



TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB00008HE
Revision No:
2

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 Electronic chart display and information system (ECDIS)

with type designation(s)
FMD-3005

Issued to

Furuno Electric Co., Ltd.
Nishinomiya, Japan

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

Regulation **MSN 1874 Amendment 9,**

item No. UK/4.30. SOLAS 74 as amended, Regulations V/18, V/19, V27 & X/3, IMO Res. A.694(17), IMO Res. MSC.36(63), IMO Res. MSC.97(73), IMO Res. MSC.191(79), IMO Res. MSC.232(82), IMO Res. MSC.302(87), IMO MSC.1/Circ.1503 Rev.1 or 2.

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

This Certificate is valid until **2026-08-20**.

Issued at **London** on **2024-09-09**

DNV local unit:
Japan CMC



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

This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.

During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved 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-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. In case limitations of use apply, these should be indicated in the Annex.

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 FMD-3005 consist of the following units:

Unit	Location
Main Computer Unit	Protected
Monitor Unit (VDUs)	Protected
Operation Panel/ Control Panel	Protected
Interface Unit	Protected

For details, see Appendix.

Application/Limitation

- The ECDIS may be configured as a single workstation or a system of multiple workstations.
- A dual installation of the Furuno ECDIS FMD-3005 may comply with the SOLAS requirements for ECDIS with Back-up arrangements.
- The ECDIS may be operated in RCDS mode of operation using HCRF or BSB4 chart data format.
- The ECDIS may be interfaced with RADAR.
- The ECDIS may be interfaced with NAVTEX.
- The ECDIS may be interfaced with VDR via Ethernet in accordance with IEC61996-1 annex G.
- The DVI interface shall be used for video signal transfer between Main Computer Unit and Monitor Unit.
- The ECDIS shall be installed and tested in accordance with the Installation Manual FMD-3005

Note 1:

The ECDIS may optionally support MFD including an alarm management system (AMS) and conning information display (CID). Appropriate installation drawings and alert list shall be submitted for approval as requested. AMS is tested to comply with IEC 62923-1 (2018) and IEC 62923-2 (2018) for CAM

Type Examination documentation

- See Appendix.

Tests carried out

- Performance: IEC 61174 (2015)
- Interface: IEC 61162-1 (2016)
- Interface: IEC 61162-2 (1998)
- Interface: IEC 61162-450 (2018)
- Presentation: IEC 62288 (2021)
- Environmental: IEC 60945 (2002) incl. Corr.1, 2008
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)

Note:

The ECDIS testing included the optional scenarios for use in polar waters (latitude>85°) in accordance with IEC61174 Annex P.

Marking of product

The name and contact address of the manufacturer and type designation of the product shall be affixed to the equipment in a clearly visible location. 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 ECDIS FMD-3005 comprises combinations of the following components:

Unit	Model Name	Components	Remark
Main Computer Unit	EC-3005	Mother board: ADP-219-01 Intel HD Graphics P630, SSD & CF, DVD-drive, USB-ports	
Monitor Unit (VDU)	MU-190 or MU-192 or MU-231 or MU-201CE or MU-231CE or MU-270W or WE270FU or JH19T14FUD-xx4 or JH20T17FUD-xx4 or JH23T14 FUD-xx4 or HD19T22 FUD-xx4 or HD24T22 FUD-xx4 or HD26T21 MMD-xx4 or HD26T22 FUD-xx4 or HD27T22 FUD-xx4 or HD32T22 FUD-xx4 or HD32T40 FUD-xx4 or HD55T22 FUD-xx4 or HD55T40 FUD-xx4 or WA460-01-MON-01-XXFU or WA270-01-MON-01-XXFU		x=variable letter/number according to manufacturer's type number identification
Operation Panel	RCU-024		Selectable RCU-024 or RCU-026
Trackball Control Panel	RCU-026		Selectable RCU-024 or RCU-026
Ethernet Controller (interface)	INTEL	2 Tj45 ports	IEC 61162-450
Interface Unit (Sensor Adapter)	MC-3000S	Serial to network (IEC61162-450)	Option
Interface Unit (Sensor Adapter)	MC-3010A		Option
Interface Unit (Sensor Adapter)	MC-3020D		Option
Interface Unit (Sensor Adapter)	MC-3030D		Option
Network switch/switching HUB	HUB-100		Option – for proprietary LAN interface.
Network switch/intelligent HUB	HUB-3000		Option – for IEC 61162-450 external LAN interface.
Software			
Application version	05.xx		Linux kernel: 5.x
PresLib version	4.0		
C-MAP SDK ver.	6.0		

Type Examination documentation

DNV No	Document ID	Rev.	Description
169	RNT-24-001	1	Procedure: Furuno, Color calibration procedure for MU-series Monitor Units
168	30999	0	Report: Applicia, IEC 60945 test report for HD 55T40
166	OMC-44670-H10	H	Manual: Operator's manual for monitor unit MU-190/MU-192
165		2023-03-31	Manual: Hatteland, HD32T40 MVD-MAX-Cxxx
164		2023-03-31	Manual: Hatteland, HD55T40 MVD-MAX-Cxxx
163	K26-17-377	1	Report: Furuno, Colour Calibration Report for MU-192 Monitor Unit
162	LIC 12-24-010	1	Report: Labotech, IEC 62288 test report for MU-192
161	LIC 12-24-009	2024-04-18	Report: Labotech, IEC 60945 Operational checks, Maintenance, Manuals and Markings for MU-192
160	LIC 12-24-008	2024-04-10	Report: Labotech, IEC 60945 test report for MU-192
159	LIC 12-24-007	2024-04-10	Report: Labotech, IEC 60945 CSD test report for MU-192
158	LIC 12-24-006	2024-04-10	Report: Labotech, IEC 60945 Vibration test report for MU-192
157	LIC 12-24-005	2024-04-10	Report: Labotech, IEC 60945 EMC test report for MU-192
156	REP009121	A	Report: Nemko, IEC 60945 test report for HD 55T40 MVD-MA1-CAJG-ES02
155	31098	0	Report: Applicia, IEC 60945 and CG-0339 test report for HD 55T40
154	E21234.01	01	Report: Nemko, IEC60945 and CG-0339 test report for HD 55T40
150	DOC209185-1	01	Report: Hatteland, Flicker Test for HD 55T40
149	DOC209183-1	01	Report: Hatteland, IEC 62288/ IEC 61174/ IHO-S-52 test report for HD 55T40
148	230704001T	2023-09-28	Report: CAL-TECH, IEC60945 and CG-0339 test report for HD 32T40
145	CEBDLB-WTW-P23070246	2023-08-25	Report: BV, Partial IEC 60945 Test Report for HD 32T40
142	DOC209420-1	01	Report: Hatteland, IEC 62288 Minimum brightness test of buttons and status indicators HD 32T40
141	DOC209419-1	01	Report: Hatteland, IEC 62288 Minimum brightness test of buttons and status indicators
140	DOC209276-1	01	Report: Hatteland, IEC 62288 flicker test report for HD 32T40
139	DOC209275-1	01	Report: Hatteland, IEC 62288/ IEC 61174/ IHO-S-52 test report for HD 32T40
137	NI/004/rev1.0/2020	10-06-2020	Report: North Invent, IEC 62288-62388 WE270 Bridge Display
136	K26-17-366		Report: Furuno ECDIS WE270 Color Calibration Report
135	K24-17-1094	19 OKT 2022	Report: Furuno ECDIS FMD-3200/3300 series WE270FU monitor
134	P18-0006	Rev. 2	Report: IEC60945 IACS E10 WE270
133	TAA000028U	Rev-2	Type Approval Certificate: Bridge Monitor WE 270
132	TAA00002TT	Rev-1	Type Approval Certificate: Bridge Monitor WE 270
131	PDF208404-1		Hatteland: HD 24T23 WAC-DFA-4GP0AA-1 Technical Report 191220001T
130	PDF202100-1		Hatteland: HD 24T22 MMD-MA1-FAGP Technical Report 2017-21008 Maritime
129	DOC209240-1	R01	Hatteland: HD 24T22 FUD HW03+ ECDIS Compliance Statement
127	DOC209115-1	R01	Report: Conformance test report_HD 24T22 MMD-MA1-FAGA-30001
126	DOC207208-1	R09	Hatteland: Statement of Manufacturer Similarity for HD 24T22 FEC-MP9-4AAH1A
125	DOC206850-2	R01	Hatteland: Statement of Manufacturer Similarity for HD 24T22 FUD-MA4-FAGx
124	DOC205825-1	R08	Hatteland: HD 24T22 MMD - IEC 60945 & IACS E10 Statement
123	DOC209117-1	R01	Report: IEC62288 flicker test report_HD 24T22 MMD-MA1-FAGA-30001
122	DOC209112-1	R01	Report: Conformance test report HD 24T22 MEC-MP9-4AAH1A HW03
121	VS-TV-090106-01		Report: VIBRATION SOURCE TECHNOLOGY IEC 60945 Monitor HD 24T23 WAC-DFA-4GP0AA-1
120	VS-TV-090103-01		Report: VIBRATION SOURCE TECHNOLOGY IEC 60945 Monitor HD 24T23 WAC-DFA-4GP0AA-1
119	EN191217C22		Report: BV IEC 60945 Monitor HD 24T23 WAC-DFA-4GP0AA-1

DNV No	Document ID	Rev.	Description
118	EN191217C22-1		Report: BV IEC 60945 Monitor HD 24T23 WAC-DFA-4GP0AA-1
117	1912EAT107E00A		Report: ETC IEC 60945 Monitor HD 24T23 WAC-DFA-4GP0AA-1
116	VS-TV-100708-01		Report: IEC60945 Vibration, HD 24T22 MEC-MP9-4AAH1A-ES3
115	210426002T	Rev.1	Report: CAL-TECH IEC60945 HD 24T22 MEC-MP9-4AAH1A-ES3 Technical Report
114	170703001T	Rev.1	Report: CAL-TECH IEC60945, HD 26T22 MMC-AX3-4GM11F-ES Technical Report
113	K03-17-3282	12th April 2022	Report: Furuno, Result of TT Scenario Test EC-3005 IEC62388 Result of TT Scenario Test, Type : FAR-3015/3025
112	LIC 12-22-051	27 April 2022	Report: LABOTECH, IEC60945 Compass safe distance, ECDIS/Chart Radar, Processor Unit EC-3005 Model: FMD-3xx5/FAR-3xx5, Type: EC-3005
111	LIC 12-22-050	27 April 2022	Report: LABOTECH, IEC60945 (temp, vib, acoustic noise, dangerous vol), ECDIS/Chart Radar, Processor Unit EC-3005, Model: FMD-3xx5/FAR-3xx5, Type: EC-3005
110	LIC 12-22-049	27 April 2022	Report: LABOTECH: IEC60945 EMC, ECDIS/Chart Radar Processor Unit EC-3005, Model: FMD-3xx5/FAR-3xx5, Type EC-3005
109	K24-17-1087	25 May. 2022	Report: Furuno, GPU Performance Test Report, Model: ECDIS / Chart RADAR, Type: FMD-3005 / FAR-30x5
108	MRA0000016	Rev. 4	Certificate: IEC 60945, Displays HD 15T22 MMD, HD 17T22 MMD, HD 19T22 MMD, HD 24T22 MMD, HD 24T23 MMD, HD 26T22 MMD, HD 27T22
107	K24-17-1059		Report: Furuno, DNV type approval Internal test report of ECDIS monitor JH20T17-FUD-MR1-xxxx, Model: ECDIS, Type: FMD-3200
106	K24-17-1057		Report: Furuno, DNV type approval Internal test report of ECDIS monitor JH23T14-FUD-xRx-xxxx, Model: ECDIS, Type: FMD-3200
105	K24-17-1048		Report: Furuno, DNV type approval Internal test report of ECDIS monitor HD19T22-FUD-MA4-xxxx, Model: ECDIS, Type: FMD-3200
104	DOC208098-1	Rev. 1	Report: IEC 62288 Hatteland: Conformance Test Report of LCD for use in RADAR and ECDIS JH 19T14 MMD-AR4-AOBC-ES
103	DOC208089-1	Rev. 1	Report: IEC 62288 Hatteland: Conformance Test Report of LCD for use in RADAR and ECDIS JH 20T17 MMD-MR4-AABA-ES
102	DOC208088-1	Rev. 1	Report: IEC 62288 Hatteland: Flicker test report JH 20T17 MMD-MR4-AABA
101	DOC208070-1	Rev. 1	Report: IEC 62288 Hatteland: Conformance Test Report of LCD for use in RADAR and ECDIS JH 23T14 MMD-MR4-AABA
100	DOC208060-1	Rev. 1	Report: IEC 62288 Hatteland: Flicker test report JH 23T14 MMD-MR4-AABA
99	DOC208044-1	Rev. 1	Report: IEC 62288 Hatteland: Minimum brightness test of PCA200865-1 keypad
98	DOC206405-1	Rev. 2	Report: IEC 62288 Hatteland: Conformance Test Report of LCD for use in RADAR and ECDIS HD 19T22 MMD-MA1-FOGP-ES2
97	DOC206081-1	Rev. 3	Report: IEC 62288 Hatteland: IEC62288 flicker test report HD19T22MMD
96	DOC205958-1	Rev. 5	Report: IEC 62288 Hatteland: Minimum brightness test of GDCX
93	LIC 01-21-017	26 April 2021	Report: LABOTECH: Reference document for IEC 61162-450 test performed by LIC (LIC test report no. LIC 12-21-055 for MC-3000S)
92	LIC 12-21-055	26 April 2021	Report: LABOTECH: IEC 61162-450 (2018) Model: Sensor Adapter Type: MC-3000S
91	E402101Z		Manual: Furuno, INSTRUCTION MANUAL AMS USER'S GUIDE, Model FMD-3200/3300-BB/3200-BB
90	K24-17-1034	14 May 2021	Report: Furuno IEC62923-1/-2: DNVGL type approval testing report, Model: Alert Management System, Type: FMD-3000 series
89	LIC 01-21-015	14 April 2021	Report: LABOTECH IEC621162-450 (2018): Reference document for IEC 61162-450 test performed by LIC (LIC test report no. LI C 12 21 039 for PCU 3010)
88	LIC 12-21-039	14 April 2021	Report: LABOTECH IEC621162-450 (2018): Test Report Trade name: Furuno, Model: FModel: FMD-3100, Type: PCU-3010
87	LIC 12-21-024	23 March 2021	Report: LABOTECH IEC61162-450 (2018), Test Report, Trade name: Furuno Model: FMD-3200/3300/3300-BB-Type: EC-3000

DNV No	Document ID	Rev.	Description
86	LIC 01-21-005	23 March 2021	Report: LABOTECH IEC61162-450 (2018), Reference document for IEC 61162-450 test performed by LIC (LIC test report N o. LI C 12-21-024 for EC 3000
83	K24-17-1033	21-Mar-10	Report: DNV GL type approval testing report - Model: ECDIS - Type: FMD 3000 series
81	VS-TV-071225-02		HD24T22 MEC : Vibration test report
80	190400235TWN-001		HD24T22 MEC : IP-x2 test report
79	VS-TV-071225-01		HD24T22 MEC : Vibration test report
78	181217001T		HD24T22 MEC : Environmental, EMC & SRS test report
77	TH1_18_0445 & TH3_19_0018		HD24T22 MEC : Sound pressure level test report
76	EN180919C24 R2		HD24T22 : EMC tests - radiated
75	180828001T	1	HD24T22 : EMC tests
74	K24-17-919	1.1	IEC61162-1 Ed.5
73	K24-17-940		Internal test report of IEC 61162-450 Ed.1 AMD1
72	LIC 12-19-028		IEC61162-1 ed.5 test report MC-3000S sensor adapter
71	LIC 12-19-027		IEC61161-1 test report: EC-3000 processor unit
70	STM-2018-103		FMD-3200 STM function - additional reports for pending items
69	applica 3421	1	JH 20T17 MMD-DA1-AAAR Technical report: IEC60945
68	applica 3253		JH 20T17 MMD-DA1-AAAA: Technical report -radiated emission
67	259507/Vi01	00	NEMKO Test Report Color Verification
66	DOC205984-1	1	Conformance test report HD 55T22 MVD-AA1-TOGP
65	DOC205971-1	01	IEC62288 flicker test report HD55T22_SIGNED
64	applica 21007	0	HD 55T22 MVD-MA1-AOGP Technical Report
63	applica 20869	1	HD 55T22 MVD-MA1-TOGP Technical Report
62	E16240.00	1	HD 55T22 MVD-MA1-AOGP NEMKO Technical Report - Vibration
61	DOC205992-1	1	Conformance test report HD 32T22 MVD-MA1-AOGP
60	DOC205970-1	01	IEC62288 flicker test report HD32T22 MMD
59	applica 20931		HD 32T22 MVD-MA1-AAGP Technical Report
58	applica 20941	0	HD 27T22 MEC-CGU-xABR Technical Report - environmental
57	applica 20885		HD 27T22 MEC-CGU-AIBR Technical Report - EMC
56	170703003T	2	HD 27T22 MMD-MA1-FAGA-ES Technical Report - radiated emission and CSD
55	DOC206155-1	1	Conformance Test Report of LCD for use in Radar and ECDIS
54	DOC206156-1	01	IEC62288 flicker test report HD27T22MMD
50	DOC102352-2		Conformance test report HD 24T22 MMD-MA1-FAGA-ES_HTC02-DVI-D_SIGNED
49	DOC102352-1		Conformance test report HD 24T22 MMD-MA1-FAGA-ES_HTC02-DP_R01_
48	DOC205967-1		IEC62288 flicker test report HD24T22_SIGNED
47	DOC205958-1		Minimum brightness test of GDCX rev 5_SIGNED
46	DNV 2013-3122	0	HD 24T21 MMC-MYI-HABA Technical Report
45	Applica 21009		HD 26T22 MMD-MA1-FAGP Technical Report 2017-21009 Maritime Rev 0
44	Applica 21008		HD 24T22 MMD-MA1-FAGP Technical Report 2017-21008 Maritime ...
43	DOC102352-4		Conformance test report HD 26T22 MMD-MA1-FAGA-ES_HTC02-DVI-D_SIGNED
42	DOC102352-3		Conformance test report HD 26T22 MMD-MA1-FAGA-ES_HTC02-DP_R01
41	DOC205969-1		IEC62288 flicker test report HD26T22_SIGNED
40	STM-2018-102		DNV type approval testing report: FMD-3200 STM Function
39	TAA00000S1		North Invent Wave series monitors
38	LIC 12-16-012		Monitor unit MU-270W: IEC62288 test report
37	LIC 12-16-0nn	nn = 09, 10, 11	Monitor unit MU-270W: IEC60945 test reports
36	OMC-44930-Z4		Operator's manual: marine display model MU-270W
35	FLI 12-14-035		Test report IEC61162-450: FMD-3200/-3200-BB/-3300
34	K26-17-224-0		MU-270W Display presentation data: IEC61174, IEC62288(color calibration)

DNV No	Document ID	Rev.	Description
33	K24-17-748		DNVGL type approval testing report for MSC302(87) - FMD3000 series
32	K24-17-791		Addition of NAVTEX function
31	LIC 12-15-059		Test report: IEC 61162-450 for Sensor adaptor MC-3000S
30	K24-17-765		DNV type approval testing report: FMD-3000 series
29	K24-17-717		DNV Type approval testing report IEC62288: FMD-3000 series
28	K24-17-549		DNV Type approval testing report - FMD-3000 series
27			Alert Management System (manual)
26	2012-336	1	Technical report of Monitor HD 26T21MMD-MA1-FAGA
25	DOC101183-1		HD 26T21 MMD: Conformance test report
24	BSH/46162/007114 4/10 & BSH/46162/007114 8/10		JH19T14 FUD, Flat Panel Display for use as ECDIS-Monitor
23	BSH/46162/007114 5/10		JH20T17 FUD, Flat Panel Display for use as ECDIS-Monitor
22	BSH/46162/007114 6/10		JH23T12 FUD, Flat Panel Display for use as ECDIS-Monitor
21	BSH/4612/4301921 /11		Attachment to FEA-2x07 module B cert
20	BSH_4612_430209 8_12		Approval of TFT Display JH23T14FUD for usage with ECDIS, Assessment report, signed
19	62/0071223/09BSH /461		MU-201CE Flat Panel Display for use Aas Radar - and ECDIS - Monitor - 20.1" TFT Flat Panel Display
18	BSH/46162/007122 4/09	06.05.2009	MU-231CE: Flat Panel Display for use as Radar - and ECDIS - Monitor
17			Color Calibration method in ECDIS and RADAR
16		13.12.2011	Appendix 1- Encrypted ENC testing, IEC 61174 Ed3
15	K24-17-467		DNV Type approval testing report FMD-3000 series
14		8. December 2011	MU-190 and MU-231 Monitor color testing
13	K24-17-391		DNV type approval test report
12	k24-17-473	2012-04-24	Test Report for Pending Items - FMD-3000 Series ECDIS
11	BSH/46162/007182 8/11	2011-07-07	MU-190: Conformance Test Report - Flat Panel Display for use as ECDIS-Monitor - MU-190
10	BSH/46162/007182 9/11	2011.07-11	MU-231: Conformance Test Report - Flat Panel Display - ECDIS-Monitor MU-231
9	VS-TV-111207-01	2022-12-07	Report: Vibration Source Technology Co. LTD, Vibration test report for HD 24T22 MEC-MP9-4AAH1A-ES
8	CEBDLB-WTW- P22110073	2022-12-19	Report: BV, Partial IEC60945 test report for HD 24T22 MEC-MP9-4AAH1A-ES
7	221026001T	1	Report: CAL-TECH. IEC 60945 test report for HD 24T22 MEC-MP9-4AAH1A-ES
5	K24-17-1118	2023-09-20	Report: Furuno, Type Approval test report for FMD-3xxx series ECDIS according to IEC 62288 (2021)
3	OME-44730-S11	2023-09-26	Manual: Furuno, Operators Manual, ECDIS Model: FMD-3005, FMD-3200, FMD-3300, FMD-3200-BB
2	IME-44730-R	2023-02-14	Manual: Furuno, Installation Manual ECDIS Model FMD-3005/FMD-3200/FMD-3300/FMD-3200-BB