

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAA000000B**  
Revision No:  
**3**

## This is to certify:

### That the **Miscellaneous**

with type designation(s)  
**BridgeMate Hardware Plattform**

Issued to  
**Marine Technologies LLC**  
**Egersund, Norway**

is found to comply with  
**IMO Res. A.694(17) General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids MSC.191(79) Performance standards for presentation of navigation-related information on shipborne navigational displays**

## Application :

**See page 4**

Issued at **Høvik** on **2019-06-03**

for **DNV GL**

This Certificate is valid until **2024-06-02** .  
DNV GL local unit: **Stavanger**

Approval Engineer: **Frederik Tore Elter**

.....  
**Trond Sjøvåg**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-019063-5**  
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## Product description

Common hardware platform for Marine Technologies BridgeMate products.  
 The following table describes 5 different hardware profiles (HW1 – HW5) partly using common components.

### Abbreviations

CC - Control Computer  
 OC - Operation Computer  
 OS - Operator Station

Component	HW1	HW2	HW3	HW4	HW5
<b>Computer:</b>					
Hatteland HTB07CD MTL-A1 <i>or</i>	X <sup>2)</sup>				
ICP IOSP-945-R10-ICPA <i>or</i>	X <sup>2)</sup>	X	X		
MT-COMPUTER-100 <i>or</i>	X <sup>2)</sup>	X	X	X	X
MT-COMPUTER-200 <i>or</i>	X <sup>2)</sup>				X
MT-COMPUTER-300 <i>or</i>	X <sup>2)</sup>	X	X	X	X
MT-COMPUTER-400 <i>or</i>	X <sup>2)</sup>	X	X	X	X
<b>Panel Computers:</b>					
Compact OS JX/AP <i>or</i>	X <sup>3)</sup>				
Hatteland JH15T17 MMC	X <sup>4)</sup>				X
<b>Monitor:</b>					
Hatteland JH12T21 <i>or</i>	X <sup>3)</sup>				
Hatteland HD13T21 <i>or</i>					X
Hatteland JH15T17 <i>or</i>	X <sup>4,6)</sup>				X
Hatteland JH15T21 <i>or</i>	X <sup>4)</sup>				X
Hatteland JH17T21 <i>or</i>	X <sup>4)</sup>				X
Hatteland JH19T03 <i>or</i>	X <sup>5)</sup>				X
Hatteland JH19T14 <i>or</i>	X <sup>6)</sup>				X
Hatteland JH19T21 <i>or</i>	X		X	X	X
Hatteland JH23T14 <i>or</i>	X <sup>6)</sup>		X	X	X
Hatteland HD26T21-MMD <i>or</i>	X	X	X	X	X
Hatteland HD 17T22 MMD <i>or</i>	X				X
Hatteland HD 19T22 MMD <i>or</i>	X				X
Hatteland HD 24T22 MMD <i>or</i>	X	X	X	X	X
Hatteland HD 26T22 MMD <i>or</i>	X	X	X	X	X
Hatteland HD 27T22 MMD <i>or</i>	X	X	X	X	X
Hatteland HD 32T22 MVD <i>or</i>	X	X	X	X	X
Hatteland HD 55T22 MVD <i>or</i>	X	X	X	X	X
<b>Network Switches:</b>					
SMC EZ Switch 10/100 <i>or</i>	X	X	X		
Netgear GS724TP <i>or</i>	X	X	X	X	X
Netgear GS728TP <i>or</i>	X	X	X	X	X
MT-PoE—SWITCH-1080-8-PORT <i>or</i>	X	X	X	X	X
O-Ring IGPS-1080-24V	X	X	X	X	X

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Component	HW1	HW2	HW3	HW4	HW5
<b>I/O Interface units:</b>					
MT IOB (I/O card) <i>or</i>  approved as Listener according IEC61162-1 Plugged into: Central TB, Panel DP 23", Panel Controller  Thruster/Rudder Interface: +-10V and 4-20mA	X	X	X	X	X
MT IOB mK2 (I/O card) <i>or</i>  approved as Listener according to IEC61162-1 and Listener according to IEC61162-2 Plugged into: Central TB Panel DP 23" Panel Controller  Thruster/Rudder Interface: +-10V and 4-20mA	X	X	X	X	X
MT-PoE-IOB (I/O card)  approved as: Listener and talker according to IEC61162-1 Listener and talker according to IEC61162-2	X	X	X	X	X
MT-NMEA-CONVERTER  approved as: Listener and talker IEC61162-1 Listener and talker IEC61162-2	Optional	Optional	Optional	Optional	Optional
<b>Human Interfaces:</b>					
Keyboard Cherry / MT Type	Optional	Optional	Optional	Optional	Optional
Heading Selector Wheel / MT Type	Optional				
Panel DP 23	Optional				
EAO Piezo Buzzer 14-810.002 24VDC	X <sup>7)</sup>				
<sup>2)</sup> OC and CC <sup>3)</sup> Compact OS View <sup>4)</sup> Single Autopilot View <sup>5)</sup> Needs external buzzer <sup>6)</sup> Needs external buzzer if the display does not have the letter B in the Hatteland Type designation (xxxx-xxBx) <sup>7)</sup> Needed when monitor selection indicates the need for external buzzer					

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### Application/Limitation

- A minimum configuration of HW1 requires at least one Operational Computer (OC) with a display (making it an Operating Station, OS) and one Control Computer (CC). A Panel Computer is an Operating Station (OS).
- For minimum configuration of HW2 to HW5 refer to the product specific Installation Manual

### Hardware related tests carried out

- Environmental testing, IEC 60945 (2002)
- Serial interface testing, IEC 61162-1 (2016)
- Serial interface testing, IEC 61162-2 (1998)
- Presentation of navigation related information, IEC62288 (2014), Ch.4 & Ch.7

### Type Examination documentation

DNV GL No.	Title	Document No.	Rev.
219	Certificate: IEC 60945 Monitor series	MRA0000016	Revision No. 1
218	Report: MT Test Procedure Updating hardware certificate TAA000000B (HD Monitors)	MT-DEV-5647	
214	IEC 60945 8.12 salt mist waiver for MT-Computer-300/400		
209	Report Hatteland: Conformance test report HD 55T22 MVD-AA1-TOGP_HTC02-DP	DOC205984-1	
208	Report Hatteland: IEC62288 flicker test report HD55T22	DOC205971-1	
205	Report Hatteland: Conformance test report HD 32T22 MVD-MA1-AOGP_HTC02-DP	DOC205992-1	
204	Report Hatteland: IEC62288 flicker test report HD32T22_SIGNED	DOC205970-1	
202	Report Hatteland: Conformance test report_HD 27T22 MMD-MA1-FAGA_HTB30-DVI-D	DOC206417-1	R01
200	Report Hatteland: IEC62288 flicker test report_HD 27T22 MMD	DOC206156-1	R02
197	Report Hatteland: IEC62288 flicker test report HD24T22	DOC205967-1	R05
194	Report Hatteland: Conformance test report HD 24T22 MMD-MA1-FAGA-ES_HTC02-DP	DOC102352-1	R01
192	Report Hatteland: Conformance test report_HD 19T22 MMD-MA1-FAGA_HTB30-DVI-D_SIGNED	DOC206405-1	R01
190	Report Hatteland: IEC62288 flicker test report_HD 19T22 MMD_SIGNED	DOC206081-1	R01
188	Report Hatteland: Conformance test report HD 17T22 MMD-MA1-FAGA HTB30-DVI-D	DOC206452-1	R01
187	Report Hatteland: IEC62288 flicker test report_HD 17T22 MMD R01	DOC206444-1	R01
186	Report Hatteland: Minimum brightness test of GDCX	DOC205958-1	R05
167	Certificate: IEC60945 - Monitors HD 24T22 MMD, HD 26T22 MMD, HD 27T22 MMD, HD 32T22 MVD, HD 55T22 MVD	MRA0000016	
165	Report: Hatteland - Conformance test report HD 26T22 MMD-MA1-FAGA-ES	DOC102352-4	rev 01
164	Report: Hatteland - IEC62288 flicker test report HD26T22	DOC205969-1	rev 01
162	Report: Hatteland - Minimum brightness test of GDCX	DOC205958-1	rev 5

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<b>DNV GL No.</b>	<b>Title</b>	<b>Document No.</b>	<b>Rev.</b>
159	Report-DNV, EMC AND ENVIRONMENTAL TESTING OF HD 13T21 STD-EA1-FAGP	2011-3497	02
158	Doc-MT, MT Computer-100-CC in DP System	MT-Computer-100-CC in DP System.pdf	2015-05-26
157	Report-MT, Factory Acceptance Test PSV 3300_552044-890	PR0001-2014N884	3.0
156	DOC-MT, Bill of materials for FAT PSV 3300_552044-890	Damen 552044-890 C2014N884D	15.05.2015
155	Report-MT, Test Program for MT Bridge Mate TCS Final (including Router ORing-IGPS-1080-24V / MT-PoE—SWITCH-1080-8-PORT)	MT-DEV-5454	02
154	Report-CCS, Environmental Test Report ORing-IGPS-1080-24V / MT-PoE—SWITCH-1080-8-PORT	T140319D03-RL	00
153	Report-CCS, EMC Test Report ORing-IGPS-1080-24V / MT-PoE—SWITCH-1080-8-PORT	T140319D03-E	2014-03-24
136	Report-Audible test of external buzzer	MT-DEV-5421	2.0
135	Manual-MT DP Operator Manual	MT-DEV-5228	1.0
134	Manual-MTOC SW Installation Manual	MT-DEV-5416	1.0
133	Manual-MTCC SW Installation Manual	MT-DEV-415	1.0
130	Manual-MT, Operator Manual Joystick System	MT-DEV-5227	1.0
128	Report-DNV, EMC and environmental testing of Computers and PA Equipment	2012-3398	00
127	Report-DNV, EMC and environmental testing of Panel DP 23 and Compact OS	2007-3310	01
126	Report-DNV, EMC and environmental testing of JH23 Inch Panel PC, type JH21T02 MMD-E1	2005-3362	02
125	Report-DNV, EMC and environmental testing of JH19T14MMC-AA1-AABR	2009-3442	01
124	Report-Nemko, Test of IEI MT Black Box PC-ICP	E08495.00	00
123	Report-DNV, EMC and environmental testing of Compact OS Maritime Computers	2010-3290	01
122	Report-DNV, Testing of coputer HTB07CDSTD-A1	2006-3576	02
121	Report-Hatteland, ECDIS Color Verification HD19T03	DOC100377-1	01
120	Report-DNV, Testing of panel computer HD19T03 + HT-MMC01-A02	2006-3249	01
119	Report-DNV, EMC and environmental testing of HD 12T04 BOAA	2007-3089	01
118	Certificate-DNV, Displays Series X	A-12839	
117	Certificate-DNV, TFT displays JHnnTxx MMD	A-12836	2012-07-13
116	Certificate-DNV, Personal Computers JH 15T05 MMC, JH19T02 MMC	A-11784	2010-05-12
115	Report-DNV, Testing of maritime PC HTB08CDSTD-A1	2007-3160	02
114	Certiificate-DNV, TA Certificate Hatteland JH19T03	A-10394	00
113	Report-DNV, EMC and Environmental testing HD 19T03 MMDII-A1	2006-3107	01
112	Report-DNV, EMC and Environmental testing HD 12T04 BOAA	2007-3089	01
111	Report-DNV, Type testing of JH19T02MMDE1	2005-3112	01

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110	Report-BSH, Conformance test report jh19t02mmd-e	4612/4300107/06/S3330	1.1
109	Report-DNV, Type approval testing of DP-System	2003-3481	01
108	Report-DNV, EMC and Environmental Tests on Panel DP23 and Compact OS	2007-3310	01
107	Report Hatteland, ECDIS Color Verification Report JH19T02MMD-C1-HW01_JH23T02MTL-C1	DOC100378-1	01
106	Report-Hatteland, Calibration report for HD19T03_B07	DOC100374-1	01
105	Report-Hatteland, ECDIS Color Verification Report HD19T03	DOC100377-1	01
104	Report-DNV, Technical Report EMC and environmental Testing of Display HD26T21MMD-MA1-FAGA	2012-3362	00
103	Report-NEMKO, Test Report IEI MT Black Box PC	E08495.00	00
102	Report-BSH, Conformance test report jh23t02mmd-e	BSH/46162/0070335/S3330	--
101	Report-DNV, testing of Computer HTB07CDSTD-A1	2006-3576	02
100	Report-DNV, EMC and Environmental Tests on Panel DP23 Typ JH23T02MMDE1	2005-3362	02
99	Report-Hatteland, ECDIS Color verification Test Report JH23T02MTL_JH19T02MMD-C1-HW01_B07	DOC100376-1	01
80	Keyboard-NSI KSML92F1RLED-1077-EN60945 testing	20094390200	2010-04-22
79	EMC & Env.testing of IOSP HM55	2012-3398	00
78	IEC62388 Performance test report for Imtech 4500	QINETIQ/MS/ES/TSTR1000075	2010-05-17
77	Report-MT, IEC61162-1 MT Radar 2008	MT-DEV-5378	3.0
76	Report-MT,IEC61162-1 MT Radar 2008	MT-DEV-5378	2.0
75	Manual-MT, Installation Manual MT Radar 2008	MT-DEV-5233	1.0
74	Report-DNV, EMC and environmental testing of IOSP HM55	2012-3398	00
73	Drawing-MT, Analog, Digital, Serial interface schematics	12907261	C
72	Report-DNV, EMC and environmental testing of CompactOS, Central Thruster Control Unit, Remote Joystick and Panel Controller	2005-3386	01
70	Report-DNV, Technical Report EMC and environmental Testing of Maritime Display HD 26T21MMD-MA1-FAGA	2012-3362	00
64	Report-NEMKO, Test Report IEI MT Black Box PC	E08495.00	00
57	Report-Hatteland, ECDIS Color Verification Test Report HD19T03 DOC100377-1	DOC100377-1	01
56	Report-Hatteland, ECDIS Color verification report JH19T02MMD-C1-HW01 and JH23T02MTL-C1	DOC100378-1	01
55	Report-Hatteland, Calibration report HD19T03 (BOBC)	DOC100374-1	01
54	Report-DNV, Type testing of 23 Inch panel Display type JH23T02MMDE1	2005-3362	02
53	Report-DNV, Type tesitng of 19 Inch Panel Display JH19T02MMDE1	2005-3112	01
51	Report-DNV, Technical Report for computer HTB07CDSTD-A1	2006-3576	02
50	Report-DNV, EMC and Environmental Test Report on Panel DP 23 and CompacOS	2007-3310	01
49	Report-BSH, Conformance test report of JH23T02 MM	BSH/46162/00	

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		70335/07/S3330	
48	Report-BSH, Conformance test report of Flat Panel Display for use as Radar- and ECDIS Monitor type JH19T02 MMD E1	4612/4300107/06/S3330	1.1
47	Report-Hatteland, Calibration report JH19T02MMD-C1-HW01 and JH23T02MTL-C1	DOC100376-1	01
45	Report-DNV, Testing of Computer HTB07CDSTD-A1	2006-3576	02
44	Report-DNV, EMC & Environmental testing of CompactOS, Central Thruster Control Unit, Remote Joystick, Panel Controller	2005-3386	01
43	Report-DNV, EMC & Environmental Test on Panel DP 23 and Compact OS	2007-3310	01
42	Report-BSH, Flat Panel Display for use as Radar-and ECDIS - Monitor jh23t02mmd	BSH/46162/0070335/07/S3330	17.01.2007
40	Report-DNV, Type approval testing of DP-system	2003-3481	01
39	Report-DNV, Type TESTING OF 23 INCH PANEL DISPLAY TYPE JH 23T02 MMD-E1	2005-3362	02
38	Report-DNV, Testing of Maritime PC HTB08CDSTD-A1	2007-3160	01
37	Report-DNV, EMC and Environmental Testing of JH 15T17 MMD-DA1-AOAA	2009-3324	02
36	Report-DNV, EMC and Environmental Testing of maritime Panel Computer JH 19T14 MMC-AA1-AABR	2009-3442	01
35	Report-Hatteland, ECDIS Color Verification HD19T03	DOC100377-1	01
34	Report-DNV, Testing of panel computer HD19T03 + HT MMC01-A02	2006-3249	01
33	Report-DNV, EMC and environmental testing of HD 12T04	2007-3089	01
32	TA Certificate-DNV, Displays Series X	A-12839	
31	TA Certificate-DNV, TFT displays JHnnTxx MMD	A-12836	
30	TA Certificate-DNV, Personal Computers JH 15T05 MMC, JH19T02 MMC	A-11784	---
27	Report-DNV, EMC and Environmental tests HD 26T21 MMD-MA1-FAGA	2012-3362	00
26	Report-DNV, EMC and Environmental tests of Maritime System Computers and PA Equipment (incl. IOSP HM55)	2012-3398	00
25	Report-MT, MFD Testing-HCS, BN Ecdis900, BM Arpa 2008, BM Conning, BM HCS	MT-DEV-5344	1.0
21	Report-MT, IEC62288 tests for HCS system	PB0094	A
20	Report-Audible test of external buzzer	MT-DEV-5421	2.0
19	Manual-MT DP Operator Manual	MT-DEV-5228	1.0
15	Report-NEMKO, Test Report IEI MT Black Box PC-ICP	E08495.00	00
12	Report-DNV, EMC and environmental testing of Maritime System Computers and PA Equipment	2012-3398	00
11	Report-DNV, EMC and environmental testing of Panel Display 23 and Compact OS	2007-3010	01
10	Report-DNV, EMC and environmental testing of Panel Display JH23T02 MMD-E1	2005-3362	02
9	Report-DNV, testing of Panel Computer JH19T14 MMC-AA1-AABR	2009-3442	01

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8	Report-Nemko, Test of IEI MT Black Box PC	E08495.00	00
7	Report-DNV, EMC and environmental testing of Compact OS Maritime Computer	2010-3290	01
6	Report-DNV, Testing of coputer HTB07CDSTD-A1	2006-3576	02
3	Report-TesLab, NMEA CONV IEC 60945 TestLab report 147125F.pdf	147125F	2014-09-15
2	Report-TesLab, Netgear GS728TP EN60945 Test Report - TesLab no141011F.pdf	141011F	2014-03-11
1	Report-MT, MT-DEV-5457 - IEC61162-1 and -450 MT NMEA Converter Test Program.docx	MT-DEV-5457	0.7

### **Marking of product**

The Manufacturer and Type Designation to be applied 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.

### **Certificate Retention Survey**

A retention survey is to be performed at least once every second year, and again upon renewal of this certificate.

The scope of the retention/renewal survey is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.

This certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnvgl.com>

--- End of Certificate ---