Certificate no.:
TAA00003JD

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Control and Monitoring System

with type designation(s)
Integrated Platform Management System (IPMS)

issued to
ATECH - NEGOCIOS EM TECNOLOGIAS S.A.
São Paulo, SP, **Brazil**

is found to comply with
DNV GL rules for classification – Naval vessels

Application:

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

Temperature	**N/A***
Humidity	**N/A***
Vibration	**N/A***
EMC	**N/A***
Enclosure	**N/A***

*** Software System Certificate**

Issued at **Hamburg** on **2025-01-24**
This Certificate is valid until **2030-01-23**. for **DNV**
DNV local unit: **Control Systems Hamburg DE - Cost Centre**

Approval Engineer: **Heinz Scheffler**

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 USD 300 000.

Product description

The Integrated Platform Management System (IPMS) is a distributed architecture real-time digital control system. The hardware of this open architecture system comprises multifunction control consoles, Portable Operator Unit and Remote Terminal Units etc. (System Diagrams IPMS Architecture - Detailed Design; 00051631 37000 K 0002 C)

The IPMS to provide integrated monitoring and control of:

- ship propulsion
- electrical functions,
- auxiliaries for machinery & systems
- damage control for machinery & systems

The following features can be integrated in the IPMS:

- On-Board Training System (OBTS)
- Battle Damage Control System (BDCS)

IPMS Overall Software Version 1.1
IPMS Basic software
  - Core C3_1.7_20241202
- Applications software PFCT/1.1
  - CAPS ASC
  - CAPS DCS
  - CAPS EPCS
  - CAPS PSC
- HMI/BDCS
  - Marine Application Framework 4.3.13.8984
- OBTS
  - Model 1.2
  - Orchid® Instructor Station (Client) 1.8.1
  - Orchid® Simulator Executive (SE) 1.10.0

Application/Limitation

The hardware which is used in this system must be DNV type approved (Environmental Qualification Compliance Report IPMS; 00051631 37000 F 2041 C).

The Type Approval covers the software design principle and basic application software listed under Product description.

The IPMS Software has been verified based on the design documentation for the Project D43134.

Approval conditions

Documents for approval
Each delivery of the type approved system is to be certified according to DNV GL Naval Vessel Pt 3. Ch 4 Sec.3

Clause for application software control
When the type approved software is revised (affecting all future deliveries) DNV is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Each delivery of the application system is to be certified according to DNV GL Naval Vessel Pt.3 Ch.4 Sec.8. The certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. After the certification all software modifications made after the certification test and as long as the system is in use onboard, are to be recorded. The records, together with the software version(s) in use are to be available for evaluation at request by DNV. Major software changes are to be approved before being installed onboard.

Type Approval documentation

Test reports:

- MoM IPMS Software Validation V1.1 IPMS System PFCT (00051631 37000 Z 0004 0)
- Test Report FAT SW IPMS (00051631 37000 Q 9033 0)
- MoM - Software Factory Acceptance Test IPMS System (00051631 37000 Z 0003 0)
- Software Version Description Document (VDD): Release Note reA PFCT IPMS 1.1; dated 13-12-2024

Documents:

SOFTWARE DEVELOPMENT PLAN (SDP):

- Software Development Plan (SDP) - Detailed Design (00051631 37000 F 0212 A)

SOFTWARE ARCHITECTURE DOCUMENTS (SAD):

- Software Architecture Document (SAD) - IPMS - Detailed Design (00051631 37000 F 0214 0)

SOFTWARE DESIGN DOCUMENTS (SDD):

- Segment Specification - Propulsion - IPMS (00051631 37000 S 0100 F)
- Segment Specification - Electrical Systems - IPMS (00051631 37000 S 0110 F)
- Segment Specification - Auxiliary Systems - IPMS (00051631 37000 S 0120 E)
- Segment Specification - Damage Control Systems - IPMS (00051631 37000 S 0130 E)
- Segment Specification - Battle Damage Control Systems - IPMS (00051631 37000 S 0140 0)
- Segment Specification - On-Board Training Systems (OBTS) - IPMS (00051631 37000 S 0150 0)
- Segment Specification - IPMS System (00051631 37000 S 0160 A)
- Control Applications (SDD-CAPS) -IPMS (00051631 37000 F 0111 B)
- Plant Systems Machinery Simulation (SDD-PSMS) - IPMS (00051631 37000 F 0112 A)

HMI STYLE GUIDE

- HMI Style Guide IPMS (00051631 37000 G 0101 E)

INTERFACE DESIGN DESCRIPTION (IDD)

- Interface Design Description (IDD) – IPMS (00051631 37000 F 0216 A)

FAILURE MODES AND EFFECTS ANALYSIS (FMEA)

- Failure Mode and Effects Analysis FMEA Report IPMS (00051631 37000 F 0218 C)

Manuals (SUM)

- Software User Manual (00051631-37000-F-9012)

REQUIREMENT TRACEABILITY MATRIX (RTM)

- IPMS Requirement Traceability Matrix - RTM SPE (00051631 37000 F 2038 A)

SOFTWARE TEST DOCUMENT (STD)

- Software Factory Acceptance Test (FAT) Specification, Procedure and Protocol (00051631 37000 Q 1001 A)

SW INITIAL ASSESSMENT

- Type Approval Assessment Report (33742954/DNV)

Tests carried out

Type test of software as performed according to various test reports listed in section “Type Approval documentation”.

Place of manufacture

L3HARRIS MAPPS INC.
8565 Côte-de-Liesse
Montréal, Québec
Canada, H4T 1G5

Marking of product

Basic software version is displayed in the system graphical user interface.

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

A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE