

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)

Communication Screened Permanent Link, Class EA

Issued to

**B.V. Twentsche Kabelfabriek
Haaksbergen, Netherlands**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Communication Screened Permanent Link, Class EA

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

Issued at **Høvik** on **2017-09-18**

This Certificate is valid until **2022-09-17**.

DNV GL local station: **Rotterdam**

for **DNV GL**

Approval Engineer: **Ivar Bull**

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**Andreas Kristoffersen
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.



Product description

Communication Screened Permanent Link, Class E_A consisting of:

- Cat.7 S/FTP cable (solid or stranded conductor) **DNVGL type approval E-12721**
- Screened Category 6_A wall outlet **DNVGL type approval TAE00001YS.**

Link values* (cable and connector): Electrical data at 20°C **Solid conductor:**
Near End CrossTalk NEXT

Table 2. Worst case margins at selected nominal frequencies.

Nominal Freq. [MHz]	Meas. Freq. [MHz]	Meas. value [dB]	Limit value [dB]	Calc. margin [dB]
1	1.0	90.3	65.0	25.3
4	3.5	76.7	65.0	11.7
16	16.0	62.3	54.6	7.7
100	99.6	55.9	41.9	14.0
250	250.5	44.2	35.3	8.8
500	500.0	35.9	29.2	6.7

Attenuation to crosstalk ratio ACR-N

Table 5. Worst case margins at selected nominal frequencies.

Nominal Freq. [MHz]	Meas. Freq. [MHz]	Meas. value [dB]	Limit value [dB]	Calc. margin [dB]
1	1.0	88.7	61.0	27.7
4	3.5	73.8	61.0	12.8
16	16.0	56.2	47.7	8.5
100	99.6	40.0	24.3	15.7
250	250.5	18.8	6.7	12.1
500	500.0	-0.8	-12.4	11.6

Link values* (cable and connector): Electrical data at 20°C **Stranded conductor:**
Near End CrossTalk NEXT:

Table 2. Worst case margins at selected nominal frequencies.

Nominal Freq. [MHz]	Meas. Freq. [MHz]	Meas. value [dB]	Limit value [dB]	Calc. margin [dB]
1	1.0	89.0	65.0	24.0
4	3.5	80.2	65.0	15.2
16	16.0	71.1	54.6	16.5
100	99.6	54.1	41.9	12.3
250	250.5	42.6	35.3	7.3
500	500.0	36.2	29.2	7.0

Attenuation to crosstalk ratio ACR-N

Table 5. Worst case margins at selected nominal frequencies.

Nominal Freq. [MHz]	Meas. Freq. [MHz]	Meas. value [dB]	Limit value [dB]	Calc. margin [dB]
1	1.0	87.2	61.0	26.2
4	3.5	77.3	61.0	16.3
16	16.0	64.9	47.7	17.2
100	99.6	37.7	24.3	13.4
250	250.5	16.1	6.7	9.4
500	500.0	-2.0	-12.4	10.4

Job Id: **262.1-021827-1**
Certificate No: **TAE00001W0**

Cable Manufacturer:

B.V. Twentsche Kabelfabriek.

Connector manufacturer:

Multimedia Connect TKH Group, 91320 Wissous, France.

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

The information related to EN certification from recognised test institution is taken as information only
To be installed according to the manufacturers installation recommendation.

Type Approval documentation**Tests carried out**

Standard	Release	General description	Limitation
DNVGL-CP-0404	2015	Maritime LAN - Horizontal cabling - Copper permanent link	
IEC 61935-1	2015	Specification for the testing of balanced and coaxial information technology cabling as specified in ISO/IEC 11801 and related standards	
ISO/IEC 11801	2010-04	Information technology – Generic cabling for customer premises, incl. Amd 1 and 2.	Ref. to requirement for link type: E _A /6 _A (500 MHz), for category cable: 7 (600MHz), for connector type: E _A (500 MHz),
IEC 61156-5	2013-01	Symmetrical pair/quad cables for digital communications – Symmetrical pair/quad cables with transmission characteristics up to 1000MHz horizontal floor wiring.	Cat. 7 – 600MHz
IEC 60603-7-51	2010-04	Connectors for electronic equipment - Part 7-51: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 500 MHz	
EN 50173-1	2011-06	Information technology – Generic cabling systems – Part 1. General requirements.	
EN 50288-4-1	2013-06	Multi-element metallic cables used in analogue and digital communication and control - Part 4-1: Sectional specification for screened cables characterised up to 600MHz – Horizontal and building backbone cables	

Marking of product

Cable:

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B.V. Twentsche Kabelfabriek (InduData Cat 7 S/FTP Stranded or Solid) - Cat.7 IEC 60332-3-24 – date – meter marking

Connector:
TKF P/N 800412 MarineConnect Cat.6A Screened connector

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and 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