



Certificate No:
TAE00004A5

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)

ALPHATRON RIVERRADAR JMA608/7710 LSZH

Issued to

Batt Cables Public Limited Company
Erith, United Kingdom

is found to comply with

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

Application :

Hybrid RADAR cable with control cores, shielded cores and central coaxial element.

Product approved by this certificate is accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2021-06-21**

This Certificate is valid until **2026-06-20**.

DNV local station: **Italy/Malta CMC**

for **DNV**

Approval Engineer: **Ivar Bull**

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.



Form code: TA 251

Revision: 2021-03

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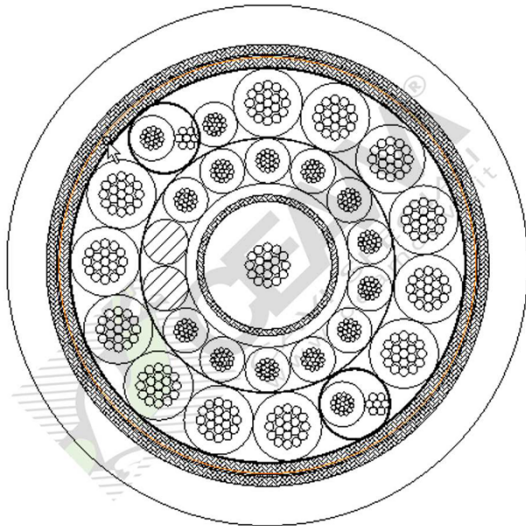
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Product description

DNV Id: 10105376

Product description

ALPHATRON RIVERRADAR JMA608/7710 LSZH



UNIT A:	1x Coaxial cable 50 Ohm	Stranded bare copper wires. Foam PE insulation. AL/PET/AL tape with overlap. Tinned copper wire braid 80% nom coverage. LSZH flamer retardant sheath.
UNIT B:	Control cores 13 x 0,3mm ²	Stranded bare copper wires. PE insulation.
UNIT C:	Shielded cores 2 x 0,3mm ²	Stranded bare copper wires. PE insulation.
UNIT D:	Control cores 12 x 1,3mm ²	Stranded bare copper wires. PE insulation.
	Common screen	AL/PET tape with overlap. Tinned copper wire braid 80% nom coverage.
	Outer sheath	LSZH flame retardant sheath. Outer diameter 16,2mm.

Electric and transmission properties:

UNIT A:	1x Coaxial cable 50 Ohm	Max DC conductor resisttance	16,7 Ohm/km
		Capacitance	82 pF/m
		Characteristic oimpedance	50 Ohm
UNIT B:	Control cores 13 x 0,3mm ²	Max DC conductor resisttance	54,6 Ω/km
UNIT C:	Shielded cores 2 x 0,3mm ²	Max DC conductor resisttance	54,6 Ω/km
UNIT D:	Control cores 12 x 1,3mm ²	Max DC conductor resisttance	16,7 Ω/km

For further details please see cable datasheet.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables	
IEC 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	

IEC 60332-1-2:2004+AMD1:2015	2004	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	Flame retardant small scale
IEC 60754-1	2019-11	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 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%
IEC 60092-350	2020-01	Installation bending test at 15x OD and +20C	20 bending cycles.

Marking of product

ALPHATRON_RIVERRADAR_JMA608/7710_LSZH_- _DNV_Approved_TAE00004A5_- _LOT NO _ _ _ _ _00000m

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) and selected type tests (ref. to applicable class programs) checked (if not available these tests 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