

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 the Kingdom of Norway.

This is to certify:

That the Electronic chart display and information system (ECDIS)

with type designation(s)
FMD-3200/3200-BB/FMD-3300

Issued to

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

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

Regulation **(EU) 2017/306,**

item No. MED/4.30. SOLAS 74 as amended, Regulations V/18, V/19 & 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

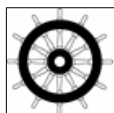
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-07-12.**

Issued at **Høvik** on **2018-03-08**

DNV GL local station:
Kobe

Approval Engineer:
Olaf Gundersrud



Notified Body
No.: **0575**

for **DNV GL AS**

.....
Roald Vårheim
Head of Notified Body

Product description

The FMD-3200/3200-BB/FMD-3300 consist of the following units:

Unit	Location
Main Computer(s)	Protected
Display(s) (VDUs)	Protected
Operation Panel(s) (control unit)	Protected
Data interface(s)	Protected

For details, see Appendix.

Application/Limitation

- DVI port(s) shall be used for video signal interface between Main Computer Unit and VDU.
- The ECDIS may be configured as a single workstation or a system of multiple workstations.
- A dual installation of the Furuno ECDIS 3000-series 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 ECDIS shall be installed and tested in accordance with the Installation Manual FMD-3200/3200- BB/3300

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.

Note 2:

The FMD-3200 ECDIS may optionally support the HMI required for Sea Traffic Management (STM) functionality.

Type Examination documentation

- See Appendix.

Tests carried out

- IEC61174(2015)
- IEC61162-1(2010)
- IEC61162-2(1998)
- IEC61162-450(2011)
- IEC62288(2014)
- IEC60945(2002)

Note:

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

The STM-HMI has been tested and verified for compliance with IEC60945 clause 6.1 and IEC62288 clause 4.

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-3200/3200-BB/FMD-3300 comprises combinations of the following components:

Unit	Model Name	Components	Remark
Main Computer Unit	EC-3000	Mother board: ADP-556-01	

Job Id: **344.1-003193-13**
 Certificate No: **MEDB00001AV**

		Radeon E8860 SSD 64GB (SDS1B064GTKEWZ00ZSHB) DVD-drive (IHAS324-17) USB-port	
Monitor Unit (VDU)	MU-190 or MU-231or MU-201CE or MU-231CE or MU-270W or JH19T14FUD or JH20T17FUD or JH 23T14 FUD-MA4-AxxA ¹⁾ or HD24T22 FUD-MA4-FxGx ¹⁾ or HD26T21 MMD-MA4-FAGA ¹⁾ or HD26T22 FUD-MA4-FxGx ¹⁾ or HD27T22 FUD-MA4-FxGx ¹⁾ or HD32T22 FUD-MA4-FxGx ²⁾ or HD55T22 FUD-xA4-xOxx ¹⁾ or WA460-01-MON-01-XXFU or WA270-01-MON-01-XXFU		<i>x=variable letter/number according to manufacturer's type number identification</i> <i>¹⁾DVI/VGA connection</i> <i>²⁾DVI connection</i>
Operation panel	RCU-024		<i>Selectable RCU- 024 or RCU-026</i>
Trackball control panel	RCU-026		<i>Selectable RCU- 024 or RCU-026</i>
Ethernet controller (interface)	REALTEK and INTEL	2 Tj45 ports	<i>IEC61162-450</i>
Interface Unit (Sensor Adapter)	MC-3000S		<i>Optionally</i>
Interface Unit (Sensor Adapter)	MC-3010A		<i>Optionally</i>
Interface Unit (Sensor Adapter)	MC-3020D		<i>Optionally</i>
Interface Unit (Sensor Adapter)	MC-3030D		<i>Optionally</i>
Network switch/switching HUB	HUB-100		<i>Optionally</i>
Network switch/intelligent HUB	HUB-3000		<i>Optionally</i>
<i>Software</i>			
Application version	03.xx		
PresLib version	4.0		
C-MAP SDK ver.	6.0		

APPENDIX

Type Examination documentation

DNV No.	Dwg. No.	Rev.	Title
7	BSH/46162/0071829/11		Conformance Test Report - ECDIS-Monitor MU-231

Job Id: **344.1-003193-13**
Certificate No: **MEDB00001AV**

8	BSH/46162/0071828/11		Conformance Test Report - ECDIS-Monitor - MU-190
11	BSH/4612/4341824/11		Approval of TFT Displays for Radar FAR-2XX7 Series
14	FLI 12-11-111		Environmental Test Report ECDIS FMD-3200/-3200-BB/-3300
15	FLI 12-11-112		Test Report page 2-14 ECDIS - FMD-3200/-3200-BB/-3300
18	K24-17-473		Test Report for Pending Items - FMD-3000 Series ECDIS
19	K24-17-391		DNV type approval test report
20			Monitor color testing
21	K24-17-467		Testing report For Pending Item-FMD-3000 Series ECDIS
22			Appendix 1- Encrypted ENC testing, IEC 61174 Ed3
30			Color Calibration method in ECDIS and Radar
31	BSH/46162/0071224/09		Conformance test report of 23.1 TFT
32	BSH/46162/0071223/09		Conformance test report of 20.1 TFT
33	BSH/4612/4302098/12		Assessment report for JH23T14FUD
35	BSH/4612/4301921/11		Type certificate attachment
36	BSH/46162/0071146/10		Environmental test report
37	BSH/46162/0071145/10		Environmental test report
38	BSH/46162/0071144/10		Environmental test report
42	DNV 2012-3362	0	EMC & env. Test report 26T21MMD-MA1-FAGA
41	HD DOC101183-1		Conformance Test Report of 26T21MMD for use in ECDIS
44	IME-44730-B0		Installation Manual - FMD-3200/3200-BB/3300
75	K24-17-717		DNV Type approval testing report IEC62288: FMD-3000 series
76	E42-01204-F10		Instruction Manual: Settings and adjustments FMD-3x00, FCR2xx9
80	K24-17-765		DNV type approval testing report: FMD-3000 series
81	K24-17-787	4	testing report of improved software: pending items part 2
82	LIC 12-15-059		Test report: IEC61162-450 for Sensor Adaptor MC-3000S
83	K2417-791		Test report: Addition of NAVTEX function
84	K24-17-748		Test report for MSC302(87): FMD-3000 series ECDIS
86	K26-17-224-0		MU-270W Display presentation data: IEC61174, IEC62288
87	FLI 12-14-035		Test report IEC61162-450: FMD-3200/3200-BB/3300
88	OMC-44930-Z4		Operator's manual: Marine display model MU-270W
89	LIC 12-16-009/010/011		Monitor MU-270W test reports IEC60945 env/emc/csd
90	LIC 12-16-012		Monitor MU-270W test report IEC62288
91	K24-17-772	2	DNV type approval: Internal test report of improved software for pending items
98	OME-44840-G10		Operator's manual:ECDIS FMD-3200/3200-BB/3300
104	TAA00000S1		Certificate: North Invent Wave series monitors

APPENDIX

Type Examination documentation(cont.)

DNV No.	Dwg. No.	Rev.	Title
107	DOC205958-1		Minimum brightness test of GDCX rev 5_SIGNED
108	DOC205969-1		IEC62288 flicker test report HD26T22_SIGNED
110	DOC102352-3		Conformance test report HD 26T22 MMD-MA1-FAGA-

Job Id: **344.1-003193-13**
Certificate No: **MEDB00001AV**

			ES_HTC02-DP_R01
111	DOC102352-4		Conformance test report HD 26T22 MMD-MA1-FAGA-ES_HTC02-DVI-D_SIGNED
113	Applica 21008		HD 24T22 MMD-MA1-FAGP Technical Report 2017-21008 Maritime ...
114	Applica 21009		HD 26T22 MMD-MA1-FAGP Technical Report 2017-21009 Maritime Rev 0
116	DNV 2013-3122	0	HD 24T21 MMC-MYI-HABA Technical Report
119	DOC205958-1		Minimum brightness test of GDCX rev 5_SIGNED
120	DOC205967-1		IEC62288 flicker test report HD24T22_SIGNED
122	DOC102352-1		Conformance test report HD 24T22 MMD-MA1-FAGA-ES_HTC02-DP_R01_
123	DOC102352-2		Conformance test report HD 24T22 MMD-MA1-FAGA-ES_HTC02-DVI-D_SIGNED
124	LIC12-17-062		IEC60945. EMC test report EC-3000
125	LIC12-17-063		IEC60945 test report EC-3000
126	LIC12-17-064		CSD test report EC-3000
128	IME44730-J11		Installation manual: FMD-3200/3200BB/3300
129	OME44730-J10		Operator's manual: FMD-3200/3200BB/3300
131	DOC206156-1	1	IEC62288 flicker test report HD27T22MMD
132	DOC206155-1	1	Conformance Test Report of LCD for use in Radar and ECDIS
133	DOC205958-1	2	Minimum Brightness Test of GDCX rev 5
136	170703003T	2	HD 27T22 MMD-MA1-FAGA-ES Technical Report - radiated emission and CSD
138	applica 20885		HD 27T22 MEC-CGU-AIBR Technical Report - EMC
139	applica 20941	0	HD 27T22 MEC-CGU-xABR Technical Report - environmental
142	applica 20931		HD 32T22 MVD-MA1-AAGP Technical Report
144	DOC205970-1	1	IEC62288 flicker test report HD32T22 MMD
145	DOC205992-1	1	Conformance test report HD 32T22 MVD-MA1-AOGP
149	E16240.00	1	HD 55T22 MVD-MA1-AOGP NEMKO Technical Report - Vibration
150	applica 20869	1	HD 55T22 MVD-MA1-TOGP Technical Report
151	applica 21007	0	HD 55T22 MVD-MA1-AOGP Technical Report
153	DOC205971-1	1	IEC62288 flicker test report HD55T22_SIGNED
154	DOC205984-1	1	Conformance test report HD 55T22 MVD-AA1-TOGP
156	259507/Vi01	0	NEMKO Test Report Color Verification
157	STM-2018-102		FMD-3200 STM function
158	Applica 2010-3421	1	JH 20T17 MMD-DA1-AAAR Technical report
159	Applica 2010-3253		JH 20T17 MMD-DA1-AAAA Technical report