



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-5186**

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

with type designation(s)
Navi Sailor 4000 ECDIS MFD; Navi Sailor 4100 ECDIS MFD

Manufacturer
Transas Ltd.
CORK, Ireland

is found to comply with the requirements in the following Regulations/Standards:
Module B in the Directive SOLAS 74 as amended, IMO Res. MSC232(82), IMO Res A.694(17)
IMO Resolution MSC 191(79)

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

Høvik, 2009-04-29
for Det Norske Veritas AS

Eivind Mykland
Head of Department



Notified Body No.: **0575**

This certificate is valid until
2014-04-29

Arve Lepsøe
Surveyor

DNV local office:
DNV Gothenburg



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.



Certificate No.: MED-B-5186
Item No.: A.1/4.30
Job Id.: 344.1-000932-5

Product description

Unit	Location
- Main Processing Unit	Protected
- Operating and control unit	Protected
- Display unit	Protected

As detailed in 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 NAVI SAILOR 4000/ 4100 Installation Guide.
- The installation shall be verified and tested onboard according to NAVI SAILOR 4000/ 4100 Installation Guide.
- A single NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD may cover multiple SOLAS carriage requirements only when accepted on case-by-case basis.

Notes

- The NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD is provided with the additional facility NAVI CONNING 4000.
- The NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD is provided with the additional facility Alarm Monitoring System 4000.
- A dual installation of NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD is found to comply with the requirements for ECDIS with Back-up arrangements.
- NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD is found to comply with the requirements for ECDIS in RCDS mode of operation when using HCRF and BSB raster navigational chart data formats.
- NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD may be optionally connected to the Saab R4 AIS and may in such case replace the R4 Keyboard and Display unit.
- NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD has been additionally assessed and found compliant with the requirements for Electronic Logbook functionality given in IMO Res. A.916(22).

Type Examination documentation

- See Appendix.

Tests carried out

- Performance testing, IEC 61174 (2008)
- Environmental testing, IEC 60945 (2002)
- Serial interface testing, IEC 61162-1 (2007)
- Performance testing, presentation, IEC 62288 (2008)
- Performance testing, Electronic Logbook, IMO Res.A 916(22)

Marking of product

The product shall be marked in a visible location

- Transas Ltd
- NAVI SAILOR 4000 ECDIS MFD or NAVI SAILOR 4100 ECDIS MFD
- Added marking in accordance with individual type approval certificates





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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 also shall issue a of Certificate Conformity.



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Product description

NAVI SAILOR 4000 ECDIS MFD and NAVI SAILOR 4100 ECDIS MFD consisting of the following components:

- Main processing unit: RS 4 v2*, or RS 6**
- Operating and control unit: ES2, or ES 3, or ES 4, or ES 6
- Display units w/ RS 4 v2: JH19T02MMD (19" Color TFT), or JH19T01MMD (19" Color TFT), or JH20T04MMD (20" Color TFT), or JH23T02MMD (23" Color TFT)
- Display units w/ RS 6: JH19T02MMD-E1/ E2 (19" Color TFT), or JH19T14MMD-DAE/AAE (19" Color TFT), or JH23T02MMD-E1/ E2 (23" Color TFT), or JH23T12MMD-AAE (23" Color TFT), or JH27T11MMD-AAE (27" Color TFT), or HD19T03FTBE+HDMMD01-A02 (19" Color TFT)
- Data Collector Unit DCU 6 (Optionally)
- Radar Integrator Board w/RS4v2: RIB 2 (Optionally)
- Radar Integrator Board w/ RS 6: RIB 6 (Optionally)
- Connection box for RIB2: HF box (Optionally)
- Connection box for RIB2: LF box (Optionally)
- Log pulse machine: BABOONE4 – RS (Optionally)
- 2 channel NMEA isolated- RS422 – isolated dual RS232C: RABBIT 6 (Optionally)
- Moxa EtherDevice Switch***: EDS 308 (Optionally)
- Moxa EtherDevice Switch***: EDS 316 (Optionally)
- HP Procurve Ethernet Switch***: 2312 (Optionally)
- Uninterruptible Power Supply: UPS6 (Optionally)
- Software Version: 2.00.xxx
- Presentation Library version: 3.4
- Operating system: Windows XP with SP 2

* RS 4 v2 Main processing unit may be provided with either Graphics Media Accelerator 950 onboard adaptor or MATROX MILLENIUM G550 graphics card.

** RS 6 Main processing unit is provided with onboard GeForce 9600M GT graphics card.

*** The Ethernet Switch may be installed for enabling additional ECDIS slave station(s).



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Type Examination documentation

- Navi-Sailor 4000/ 4100 ECDIS (v. 2.00.009). User manual
- Navi-Sailor 4000/ 4100 ECDIS (v. 2.00.009). Additional functions
- Navi-Sailor 4000/ 4100 ECDIS (v. 2.00.009). Functional description
- Navi-Sailor 4000/ 4100 ECDIS (v. 2.00.009). Installation guide
- Navi-Sailor 4000/ 4100 ECDIS (v. 2.00.009). Quick reference
- Navi-Sailor 4000/ 4100 ECDIS (v. 2.00.009). Utilities
- Navi-Sailor 4100 ECDIS (v. 2.00.009). Special functions
- Data flow diagram, Doc. No. Dflow_ECDIS, rev. 1
- Data flow diagram, Doc. No. Dflow_MFD, rev. 1
- ECDIS Test Report, Rev. 2, January 2003
- ECDIS Test Report, Rev. 2, December 2005
- NAVI SAILOR 4000 Performance test report, including supplement, Doc. Rev. 1
- ECDIS Colour Verification Test Report for JH19T01MMD-E1, Rev. 1, April 2003
- ECDIS Colour Verification Test Report for JH23T02MMD-E1, Rev. 1, April 2003
- ECDIS Colour Verification Test Report for JH20T04MMD-E1, Rev. 1, August 2004
- ECDIS Colour Verification Test Report for JH19T02MMD-A1, Rev. 1, February 2006
- EMC tests on IPC-2B08 MARINE, Doc. No.: P103004-1A
- Environmental testing of computer IPC-2B08-MARINE, Doc. No.: P103004:A
- EMC tests on RIB, Doc. No.: P103004-1D
- Type Approval testing of 19.0 inch Maritime Multi Display, Doc. No.: E500053
- Type test for Monitor for ECDIS in acc. with IEC 61174, Doc. No.: 6542/080208-0/01
- Type Approval testing of 23.1 inch Maritime Multi Display, Doc. No.: E500508
- Type Approval testing of 20.1 inch Maritime Multi Display, Doc. No.: E500247
- Environmental testing of Radar Integrated Board, Doc. No.: P103004:D
- EMC tests on ES2, Doc. No.: P103004-1C
- Environmental testing of Keyboard ES2, Doc. No.: P103004:C
- EMC test report, Serco, Doc. No.: 0023/02
- EMC test report, Serco, Doc. No.: 0066/01
- Compass safe distance, Doc. No.: BSH certificate 329
- Report on the Electromagnetic immunity of electronic equipment, Doc. No.: 0048/04
- Report on the Electromagnetic immunity of electronic equipment, Doc. No.: 0073/04
- Report on the Electromagnetic immunity of electronic equipment, Doc. No.: 0078/04
- Test Report TR 2700—145-005
- Type approval testing of ES3 Keyboard Unit, Doc. No.: E501386-1
- ECDIS Test Report, November 2006
- ECDIS Colour Verification Test Report for JH19T02MMD and JH23T02MMD, Rev. 1, December 2006
- EMC test of ER 2402, Doc. No. P603990-01
- Environmental testing of Computer ER-2402-Marine, Doc. No. P603990
- Determination of compass safe distance for magnetic and electric equipment, Doc. No. MTKP603990-03
- Environmental test file, Doc. No. TL826
- Environmental/ EMC testing of JH19T02 MMC-A1, Doc. No. 2004-3369, Rev.02
- DNV Certificate A-10413
- DNV ECDIS Test, Doc. No. WD4_Test_Report_ECDIS_DNV_TA_03-11-2008
- Addendum to DNV ECDIS Test, Doc. No. DNV_ECDIS Test_Report_08-01-2009
- 2nd Addendum to DNV ECDIS Test, Doc. No. DNV_ECDIS Test_Report_16-01-2009
- Environmental testing of Computer ER-2402-MARINE according to IEC 60945, rev.4, Doc. No. P801312
- RS6 Compass safe distance test report, Doc. No. M TkP804227-03
- RS6 EMC test report, Doc. No. P804227-01
- RS6 Environmental test report, Doc. No. P804227
- Environmental test of keyboard, trackball and RIB6, Doc. No. P804517
- Determination of compass safe distance for a magnetic and electric equipment, Doc. No. MTKP801312-03
- Conformance test report of JH23T12MMD-AA1-AAAA for use in ECDIS and RADAR, Doc. No. DOC100504-1





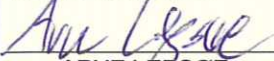
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Type Examination documentation

- Conformance test report of JH19T14 for use in ECDIS and RADAR, Doc. No. DOC100505-1
- Conformance test report of JH23T02 for use in ECDIS and RADAR, Doc. No. DOC100538-1
- Environmental and EMC testing of MOXA Ethernet Switches, Doc. No. TL1016
- RS6 and DCU IEC61162 compliance test report, Doc. No. 2008-11-21
- EMC Test of DCU, Doc. No. F813527
- EMC and Environmental testing of JH23T12 MMD-AA1-AAAA, Doc. No. 2008-3142
- EMC and Environmental testing of JH19T12 MMD-AA1-AAAC, Doc. No. 2008-3143
- EMC and Environmental testing of JH19T12 MMD-DA1-AAAA, Doc. No. 2008-3146
- EMC and Environmental testing of JH19T14 MMD-AA1-AOAA, Doc. No. 2008-3528
- EMC Testing of Maritime RIB6, Doc. No. 2008-3536
- EMC Testing of ES6, Doc. No. 2008-3521, rev.02
- Type testing of 19 inch panel display type JH19T02MMD-E1, Doc. No. 2005-3112
- Type testing of 19 inch panel display type JH19T02MMD-E4, Doc. No. 2005-3111
- Conformance test report of JH19T02 for use in ECDIS and RADAR.
Doc. No. DOC100539-1
- Conformance test report of HD19T03 for use in ECDIS and RADAR.
Doc. No. DOC100540-1
- Conformance test report of JH27T11MMD-AA1 for use in ECDIS and RADAR.
Doc. No. DOC100629-1
- Type Approval testing of 23.1 inch Maritime Multi Display, Doc. No.: E500508-2
- EMC and Environmental type testing of HD19T03 MMDII-A1, Doc. No. 2006-3249
- EMC testing of UPS system, Doc. No: E082558E1
- Environmental testing of UPS system, Doc. No: U082558E1
- Compass safe distance, BSH certificate, Doc No: 581
- RIB6 Compass safe distance test report, Doc. No. M TkP804517-01a
- ES6 Compass safe distance test report, Doc. No. M TkP804517-01b
- EMC and Environmental type testing of JH27T11 MMD, Doc. No. 2008-3464 Rev.2
- Additional Environmental testing of UPS system, Doc. No: U082558E3

Place and date
HØVIK, 2009-04-29



ARVE LEPSØE
Senior Surveyor



END OF CERTIFICATE