

EC-TYPE EXAMINATION CERTIFICATE

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive 2014/93/EU, issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Directorate. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Radar equipment CAT 2

with type designation(s)
FAR-1518(-BB)/FAR-1528(-BB)

Issued to

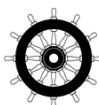
Furuno Electric Co., Ltd.
Nishinomiya Hyogo Pref, Japan

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

Annex A.1, item No. A.1/4.35 and Annex B, Module B in the Directive. SOLAS 74 as amended, Regulation V/18 & V/19, IMO Res A.278(VIII) & A.694(17), IMO Res MSC. 191(79) & 192(79), ITU-R M.1177-4 (04/11)

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

Høvik, 2016-01-27
for **DNV GL AS**



This Certificate is valid until
2021-01-26

Notified Body No.: **0575**

Vidar Dolonen
Vidar Dolonen

DNV GL local office:
Kobe

Olaf Gundersrud
Surveyor

Product description

The Radar FAR-1518/1518-BB, FAR-1528/1528-BB consist of the following units:

Unit	Location
Main processing unit	Protected
Display unit	Protected
Operation Panel /control unit(s)	Protected
Antenna unit	Exposed

For details, see Appendix.

Application/Limitation

- The FAR-radar shall be installed and tested onboard in accordance with the Installation Manual IME-36380-Z10 (or later version)
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Type Examination documentation

- See Appendix.

Tests carried out

- IEC62388(2013)
- IEC61162-1(2010)
- IEC61162-2(1998)
- IEC62288(2014)
- IEC60945(2002) as amended

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(ATA)

The TT-part (ATA) of this product has been assigned a **U.S. Coast Guard Module B number** 165.116/EC0575 to note type approval to Module B only as it pertains to obtaining US Coast Guard approval 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. The RADAR equipment used with ATA must have a separate U.S. certification.

APPENDIX PAGE 1 OF 2

Job Id: **344.1-004741-1**
Certificate No: **MEDB00000FC**

Product description:

The Radar FAR-1518/FAR-1518-BB/FAR-1528/FAR-1528-BB comprises combinations of the following units:

Unit	Model Name	Components	Remark
Processing Unit	RPU-024		
Data Interfaces	(embedded)	2 ports	IEC61162-2/IEC61162-1
	(embedded)	4 ports	IEC61162-1
	RGB output	1 port	To VDR
Display Unit (VDU)	MU-190		DVI connection
Control unit Trackball control unit ¹⁾	RCU-028 RCU-030 ¹⁾		¹⁾ Option
Antenna unit (12 kW)	XN12AF-RSB-120-100 XN12AF-RSB-121-100 XN20AF-RSB-120-100 XN20AF-RSB-121-100	(Scanner/Gear/ -Transceiver)	
Antenna unit (25 kW)	XN20AF-RSB-120-101 XN20AF-RSB-121-101 ²⁾ XN24AF-RSB-120-101 XN24AF-RSB-121-101 ²⁾	(Scanner/Gear/ -Transceiver)	²⁾ applicable for HSC (48 rpm)
Performance monitor	PM-32A		
Switching HUB	HUB-100		Option
Software versions	0359296-01.xx(PM)	Antenna unit	
	0359344-01.xx(SPU)	Processor unit	
	0359348-01.xx(KEY)	Control unit	
	1.xx	Display unit	

Type Examination documentation:

DNV No.	Document No.	Rev.	Document Title
43	K03-17-1877		FAR-3xx0; DNV type approval testing report for Pending items
42	K03-17-1538		FCR-2xx9: DNV type approval testing report for Pending items
41	FLI 12-10-039	3	Test report(IEC62288 and IEC62388) MU-190
40	FLI-12-10-068	1	Test report(IEC60945) Monitor unit MU-190
31	K03-17-2100	1	IEC62388; - Result of TT and Association Scenario test
30	FLI12-15-044	1	IEC62288 ed.2.0 test of MU-150HD
29	BSH/6522/1114-8/2004		Conformance test of FAR-2xx7 RADAR series
27	K03-17-2263		FAR-15x8 Radar Antenna Pattern Data
25	3 August 2015		Test report IMO RADAR; STCW FAR-15x8 function test report.
24	K03-17-2162		Performance in sea and rain clutter
23	K03-17-2130		Software correction report
22	MLG-36380-Z7		Operator's guide
21	IME-36380-Z10		Installation manual

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Job Id: **344.1-004741-1**
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Type Examination documentation (cont.):

DNV No.	Document No.	Rev.	Document Title
20	OME-36380-Z12		Operator's manual
19	Applica 20587	0	Performance testing of two radar systems
18	BSH.4543.4342577.13-1	1.0	Test report FURUNO FAR-2xx7 (IEC 62388 Ed.2)
17	K03-17-2129		Detection performance of a navigation buoy
15	K03-17-2099	1.02	Radar TA Test procedure
11	FLI12-15-042		Electromagnetic radiofrequency radiation test report
10	FLI12-15-027		Test report IEC61162-1/-2
9	FLI12-15-026		Test report IEC60945
8	FLI12-15-025		EMC test report
7	FLI12-15-024		Compass Safe Distance
4	QinetiQ/15/00826	V1.1	Unwanted emission measurements of Furuno radar systems FUR(X)207, FUR(X)208, FUR(X)209

Place and date
HØVIK, 2016-01-27

Olaf Gundersrud

End of Certificate