

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

## This is to certify:

**That the Electronic chart display and information system (ECDIS)**

with type designation(s)  
**TECDIS**

Issued to

**Telko AS**  
**TJØME, Norway**

is found to comply with the requirements in the following Regulations/Standards:  
**Annex A.1, item No. A.1/4.30 and Annex B, Module B in the Directive. IMO Resolutions A.694(17), MSC.191(79) & MSC.232(82)**

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2016-08-31**.

Issued at **Høvik** on **2016-02-04**

DNV GL local station:  
**Sandefjord**

Approval Engineer:  
**Frederik Tore Elter**



Notified Body  
No.: **0575**

for **DNV GL AS**

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**Vidar Dolonen**  
**Head of Notified Body**



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-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

## Product description

The TECDIS is consisting of the following components:

Unit	Components	Remark
Main processing unit:	HT C01 TEL-A596, or HT C01 TEL-D596, or HD 24T21 MEC-M3D-ACB2 or Enix-2077-TEL-D1 or HT C02HJ TEC-C44-AA00	<i>Embedded graphics</i>
Display unit:	Hatteland Display JH19T14MMD, or Hatteland Display JH20T17MMD, or Hatteland Display JH23T12MMD, or Hatteland Display JH23T14 MMD, or Hatteland Display HD19T03 BOAA, or Hatteland Display HD19T21 MMD, or Hatteland Display HD24T21 MMD, or Hatteland Display HD26T21 MMD, or Furuno MU-201CE, or Furuno MU-231CE or ISIC DuraMON 19 LED or ISIC DuraMON 26 WS	<i>DVI connection,</i>
Keyboard/ Trackball <sup>1)</sup> :	BTC5100C PS/2, or Cherry G84-4100LCMGB-2 or Keytouch Panel QWERTY, <i>and</i> MouseTRAK B-MPIND-XROHS, or MouseTRAK B-USBID-XROHS, or Logitech Trackman Marble – ELK, or Keytouch Panel Trackball, or Keytouch Panel Combo <sup>2)</sup> , TECDIS Keypad <sup>3)</sup> (Keytouch PN17610415) RCU-018 <sup>3)</sup>	<i><sup>1)</sup>Both keyboard and a trackball are required</i>  <i><sup>2)</sup>Combined unit</i>  <i><sup>3)</sup>Option</i>
Loudspeakers(option):	DNH HP-6, or DNH HPS-6	<i>Loudspeaker is required only when display unit does not include a buzzer and RCU-018 is not connected.</i>
Serial Interface:	Moxa Opt.8F Moxa CP-114EL-I(CV-150k) <sup>4)</sup> Hatteland Display PCA100293-1 <sup>5)</sup>	<i><sup>4)</sup>Enix-2077 only</i> <i><sup>5)</sup> HD 24T21 MEC-M3D-ACB2 and HT C02HJ TEC-C44-AA00</i>
LAN interface:	Intel IQ87-PLH3 <sup>6)</sup>	<i><sup>6)</sup>HT C02HJ TEC-C44-AA00</i>
<b>Software Versions:</b>		
TECDIS	4.7.1.x or 4.7.2.x	x ≥ 30
Telko Chart Loader	2.nn	
OS	Windows 7 or Windows XP <sup>7)</sup>	<i><sup>7)</sup> HT C01 TEL-A596 and HT C01 TEL-D596</i>
Screen sender	1.xx	

For latest revision of the Appendix, see <http://exchange.dnv.com/tari>

## Application/Limitation

- A dual installation of TECDIS is found to comply with the SOLAS requirements for ECDIS with Back-up arrangements.
- TECDIS may optionally be provided with radar overlay functionality.
- TECDIS may optionally be provided with weather information overlay functionality.
- TECDIS may optionally be provided with *C-Routes* routing advisory functionality.
- TECDIS may optionally be connected to internet via "secure web-tunneling".<sup>1)</sup>
- TECDIS may optionally support uploading of SENC delivery (CM93/3 format) via external link.
- TECDIS may be optionally provided with C-Map Update Service functionality.
- TECDIS may be optionally provided with Navtor NavSync chart update functionality.
- TECDIS may be optionally provided with chart synchronization functionality.
- The TECDIS monitor may optionally be interconnected with a video source via a separate input port for presentation of video. The ECDIS monitor shall be marked with "ECDIS".
- TECDIS may provide conning information to a separate monitor.
  - Conning image is found to be in accordance with requirements listed in DNV Rules for Ships Pt. 6 Ch.8 and Pt. 6 Ch.20, January 2014, for forward and aft oriented ships symbol.
  - Fallback arrangement may be achieved by connecting conning monitor to TECDIS and a dedicated conning computer or to two TECDIS computers.
  - For Conning installation components listed under TECDIS product description are to be used.
- TECDIS may provide re-transmittable binary images in accordance with IEC61162-450 to VDR.
- TECDIS may be interfaced to either RADAR or AIS, or both, for target presentation. If TECDIS is interfaced to both AIS and RADAR, RADAR is to support TLB sentence.
- The TECDIS shall be commissioned and tested onboard according to the Installation Manual.

*Note*

<sup>1)</sup> a physical disconnection device (e.g. switch) shall be provided in the vicinity of the TECDIS – and be properly marked

## Type Examination documentation

DNVGL No.	Document No.	Document Title
131		TECDIS Feature Guide 4.7.x.30
125		Report: Conformance test of TECDIS Conning with DNV Rules for ships.
124		Report: Conformance test of TECDIS binary image transfer with IEC61162-450
123		Report: Conformance test of TECDIS with IEC62288 2nd edition
121		TECDIS Conning installation for fall-back arrangements
117		TECDIS Manual 3_30 EN
113		TECDIS 4.7.x.30 List of alerts rev.5
106	DOC101936-1R2	Appendix IEC62288 JH20T17
105	DOC101935-1R2	Appendix IEC62288 JH19T14 HW06
104	DOC101901-1R2	Appendix IEC62288 JH 23T14
103	DOC101900-1R2	Appendix IEC62288 HD 19T21
102	DOC101896-1R2	Appendix IEC62288 HD 24T21
101	DOC101895-1R5	Appendix IEC62288 HD 26T21
97		Statement from ITAC - trackball B-MPIND-XROHS REV C

Job Id: **344.1-000515-12**  
Certificate No: **MEDB00000JS**

**Type Examination documentation cont.:**

<b>DNVGL No.</b>	<b>Document No.</b>	<b>Document Title</b>
96	SP05980	Report: EMC testing og USB Mouse - Track IEC60945
92	IQ87-PLH3 and MAX3535E	LAN and Serial interface documentation
91	DNV 2013-3135	TECDIS Installation Manual
90	DNV 2013-3135	EMC and environmental testing of HT B22GE STC-C4K-M100
89	Applica 20385	EMC and environmental testing of HT 221HK STC-A6D-A000-ES12
88	Applica 20287	EMC and environmental testing of HT 221HJ STC-A4D-A000-ES1
87	Applica 20286	EMC and environmental testing of HT C02HJ STC-A4D-A000-ES2
86	Applica 20373	EMC and environmental testing of HT C02HJ STC-A4D-A000-ES11
85	Applica 20285	EMC and environmental testing of HT C02HJ STC-A4D-A000-ES1
84	20316	Interconnection test of Moxa Multiport Serial board -IEC61162
83	2014.03.04	TECDIS Keypad Conformance test w/video switch
82		TECDIS Keypad user manual
80	25.02.2014	Installation notes - TECDIS Keypad EN
78	2008-3425	DNV Environmental & EMC test report: Keytouch
77	Nemco E12134.04	IEC60945 - Test Report: enix-2067/3076/3000/2077
76		TECDIS Conformance test of a Electronic Chart Display and Information System 26 August 2013
74	2013-3135	EMC and Environmental Testing of Maritime Computer HT B22GE STC-C4K-M100
72	2012-3372	EMC and Environmental Testing of Maritime Multi Display HD 24T21 MMD-MA1-FAGP
71	2011-3396	EMC and Environmantal Testing of JH 26T11 MMD-MA1-AOBC Maritime Multi Display
70	DOC101183-1	Conformance Test Report of LCD for use in Radar and ECDIS – HD 26T21 MMD-MA4-FAGA
69	DOC101257-1	Conformance Test Report of LCD for use in Radar and ECDIS – HD 24T21 MMD-MA1-FAGA
68	DOC101223-1	Conformance Test Report of LCD for use in Radar and ECDIS – HD 19T21 MMD-MA1-FOGA
67	DOC101028-1	Conformance Test Report of LCD for use in Radar and ECDIS – HD 24T21 MMC-MJD-AAB2
66	DOC101145-1	Series X Corrosion Statement
65	E12140.02	Nemko Test Report Color Verification MD 26 KM05
64	E13034.02	Nemko Test Report Color Verification DuraMon 19 LED
63	DANAK-1911472	Test for Marine Type Approval of MD26 16:10 ECDIS KM05
62	PX25885-1	Type approval test of 19" DuraMon monitor

**Type Examination documentation cont.:**

<b>DNVGL No.</b>	<b>Document No.</b>	<b>Document Title</b>
59	2012-3302	EMC and Environmental testing of Maritime Display HD 19T21 MMD-MA1-FAGA
58	2011-3475	EMC and Environmental testing of panel computer HD 24T21 MMC-MJD-AAB2
57		Conformance test of chart synchronization and new updating means dated 27. June 2013
56		TECDIS Synchronization User Guide 27. June 2013
55		TECDIS Synchronization Installation Guide 25. June 2013
51	DOC100883-4	Conformance Test Report of LCD for use in RADAR and ECDIS - JH23T14MMD-MA1-AABA
50	E501200-2	Test Report - DANAK - TType Approval Testing of 23.1 Inch MarineMonitor
49	E501200-1	Test Report - DANAK - TType Approval Testing of 20.1 Inch MarineMonitor
47	DOC100883-2	Conformance Test Report of LCD for use in RADAR and ECDIS - ISIC MU-231CE

**Tests carried out**

- Performance testing, IEC 61174 (2008)
- Performance testing, presentation, IEC 62288 (2014)
- Environmental testing, IEC 60945 (2002)
- Serial interface testing, IEC 61162-1 (2010)

**Marking of product**

The manufacturer and Type Designation to be applied to the equipment in a clearly visible location and in addition the equipment shall be marked with serial number, safe distance to magnetic compass, power consumption and/ or supply voltage.

**Mark of Conformity**

The manufacturer is allowed to affix the Mark of Conformity according to Article 11 in the Council Directive 96/98/EC on Marine Equipment and shall issue a Declaration of Conformity, only when the module D or E or F of Annex B in the same directive is fully complied with.

Module D: The quality system for production and testing shall be approved by the Notified Body.

Module E: The quality system for inspection and testing shall be approved by the Notified Body.

Module F: Compliance of the products to type as described in this EC Type-Examination Certificate must be verified by the Notified Body who also shall issue a Certificate of Conformity.