

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00008BV

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 **Inmarsat-C SES**

with type designation(s)
FELCOM20

issued to

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

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

Regulation **(EU) 2024/1975**,

item No. **MED/5.13. SOLAS 74 as amended, Regulations IV/10, IV/14 & X/ 3, IMO Res. A.570(14), A.664(16), A.694(17), A.807(19), IMO Res. MSC.36(63), MSC.97(73), MSC.302(87), MSC.306(87), IMO MSC/Circ.862, IMO COMSAR Circ.32, IMO Res. MSC.191(79)**

In addition:

IMO Res. MSC.147(77) Revised performance standards for a ship security alert system (SSAS)
IMO Res. MSC.263(84) Revised performance standard and functional requirements for the long range identification and tracking of ships (LRIT)

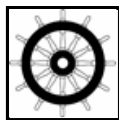
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2030-03-27**.

Issued at **Høvik** on **2025-03-28**

DNV local unit:
Japan CMC

Approval Engineer:
Steinar Kristensen



Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
Head of Notified Body



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 FELCOM20 Inmarsat-C SES provides Global Maritime Distress and Safety System (GMDSS) services through the Inmarsat Satellite System, and consists of the following units:

Unit	Type/Part no.	Comment/ Description	Location
Terminal Unit	IC-220	Terminal unit with display and bracket mount. Interfaces: 12~ 24V DC input power - Antenna Unit - Keyboard - Junction box for connection of - Alarm Unit - Distress Alert/Received Call unit/Alarm unit - SSAS Alert Unit - RS422 NMEA in/out	Protected
Antenna Unit	IC-120		Exposed
Junction box	IC-318		Protected
Alert buttons	IC-305	Distress alert/ received call unit	Protected
Keyboards	TK-HG01UMBK	Keyboard	Protected
Options			
Antenna Unit	GPA-022S	Antenna unit for GNSS signal	Exposed
Power Supply	PR-240 or PR-241	AC/DC Power Supply Unit, 100-230V AC/ 24V DC input, 24V DC/10A output	Protected
Alarm Unit	IC-306		Protected
Alarm Unit	IC-350		Protected
SSAS Alert unit	IC-307	SSAS Alert Button	Protected
Printer	PP-520	Adapter for connection to GMDSS printer, 36 pin connector	Protected

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

Software modules

IC-220

Version

01.xx

Application/Limitation

The following applies to the FELCOM20 Inmarsat-C SES:

- Shall be installed according to manufacturer's User & Installation Manual.
- Is classified as SES Class 2 with shared Inmarsat-C and EGC receiver.
- Includes, as an option, an integrated Global Positioning System (GPS) receiver for position fixing.
- Has been tested as Ship Security Alert System, as an option, in accordance with the requirements specified in IMO Res. MSC.147(77)- Revised performance standards for Ship Security Alert System (SSAS).
Coverage area will be as defined by Inmarsat-C service coverage area, approximately corresponding to between 70° North and 70° South.
- Has been tested for Long-Range Identification and Tracking (LRIT), as an option, in accordance with the relevant requirements for shipborne equipment in IMO Res. MSC.263(84)- Revised performance standards and functional requirements for the Long-Range Identification and Tracking of ships, using Inmarsat as Communication Service Provider (CSP).
- Operating frequency range: Rx: 1537.0-1544.2 MHz, TX: 1626.5-1646.5 MHz
- Modulation method: BPSK.
- Maximum output power: 12 to 16 dBW EIRP rated.
- Is compliance with IMO Res. A.807(19), as amended by Res. MSC.68(68).
- Meets the requirements in the Annex to IMO Res. MSC.513(105) section 2.2 for operation in the presence of an interfering signal (ref Inmarsat Change Notice CN150), and section 3 for Operation.
- The FELCOM20 with function for Enhanced Group Calling (EGC) receiver is covered by separate certificate MEDB000087D.

Type Examination documentation

DNV No	Document ID	Rev.	Description
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10	LIC 12-24-054	2	Report: Labotech, IEC 60945 Compass Safe Distance test report for FELCOM20 Inmarsat-C
11	LIC 12-24-055	3	Report: Labotech, IEC 60945 excessive conditions, acoustic noise and signals and emissions from VDU report for FELCOM20 INMARSAT-C
12	LIC 12-24-056	2	Report: Labotech, IEC 61097-4 Annex B.1- Unwanted emissions test report for FELCOM20 INMARSAT-C
13	LIC 12-24-057	1	Report: Labotech, IEC 61162-1 test report for FELCOM20 INMARSAT-C
14	LIC 12-24-058	1	Report: Labotech, IEC 61162-450 test report for FELCOM20 INMARSAT-C
15	LIC 12-24-066	3	Report: Labotech, IEC 60945 EMC test report for FELCOM20 INMARSAT-C
16	LIC 12-24-053	3	Report: Labotech, IEC 60945 Environmental test report for FELCOM20 Inmarsat-C
17	OME-55810-Z16	Z16	Manual: Furuno, Operator's Manual for FELCOM20 Inmarsat-C MES
18	IME-55810-Z18	Z18	Manual: Furuno, Installation Manual for FELCOM20 Inmarsat-C MES
20	4FE110	2025-01-10	Certificate: Viasat, Type Approval certificate for FELCOM20 Inmarsat-C
21	K16-17-896	2025-02-28	Report: Furuno, IEC 61097-4 test report for FELCOM20 INMARSAT-C (PART 1)
22	K16-17-907	2025-03-20	Report: Furuno, IEC 61097-4 test report for FELCOM20 INMARSAT-C (PART 2, Annex B2-B4, Physical)
23	K16-17-899	2025-03-20	Report: Furuno, IEC 61162-1 (2024) test report for FELCOM20 INMARSAT-C
24	K16-17-904	2024-10-11	Report: Furuno, IEC 62729 LRIT Physical test report for FELCOM20 INMARSAT-C
25	K16-17-897	2024-10-11	Report: Furuno, IEC 62729 LRIT test report for FELCOM20 INMARSAT-C
26	K16-17-898	2024-10-11	Report: Furuno, MSC.147(77) SSAS test report for FELCOM20 INMARSAT-C
27	LIC 12-24-068	2	Report: Labotech, IEC 60945 Test Report for Operational checks, Maintenance Manuals and Markings for FELCOM20 INMARSAT-C
28	K20-17-1570	2	Report: Furuno, DNV type approval testing report for GP-170 GPS/GLONASS/DGPS/DGLONASS maritime radio beacon receiver
30	K16-17-903	2025-01-24	Report: Furuno, DNV type approval testing report according to IEC 61108-1/-2 for FELCOM20
31	K16-17-900	2025-03-28	Report: Furuno, IEC 61162-450 (2024) test report for FELCOM20 INMARSAT-C
32	LIC 12-24-069	1	Report: Labotech, IEC 62288 test report for FELCOM20 Inmarsat-C
33	K16-17-901	2025-03-28	Report: Furuno, DNV type approval testing report according to IEC 62923-1/-2 for FELCOM20
34	AME-55810-Z10	Z10	Manual: Furuno, Adjustment Manual for FELCOM20 INMARSAT-C MES

Tests carried out

- Performance tests: IEC 61097-4 (2012) incl. Amd.1 (2016) and Amd.2 (2019)
- Environmental tests: IEC 60945 (2002) incl. Corr.1 (2008)
- Interface tests: IEC 61162-1 (2016) and IEC 61162-450 (2018)
- Presentation of information: IEC 62288 (2021)
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Long-Range Identification and Tracking (LRIT): IEC 62729 (2012)
- Ship Security Alert (SSAS): IMO Res. MSC.147(77)

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.