



DET NORSKE VERITAS

EC TYPE EXAMINATION CERTIFICATE

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2012/32/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by Det Norske Veritas under the authority of the Government of the Kingdom of Norway.

CERTIFICATE NO. **MED-B-8975**

This is to certify that the
Electronic Chart Display and Information System (ECDIS)

with type designation(s)
TECDIS

Manufacturer
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.

Høvik, 2014-04-22
for **Det Norske Veritas AS**




Notified Body No.: **0575**

DNV local office:
Sandefjord

This Certificate is valid until
2015-06-08


Marianne Strand Valderhaug
Head of Department


Olaf Gundersrud
Surveyor



The Certificate is subject to terms and conditions overleaf. Any significant changes in design or construction of the product, or amendments to the Directive or Standards referenced above may render this Certificate invalid. The product liability rests with the manufacturer or his representative in accordance with Council Directive 96/98/EC, as amended. The Mark of Conformity may only be affixed to the product and a Declaration of Conformity may only be issued when the production/product assessment module referred to in the council directive, is fully complied with.



Certificate No.: MED-B-8975
Item No.: A.1/4.30
Job Id.: 344.1-000515-9

Product description

See Appendix.

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

Application/Limitation

The installation shall be verified and tested onboard according to TECDIS Installation manual - Checklist regarding Installation.

See Appendix for further Notes.

Type Examination documentation

See Appendix.

Tests carried out

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



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Product description

TECDIS consisting of the following components:

Unit	Components	Remark
Main processing unit:	HT 405P4 TEL-A1 (See Note 1), or	(Graphic card: Matrox P690)
	HT C01 TEL-A599, or	(Onboard graphics card)
	HT C01 TEL-A596, or	(Onboard graphics card)
	HT C01 TEL-D596, or	(Onboard graphics card)
	HD 24T21 MEC-M3D-ACB2	(Onboard graphics card)
	Enix-2077-TEL-D1	DVI-connection
Display unit:	Hatteland Display JH 19T14MMD, or	
	Hatteland Display JH 20T17MMD, or	
	Hatteland Display JH 23T12MMD, or	
	Hatteland Display JH 23T14 MMD, or	
	Hatteland Display JH 19T03 BOAA, or	
	Hatteland Display HD 19T21 MMD, or	
	Hatteland Display HD 24T21 MMD, or	
	Hatteland Display HD 26T21 MMD, or	
	Furuno MU-201CE, or	
	Furuno MU-231CE or	
	ISIC DuraMON 19 LED or	
	ISIC DuraMON 26 WS	
Keyboard/ Trackball:	BTC5100C PS/2, or	See Note 3
	RCU-018, or	
	MouseTRAK B-MPIND-XROHS, or	See Note 3
	Keytouch Panel Combo, or	
	Keytouch Panel QWERTY, or	See Note 3
	Keytouch Panel Trackball, or	See Note 3
	TECDIS Keypad (Keytouch PN17610415)	Option
	Cherry G84-4100LCMGB-2	See Note 3
	Logitech Trackman Marble - ELK	See Note 3
Loudspeakers:	DNH HP-6, or	See Note 2
	DNH HPS-6	See Note 2
Serial Interface Unit:	Moxa Opt.8F	
	Moxa CP-114EL-I(CV-150k)*	*Enix-2077 only
Software Version:	TECDIS 4.7.1.x or 4.7.2.x	x ≥ 18
	Telko Chart Loader 2.nn	

Notes

Note 1: Fan regulation kit JH KIT HT405P4TEL-A1 may optionally be used with HT405P4 TEL-A1.

Note 2: Loudspeaker is required only when display unit does not contain buzzer and RCU-018 is not connected.

Note 3: Both a Keyboard and a trackball is required installed.



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Application/Limitation

- A dual installation of TECDIS is found to comply with the 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 support uploading of SENC delivery (CM93/3 format) via external link.
- TECDIS may optionally be connected to internet¹⁾ via a secure "web-tunnel".
- 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.

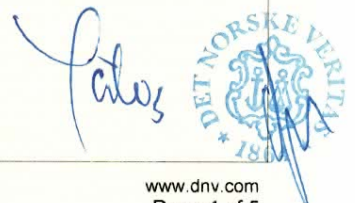
Note

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".

¹⁾a physical disconnection device (e.g. switch) shall be provided in the wheelhouse – and be properly marked

Type Examination documentation

- TECDIS operator's manual, edition 2.0
- Telko S63 Loader Manual (User Guide), edition 1.0
- TECDIS Installation Manual, edition 2.6
- TECDIS conformance test report, revision 2
- TECDIS conformance test report, revision 3
- Conformance test of ECDIS and TCS, rev.05
- Type Approval testing of MOUSE-TRAK trackball, Doc. No. E501359-2, as amended by Doc. No.: A503175
- Test Report for Furuno Inmarsat-C SES, FELCOM 15, Report No.: FLI 12-02-047
- Test Report IEC 60065, Doc. No.: 200112106
- Test Report for Furuno Terminal unit IB-583, Report No.: FLI 12-02-036
- Compass safe distance testing of loudspeakers HP-6 and HPS-6 according to IEC 60945, Doc. No.: 2005-3248 Rev.01
- Environmental test of loudspeakers HP-6 and HPS-6, Doc. No.: 3010-05-0284
- EMC and Environmental Testing of HT405P4 STD-A1, Doc. No.: 2006-3273 Rev.01
- EMC type approval testing of Maritime Rack Computers, Doc. No.: A503794-1
- Excessive conditions test of HT 205P4 STD Marine computer and JH 23T02 MIL Maritime Multi Display, Doc. No.: 2006-3363 Rev.01
- Type testing of 23 inch panel display, type JH 23T02 MMD E1, Doc. No.: 2005-3362 Rev.02
- Test report for FURUNO FEA-2X07, Doc. No.: FLI 12-04-030.
- Conformance Test Report for LCD for use in Radar and ECDIS – JH23T12MMD - Doc. No.: DOC100495-1
- Conformance Test Report for LCD for use in Radar and ECDIS – JH19T14MMD - Doc. No.: DOC100496-1
- Conformance Test Report for LCD for use in Radar and ECDIS – JH20T17MMD - Doc. No.: DOC100541-1
- EMC and Environmental Testing of JH19T14MMD, Doc. No.: 2008-3528 Rev.01
- EMC and Environmental Testing of JH20T17MMD, Doc. No.: 2008-3511 Rev.02
- EMC and Environmental Testing of JH23T12MMD, Doc. No.: 2008-3142 Rev.01
- Dry heat test of Maritime Computer type HT405P4 TEL, Doc. No.: 2008-3418 Rev.01
- Dips and interruption testing of monitor type JH 19T12 MMD-AA1-AAAA, Doc. No.: 2008-3190 Rev.02
- EMC/ Environmental Testing of JH 19T12 MMD-DA1-AAAA, Doc. No.: 2008-3146 Rev.01
- EMC/ Environmental Testing of JH 19T12 MMD-AA1-AAAC, Doc. No.: 2008-3143 Rev.01
- EMC/ Environmental Testing of HM 20T07 MIL-E1, Doc. No.: 2007-3008 Rev.01
- EMC and Environmental type testing of HD19T03MMDII-A1, 19 inch AC monitor, Doc. No.: 2006-3107, Rev.01
- EMC and Environmental type testing of Maritime computer HT C01 STD, Doc. No.: 2009-3161, Rev.02
- EMC and Environmental type testing of QWERTY keyboard and L50 Trackball, Doc. No.: 2009-3482, rev.01
- EMC and Environmental Testing of JH23T14MMD, Doc. No.: 2010-3124 rev..02
- EMC and Environmental Testing of HT C01STD-D100, Doc. No.: 2010-3243
- EMC and Environmental Testing of Furuno MU-201CE, Doc. No.: Danak-197407
- EMC and Environmental Testing of Furuno MU-231CE, Doc. No.: Danak-197408





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Type Examination documentation continued

- Conformance Test Report for LCD for use in Radar and ECDIS – JH19T14MMD, Doc. No.: DOC100828-1
- Conformance Test Report for LCD for use in Radar and ECDIS – JH20T17MMD, Doc. No.: DOC100828-2
- Conformance Test Report for LCD for use in Radar and ECDIS – JH23T12MMD, Doc. No.: DOC100828-3
- Conformance Test Report for LCD for use in Radar and ECDIS – HD19T03BOAA, Doc. No.: DOC100828-4
- Conformance Test Report for LCD for use in Radar and ECDIS – JH23T14MMD, Doc. No.: DOC100883-3
- Conformance Test Report for LCD for use in Radar and ECDIS – JH23T14MMD, Doc. No.: DOC100883-4
- Conformance Test Report for LCD for use in Radar and ECDIS – ISIC MU-201CE, Doc. No.: DOC100883-1
- Conformance Test Report for LCD for use in Radar and ECDIS – ISIC MU-231CE, Doc. No.: DOC100883-2
- Survey Report dated 7th April 2010
- Survey Report dated 9th September 2010
- Conformance test of ECDIS and TCS (EMRI) dated 16th May 2012.
- TECDIS Synchronization Installation Guide 25. June 2013
- TECDIS Synchronisztion User Guide 27. June 2013
- Conformance test of chart synchronization and new updating means dated 27. June 2013
- EMC and Environmental Testing of panel computer HD 24T21 MMC-MJD-AAB2, Doc. No.: 2011-3475 Rev.01
- EMC and Environmental Testing of Maritime Computer HT B22GE STC-C4K-M100, Doc. No.: 2013-3135 Rev.00
- EMC and Environmental Testing of Maritime Display HD 19T21 MMD-MA1-FAGA, Doc. No.: 2012-3302 Rev.02
- EMC and Environmental Testing of HD 24T21 MMD-MA1-FAGA Maritime Multi Display, Doc. No.: 2011-3481 Rev.01
- EMC and Environmental Testing of Maritime Multi Display HD 24T21 MMD-MA1-FAGA, Doc. No.: 2012-3372 Rev.0
- EMC and Environmental Testing of Maritime Display HD 26T21 MMD-MA1-FAGA, Doc. No.: 2012-3362 Rev.0
- EMC and Environmental Testing of JH 26T11 MMD-MA1-AOBC Maritime Multi Display, Doc. No.: 2011-3396 Rev. 02
- Conformance Test Report of LCD for use in Radar and ECDIS – HD 24T21 MMC-MJD-AAB2, Doc. No.: DOC101028-1 – Rev 1
- Conformance Test Report of LCD for use in Radar and ECDIS – HD 19T21 MMD-MA1-FOGA, Doc. No.: DOC101223-1 – Rev 1
- Conformance Test Report of LCD for use in Radar and ECDIS – HD 24T21 MMD-MA1-FAGA, Doc. No.: DOC101257-1 – Rev 1
- Conformance Test Report of LCD for use in Radar and ECDIS – HD 26T21 MMD-MA4-FAGA, Doc. No.: DOC101183-1 – Rev 2
- Test Report Hatteland Display Series X Corrosion Statement, Report no.: DOC101145-1 – rev 01
- Type approval test of 19" DuraMon monitor, Report No.: PX25885-1, Rev. 1: 2013-11-05
- Test for Marine Type Approval of MD26 16:10 ECDIS KM05, Report No.: DANAK-1911472
- Nemko Test Report Color Verification DuraMon 19 LED, Report no.: E13034.02
- Nemko Test Report Color Verification MD26 KM05, Report no.: E12140.02
- TECDIS Conformance test of a Electronic Chart Display and Information System ECDIS, dated 26 August 2013
- Applica test report 20316 "Interconnection test of Moxa Multiport Serial board"
- TECDIS Keypad Conformance test w/video switch'
- TECDIS Keypad user manual
- Installation Manual – TECDIS
- Installation notes - TECDIS Keypad EN
- DNV 2008-3425 "Environmental & EMC test report: Keytouch"
- NEMKO E12134.04 test Report: Enix-2067/3076/3000/2077

Place and date
HØVIK, 2014-04-22


Olaf Gundersrud





End of certificate