is automatic.

