



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 2002/75/EC, 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-4555

This Certificate consists of 5 pages

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

with type designation
TECDIS

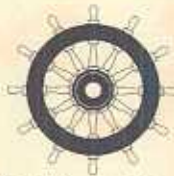
Manufacturer
Telko AS
TJØME, Norway

is found to comply with the requirements in the following Regulations/Standards:
Module B in the Directive. SOLAS 74 as amended, IMO Res.A 817(19) as amended by MSC.64(67) Annex 5 and by MSC.86(70) Annex 4, IMO Res A.694(17).

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

Place and date
Høvik, 2007-12-07

for DET NORSKE VERITAS AS



This Certificate is valid until
2012-12-07

Notified Body No. 0575

Kristen Ulveseter
Kristen Ulveseter

Manager, MTPNO370

Department Systems & Components

Arve Lepsøe
Arve Lepsøe

Surveyor

DNV local office:
DNV Sandefjord



Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Cert. No.: MED-B-4555
Job Id.: 344.1-000515-1
Item No.: A.1/4.30

Product description

See Appendix.

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

Application/Limitation

- The ECDIS shall be supplied by an Uninterruptible Power Supply (UPS) in accordance with TECDIS Installation manual.
- 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.
- The TECDIS has been additionally assessed, and found compliant with, the recommendations of SN/Circ.217 and relevant parts of SN/Circ.243.
- TECDIS may be optionally provided with radar overlay functionality.

Type examination documentation

See Appendix.

Tests carried out

- Performance testing, IEC 61174 (2001), including Annex G
- Environmental testing, IEC 60945 (2002)
- Serial interface testing, IEC 61162 (2000)

Marking of product

TECDIS

Each unit shall be marked with:


- Unit Name/ model
- Serial number
- Compass safe distance



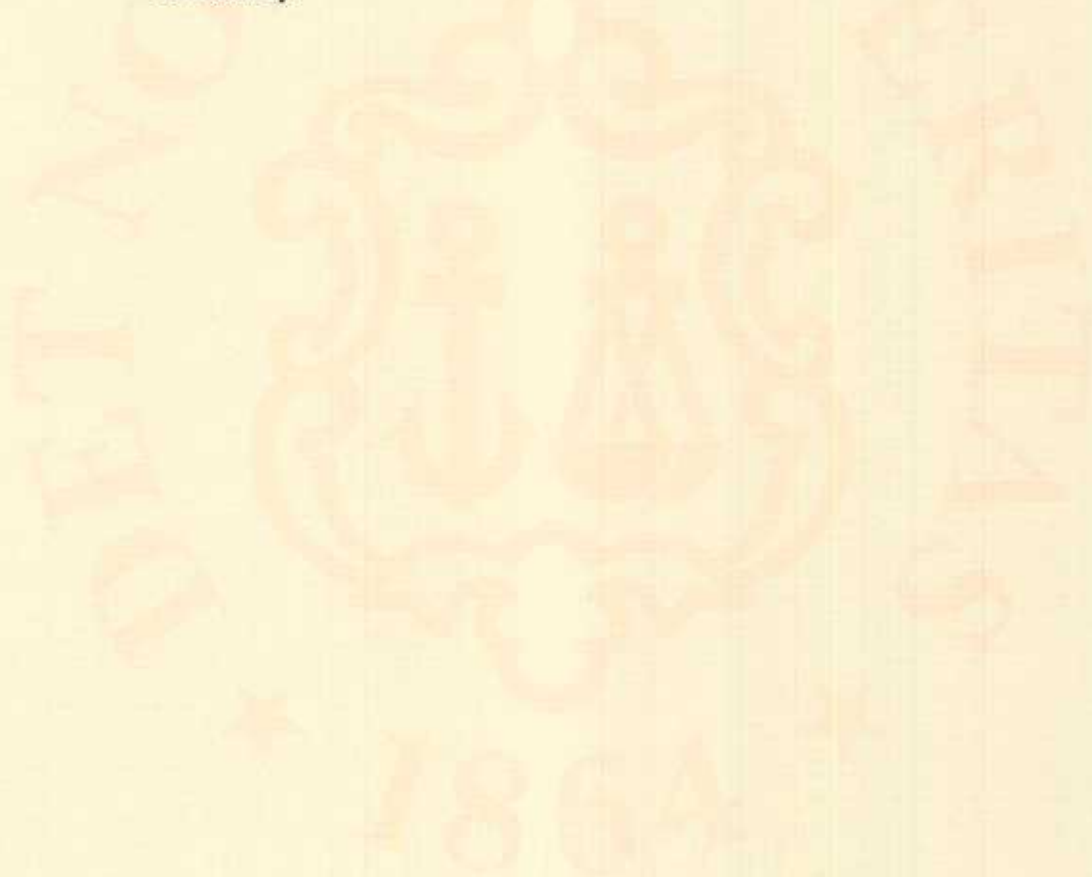


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Mark of conformity

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 shall issue a Certificate of Conformity.





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

Product description

TECDIS consisting of the following components:

Main processing unit:	HT 403P4 TEL-A1 (Note 1), or HT B04PM TEL-A1 (Note 2), or HT 405P4 TEL-A1 (Note 3)	(Graphic card: Matrox G450) (Graphic card: Matrox G450) (Graphic card: Matrox P650)
Display unit:	JH 20T04 MMD-E1, or JH 20T04 MMD-E11, or JH 20T06 MMD-E1, or JH 20T06 MMD-E11, or JH 19T02 MMD-E1, or JH 19T02 MMD-E11, or JH 23T02-MMD E1, or JH 23T02-MMD E11	(20" Colour TFT) (20" Colour TFT w/buzzer) (20" Colour TFT) (20" Colour TFT w/buzzer) (19" Colour TFT) (19" Colour TFT w/buzzer) (23" Colour TFT) (23" Colour TFT w/buzzer)
Keyboard:	BTC5100C PS/2	
Trackball:	RCU-018 (optionally)	(only with HT405P4 TEL-A1)
Loudspeakers:	MouseTRAK B-MPIND DNH HP-6, or DNH HPS-6	See Note 4 See Note 4
Serial Interface Unit:	Moxa Opt.8F	
Software Version:	4.6.x	

Note 1: HT403P4TEL-A1 only to be used in combination with JH20T04MMD-E1/E11 or JH19T02MMD-E1/E11.

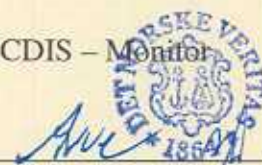
Note 2: HTB04PMTEL-A1 only to be used in combination with JH20T04MMD-E1/E11 or JH19T02MMD-E1/E11.

Note 3: HT405P4TEL-A1 not to be used in combination with JH20T04MMD-E1/E11.

Note 4: Loudspeaker is required only when display unit does not contain buzzer.

Type Examination documentation

- TECDIS operator's manual, edition 1.9
- TECDIS installation manual, edition 1.8
- TECDIS conformance test report, revision 2
- Conformance test of ECDIS and TCS, rev.05
- ECDIS Colour Verification and Acoustic noise and signals test report, Doc. No.: DOC100132 Rev.1
- ECDIS Colour verification test report, Doc. No.: DOC100193-1
- Conformance test report of a flat panel display for use as Radar – and ECDIS – Monitor , Type JH19T02 MMD E1, Doc. No.: 4612/4300107/05/S3330, rev.02
- Conformance test report of a flat panel display for use as Radar – and ECDIS – Monitor , Type JH23T02 MMD E1 , Doc. No.: 46162/0070335/07/S3330



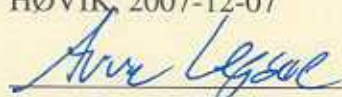


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- EMC/ Environmental Testing of Personal computer HT403P4 STD-A1, Doc. No.: 2004-3139 Rev.01
- EMC/ Environmental Testing Blackbox HTB04PM STD-A1 and HTB04PM STD-A2/24, Doc. No.: 2004-3511 Rev.01
- Type Approval testing of 20.1 inch Maritime Multi Display with remote control and external video and power, Doc. No.: E500247
- Type testing of 19 inch panel display type JH19T02 MMD E1, Doc. No.: 2005-3112 Rev.01
- 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
- Type testing of 20 inch panel display, type JH 20T06 MMD E1-AC, Doc. No.: 2005-3125 Rev.01
- 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.

Place and date
HØVIK, 2007-12-07


ARVE LEPSØE



END OF CERTIFICATE