Certificate No:
TAA000035N

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Network and Communication Components

with type designation(s)
HN C1000-24T-4G-L and HN C1000-24T-4X-L

Issued to
Hatteland Technology AS
AKSDAL, **Norway**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft
IEC 60945 Ed. 4 (2002-08) Maritime navigation and radiocommunication equipment and systems – General requirements – Methods of testing and required test results

Application :

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

Location classes:

Temperature	**D**
Humidity	**B**
Vibration	**A**
EMC	**B**
Enclosure	**A / IP20**

Issued at **Høvik** on **2022-06-30**
This Certificate is valid until **2027-06-29**.
DNV local station: **Haugesund**

Approval Engineer: **Ståle Sneen**

for **DNV**

Marta Alonso Pontes
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.

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

HN Cisco Catalyst® 1000 Series Switches are fixed managed Gigabit Ethernet and Fast Ethernet enterprise-class Layer 2 switches. The switches are prepared for 19" rack mounting.

Type	Description	Power supply option	Compass safe distance	
			Standard	Steering
HN C1000-24T-4G-L	Fanless, 24x 10/100/1000 Ethernet ports, 4x 1G SFP uplinks	100~240 VAC, 50~60 Hz	240 cm	150 cm
HN C1000-24T-4X-L	Fanless, 24x 10/100/1000 Ethernet ports, 4x 10G SFP+ uplinks	100~240 VAC, 50~60 Hz	240 cm	150 cm

Overview of tested firmware versions are listed in LET_DNV PR103900 20220524-1 listed under Type Approval documentation.

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.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.
Applicable tests for protected equipment according to IEC 60945, 4th edition (2002).
5 g / 10 ms / half sine shock test according to EN 60068-2-27:2009.

Marking of product

The products to be marked with:
- manufacturer name (Hatteland/Cisco)
- type number
- serial number
- power supply ratings

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