

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00001Y0
Revision No:
2

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

That the Speed and distance measuring equipment (SDME)

with type designation(s)
Skipper DL850

Issued to

Skipper Electronics AS
Oslo, Norway

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2020/1170**,

item No. MED/4.7. SOLAS 74 as amended, Regulations V/18, V/19 & X/3, IMO Res. A.694(17), IMO Res. A.824(19), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.302(87)

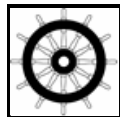
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-02-12**.

Issued at **Høvik** on **2021-03-08**

DNV local station:
Norway CMC, East-South

Approval Engineer:
Steinar Kristensen



Notified Body
No.: **0575**

for **DNV AS**

Roald Vårheim
Head of Notified Body

A 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, and amended by Decision No 1/2019 dated February 22nd, 2019.



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-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

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 300,000 USD.



Product description

Hardware modules:

- DL850 operator unit (dual axis)
- DL850 Transceiver unit
- DL850 Transducer unit/ sensor

Type/ part no.:

- DL850x-xx
- DL850Tx-xx
- DL850Sxx-xx

Software modules:

- SW version 4.04.xx

Optional Features

- Remote dimming control
- Digital speed and distance repeater
SW version 1.xx
- Digital speed and distance repeater
SW version 1.xx
- Digital multi repeater
- Digital speed and distance repeater

Type:

- IR30DIM
- IR300
- CD401LR
- CD 401 MR
- UDD SAM 4900

Application/Limitation

- The certificate is also valid for the Speed and distance measuring equipment with the following type designation:
 - Doppler speed log SAM 4682
 - Doppler speed log SAM 4683 (with docking function)
 - Kelvin Hughes DL850
- The digital repeaters IR300, CD401LR and UDD SAM 4900 are approved for installations in exposed (outdoor) areas.
- The DL850 supports optional docking function.
- The SDMEs covered by this certificate do not issue alerts, hence testing according to IEC 62923-1 and IEC 62923-2 is deemed as not being applicable.

Type Examination documentation

DNV GL No	Document ID	Rev.	Description
10051	TAA000015T		Certificate: DNV GL, CD 401 MR
10050		13.01.2017	Report: Additional testing for Display standards for GDS101, GDS102, DL850, EML224, CD401
10048	DM-D002-SC	1650	Manual: DL850 (270 kHz) Operation and Installation Manual
10046	138720		Report: Survey report- IEC 61162 (2010) testing
10045	E08583.00		Report: NEMKO, Tests acc. to EN60945 (2002)
10044		23.02.2009	Report: Operational tests for DL850 Doppler Log Operation Unit
10036		20050511C sw.1.27.11	Manual: EML224 Installation and Operating Manual
10034	Nov 2006		Report: Dry Heat Storage Test for EML224S
10033	BL9233T614	00	Report: Atlas, Environmental test report SAM 4642
10032	December 2006		Report: Performance test for DL850 with DL270S sensor (sea tests)
10031	December 2006		Report: Sea performance tests report EML224
10029	July 2006		Report: Pressure test EML224 sensor
10028	Dec 2006		Report: Performance test for DL850 Doppler log with DL270S sensor
10024	Nov. 2006		Report: Pressure test DL270S sensor for DL850
10023	E06184.00		Report: Nemko, IEC 60945 test of DL270S
10020	October 2006		Report: Performance test report for DL850 doppler log with docking function

DNV GL No	Document ID	Rev.	Description
10019	October 2006		Report: Integration test for SAM 4900 UDD with GDS101, GDS102 and DL850
10012	Several		Reports: Test reports for SAM 4900
10010	22185		Report: NEMKO, Test report - EN 60945
10007	20030710	A1	Report: Performance test program IR300
10006	20050408	sw1.4	Manual: IR300 Digital Speed and Distance Repeater. Operating and Installation Manual
10005	DANAK-196857		Report: DANAK, Type approval tests ED-165, IR-300, IR-301
10004	2000-1363	2	Report: DNV, EMC and environmental testing of Skipper marine electronic units
10003	20001108		Performance test program for DL850 dual Axis Speed Log
10002	20050930C		Manual: Skipper DL850 2 Axis Doppler log Service Manual

Tests carried out

- Environmental Tests: IEC 60945 (2002) incl Corr.1 (2008)
- Performance Tests: IEC 61023 (2007)
- Serial Interface Tests: IEC 61162-1 (2016)
- Display performance tests: IEC 62288 (2014)

Marking of product

- Skipper DL850, or
- Doppler speed log SAM 4682, or
- Doppler speed log SAM 4683, or
- Kelvin Hughes DL850

The type designation and name and contact address of the manufacturer shall be affixed visibly, legibly and indelibly to the product. In addition the product shall be marked with serial number, safe distance to magnetic compass, power consumption and/or supply voltage.