Certificate no.:
TAA00003DH

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Miscellaneous

with type designation(s)
NACOS Platinum (SharpEye) system platforms

issued to
Wärtsilä Voyage GmbH
Hamburg, **Germany**

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:

This type approval certificate is only valid as part of the EU type examination certificates MEDB00008UZ and MEDB00008V0.

Issued at **Hamburg** on **2024-06-10**
This Certificate is valid until **2029-06-09**.
DNV local unit: **Hamburg – CMC North/East**

Approval Engineer: **Jörg Rebel**

for **DNV**

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.

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
See appendix for details of the NACOS Platinum (SharpEye) system platforms.

Application/Limitation
- Installation is to be performed according to the manufacturer's documentation.
- This certificate only identifies hardware and software used in NACOS Platinum (SharpEye) systems and is intended to be read in conjunction with the individual certificates covering the various NACOS Platinum (SharpEye) systems.
- For details on compliance to system requirements, please see individual certificates for NACOS Platinum (SharpEye) where reference is made to this certificate.

Tests carried out
- Environmental testing: IEC 60945 (2002) incl. Corrigendum 1 (2008)
- Presentation testing: IEC 62288 (2021)*

* Note: only applicable hardware-related tests

Type Approval Documentation

DNV No	Document ID	Rev.	Description
47	390 008 530	01C (2021-03)	Technical Manual MFD Windows IoT installation
36	390 008 516	33 (2024-01)	Technical Manual Multi Function Display MFD
1	ANC-D-0000-0145	01R	List of reports for ENV, EMC and presentation testing for NACOS Platinum

Marking of product
Marking is to be in accordance with requirements in Marine Equipment Directive (MED) 2014/90/EU. For details see individual MED-B certificates at https://approvalfinder.dnv.com/ .

Periodical assessment
Periodical assessment is granted by the annual MED module-D audits.

APPENDIX

Product description

No.	Designation	Type Designation
1•	**Transceiver Units**	• **if MULTIPILOT Platinum is included**
	Radar Scanner	a) X-Band Scanner 5ft, type GR3020 G150 b) X-Band Scanner 8ft, type GR3020 G160 c) S-Band Scanner 14ft, type GR3021 G090 d) S-Band Scanner 14ft, type GR3021 G091 e) X-Band Scanner 8ft, type LPA-A25
	Radar Transceiver	a) 12.5 kW X-Band Transceiver NG3050 with Antenna Turning Unit GR3050 b) 25.0 kW X-Band Transceiver NG3050 with Antenna Turning Unit GR3050 c) 25.0 kW X-Band Bulkhead Transceiver NG3050 A004 d) 0.1 kW X-Band Transceiver NG3060 with Antenna Turning Unit GR3050 SSR e) 30.0 kW S-Band Transceiver NG3051 with Antenna Turning Unit GR3051 f) 30.0 kW S-Band Bulkhead Transceiver NG3051 A002 g) 0.2 kW S-Band Transceiver NG3061 with Antenna Turning Unit GR3051 SSR h) 0.3 kW X-Band Transceiver Mk-11 DTX-A40 with IP-Transceiver Interface XAAE851997
	Turning Units	a) X-Band Turning Unit GR3050 b) X-Band Turning Unit GR3050 SSR [1] c) S-Band Turning Unit GR3051 d) S-Band Turning Unit GR3051 SSR [1] e) X-Band Turning Unit for radar scanner LPA-A25: DTX-A40-BBBA [1]
2	**Main Processing Unit** Display Electronics Platinum (alternatively)	GE3068 | GE3068 A001 to A006 | XAAB727071/ -77/-84/-94 | XAAB994719/ -32/-34 | PAAG410992/ -93 | PAAG426537/-38 Operating system: Microsoft Windows 7 SP1 and Microsoft Windows 10 Pro (Version 1803) Microsoft Windows 10 IoT Enterprise LTSC (Version 1809)* * For GE3068 A003 to A006, XAAB7270xx, XAAB9947xx only including Mariner Kit for a) horizontal b) vertical installation a) MS 2230 or MS 2270 or MS 2330 or MS 2370 or MS 2430 or MS 2470 or MS 2510 or MS 2530 or MS 2550 or MS 2570 or MS 2630 or MS 2670 b) MS 2240 or MS 2280 or MS 2340 or MS 2380 or MS 2440 or MS 2480 or MS 2520 or MS 2540 or MS 2560 or MS 2580 or MS 2640 or MS 2680
3	**Display Units 250mm** [1] (for Radar CAT 2 & ECDIS, alternatively)	a) Monitor Platinum, 22“ TFT-CCFL, P/N 814 003 024 and 814 004 431 [2] b) Monitor Platinum, 22” TFT-LED, P/N 814 007 361 or 814 007 363 (IP 56) [2] c) Monitor Platinum, 22” TFT-LED, P/N 814 007 362 or 814 007 364 (IP 56) [2] d) Monitor Platinum, 22” TFT-LED, P/N 814 007 365 (HB, IP56) [2] e) Monitor Platinum, 24” TFT-LED, P/N 814 008 487 and 814 008 488 [2] f) Monitor Platinum, 24” TFT-LED, P/N 814 008 490 [2] g) Monitor Platinum, 24” TFT-LED, P/N 814 008 481 and 814 008 482 [2] h) Monitor Platinum, 24” TFT-LED, P/N 814 008 484 [2] i) Monitor Platinum, 24” TFT-LED, P/N PAAG411070 and PAAG411071 (STD) [2] j) Monitor Platinum, 24” TFT-LED, P/N PAAG411072 (HB) [2]
4	**Display Units 320mm** [1] (for Radar CAT 1 & ECDIS alternatively)	a) Monitor Platinum, 26” TFT-CCFL, P/N 814 003 025 and 814 004 452 [2] b) Monitor Platinum, 26” TFT-LED, P/N 814 007 144 and 814 007 145 [2] c) Monitor Platinum, 27” TFT-LED, P/N 814 008 491 and 814 008 492 [2] d) Monitor Platinum, 27” TFT-LED, P/N 814 008 485 and 814 008 486 [2] e) Monitor Platinum, 32” TFT-LED, P/N 814 008 437 and 814 008 438 f) Monitor Platinum, 55” TFT-LED, P/N 814 008 422 [3] g) Monitor Platinum, 55” TFT-LED, P/N PAAG411034 [3] h) Monitor Platinum, 27” TFT-LED, P/N PAAG411073 and PAAG411074 (STD) [2]
5	**Operator Units** (alternatively)	a) Platinum BD 3030 (Trackball & optional RADAR, TRACK, or ASCII control panel) b) ECDIS keyboard NSI KSML92x c) Trackball BD 3014 and optional ASCII keyboard BD 3029 * d) HP standard optical scroll mouse and optional HP standard keyboard * * At main workstations a separate dimmable light is required. e) Trackball NSI-E38-76A31D (desktop) and NSI-TBE38F(N)0-OBT1-MC3 (panel mount) f) Platinum BD 3030 G13 (RADAR) & BD 3030 G15 (TRACK) 144 mm panels g) Trackball NSI-MTSX38 (Panel mount)

No.	Designation	Type Designation
6	**Sensor Interfaces** (alternatively)	a) Platinum DCU 2010 (DPU 2010, SIO 2010 and PFM 2200 in one housing) b) Platinum DPU 2010 & SIO 2010 & opt. PFM 2010 for dual power supply c) Platinum DPU 2020
7	**Network Switches** (alternatively)	a) EDS-408A-(T) (SAM) (RJ45 ports) or suffix T added b) EDS-408A-MM-SC-(T) (SAM) (+2x fibre ports) or suffix T added c) EDS-510 (1 GHz)
8	**Optional Components**	a) Power supply STEP PS/1AC/24DC/1.75 or QUINT PS/1AC/24DC/10 or PRO TOP1 (72W/120W/240W/480W/960W, 24V) b) DVI Extender VL-66201 [4] c) DVI/USB Extender VL-66203 [4] or VL-66213 [5] d) DVI Distributor VL-66005 e) Panel PC 12" TFT type PAAG381493 (814 009 244) (Touch) f) Panel PC 22" TFT type AZ3077 G40 & G41 (Touch) [2] g) Panel PC 24" TFT type 814 009 459 & 814 009 471 (Touch) [2] h) Firewall Phoenix FL MGUARD GT/GT 2700197 (814 004 409) i) KVM Matrix System consisting of following components: ControlCenter Compact 64C, ControlCenter Compact 16C (for back-up), several units of DVI-CPU(-UC), DVI-CON(-2), HK-20 Controller and of power supplies MultiPower-6 and SPU25A-105 depending on application project j) Panel PC 24" TFT type 814 009 458 k) Interface Converter WDS2 RS232 / RS485/422 l) USB Extender VL-66199 [5] m) Panel PC 12" TFT type PAAG426570 (Touch) n) Panel PC 27" TFT type PAAG426567 o) Firewall Westermo Lynx L210-F2G 3643-0105 (921002218)
9	**Track Control Units**	• **if TRACKPILOT Platinum is included**
	TRACKPILOT Electronics (alternatively)	GE3069 A021 / XAAC207317 / XAAC962862
	TRACKPILOT Interface	a) GE3060

[1] Components not tested for high-speed craft (HSC) applications
[2] Touch function of monitors not for use
[3] Touch function of monitors restricted for ECDIS applications installed on Platinum Display Electronics of type GE3068 A006, XAAB72707194, XAAB99471934 or PAAG410993 and with WIN 10 IoT operating system..
[4] Distance limited by type of CAT-cable: CAT 7 cable up to 40 m, CAT 6 or CAT 5E cable up to 20 m, direct connection only, no couplers or adapters, all cables from same type; USB cable limited up to 1.8 m.
[5] Distance limited up to 100 m for CAT 7 cable; USB cable limited up to 1.8 m.

Acceptance or use of the product as ECDIS system (if ECDIS is included)

Chart data formats:

The system supports the display and use of digital chart data in the following formats:

- S-52 Ed. 6.1 and Pres. Lib. 4.0 (IHO)
- S-57 Ed.3.1.1 (IHO)
- S-61 Ed 1.0 (IHO)
- S-63 Ed.1.2 (IHO)
- S-64 Ed. 3.0 (IHO)
- ARCS (UKHO) and CM-93/3 (C-Map Prof.)

System interfaces and Subsystems (undisturbed operation):

Data exchange with sensors, additional devices and external data receiver via:
At least one DCU 2010 or DPU/SIO 2010 or DPU 2020 with 5 (five) serial interfaces for reception and transfer of data from connected sensors according to IEC 61162-1 (Edition 5.0, 2016).

1. for reception of sensor data at least delivered by the following sources:

1.1. for the reception of sensor data from 1 (one) up to 3 (three)
radio navigation receiver assessed as conform with requirements of Marine Equipment Directive and marked as defined there which transmits the following information:

- geographic position, status of geographic position, course and speed over ground

1.2. for the reception of sensor data from a
gyro compass assessed as conform with requirements of Marine Equipment Directive and marked as defined there which transmits the following information,

- gyro compass heading

1.3. for the reception of sensor data from a
speed and distance measurement device assessed as conform with the requirements of Marine Equipment Directive and marked as defined there which transmits the following information:

- speed over ground, and/or speed through the water

1.4 for the data exchange with up to 1 (one) additional Electronic chart display and information system (ECDIS) Type: MULTIPILOT or ECDISPILOT Platinum
via local system area network connection (Ethernet LAN) for route data

2. For the exchange with subsystems as follows:

2.1 for the data exchange with 1 (one) **Night Vision Camera System type M-400XR from FLIR**

via local system area network connection (Ethernet LAN) for azimuth and elevation data for platform control and video data for target visualization to up to four different workstations. Video standard H.264/MPEG-4 AVC is applied.

Installation on any of up to 4 (four) workstations for the presentation of the video on its main monitor, but not on its slave monitor, see Technical Manual Doc. ID 390008516, Rev. 21 and higher.

2.2 for the data exchange with a **Sperry Gyro System with up to 4 (four) Gyros and a Data Distribution Unit NAVIGAT 200 DDU**

Serial IEC 61162-1/2 interfaces are applied for heading data, for gyro selection, for INS system data and for BAM alert handling. Sperry gyro compasses require position and speed data, otherwise they switch over to stand-by, a separate cable between one GNSS and the DDU is required as a back-up for INS system data. Please refer to Technical Manual (Doc. ID 390008516 Rev. 25 and higher).

2.3 for the exchange of **RDP data with a 3rd party application via firewall type 814 004 409** (see optional components)

The 3rd party application is embedded into the Platinum CONNING page. The 3rd party application is not subject of this approval and must be approved case-by-case. The Platinum frame provides dimming, home button, indication of being alive, and alerts. If required a text with “non-IMO conformity” can be added to the tab. One RDP application only can be configured in the Toolbar.

2.4 for the exchange and visualization of docking data from a **FUGRO docking system**

Data exchange is provided by serial interface (IEC 61162-1) with proprietary messages (see 390008529_FUGRO-IF_Rev01_200326). Visualization is provided in a sub-menu of the Platinum CONNING page. Platinum frame and sidebar with dimming, alive indication, alert list, home button, and other are still available.

2.5 for the control of an external **dynamic positioning system from Wärtsilä DP System**

Data exchange is provided by proprietary Ethernet messages and visualization by a DP application executed on the Platinum MFD. The DP application is available from the Platinum SuperHome as one further application like RADAR, ECDIS and others. The DP application enables the touch function of the monitor. Other Platinum applications will disable it again, if activated. The installation is described in ANC-D-0000-0178 - Platinum DP Software Integration.pdf, the operating is described in ANC-D-0000-0179 - Operating Instructions Platinum DP.pdf.

2.6 for data exchange with an external **ice radar post-processing application from RUTTER**

This ice radar application is executed on the type approved Platinum Display Electronics (see equipment table in this certificate under Main Processing Unit). The Electronics Unit is connected to the NACOS Platinum network like all other workstations. It has no Platinum SW installed. Data exchange is provided by proprietary Ethernet messages. The post-processor receives the radar image from one of two dedicated radar transceivers, it processes the image for enhanced ice visibility and distributes it on request to workstations in the Platinum network. If ice radar operation is requested by the user, the radar image layer is replaced by the ice radar image layer from the same selected transceiver. All other layers, own ship, lines, symbols, AIS, chart etc. remain as they are. Non-IMO conform operation is indicated in the bottom right corner of PPI. The installation is described in ANC-D-0000-0219-01A Integration of Ice Radar in Platinum.pdf. Operating is included in the standard Platinum Operating Instructions (Doc. ID 390008807 from Rev. 37 onwards). The ice radar processor introduces an additional network load of one transceiver in the Platinum network. This must be considered for project engineering. If ice radar is included, the 100 Mbit switches can be used up to 4 transceivers. The 1 GB network must be used from 5 radar transceivers onwards.

2.7 for data exchange with an external **wave radar post-processing application from MIROS**

This wave radar application is executed on the type approved Platinum Display Electronics (see equipment table in this certificate under Main Processing Unit). The Electronics Unit is connected to the NACOS Platinum network like all other workstations. It has no Platinum SW installed. Data exchange is provided by proprietary Ethernet messages. The post-processor receives the radar image from one dedicated radar transceiver, it processes the image for gaining wave data like wave height and period and distributes these on request to workstations in the Platinum network. Wave data are displayed either on a specific CONNING page or a tools tab in RADAR or ECDIS. The installation is described in ANC-D-0000-0238-01A-ATR Integration of Wave Radar in Platinum.pdf. Operating is included in the standard Platinum Operating Instructions (Doc. ID 390008807 from Rev. 37 onwards).

2.8 for connecting the video input of the Platinum Display Units to different Platinum Display Electronics and/or any other 3rd party computers depending on the actual bridge task via digital **KVM Matrix System from G&D**

A typical application is the bridge of a dredger. A dredger is either operated in sailing mode, in dredging mode or in a combined dredging and sailing mode. In sailing mode all navigation monitors are connected via KVM Matrix System to the Platinum Display Electronics. In dredging mode all navigation monitors are connected via KVM Matrix System to the dredging computers.
In combined mode the user requires free choice of connection depending on his actual bridge tasks.
In the latter case (dredging when sailing) it would be necessary to indicate permanently when-ever a non-navigational application is displayed on a navigation monitor during sailing. This is achieved with a "non-IMO" text on the application page.
The configuration of each application project is subject to case-by-case approval in order to ensure that the monitors of the workstation for navigation and maneuvering are only used for navigational purposes during sailing. Other Platinum Display Units on the bridge might also be used for non-navigational and non-IMO-compliant applications.
The KVM Matrix System from G&D comprises the main matrix CCC64 and the back-up matrix CCC16 as well as computer modules DVI-CPU(-UC) and console modules DVI-CON(-2). Further on the Controller HK-20 and power supplies MultiPower-6 and SPU25A-105 are required. These modules are described in the Technical Manual Platinum MFD (Doc. ID 390008516). Operating is included in the standard Platinum Operating Instructions (Doc. ID 390008807 from Rev. 38 onwards).

2.9 for data exchange with the external **3D forward-looking sonar system type ARGOS from FarSounder**

The sonar system type ARGOS-500 and ARGOS-1000 from FarSounder comprises the FarSounder Transducer, the FarSounder Power Module and the FarSounder Server, an optional firewall and a separate Gigabit network distributing sonar data to up to four Platinum MFDs.
The FarSounder server application is executed on the type approved Platinum Display Electronics hardware (see equipment table in this appendix under No. 2 – Main Processing Unit). This FarSounder server is not used as another MFD in the integrated navigation system.
The Platinum MFDs are upgraded with a separate network card and a client application to visualize the 3D underwater view in the ECDIS chart area alternatively to the chart view or in parallel with the split window function. Therefore, they must be configured at least for ECDIS, but other Platinum applications may be used as well. The Main Platinum Workstations for collision avoidance (Radar) and route monitoring (ECDIS), in a typical INS configuration these are MFD 01 and MFD 02, must not be used or configured for Farsounder operation.
The configuration of each application project is subject to a case-by-case approval in order to ensure that these workstations are not used for FarSounder operation. The installation is described in FARSOUNDER Installation and Operating Manual (Doc. ID ANC-D-0000-0276). Operating is included in the standard Platinum Operating Instructions (Doc. ID 390008807 from version 39 onwards).

2.10 for data exchange with the external **RS24 Dome Radar sensor from Wärtsilä Guidance Marine**

The integration package comprises the RS24 Dome Radar, the ASTERIX protocol converter based on the embedded computer DFI ET-700-BT or Data Respons MXC-2300/M-3E3 and a 24V power supply. The radar data are fed into the standard Platinum network ready to be presented by any MULTIPILOT workstation in the Platinum system.
The Main Platinum Workstations for collision avoidance (Radar) and route monitoring (ECDIS), in a typical INS configuration these are MFD 01 and MFD 02, must not be used or configured for RS24 operation. The configuration of each application project is subject to a case-by-case approval in order to ensure that these workstations are not used for RS24 operation. The installation is described in RS24 Installation and Operating Manual (Doc. ID 94-0601-C RS24) and Technical Manual IP-TIU RS24 (Doc. ID 390008528). Operating is included in the standard Platinum Operating Instructions (Doc. ID 390008807 from version 47 onwards).
This interface is available from Platinum SW Version 2.1.20.01 onwards.

2.11 for the presentation of a **3rd party application with a Chrome browser via firewall type 921002218** (see optional components)

The 3rd party application is embedded into the Platinum Super Home page. The 3rd party application is not subject of this approval and must be approved case-by-case. The Platinum frame provides dimming, home button, indication of being alive, and alerts.
Dimming and selection of color tables is completely controlled via NACOS Platinum application. It shall not be possible to control dimming and selection of color tables via 3rd party application
If required a text with “non-IMO conformity” can be added to the tab. If this 3rd party application requires a connection to a public network, a firewall according to IEC 61162-460 must be used.

3. For further displays:

3.1 BRIDGEPILOT based on a 12-inch Panel PC type PAAG381493 with touch function or
a 12-inch Panel PC type PAAG426570 with touch function

installed at the arm rest or in reach of an operator, operated as a slave display for various navigation sensors and as a control for auxiliary systems like lights and wipers. The navigation instruments for heading, speed and position are in accordance as far as practical with the actual standards IEC 62288, ISO 8728, IEC 61108-1 & IEC 61023. But the BRIDGEPILOT is designed as additional slave display, it will not replace the main display and control unit of a sensor. It does not provide control functions for operational or configuration settings of a sensor. In case of GNSS it will not provide the RAIM information due to missing NMEA sentences from the sensor.

3.2 DATAPILOT based on a 22-inch Panel PC type AZ3077 G40 & G41 or
a 24-inch Panel PC type 814 009 459 & 814 009 471 or
a 24-inch Panel PC type 814 009 458 or
a 27-inch Panel PC type PAAG426567

installed under the ceiling or in a console or as desktop, operated as a CONNING display, without any operator controls and no touch function. The DATAPILOT provides one fixed layout of instruments only. It cannot be changed during operation. Two recommended layouts have been tested according to IEC 62288, one for a dual-rudder and one for a dual-podded-drive vessel. But the arrangement of instruments may change to meet the propulsion layout of a specific vessel. In that case a case-by-case check on-board may be necessary. In general, the same limitation as in 3.1 will apply, the DATAPILOT will not replace the main display and control unit of a sensor.

Additional functionality:

A multi-antenna functionality combining up to four X-band radar videos on a ship in order to create optimum circumferential radar coverage.

Backup arrangements (ECDIS):

If a secondary ECDIS as backup is installed in order to continue ships navigation in the case of a primary ECDIS failure, following arrangements fulfill the IMO requirements for a backup ECDIS:

Installation of a secondary system Type: ECDISPILOT or MULTIPILOT Platinum (SharpEye)

with 1 (one) sensor interface DCU 2010 or DPU/SIO 2010 or DPU 2020 with its own independent connection to a position sensor according to 1.1 and connected to the primary system via local system area network connection (Ethernet LAN) for exchange of route data.

END OF CERTIFICATE