

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00000FD
Revision No:
5

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 Radar equipment for high speed craft applications (CAT 2H)

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

Issued to

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

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

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

item No. MED/4.37. SOLAS 74 as amended, Regulation X/3, IMO Res. A.278(VIII), IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.192(79), IMO Res. MSC.302(87), IMO MSC.1/Circ.1349, ITU-R M.1177-4 (04/11)

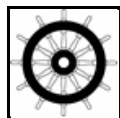
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-08-22**.

Issued at **Høvik** on **2021-08-23**

DNV local station:
Oshima

Approval Engineer:
Frederik Tore Elter



Notified Body
No.: **0575**

for **DNV AS**

Sverre Olav Bergli
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

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-15x8(-BB) radar is found to be in compliance with the standards for high speed craft RADAR CAT 2H.
- The FAR-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

- IEC 60945:2002 incl. Corr. 1:2008
- IEC 62388 (2013)
- IEC 61162-1 (2016)
- IEC 61162-2 (1998)
- IEC 62288 (2014)
- IEC 62923-1 (2018) and IEC62923-2 (2018)

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.

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 |
| Display Unit (VDU) | MU-190 or JH 19T14 FUD-xA1-xxxA 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 |
| Control unit Trackball control unit | RCU-028 RCU-030 ²) | | ² Option |
| Antenna unit 12 kW | XN12AF-RSB-121-100 XN20AF-RSB-121-100 | Scanner/Gear/ Transceiver | |
| 25 kW | XN20AF-RSB-121-101 XN24AF-RSB-121-101 | | |
| Performance monitor | PM-32A | | |
| Switching HUB | HUB-100 | | Option |
| Software versions | Antenna unit | 0359296-01.x(PM) | |
| | Processor unit | 0359344-02.xx(SPU) | |
| | Control unit | 0359348-01.xx(KEY) | |
| | Display unit | 1.xx | |

Type Examination documentation:

| NPS No. | Document No. | Rev. | Document Title |
|-------------------|----------------------|------|-------------------------------------------------------------------------------------------------------|
| 83 ³) | Applica 21122 | 0 | HD19T22 MMD-MA1-FOGA-ES: EMC radiated emission |
| 82 ³) | Applica 21089 | 0 | HD19T22 MMD-MA1 -EMC-FAGP-ES: EMC testing |
| 81 ³) | 170421001T | | HD19T22 MMD-MA1 -EMC-FAGP-ES: EMC & environmental testing |
| 80 ³) | 170703002T | | HD19T22 MMD-MA1 -EMC-FHGA-ES-1: EMC & environmental testing |
| 82 | K03-17-2700 | | Type approval testing report FAR-1518(-BB)/1528(-BB) |
| 101 | IME-36380-F12 | F11 | Manual: Furuno Installation Manual Model: FAR 15x8 series |
| 100 | OME-36380-E12 | E11 | Manual: Furuno OPERATOR'S MANUAL Model: FAR 15x8 series |
| 96 | K03-17-3402 | 1.03 | Report: Furuno IEC62923: DNVGL type testing report MARINE RADAR - FAR 2xx8 series and FAR 15x8 series |
| 57 | DELTA-L102798-4752/3 | | Test of flicker from 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 |

APPENDIX

Type Examination documentation (cont.):

| NPS No. | Document No. | Rev. | Document Title |
|---------|-----------------------|------|----------------------------------------------------------------------------------------|
| 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 | | FCR-3xx0; DNV type approval testing report for Pending items |
| 42 | K03-17-1538 | | FAR-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 |
| 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 |

³⁾The NPS document number refers to NPS-folder 344.1-006649