

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00000FC
Revision No:
6

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 GL AS under the authority of the Government of Norway.

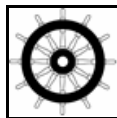
This is to certify:**That the Radar equipment**with type designation(s)
FAR-1518(-BB)/FAR-1528(-BB)Issued to
Furuno Electric Co., Ltd.
Nishinomiya, Hyogo Pref, Japan

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2018/773**,
item Nos. MED/4.35/4.36. SOLAS 74 as amended, Regulations V/18 & V/19, IMO Res. A.278(VIII), IMO Res. A.694(17), IMO Res. MSC.191(79), IMO Res. MSC.192(79), IMO Res. MSC.302(87), ITU-R M.1177-4 (04/11)

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

This Certificate is valid until **2021-08-17**.

Issued at **Høvik** on **2018-08-28**

DNV GL local station:
Kobefor **DNV GL AS**Approval Engineer:
Olaf GundersrudNotified Body
No.: **0575****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.

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 GL 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



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Product description

The radars 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-15x8(-BB) radar is found to be in compliance with the standards RADAR for ships; CAT 2 and CAT 3 (reliant on the monitor installed, ref. Appendix).
- The FAR-15x8(-BB) radar shall be installed and tested onboard in accordance with the Installation Manual IME-36380-E11 (or later version)

Type Examination documentation

- See Appendix.

Tests carried out

- IEC62388(2013)
- IEC61162-1(2016)
- 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.

USCG Approval for ATA/EPA(CAT2/CAT3)

The product has been assigned a **U.S. Coast Guard Module B number**, USCG approvals 165.116/EC0575 and 165.117/EC0575 as applicable, 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 transceivers are not covered by the agreement and must have separate U.S. certification for installation on U.S. flagged vessels

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APPENDIX

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
Monitor unit(s) (CAT2 & CAT3)	MU-190 or JH 19T14 FUD-xA1-xxxx ¹⁾ or JH 19T14 MMD-MA1-AABA ¹⁾ or JH 20T17 FUD-xA1-AOAA ¹⁾ or HD 19T22 FUD-MA1-xxxx ¹⁾		¹⁾ DVI connection
Optional monitor units(s) (CAT3)	MU-150HD or MU-152 or HD 15T22 FUD-MA1-xxxx ¹⁾ or JH 15T17 FUD-xA1-AOAA ¹⁾		
Control unit Trackball control unit ²⁾	RCU-028 RCU-030 ²⁾		²⁾ Option
Antenna unit	12 kW	XN12AF-RSB-120-100 XN12AF-RSB-121-100 ³⁾ XN20AF-RSB-120-100 XN20AF-RSB-121-100 ³⁾	(Scanner/Gear/ -Transceiver) ³⁾ applicable for HSC (48 rpm)
	25 kW	XN20AF-RSB-120-101 XN20AF-RSB-121-101 ³⁾ XN24AF-RSB-120-101 XN24AF-RSB-121-101 ³⁾	
Performance monitor	PM-32A		
Switching HUB	HUB-100		Option
<i>Software versions</i>	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:

NPS No.	Document No.	Rev.	Document Title
102 ⁴⁾	LIC 12-17-074		MU-152 IEC62288 -CSD report
101 ⁴⁾	LIC 12-17-073		MU-152 IEC62288 -test report
100 ⁴⁾	LIC 12-17-072		MU-152 IEC60945 others -test report
99 ⁴⁾	LIC 12-17-071		MU-152 IEC60945 test report
98 ⁴⁾	LIC 12-17-070		MU-152 EMC test report
83 ⁴⁾	Applica 21122	0	HD19T22 MMD-MA1-FOGA-ES: EMC radiated emission
82 ⁴⁾	Applica 21089	0	HD19T22 MMD-MA1 -EMC-FAGP-ES: EMC testing
81 ⁴⁾	170421001T		HD19T22 MMD-MA1 -EMC-FAGP-ES: EMC & environmental testing

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Type Examination documentation (cont.):

NPS No.	Document No.	Rev.	Document Title
80 ⁴⁾	170703002T		HD19T22 MMD-MA1 -EMC-FHGA-ES-1: EMC & environmental testing
82	K03-17-2700		Type approval testing report FAR-1518(-BB)/1528(-BB)
57	DELTA-L102798-4751/2/3		Test of flicker from 17,19,20 inch monitor for use as ECDIS monitor
56	DOC101909-1	04	Keypad P004511-1 Minimum brightness measurement
53	DOC102116-2		IEC62288: JH 20T17 MMD-AA1-AABA-HW06
52	DOC102116-3		IEC62288: JH 19T14 MMD-MA1-SABA-HW09
51	DOC101909-1	3	Hatteland Displays: KeyPad P004511-1: minimum brightness measurement
50	DNV 2008-3511	2	IEC60945: JH 20T17 MMD-AA1-AABA
49	DNV 2013-3038		IEC60945: JH 19T14 MMD-MA1-AAAA
48	DNV 2008-3528		IEC60945: JH 19T14 MMD-AA1-AOAA
47	DNV 2009-3442	2	IEC60945: JH 19T14 MMC-AA1-AABR
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-E11		Installation manual
20	OME-36380-D11		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

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Type Examination documentation (cont.):

NPS No.	Document No.	Rev.	Document Title
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

⁴⁾The NPS document number refers to NPS-folder 344.1-006649