



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 2010/68/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-7853**

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, 2012-06-20
for **Det Norske Veritas AS**

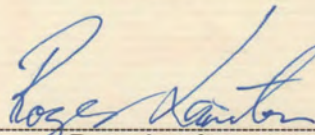


This Certificate is valid until
2015-06-08


Marianne Strand Valderhaug
Head of Department

Notified Body No.: **0575**

DNV local office:
Sandefjord


Roger Lauritsen
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-7853
Item No.: A.1/4.30
Job Id.: 344.1-000515-5

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.

Notes

- A dual installation of TECDIS is found to comply with the requirements for ECDIS with Back-up arrangements.
- TECDIS may be optionally provided with radar overlay functionality.
- TECDIS may be optionally provided with weather information overlay functionality.
- TECDIS may be optionally provided with C-Routes routing advisory functionality.
- TECDIS additionally supports loading of SENC (CM93/3 format) resulting from conversion from ENC to SENC ashore (SENC Delivery).
- TECDIS may be optionally connected to internet to provide C-Map Update Service functionality, provided that a switch is available to disconnect TECDIS from internet when C-Map Update Service functionality is not in use.

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.



Certificate No.: MED-B-7853
Item No.: A.1/4.30
Job Id.: 344.1-000515-5

APPENDIX REV. NO. 0 (PAGE 1 OF 2)

Product description

TECDIS consisting of the following components:

Main processing unit:	HT 405P4 TEL-A1 (See Note 1), or HT C01 TEL-A599, or HT C01 TEL-A596, or HT C01 TEL-D596	(Graphic card: Matrox P690) (Onboard graphics card) (Onboard graphics card) (Onboard graphics card)
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 Furuno MU-201CE, or Furuno MU-231CE, or	(19" Colour TFT) (20" Colour TFT) (23" Colour TFT) (23" Colour TFT) (19" Colour TFT) (20" Colour TFT) (23" Colour TFT)
Keyboard/ Trackball:	BTC5100C PS/2, or RCU-018, or MouseTRAK B-MPIND-XROHS, or Keytouch Panel Combo, or Keytouch Panel QWERTY, or Keytouch Panel Trackball, or Cherry G84-4100LCMGB-2	See Note 3 See Note 3 See Note 3 See Note 3 See Note 3 See Note 3
Loudspeakers:	DNH HP-6, or DNH HPS-6	See Note 2 See Note 2
Serial Interface Unit:	Moxa Opt.8F	
Software Version:		
TECDIS	4.7.1.x or 4.7.2.x (where x is 15 or upwards)	
Telko Chart Loader	2.xx	

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.

Type Examination documentation

- TECDIS operator's manual, edition 2.0
- Telko S63 Loader Manual (User Guide), edition 1.0
- TECDIS installation manual, edition 2.3
- 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



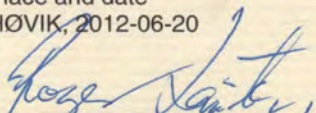
Certificate No.: MED-B-7853
Item No.: A.1/4.30
Job Id.: 344.1-000515-5

APPENDIX REV. NO. 0 (PAGE 2 OF 2)

Type Examination documentation continue

- 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
- 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.

Place and date
HØVIK, 2012-06-20


Roger Lauritsen

