

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Category cables

with type designation(s)
CU 6502 4P SHF1

Issued to

Dätwyler IT Infra AG
Altdorf, Switzerland

is found to comply with

DNV GL 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 GL.

Issued at **Hamburg** on **2020-10-26**

for **DNV GL**

This Certificate is valid until **2025-10-25**.

DNV GL local station: **Augsburg**

Approval Engineer: **Carsten Hunsalz**

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Arne Schaarmann
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

Category cable CAT 6A U/FTP

Conductor	Solid Bare Copper, AWG 23
Insulation	Foam PE
Cabling / Individual screen	Twisted pairs with Al-/polyester tape
Drain Wire	Tinned copper wire
Outer Sheath	SHF1

Number of cores x conductor cross-section	Overall diameter
	mm
4 x 2 x 23 AWG	OD: 7.2 ±0.2mm

Typical measured values

Frequency [MHz]	1	4	10	100	250	500
Attenuation [dB/100m]	2.1	3.8	5.9	19	30	43
NEXT [dB]	93	93	93	93	83	75
PS NEXT [dB]	90	90	90	90	80	72
ACR-N [dB]	91	89	87	73	53	32
PS-ACR-N [dB]	88	86	84	70	50	29
ACR-F [dB]	96	96	96	74	56	33
PS-ACR-F [dB]	93	93	93	71	53	30
Return loss [dB]	26	28	30	30	27	21

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.

Due to the low cross section of these cables, extra precautions shall be made during installation. In order to achieve a transmission link compliant with Category 6A, cables shall be installed with suitable termination equipment according to manufacturer's recommendations.

Horizontal cables Cat. 6A
Flame retardant in bunch; cat C. Low smoke

Temperature window:
Operation : -20°C to +60°C
Installation : 0°C to +50°C

Type Approval documentation

Specification: 20201007_Technische Spezifikation_CU 6502 SHF1_V.1.0
Data Sheet CU 6502 4P SHF1

Test report: Overview of tests carried out, ref. EXCEL Table
"DNVGL TA Check list -overview of electric tests rev.1"

Tests carried out

Standard	Release	General description	Limitation
DNVGL-CP-0403	2019-07	DNV GL Type approval program for Data communication cables – category cables	Ref. IEC 61156-5 standard Category 6A.
IEC 61156-5	2020-04	Multicore and symmetrical pair/quad cables for digital communications – Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – Horizontal wiring – Sectional specification	Reference to requirement for category cable: 6A
IEC 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame	
IEC 60332-3-24	2018-07	Tests on electric and optical fibre cables under fire conditions – Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category C	.
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

DATWYLER CU 6502 4P AWG23 U/FTP CAT 6A IEC SHF1 NVP79% - DNVGL-CP-0403 -
MADE IN SWITZERLAND (+AUTR. +METR.)

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 to 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