

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)
S/FTP Flex 4 pairs AWG23 Cat.7 SHF1

Issued to
AP Solutions Oy
Rovaniemi Lappi, Finland

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards
Type Approval Programme No. 6-827.50-2
IEC 60332-3-24 (2009-02)

Application :

Data communication cable. Installation / Horizontal cable.
Flame retardant Cat. C. Halogen Free. Low smoke.
In order to achieve a transmission link compliant with Category 7, cables shall be installed with suitable termination equipment according to manufacturer's recommendations.

Voltage (kV)	100
Temp. class (°C)	80

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-06-26**

DNV GL local station: **DNV Milan**

for **DNV GL**

Approval Engineer: **Ivar Bull**

.....
Marit Laumann
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. If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million. In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

Certificate No: **E-13438**
File No: **827.50**
Job Id: **262.1-017409-1**

Product description

Type(s):	S/FTP Flex 4 pairs AWG23 Cat.7 SHF1
Standards	Category 7, Installation cable according to: EN 50288-4-2
Conductors:	Plain, stranded copper
Core insulation:	Cellular Polyolefine CEI EN 50290-2-23 PE cellular Insulation
Screen:	Al/polyester tape on each pair and tinned copper wire braid
Outer sheath:	Cross linked PE. UV- resistant.

Number of cores x conductor cross-section mm ²	Overall diameter mm
4 x 2 x 0,28	10 ±0,2

Frequency MHz	Attenuation, Max (acc EN) [dB/100m]	NEXT [dB/100m]	Return Loss [dB/100m]
1	2,2	100	35
4	3,8	100	31
10	5,9	95	38
16	7,4	90	32
20	8,4	90	32
31,25	10,5	90	31
62,5	15,3	85	27
100	18,1	82	34
155	23,2	80	28
200	26,6	77	25
300	33,3	71	23
600	50,1	67	21

Characteristic impedance 100 ± 5 Ohm
DC-loop resistance 139 Ohm/km

Manufactured by

TecniKabel S.P.A.
10088 - VOLPIANO (TO)
ITALY

Application/Limitation

Temperature window:
Operation: - 40°C to +80°C
Installation: - 25°C to +80°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 sheet:](#)
APS datasheet art. No: O7SF4P23F1 .

[Test reports:](#)
Test report 227 Rev. 0 Dated 29-7-2009
Test report 227 Add. Rev. 0. Dated 01-10-2009

Certificate No: **E-13438**
File No: **827.50**
Job Id: **262.1-017409-1**

TR 2009-008. Coupling attenuation and Screening attenuation
CSI No 0462/DC/REA/09-1 Dated 22/7-09. Flame retardant properties

Tests carried out

Tested according to Type Approval Programme 6-827.50-2.
IEC 60332-3-24, IEC 60754 1/2 and IEC 61034 1/2.

Marking of product

APS Finland - SFTP Flex 4x2x23AWG Cat.7 SHF1 - IEC60332-3-24 Cat C - TK - month/year + meter

Periodical assessment

The scope of the Periodical assessment to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routine tests (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensure traceability between manufacturer's product marking and Type Approval Certificate.

Survey to be performed at least every second year.

END OF CERTIFICATE