



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-7912**

This is to certify that the
Heading control system for high speed craft

with type designation(s)
AP70, AP80

Manufacturer
Navico Holding AS
EGERSUND, Norway

is found to comply with the requirements in the following Regulations/Standards:
Annex A.1, item No. A.1/4.40 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation X/3, IMO Res. A.694(17) & A.822(19), 2000 HSC Code 13 and IMO Res. MSC.191(79)


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

Høvik, 2012-08-21
for Det Norske Veritas AS



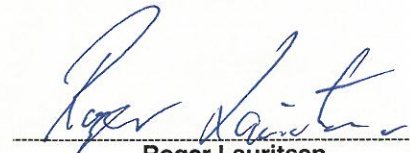
This Certificate is valid until
2017-08-21

Notified Body No.: **0575**



Marianne Strand Valderhaug
Head of Department

DNV local office:
Stavanger



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-7912
Item No.: A.1/4.40
Job Id.: 344.1-003397-1

Product description

See Appendix

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

Application/Limitation

- Installation to be performed in accordance with manufacturers installation manuals.
- A change-over control from automatic to manual steering shall be provided and located easily accessible to the officer of the watch.
- AP70/80 have been verified to comply with relevant requirements for a heading repeaters according to ISO 8728 and 16328.

Type Examination documentation

See Appendix

Tests carried out

- Environmental tests, IEC 60945 (2002)
- Serial Interface tests, IEC 61162-1 (2010) and IEC 61162-2 (1998)
- Performance testing, presentation, IEC 62288 (2008)
- Performance tests, HCS, ISO 11674 (2006)
- Performance tests, HCS for High Speed Crafts, ISO 16329 (2003)
- Performance tests, Heading repeater, ISO 8728 (1997) sec. 4.3-4.5 & 6.8.
- Performance tests, Heading repeater for High Speed Crafts, ISO 16328 (2001) sec. 4.4-4.6 & 6.8.

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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APPENDIX Rev. No. 0 (Page 1 of 1)

Product description

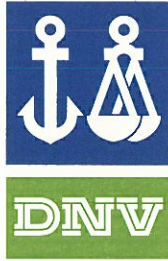
AP70 / AP80 Heading control systems consist of the following component :

| Unit | Description | Sw ver. | Location |
|--|--|--|--|
| Operator units: AP70 and/or AP80 | Control Unit Control Unit | 1.0.40.70 1.1.xx | Exposed Exposed |
| Remote operator units: QS80 (optional) FU80 (optional) NF80 (optional) R3000X (optional) JS10 (optional) S35 (optional) S9 (optional) | Non follow up quick stick lever Follow up lever Non follow up lever Portable remote control Non Follow up lever Non Follow up lever Non Follow up lever | 1.1.xx 1.1.xx 1.1.xx NA NA NA NA | Exposed Exposed Exposed Portable Protected Exposed Exposed |
| Computers: AC80A or AC80S or AC85 or SI80 and AD80 and/or SD80 | With AD80 and SI80 board With SD80 and SI80 board) With SI80 and optional boards - AC70,AD80,SD80 With SI80 interface board With AD80 board With SD80 board | 1.1.xx 1.1.xx 1.1.xx 1.1.xx 1.1.xx 1.1.xx | Protected Protected Protected Protected Protected Protected |
| Network units: CZone SG05 | Network interface EVC gateway | 2.x 1.1.xx | Protected Protected |
| Sensors (optional) : RC42N CD100A CDI80 GI51 RF300 RF45X RF14XU RF25N | Monitor compass (not for steering) Course detector Course detector Gyro compass interface Rudder feedback unit Rudder feedback unit Rudder feedback unit Rudder feedback unit | 1.3.xx NA 1.1.xx 1.2.xx NA NA NA 1.2.xx | Protected Exposed Protected Protected Exposed Exposed Exposed Exposed |

Type Examination documentation



| DNV No. | Doc. Ref. | Description |
|---------|-----------------|---|
| 22 | | Manual: AP70/AP80 Installation Manual |
| 23 | | Manual: AP70/AP80 Operator Manual |
| 25 | | Manual: FU80, NF80, QS80 User Guide |
| 3 | 20221594/Cb | Manual: Simrad G151 Gyro interface |
| 15 | 2012-3214 rev 2 | Report: DNV, Environmental testing of AP70/80 Autopilot system |
| 8 | 96_1013 | Report: DNV, Type testing of SIMRAD AP9 |
| 5 | 2004-3514 | Report: DNV, Type tests of items for Simrad AP50 |
| 6 | 2003-3440 | Report: DNV, Type tests of items for Simrad AP50 |
| 7 | 2002-3131 | Report: DNV, Type tests of items for Simrad AP50 |
| 12 | 120501_1 | Report: EMC Tech., EN60945 tests for Simrad AC70 Autopilot computer |
| 14 | 120513_1 | Report: EMC Tech., EN60945 tests for Simrad AD80 Autopilot computer |
| 9 | 111002_1 | Report: EMC Tech., EN60945 tests for Simrad AP70 Autopilot |
| 10 | 111029_1 | Report: EMC Tech., EN60945 tests for Simrad AP80 Autopilot |



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Type Examination documentation continues

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|----|----------------|--|
| 13 | 120507_1 | Report: EMC Tech., EN60945 tests for Simrad FU80, NF80 & QS80 Autopilot remotes |
| 11 | 120414_1 | Report: EMC Tech., EN60945 tests for Simrad SI80 & SD80 Autopilot system |
| 18 | TNH20120601-01 | Report: Navico, AP70/AP80 autopilot system, Excessive voltage test |
| 20 | TNQ20120601-01 | Report: Navico, AP70/AP80 autopilot system, FMEA |
| 19 | TNP20120601-01 | Report: Navico, AP70/AP80 autopilot system, ISO performance tests inc. rudder angle indicator and heading repeater |
| 17 | TAP20120605-1 | Report: Navico, Medusa AC70 NMEA0183 Receiver test |
| 2 | 199949289 | Report: NEMKO, EMC Test report, AP9 MK3 Standard system |
| 16 | T1106-1 | Report: Uniservices, Sound pressure measurements of Simrad AP80 (PV2) Autopilot |

Place and date
HØVIK, 2012-08-21


Roger Lauritsen

