

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the Data transmission cables and systems**

with type designation(s)  
**RG213 FRNC; RG214 FRNC; RG223 FRNC**

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**

for **DNV GL**

This Certificate is valid until **2022-09-28**.

DNV GL local station: **Essen**

Approval Engineer: **Carsten Hunsalz**

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**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 RG - Cables acc. to American Military-Specification MIL-C-17G

Type: RG213 FRNC; RG214 FRNC; RG223 FRNC

RG213 FRNC / 2YCH 2.25L/7.25;

Inner conductor: Stranded copper wires 7 x 0,75 / 2,25 mm  
Insulation: PE; 7,25 mm  
Braid: Copper wire braid bare  
Sheath: FRNC, thermoplastic copolymer (EVA)

Electrical properties: Mutual capacitance: 100 pF/m  
Impedance: 50 Ohm  
Max. operating frequ.: 1 GHz  
Operating voltage: 3,7 kV rms

Mechanical properties: Operating temp.: -40°C to 85°C  
Bending radius: 5 x outer diameter (without load)

RG214 FRNC; 2YCCH 2.25Ls/7.25Ds;

Inner conductor: Stranded copper wires, silver plated 7 x 0,75 / 2,25 mm  
Insulation: PE; 7,25 mm  
1. Braid: Copper wire braid silver plated  
2. Braid: Copper wire braid silver plated  
Sheath: FRNC, thermoplastic copolymer (EVA)

Electrical properties: Mutual capacitance: 100 pF/m  
Impedance: 50 Ohm  
Max. operating frequ.: 11 GHz  
Operating voltage: 3,7 kV rms

Mechanical properties: Operating temp.: -40°C to 85°C  
Bending radius: 5 x outer diameter (without load)

RG223 FRNC / 2YCCH 0.89s/2.95Ds

Inner conductor: Copper wire, silver plated 0,89 mm  
Insulation: LDPE; 2,95 mm  
1. Braid: Copper wire braid silver plated  
2. Braid: Copper wire braid silver plated  
Sheath: FRNC, thermoplastic copolymer (EVA)

Electrical properties: Mutual capacitance: 100 pF/m  
Impedance: 50 Ohm  
Max. operating frequ.: 12,4 GHz  
Operating voltage: 1,4 kV rms

Mechanical properties: Operating temp.: -40°C to 85°C  
Bending radius: 5 x outer diameter (without load)

## Application/Limitation

Use as radio frequency coaxial cable

## Type Approval documentation

Test report : Draka Comteq reference 2006035\_RF2\_summery, dated of 19.09.2006;  
K50 RG 213, 17.09.2013; K50 RG 214, 17.01.2017; K50 RG 223, 15.03.2017

Data sheet: RG213\_MIL-C-17G\_FRNC\_e Version 1.0 dated 28.08.2009  
RG214\_FRNC\_e Version 1.0 dated 16.12.2008  
RG223\_FRNC\_e Version 1.0 dated 16.11.2010

## Tests carried out

Standard	Release	General description	Limitation
MIL-C-17G	1990	MIL-C-17G, MILITARY SPECIFICATION: CABLES, RADIO FREQUENCY	
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 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 RG213 MIL-C-17G FRNC <batch no.> <meter marking> m  
DRAKA - M17/75 - RG214 FRNC <batch no.> <meter marking> m  
DRAKA - M17/84 - RG223 FRNC <batch no.> <meter marking> m

## Place of Production

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

Draka Comteq UK Limited, Crowther Industrial Estate, Crowther Road, Washington, Tyne & Wear, NE38 0AQ, United Kingdom.

Job Id: 262.1-025966-1  
Certificate No: TAE000029C

## 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