

# 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-7837**

This is to certify that the  
**Heading control system (HCS)**

with type designation(s)  
**AP70, AP80**

Manufacturer  
**Navico Holding AS**  
**EGERSUND, Norway**

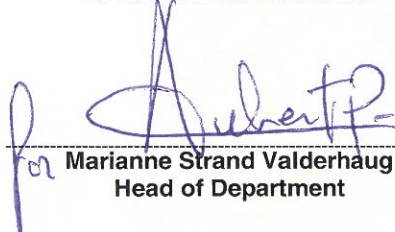
is found to comply with the requirements in the following Regulations/Standards:  
Annex A.1, item No. A.1/4.16 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation V/18 & V/19, IMO Resolution A.342 (IX) & A.694(17) and IMO Resolution MSC. 64(67) Annex 3 & 191(79)

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

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

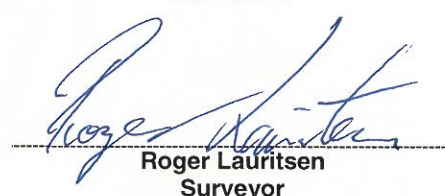


This Certificate is valid until  
**2017-08-21**

  
Marianne Strand Valderhaug  
Head of Department

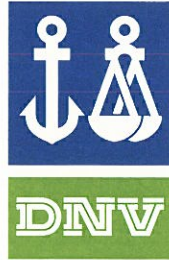
Notified Body No.: **0575**

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-7837  
Item No.: A.1/4.16  
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 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.

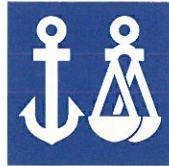
Module E: The quality system for inspection and testing shall be approved by the Notified Body.

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.

## USCG Approval

An U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of certificates of conformity for marine equipment" signed 17 October 2005.



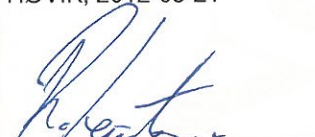


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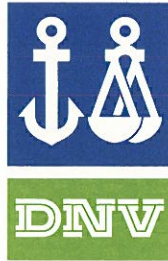
### Type Examination documentation continues

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





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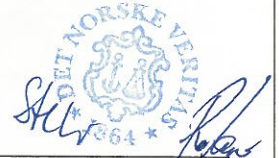
APPENDIX Rev. No. 0 (Page 1 of 1)

**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 G151 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