

TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB0000896
Revision No:
0

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 VHF radio installation capable of transmitting and receiving DSC and radiotelephony

with type designation(s)
FM-8900S

Issued to

Furuno Electric Co., Ltd.
Nishinomiya, Japan

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

Regulation **MSN 1874 Amendment 6**,
item No. UK/5.1. SOLAS 74 as amended, Reg. IV/7, 14 & X/3, IMO Res. A.385(X), A.524(13), A.694(17), A.803(19), MSC.36(63), MSC.97(73), MSC.302(87), IMO MSC/Circ.862, MSC.1/Circ.1460, COMSAR/Circ.32, ITU-R M.489-2 (10/95), 493-15 (01/19), 541-10 (10/15)

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

This Certificate is valid until **2028-01-12**.

Issued at **London** on **2023-01-13**

DNV local unit:
Kobe



for **DNV UK Ltd.**

Approval Engineer:
Steinar Kristensen

Approved Body No.: **0097**

Christine Mydlak-Röder
MER Service Responsible



Maritime &
Coastguard
Agency

UK Approved Body Authorised
by the MCA

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. The product liability rests with the manufacturer or his representative in accordance with the Merchant Shipping (Marine Equipment) Regulations 2016.

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 This certificate remains valid unless suspended, withdrawn, re-called, or cancelled.

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

The FM-8900S VHF radiotelephone with integrated DSC and ch. 70 Watch keeping receiver consists of the following units:

Unit	Type/Part no.	Comment/ Description	Location
Main unit	FM-8900S	VHF simplex/ semi-duplex Radiotelephone, main unit with 4,3" LCD user interface, bracket mount and external interfaces. Interfaces: <ul style="list-style-type: none"> • 24V DC input power • Antenna Units, Rx/Tx and Ch.70 • External speaker • Handset • Junction box for <ul style="list-style-type: none"> ○ Alarm Unit ○ Wing handsets ○ Remote stations ○ Digital output and ○ RS422 NMEA in/out 	Protected
Handset	HS-2003		Protected
Handset cradle	FP05-05510		Protected
Accessories			
Handset	HS-6000	Handset	Protected
Remote Handset	HS-8900 or HS-8900-W	Remote handset Watertight remote handset, IP56	Protected Protected ¹⁾
Junction box	IF-8900		Protected
Remote station	RB-8900 or RB-8900-W	Remote station Watertight remote station, IP56	Protected Protected ¹⁾
Handset hanger	HG-8900 or HG-8900-W	Handset hanger Watertight Handset hanger, IP56	Protected Protected ¹⁾
Power Supply	PR-240 or PR-241 or PR-300	AC/DC Power Supply Units	Protected
Alarm Unit	IC-350		Protected
Printer	PP-510 or PP-520 or PP-8800A		Protected
Printer Interface	IF-8500		Protected
Microphone receptacle box	RBD-VHF(B)		Protected
Speaker	SEM-21Q	External loudspeaker	Protected
VHF console	RC-8900		Protected

Location specifies the location for the units according to IEC 60945 (2002).

Software modules
FM-8900S

Version
0550249-05.xx

¹⁾ The equipment meets the requirements of IP56 as specified in IEC 60529(1989)+A1(1999)+A2(2013)

Application/Limitation

The following applies for the FM-8900S VHF radiotelephone:

- Shall be installed according to manufacturer's User & Installation Manual.
- Operating frequency range: 155.0-164,2 MHz (Rx), 155.0-161.6 MHz (Tx).
- Modulation methods: 16K0G3E, 16K0G2B.
- Maximum output power: 25W, 1W rated.
- DSC classification: Class A, integrated channel 70 watch-keeping receiver.
- Utilizes channel-set in accordance with Appendix 18 of WRC-2019.
- Complies with Automatic Transmitter Identification System (ATIS) when channel-set for Europe Inland Waterways have been selected.

Type Examination documentation

DNV No	Document ID	Rev.	Description
32	12603045 001	2006-11-27	Report: TÜV Rheinland Japan, IEC 60529 IP5X (dust) test report for RB-8810-W Remote station
29	FLI 12-14-114	2015-01-30	Report: Labotech, ETSI EN 301 925 V1.4.1 test report for FM-8900S Marine VHF Radiotelephone
25	N 17.11	2011-12-26	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.3.1, ETSI EN 300 338-2 V1.3.1, ITU-R M.493-13(2009), IEC 61162-1 (2007) test report for VHF DSC Class A FM-8900S
24	N 17.11 Amd.3	2011-12-26	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.3.1, ETSI EN 300 338-2 V1.3.1, ITU-R M.493-13(2009), ITU-R M.541-9(2004), ITU-R M.689-2(1994) test report for VHF DSC Class A FM-8900S
23	N 17.11 Amd.2	2011-12-26	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.3.1 (Clause 10) test report for VHF DSC Class A FM-8900S
22	N 17.11 Amd.1	2011-12-26	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.3.1, ETSI EN 300 338-2 V1.3.1, ITU-R M.493-13(2009), ITU-R M.541-9(2004), IEC 61162-1 (2010) test report for VHF DSC Class A FM-8900S
21	N 12.16	2016-09-06	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.3.1, ETSI EN 300 338-2 V1.3.1, ITU-R M.493-14(2015), ITU-R M.541-10(2015), IEC 61162-1 (2010) and IMO Res. A.803(19) test report for VHF DSC Class A FM-8900S
20	N 10.17	2017-10-06	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.4.1, ETSI EN 300 338-2 V1.4.1, ITU-R M.493-14(2015), IEC 61162-1 (2016) and IMO Res. A.803(19) test report for VHF DSC Class A FM-8900S
19	N 03.22	2022-01-28	Report: RES Laboratory Ltd, ETSI EN 300 338-1 V1.6.1, EN 300 338-2 V1.5.1 and ITU-R M.493-15(2019) test report for VHF DSC Class A FM-8900S
18	N 14.21	2021-08-05	Report: RES Laboratory Ltd, Bridge Alert Management test report for VHF DSC Class A FM-8900S
17	LIC 12-20-122	2020-10-22	Report: Labotech, IEC 60945 Excessive conditions, acoustic noise and dangerous voltage test report for PR-241 Power supply unit
16	LIC 12-20-121	2020-10-22	Report: Labotech, IEC 60945 Temperature and vibration test report for PR-241 Power supply unit
15	LIC 12-20-120	2020-10-22	Report: Labotech, IEC 60945 EMC test report for PR-241 Power supply unit
14	LIC 12-20-119	2020-10-22	Report: Labotech, IEC 60945 Compass safe distance test report for PR-241 Power supply unit
13	LIC 12-18-106	2018-12-13	Report: Labotech, IEC 61162-1 Ed.5 test report for MF/HF Radiotelephone FS-1575/FS-2575/FS-5075
12	LIC 12-17-087	2017-09-08	Report: Labotech, ETSI EN 301 843-1 V2.2.0 and ETSI 301 843-2 V2.2.0 test report for FM-8900S
11	FLI 12-12-081	2012-09-05	Report: Labotech, IEC 60945 test report for PP-520 Printer
10	FLI 12-12-061	2012-04-13	Report: Labotech, ETSI EN 301 925 V1.3.1 Spurious emission test report for FM-8900S
8	FLI 12-12-012	2012-02-29	Report: Labotech, IEC 61162-1 Ed.3 test report for VHF Radiotelephone FM-8900S
7	FLI 12-11-131	2012-03-12	Report: Labotech, IEC 60945/ ETSI EN 301 925 test report for VHF Radiotelephone FM-8900S
6	FLI 12-06-057	2006-11-10	Report: Labotech, Rain and Spray test report for Remote Station RB-8810-W
5	20114676302	2012-03-02	Report: Telefication, Radio Test report based on EN 300 698-1 V1.4.1 for FM-8900S

DNV No	Document ID	Rev.	Description
4	20114676301	2.0	Report: Telefication, Radio Test report based on EN 300 338-1 V1.3.1, EN 300 338-2 V1.3.1 and EN 301 033 V1.3.1 for FM-8900S
3	20114676300	3.0	Report: Telefication, Radio Test report based on EN 301 925 V1.3.1 for FM-8900S
2	OME-56800-L	2022-06-24	Manual: Furuno, Operator's Manual for VHF Radiotelephone FM-8900S
1	IME-56800-K1	2022-02-25	Manual: Furuno, Installation Manual for VHF Radiotelephone FM-8900S

Tests carried out

- Performance tests: ETSI EN 300 338-1 V1.6.1
ETSI EN 300 338-2 V1.5.1
- EMC and radio test: ETSI EN 301 843-2 V2.2.1
ETSI ETS 301 925 V1.6.1
- Environmental tests: IEC 60945 (2002) incl. Corr.1 (2008)
- Interface tests: IEC 61162-1 (2016)
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)

Marking of product

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.