TYPE APPROVAL CERTIFICATE

Certificate No:
TAE000023M
Revision No:
1

This is to certify:

That the Data transmission cables and systems

with type designation(s)
Cat 5e PSM5504, Cat 7 PSM7004, Cat 7S PSM7004S

Issued to
Panduit Corporation
Lockport, IL, USA

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 **2019-06-19**

for **DNV GL**

This Certificate is valid until **2022-09-28**.
DNV GL local station: **Houston, Approval CMC**

Approval Engineer: **Holger Jansen**

Joannis Papanuskas
Head of Section

Product description

Type(s):	**Cat 5e PSM5504 S/FTP 4 x 2 x 0,22mm²**
Standards:	Category 5/5e Installation/Horizontal cable according to: EN 50173-1; EN 50288-2-1, ISO/IEC 11801; IEC 61156-5
Conductors:	Plain, standed copper
Core insulation:	Polyethylene
Screen:	Al/polyester tape
Metal covering:	Tinned, Copper wire braid
Outer sheath:	SHF1

Electric data at 20 °C

Frequency	Attenuation, nominal	NEXT
MHz	(db/100m)	(db)
1	2,1	90
4	4,0	90
10	6,3	90
16	8,0	90

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.

20	9,0	90
31,25	11,4	90
62,5	16,5	86
100	21,3	83

Characterics impedance 100 Ohm
DC-loop resistance ≤158 Ohm/km

Type(s): **Cat 7 PSM7004 S/FTP 4 x 2 x 0,27mm² (stranded)**
Cat 7S PSM7004 S/FTP 4 x 2 x 0,56mm² (solid)
Standards: Category 7, Installation cable according to:
EN 50173-1; EN 50288-4-1, ISO/IEC 11801; IEC 61156-5
Conductors: Plain solid copper or plain stranded copper
Core insulation: Polyethylene
Screen: Al/polyester tape
Metal covering: Tinned, Copper wire braid
Outer sheath: SHF1

Electric data at 20 °C

	Class 1 solid conductor		Class 2 stranded conductor	
Frequency	Attenuation, nominal	NEXT	Attenuation, Nominal	NEXT
MHz	(db/100m)	(db)	(db/100m)	(db)
1	1,8	100	2,0	90
4	3,4	100	3,6	90
10	5,4	100	5,5	90
16	6,8	100	7,5	90
20	7,7	100	7,7	90
31,25	9,6	100	9,8	90
62,5	13,7	100	14,0	86
100	17,4	100	17,9	83
155	21,9	94	22,4	81
200	25,0	92	25,6	78
250	28,1	90	28,7	77
300	30,9	89	31,6	73
600	44,8	85	45,7	71

	Class 1 solid conductor	Class 2 stranded conductor
Characteristic impedance	100 Ohm	100 Ohm
DC-loop resistance	≤ 150 Ω/km	≤138 Ohm/km

Application/Limitation

Temperature window
Operation: - 40°C to +85°C
Installation: - 15°C to +50°C

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.

Type Approval documentation

Data sheets: IE_ToughCat5_S_FTP_e, dated 14.11.2014
IE_ToughCat7_S_FTP_e, dated 14.11.2014
IE_ToughCat7S_S_FTP_e, dated 14.11.2014
Test report: Draka test report summary dated 2004-01-30

Tests carried out

Standard	Issued	General description	Limitation
IEC 61156-5	2009-10	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 5e (100MHz), Cat 7 (600MHz)
ISO/IEC 11801	2014-10	Information technology – Generic cabling for customer premises, inc Amd 1 and 2.	Reference to requirement for category cable: Cat 5e (100MHz), Cat 7 (600MHz)
IEC 60332-3-24	2009-02	Flame retardance in bunch, cat. C	
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables – Determination of the amount of halogen acid gas	Low Halogen
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables – Determination of the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and condctivity	Halogen free
IEC 61034-1/2	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke

Marking of product

Panduit Cat 5e PSM5504 S/FTP 4x 2 x 0,22mm2 - CERTIFIED BY DNVGL-CP-0403 CATEGORY 5e S/FTP 4x2/0,22mm^2 - IEC 61156-5 EN 50288-2-1 IEC 60332-3-24 - LSHF-FR - Batch no.- Metermarking
or

Panduit Cat 7 PSM7004 S/FTP 4x2x 0,27mm2 - CERTIFIED BY DNVGL-CP-0403 CATEGORY 7 S/FTP 4x2/0,27mm^2 - IEC 61156-5 - EN 50288-4-1 IEC 60332-3-24 - LSHF-FR - Batch no. - Metermarking
or

Panduit - Cat 7S PSM7004S S/FTP 4x2x 0,56mm - CERTIFIED BY DNVGL-CP-0403 CATEGORY 7S S/FTP 4x2/0,56mm - IEC 61156-5 - EN 50288-4-1 - IEC 60332-3-24 - LSHF-FR - Batch no. - Metermarking

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.

END OF CERTIFICATE