TYPE APPROVAL CERTIFICATE

This is to certify:

That the Personal Computer

with type designation(s)
HP Elite 800 G9 Small Form Factor (SFF) and Tower (TWR) PC

Issued to
Mariner Systems (UK) Ltd.
Wokingham, Berkshire, United Kingdom

is found to comply with
 DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Approved only with Mariner Kit shown on page 2.

Location classes:

Temperature	**D**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**Required protection according to DNV Rules shall be provided upon installation on board**

Issued at **Høvik** on **2023-04-27**

This Certificate is valid until **2028-04-26**.
DNV local unit: **UK & Ireland CMC & VMC**

Approval Engineer: **Martin Skårerverket**

for **DNV**

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Frederik Tore Elter
Head of Section

Product description

HP Elite 800 G9 Small Form Factor (SFF) and Tower (TWR) Personal Computer.
Verified for nominal supply voltage: 230 V ~ 50/60 Hz and 115 V ~ 60 Hz

Application/Limitation

Approval **ONLY** applies when used in conjunction with Mariner Systems (UK) Ltd:

Mariner Kit:
MS2650 HP Elite 800 G9 TWR PC (Desktop configuration)
MS2660 HP Elite 800 G9 TWR PC (Tower configuration)
MS2670 HP Elite 800 G9 SFF PC (Horizontal mount)
MS2680 HP Elite 800 G9 SFF PC (Vertical mount)

Only to be installed together with in-line power filter RF 1004-MST-C.
Shielded cable is required for connection to Ethernet port.
Wireless communication such as WLAN and Bluetooth has not been assessed and is not covered by this type approval.

HP Elite 800 G9 TWR PC:
Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 800 mm
Standard Compass Safe Distance 0.3 Degree deflection: 1000 mm

HP Elite 800 G9 SFF PC:
Steering, Standby and Emergency Compass Safe Distance 1.0 Degree deflection: 700 mm
Standard Compass Safe Distance 0.3 Degree deflection: 1000 mm

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

Software control

All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel

Type Approval documentation

Technical Documentation:	Number	Rev. /Date
Technical Specifications - HP Elite Series 800 G9 PC	c08017769	28 / 2022-10-27
Component Options History - HP Elite Series 800 G9 Desktop PC	-	- / 2022-11-21
Datasheet - RF 1004-MST-C	DS 103-MST	2.0 / 2020-01-30
Marine Type Approval Test Requirements	-	16 / 2022-05
Test Reports:		
Test Report - HP Elite SFF 800 G9 Desktop PC	TL22277	1 / 2022-11-17
Test Report - HP Elite TWR 800 G9 Desktop PC	TL22296	1 / 2022-11-17
Drawings:		
Drawing - MS2650 Assembly	MS2650_A	1 / 2022-11-14
Drawing - MS2660 Assembly	MS2660_A	1 / 2022-11-14
Drawing - MS2670 Assembly	MS2670_A	1 / 2022-11-14
Drawing - MS2680 Assembly	MS2680_A	1 / 2022-11-14

Type approval initial assessment report, DNV UK 2023-04-26.

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
Shock test (15g, 11ms, repeated 20 times for each axis) according to EN 60068-2-27:2009.
Applicable tests for protected equipment according to IEC 60945, 4th edition (2002), except section 8.12 'Corrosion'.

Marking of product

Mariner Kit Number + HP product label, as listed under Application/Limitation.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:
- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

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.

END OF CERTIFICATE