TYPE APPROVAL CERTIFICATE

This is to certify:

That the Central Alert Management System

with type designation(s)
VisionMaster FT, VisionMaster Net

Issued to
Northrop Grumman Sperry Marine B.V. - UK Branch
New Malden, Surrey, **United Kingdom**

is found to comply with
   DNV rules for classification – Ships
   IMO Resolution MSC.302(87) Performance standards for Bridge Alert Management
   MSC.191(79) Performance standards for presentation of navigation-related information on shipborne navigational displays
   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

Application :

See page 2.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-03-09**

This Certificate is valid until **2024-02-12**.
DNV local unit: **Southampton**

Approval Engineer: **Steinar Kristensen**

for **DNV**

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Frederik Tore Elter
Head of Section

Product description

VisionMaster FT and VisionMaster Net Central Alert Management Systems are available either as a part of a Multi Function Display (MFD) or as a dedicated CAM system, consisting of the below modules:

VisionMaster FT Hardware modules, alternative 1:

Unit	Description	Type Number	Comment
Computer	Processor unit	65901A*X*	*X= C or E or F or N or P or T or U*
Display	LED display unit, 26"	65926*X*	*X= H or L or P*
Interface Unit	PCIO Interface Unit	65900A*X*	*X= A or B* 9x RS422/RS232 input 6x RS422/RS232 outputs
Control Panel	Control panel with trackball only or trackball + keyboard (Integrated or Kit)	65903A*X* or 65903K*X*	*X=F or G or H* 2x USB, 1x PS2 connectors
Data Control Unit	Digital Interface Unit	65932605	
Network Switch	Network Switch, EDS-405A or EDS-408A or EDS-G509	RA 00004325 RA 00014423 RA 00009746	*5 x RJ45 ports* *8 x RJ45 ports* *9 x RJ45 ports*

VisionMaster FT Hardware modules, alternative 2:

Unit	Description	Type Number	Comment
Computer & Display	26" Panel PC	65926AA or 65926AB	
Interface Unit	PCIO Interface Unit	65900A*X*	*X= A or B* 9x RS422/RS232 input 6x RS422/RS232 outputs
Control Panel	Control panel with trackball + keyboard (Integrated or Kit)	67003AH or 67003KH	3x USB connectors
Data Control Unit	Digital Interface Unit	65932605	
Network Switch	Network Switch, EDS-G509	RA 00009746	*9 x RJ45 ports*

VisionMaster Net Hardware modules:

Unit	Description	Type Number	Comment
Computer & Display	26" Panel PC	67026AA or 67026AB	
Interface Unit	PCIO Interface Unit	65900AX	X= A or B 9x RS422/RS232 input 6x RS422/RS232 outputs[*)]
Control Panel	Control panel with trackball + keyboard (Integrated or Kit)	67003AH or 67003KH	3x USB connectors
Data Control Unit	Digital Interface Unit	65932605	
Network Switch	Network Switch, EDS-G509	RA 00009746	*9 x RJ45 ports*

All units listed above are to be installed in a protected environment, i.e. indoor.

Software modules	Version
• Operating System:	Windows 10 IoT Enterprise LTSC, Version: 1809
• VisionMaster FT:	15.3.x
• VisionMaster Net:	3.0.x

Application/Limitation
- The system is to be installed as specified in equipment manuals.
- The VisionMaster FT and VisionMaster Net Central Alert Management systems have been tested in a Multi-Function-Display (MFD) system with functions for ECDIS, Radar and Conning.
- The VisionMaster FT and VisionMaster Net Central Alert Management systems comply with the applicable requirements for BAM compliant equipment (EUT function type P [1]) and CAM system (EUT function type Q [1]).
- When installed in a Multi-Function-Display (MFD) system, the VisionMaster FT and VisionMaster Net Central Alert Management systems may, depending on configuration, support:
  - Revaluation of alerts (EUT function type R [1]), as described in equipment manuals.
  - Legacy alert conversion (EUT function type S [1])

Tests carried out
- Environmental testing: IEC 60945 (2002) incl. Corr.1 (2008)
- Serial interface testing: IEC 61162-1 (2016) and IEC 61162-2 (1998)
- Presentation of navigation information: IEC 62288 (2014)
- Bridge Alert Management: IEC 62923-1 (2018) and IEC 62923-2 (2018)
- Performance testing: DNV Type Approval program 847.40 for Central Alert Management system

Type Approval documentation

DNV No	Document ID	Rev.	Description
101	P22-0126	1	Report: EKTOS, EMC and environmental test report for PCM4-Q170
98	67000006	2	Manual: NGSM, Bridge Card Quick Reference- VisionMaster Net Central Alert Management (CAM) Watchmode
96	67000012V1	3	Manual: NGSM, VM Net ECDIS User Guide Volume 1 for Software version 3.0
95	67000011V2	3	Manual: NGSM, VM Net Ships Manual- Vol 2
94	67000011V1	3	Manual: NGSM, VM Net Ships Manual- Vol 1
92	67000010V1	3	Manual: NGSM, VM Net Chart Radar User Guide Vol. 1
91	TR-V3.0.0-VMNet-108	2	Report: NGSM, CID and CAM-HMI comparison to VMFT for VisionMaster NET Release 3.0.0
90	TR-V3.0.0-VMNet-101	1	Report: NGSM, System Performance Test Report for VisionMaster NET Display Software Release V3.0.0
87		2022-05-19	Report: NGSM, VisionMaster FT Central Alert Management, CAM-HMI Type Approval Test Report
84	5P05962	1	Report: SP, IEC 60945 test report for PCM4-Q87 Marine Computer
83	P21-0035-2	2021-06-24	Report: EKTOS, Supplementary IEC60945 test report for PCM4-Q87 computer
70	5P03620	1	Report: SP, EMC and environmental test report for DuraPanel 24 Glass and DuraPanel 26 Glass
69	P19-0152-1	2019-09-03	Report: EKTOS, EMC and environmental test report for Slim line 25,5" Panel PC
60	362879	2018-11-06	Report: Nemko, Display performance tests for Visionmaster Net 26" Panel PC
59	8P06394 CSD	2018-08-27	Report: RISE, Compass Safe Distance test of Panel PC
58	P18-0055-1	2018-12-04	Report: EKTOS, EMC and environmental test report for VisonMaster Net 26" Panel PC
55	582/1	2008-11-19	Certificate: BSH, Compass Safe Distance for DCU 5
54	D/16/4419/04	2017-08-11	Report: Teseq GmbH, EMC test report for DCU 5
51		2018-12-20	Report: NGSM, VisonMaster FT Central Alert Management, CAM-HMI Type Approval Test Report
50	9401/12	1	Report: Autoteam, Environmental test report of DCU5
49	D/12/3938/02	2012-07-27	Report: Teseq, EMC test report of DCU5
48	Man_DCU5_2.10_eng		Manual: Veinland, Technical manual for Data Control Unit-DCU5

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[1] As defined in IEC 62923-1

DNV No	Document ID	Rev.	Description
45	QINETIQ/TEG/TECS/ TSTR1000308	2010-10-22	Report: QinetiQ, EMC and environmental test report for VisionMaster FT Client Server Radar
44	TL1316	2009-06-29	Report: Mariner System, EMC and environmental test report for EDS-G509 series Ethernet switches
43	TL1016	2006-10-30	Report: Mariner System, EMC and environmental test report for EDS-510 and EDS-405A series Ethernet switches
40	298985-5	2016-02-25	Report: Nemko, Display performance test for DuraMON 26 Classic display (65926P)
35	103230862LHD-001	4	Report: Intertek, EMC test report of VisionMaster 340 Pedestal Console (65926P)
34	103230862LHD-001 Climatic and Vibration	1	Report: Intertek, Environmental test report of VisionMaster 340 Pedestal Console (65926P)
32	6P03819-2	2016-09-13	Report: SP, EMC and environmental test report of PCM4-Q87 Marine Computer
29	DOC102351-1	2	Report: Hatteland Display, Minimum brightness test of GDCX keypad controller Rev 4 (65926H)
28	21009	0	Report: Applica, EMC and environmental test report of HD 26T22 MMD-MA1-FAGP-ES (65926H)
24	DOC102352-4	2	Report: Hatteland Display, Conformance test report for HD 26T22 MMD-MA1-FAGA-ES display (65926H)
21	65900012	18	Manual: NGSM, Vision Master FT ECDIS User Guide
20	65900006	4	Manual: NGSM, BridgeCard Quick Reference for VisionMaster FT Central Alarm Management (CAM)
19	DANAK-1912564	2012-11-02	Report: Delta, EMC and environmental test report for PCM4-H77 marine computer
18	DANAK-1911472	2011-07-18	Report: Delta, EMC and environmental test report for DuraMON 26 WS monitor (65926L)
17	CR0607592-1.0	2006-12-06	Report: QinetiQ, EMC and environmental test report for VisionMaster FT Radar
16	75906944	1	Report: TÜV SÜD, EMC test report for MRD26 26" LCD Marine Monitor
15	65900011V2	23	Manual: Northrop Grumman Sperry Marine, VisionMaster Ships Manual- Vol 2
14	65900011V1	23	Manual: Northrop Grumman Sperry Marine, VisionMaster Ships Manual- Vol 1
13	5006934	2	Report: Northrop Grumman Sperry Marine, ECDIS Monitor LCD Test Procedure and Report- ISIC 26in Monitor
12	75931934	1	Report: TÜV SÜD, Environmental test report for PCM4-Q87 Marine Computer in VMFT 340 Console
10	TSTR1201598	2012-07-03	Report: QinetiQ, EMC and environmental test report for ISIC 25,5 Inch Monitor
9	TSTR1102226	2011-08-22	Report: QinetiQ, IEC 61174 (2008), IEC 62388 (2008), IEC 60945 (2002) and IEC 62288 (2008) test report for DuraMON26WS display
8	TSTR1001283	2010-04-26	Report: QinetiQ, IEC 61174 (2008) and IEC62288 (2008) test report for VisionMaster FT ECDIS with 26" Monitor
6	TSTR0900216	1	Report: QinetiQ, IEC 62288 (2008) test report for VisionMaster FT ECDIS
5	TC0905317	2	Report: QinetiQ, VisionMaster Vibration test report for G43 Processor and 25.5 Display
4	E12140.01	2012-08-01	Report: Nemko, Color verification test report for MD 26 KM05 monitor
3	DANAK-1910681-B	2010-01-25	Report: Delta, EMC and environmental test report for PCM4-G43 marine computer

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 and reference to the Type Approval certificate number.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

The scope of the periodical/renewal assessment 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.dnv.com