

TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MERB000038V
Revision no.:
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This Certificate is issued by DNV UK Limited based on authorisation of the Maritime & Coast Guard Agency (MCA) as an UK Approved Body to undertake conformity assessments on marine equipment in accordance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 as amended.

This is to certify:

that the **Speed and distance measuring equipment (SDME)**

with type designation(s)

NAVIKNOT Types: 350 E, 350 EE, 450 D, 450 DD, 550 DD, 600 S, 600 SD, 600 SDD, 600 SDT and 600 SE

issued to

Sperry Marine B.V. - German Branch
Hamburg, Germany

is found to comply with the Regulation (UK) **MSN 1874 Amendment 10** for
Item no. **UK/4.7 (Row 2 of 2)**

according to the following requirements:

**SOLAS 74 Reg. V/19, IMO Res. A.694(17), IMO Res. A.824(19), IMO Res. MSC.191(79), IMO Res. MSC.302(87),
SOLAS 74 Reg. V/18, SOLAS 74 Reg. X/3, IMO Res. MSC.36(63)-(1994 HSC Code) 13, IMO Res. MSC.97(73)-(2000
HSC Code) 13**

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

Date of issue: **2025-08-21**

Expiry date: **2030-08-20**

DNV local unit:
Hamburg – CMC
North/East

Approval Engineer:
Jörg Rebel



Approved Body No.: **0097**



for **DNV UK Ltd.**

Digitally Signed By:

Christine Mydlak-Röder

Christine Mydlak-Röder
MER Service Responsible



**Maritime &
Coastguard
Agency**

UK Approved Body Authorised
by the MCA

This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.

During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved Body.

"The Mark of Conformity" may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an approved body. In case limitations of use apply, these should be indicated in the Annex.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Please see Appendix: Product Description

Application/Limitation

Speed and distance through the water only: 350 E, 350 EE, 450 D, 450 DD
Speed and distance over ground only: 600 S

Type Examination documentation

Please see Appendix: Type Examination Documentation

Tests carried out

- Environmental and EMC testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Interface testing: IEC 61162-1 (2016), IEC 61162-2 (1998) and IEC PAS 61162-103 (2021)
- Presentation testing: IEC 62288 (2021)
- Bridge alert management testing: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Performance testing: IEC 61023 (2007)

Marking of product

According to IEC 60945, Sect.4.9:

The product to be marked with following information, where practicable:

- Identification of the manufacturer,
- Equipment type number or model identification under which it was type tested,
- Serial number of the unit,
- Compass safe distance.

Alternatively, the marking may be presented on a display at equipment start-up, and in case of fixed equipment compass safe distance may be given in the equipment manual.

APPENDIX

Type Examination documentation

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Document No.	Rev.	Title
07/7003-1-1	2007-02-08	Report: EMC tests acc. to IEC60945, Sects. 9 and 10
6052b/07	2007-04-03	Report: Environmental tests acc. to IEC 60945, Sects. 8.2 to 8.4 and 8.7
GL 07 05 01	2007-04-12	Report: Performance tests acc. to IEC 61023
-	B, 2015-08-13	Report: Display test acc. to IEC 62288
-	A, 2015-08-14	Report: Integration and speed and distance measurement tests acc. to IEC 61023 for NAVIKNOT 600 S
139-18	2018-05-18	Report: EMC tests acc. to IEC 60945, 9 and 10
066-18	2018-05-08	Report: Vibration tests acc. to IEC 60945, 8.7 and DNVGL-CG-0339, 3[6.2]
5029-0141-02	C	Report: Speed accuracy tests acc. to IEC 61023, 5.12
5029-0141-03	A	Report: Environmental tests acc. to IEC60945, 8.2 to 8.4
5003-0141-04	A	Report: BAM compliance tests acc. to IEC 61924-2 (Module A and C) and to CDV IEC 62923-2 (2017-09)2
5029-0141-04	A	Report: Test Change Log
5003-0141-07	A	Report: Gap analysis for Bradge Alert Management compliance acc. to IEC 62923-1/-2 (2018)
197-21	2021-08-05	Report: Treo, Tests according to IEC 60945, Sects. 9, 10 and 11.2
5003-0141-08	A3	Report: NG Sperry Marine, Tests acc. to IEC 62288 (2021), 4.4.1 and 7.2.1
5003-0141-09	A1	Report: NG Sperry Marine, Test summary acc. to IEC 60945 and IEC 62288 (2021)
5003-0141-10	A1	Report: NG Sperry Marine, Tests acc. to IEC 61162-1, B.4.9.2 for DDC sentence acc. to IEC PAS 61162-103 (2021)
5003-0141-13	A	Report: Sperry Marine, Re-tests according to IEC 62923-1, 6.3.6, 6.3.7, 6.4.3, 6.4.6, 8.1.6, and integration tests for satellite antenna NAVISTAR 2
5003-0141-14	A	Report: Sperry Marine, Performance tests according to IEC 61023, 5.12 for satellite antenna NAVISTAR 2
5003-0141-12	A	Report: Sperry Marine, Test summary report for integration of satellite antenna NAVISTAR 2 to NAVIKNOT (IEC 60945, IEC 62923-1, IEC 61023)
056380	H	Manual: Service manual for NAVIKNOT 600 S, 600 SE and 600 SD GNSS antenna retrofit procedures
056381	H	Manual: Service manual for NAVIKNOT 600 SDT and 600 SDD GNSS antenna retrofit procedures
5003-0141-15	C	Report: Sperry Marine, Test report for sea trials and vehicle test - Performance of NAVISTAR 2
5003-0141-17	A	Report: Sperry Marine, Test report for integration of NAVISTAR 2 antenna to NAVIKNOT EU
11121-1S	2013-09-11	Report: LabTest, Tests for NAVISTAR 2 acc. to IEC 60945, 8.2 to 8.4, 8.7, 8.8 and 11.2
11121-1E	2013-05-28	Report: LabTest, EMC tests for NAVISTAR 2 acc. to IEC 60945, 9 and 10
-	2013-09-06	Statement: ComNav, Corrosion waver acc. to IEC 60945, 8.12

056345	L2	Manual: Operation, installation and service manual for NAVIKNOT 350E
056346	J2	Manual: Operation, installation and service manual for NAVIKNOT 450D with SRD331
056347	K2	Manual: Operation, installation and service manual for NAVIKNOT 450DD with SRD331
056354	J2	Manual: Operation, installation and service manual for NAVIKNOT 550DD
056366	H2	Manual: Operation, installation and service manual for NAVIKNOT 350EE
056377	G2	Manual: Operation, installation and service manual for NAVIKNOT 600S with GNSS 5003
056378	G2	Manual: Operation, installation and service manual for NAVIKNOT 600SE with GNSS 5003
056379	G2	Manual: Operation, installation and service manual for NAVIKNOT 600SD with GNSS 5003 and Preamplifier 5005
056394	D2	Manual: Operation, installation and service manual for NAVIKNOT 450D with Preamplifier 5029
056414_	A2	Manual: Operation, installation and service manual for NAVIKNOT 600 S Ground speed log with GNSS antenna NAVISTAR 2
056396	D2	Manual: Operation, installation and service manual for NAVIKNOT 600SD with GNSS 5003 and Preamplifier 5029
056395	D2	Manual: Operation, installation and service manual for NAVIKNOT 600SD with GNSS 5004
056412	A2	Manual: Operation, installation and service manual for NAVIKNOT 600 SD Combined speed log with GNSS antenna NAVISTAR 2 and Doppler transducer
056415	A2	Manual: Operation, installation and service manual for NAVIKNOT 600 SE Combined speed log with GNSS antenna NAVISTAR 2 and electromagnetic sensor

APPENDIX

Product Description

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For the speed and distance measuring equipment (SDME) NAVIKNOT following types are existing:

Type: 350 E, 350 EE,
Single-axis water speed electromagnetic (EM) speed log system

Type: 450 D, 450 DD
Single-axis water speed Doppler speed log system

Type: 550 DD
Dual-axis water and ground speed Doppler speed log system

Type: 600 S
Dual-axis ground speed satellite speed log system

Type: 600 SD, 600 SDD, 600 SDT
Single-axis water speed Doppler and dual axis ground speed satellite speed log system

Type: 600 SE
Single-axis water speed electromagnetic (EM) and dual axis ground speed satellite speed log system

The SDME types 350 E, 350 EE, 450 D, 450 DD, 550 DD, 600 S, 600 SD, 600 SDD, 600 SDT and 600 SE consist of following main components:

<i>Main component</i>	<i>Part number</i>	<i>Software Rev.</i>	
Control and Display Unit (CDU)	073506-0000-xxx	3.x (x ≥ 100)	OR
CDU in Housing with Brackets	073507-0000-xxx	3.x (x ≥ 100)	
Electronics Unit	073522-0000-xxx	4.x (x ≥ 101)	

With following output interfaces:

6 x NMEA acc. to IEC 61162-1

5 x 10, 100, 200, 400 or 20.000 pulses/nm

Analogue speed output (0...10V and 4...20mA)

Log failure and power failure alarm (n.c.)

Speed limit relay output to limit the rudder angle on steering gear

Watch alarm trigger output for Bridge Navigational Watch Alarm Systems (BNWAS)

Bidirectional alert interface acc. to IEC 62923-1

And of following system components:

<i>System component</i>	<i>Part number</i>	<i>Software Rev.</i>
Preamplifier D	073523-0000-xxx	01.x
Preamplifier E	073458-0000-xxx	n/a
GNSS Antenna NAVISTAR 2	060461-0000-xxx	G2-1.7.x
EM Sensor FNF I	073188-0000-xxx	
EM Sensor FNF I (speed ≥ 35 knots)	074218-0000-xxx	
EM Sensor FNF II	073314-0000-xxx	
EM Sensor FNF III	073447-0000-xxx	
EM Sensor NF	073266-0000-xxx	
Doppler Transducer	022827-0000-xxx	
Doppler Transducer	025832-0000-xxx	
Doppler Transducer	025833-0000-xxx	
Doppler Transducer (18 m cable)	074893-0000-xxx	
Doppler Transducer (40 m cable)	074894-0000-xxx	
Doppler Transducer (60 m cable)	074895-0000-xxx	

And of following optional speed indicators:

<i>Speed indicator</i>	<i>Part number</i>	<i>Size</i>	<i>Range</i>
Speed indicator, console mounting	060381-0000-xxx	96x96mm	-5...+25kn
Speed indicator, console mounting	060382-0000-xxx	96x96mm	-5...+40kn
Speed indicator, console mounting	060383-0000-xxx	96x96mm	-5...+60kn
Speed indicator, console mounting	060384-0000-xxx	144x144mm	-5...+25kn



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Speed indicator, console mounting	060385-0000-xxx	144x144mm	-5...+40kn
Speed indicator, console mounting	060386-0000-xxx	192x192mm	-5...+25kn
Speed indicator, in housing with bracket	060387-0000-xxx	144x144mm	-5...+25kn

<i>Optional speed indicator</i>	<i>Part number</i>	<i>Software Rev.</i>
Universal Digital Repeater UDR	074833-0000-xxx	≥ 3.x
UDR in housing with bracket	074834-0000-xxx	≥ 3.x
Multifunctional NAV Data Repeater	SM-XDI192N	
Multifunctional NAV Data Repeater	SM-XDI144N	
Serial I/O Module	SM-XDI-NX1	
Serial I/O Module	SM-XDI-NX2	
Analogue Extension Module	SM-XDI-AX1	