

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Data transmission cables and systems**

with type designation(s)

UC900 SS27 Cat.7; UC900 SS23 Cat.7; UC1500 SS23 Multimedia (Cat.7)

Issued to

**Draka Comteq Germany GmbH & Co. KG
Köln, Germany**

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 **2017-09-29**This Certificate is valid until **2022-09-28**.DNV GL local station: **Essen**Approval Engineer: **Carsten Hunsalz**for **DNV GL**

**Duy Nam Le
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

Halogen free foam-PE insulated and FRNC sheathed twisted pairs data transmission cables

Type: UC900 SS27 Cat.7; UC900 SS23 Cat.7; UC1500 SS23 Multimedia (Cat.7)

UC900 SS27 Cat.7

Conductor: Stranded bare copper wire, (AWG 27/7)
Insulation: Foam skin PE diameter 0,98 mm
Twisting: 2 cores to the pair
Pair screen: Al-laminated plastic foil
Cable lay up: 4 pairs (PIMF) to the core
Screen: Copper braid, tinned
Sheath: FRNC, thermoplastic copolymer (SHF1)

Electrical properties: Loop resistance: $\leq 340 \Omega / \text{km}$
Mutal capacitance: Nom. 43 nF/km at 800 Hz
Character. impedance: 100 Ω
More propertiees according to Draka data sheet
Mechanical properties: Temperature range: -20°C to +60°C (operating)
Bending radius: $\geq 25 \text{ mm}$

UC900 SS23 Cat.7

Conductor: Bare copper wire, 0,56 mm (AWG 23)
Insulation: Foam skin PE, diameter 1,4 mm
Twisting: 2 cores to the pair
Pair screen: Al-laminated plastic foil
Cable lay up: 4 pairs (PiMF) to the core
Screen: Copper braid, tinned
Sheath: FRNC, thermoplastic copolymer (SHF1)

Electrical properties: Loop resistance: $\leq 150 \Omega / \text{km}$
Mutal capacitance: Nom. 43 nF/km at 800 Hz
Character. impedance: 100 Ω
More propertiees according to Draka data sheet
Mechanical properties: Temperature range: -20°C to +60°C (operating)
Bending radius: $\geq 30 \text{ mm}$

UC1500 SS23 Multimedia

Conductor: Bare copper wire, 0,57 mm (AWG 23)
Insulation: Foam skin PE, diameter 1,4 mm
Twisting: 2 cores to the pair
Pair screen: Al-laminated plastic foil
Cable lay up: 2 x 2 pairs to the core
Screen: Copper braid, tinned
Sheath: FRNC, thermoplastic copolymer (SHF1)

Electrical properties: Loop resistance: $\leq 135 \Omega / \text{km}$
Mutal capacitance: Nom. 43 nF/km at 800 Hz
Character. impedance: 100 Ω
More propertiees according to Draka data sheet
Mechanical properties: Temperature range: -20°C to +60°C (operating)
Bending radius: $\geq 35 \text{ mm}$

Application/Limitation

Data communication cable
 Installation / Horizontal cable
 Halogen free, Low smoke

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.

In order to achieve a transmission link compliant with Category 7, cables shall be installed with suitable termination equipment according to manufacturer's recommendations.

Type Approval documentation

Test report : Draka Comteq reference 2006035_DA_summery, dated of 19.09.2006
 Draka dated 03.11.2016, 02.05./06.03.2017

Data sheet: UC900 SS27 Cat.7 uc09ss27s-ftp_e Version 1.1 dated 08.07.2016
 UC900 SS23 Cat.7 uc09ss23s-ftp_e Version 1.7 dated 13.03.2017
 UC1500 SS23 Multimedia uc15ss23s-ftp_e Version 1.4 dated 13.03.2017

Tests carried out

Standard	Release	General description	Limitation
	2015-12	DNV GL Type Approval Programme DNVGL-CP-0403	
IEC 61156-5	2009-05	Multicore and symmetrical pair/quad cables for digital communications - Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz - Horizontal floor wiring - Sectional specification	Reference to requirement for category cable: Cat 7 (600MHz)
ISO/IEC 11801	2010-04	Information technology - Generic cabling for customer premises, inc Amd 1 and 2.	Reference to requirement for category cable: Cat 7 (600MHz)
EN 50173-1	2011-09	Information technology - Generic cabling systems - Part 1: General requirements	
EN 50288-4-2	2012-01	Multi-element metallic cables used in analogue and digital communication and control - Part 4-2: Sectional specification for screened cables characterised up to 600 MHz	
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	2009-11	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	Bunch test Category C

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Certificate No: TAE000029X

Standard	Release	General description	Limitation
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
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	2013-07 2013-09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

Example:

DRAKA UC900 SS23 C7 S/FTP 4P LSHF-FR batch no. + meter marking + IEC 60332-3-24
DRAKA OceanLine – 900 SS23 C7 S/FTP 4P LSHF-FR batch no. + meter marking + IEC 60332-3-24
DRAKA UC900 SS27 C7 S/FTP 4P LSHF batch no. + meter marking + IEC 60332-3-24
UC MULTIMEDIA 1500 SS23 6F S/FTP 4P LSHF-FR batch no. + meter marking + IEC 60332-3-24

Place of Production

Draka Comteq Germany GmbH & Co. KG, Wohlaer Str. 15, D-90457 Nürnberg

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