LTC ADSS-250

Loose Tube Cable All Dielectric Self-Supporting

Group: LTC-ADSS-250

Date: 29-03-2024

The Loose Tube Cable All Dielectric Self-Supporting (LTC ADSS) is a metalfree aerial distribution cable, with dry waterblocking and aramid yarns under the outersheath. This cable is to be used under all dielectric circumstances, for example on distribution and high voltage power lines, railway, tram, trolley bus lines and between buildings. Because of its strong tensile members it is suitable for aerial applications without using additional strenght members. This cable is designed for spans between approx. 250 and 450 mtrs, depending on installing and surroundings conditions, with the conditions from the NESC tables as a basis. For further information, please consult document Sag & Tension Calculations under characteristic ‘Specification’.

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Product characteristics

Cable type	LTC
Fibre type	Singlemode
Optical fibre standard	ITU-T G.657.A1
Optical element	Loose tube, gel filled
Cable metal free	Yes
Strain relief	Yes
Material outer sheath	HDPE
Colour outer sheath	Black

Application

Test procedures	EN IEC 60794-1-2
Application	Outside

Optical specification

Max. attenuation @ 1310 nm	0.38 dB/km
Max. attenuation @ 1550 nm	0.24 dB/km
Max. attenuation @ 1625 nm	0.26 dB/km

Environmental specification

Longitudinal watertight construction	Super Absorbing Polymer
Installation temperature	-15/55 °C
Transportation and storage temperature	-40/70 °C
Operational temperature range Ta1 - Tb1	-40/70 °C
Max. attenuation increase during Ta1 - Tb1	0.05 dB
Operational temperature range Ta2 - Tb2	-40/70 °C
Max. attenuation increase during Ta2 - Tb2	0.15 dB
UV resistant	Yes

Products

Article number	Description	Outer diameter approx.	Netto weight (kg/m)	Min. bending radius after installation	Min. bending radius during installation	Tensile load short term (tm)	Tensile load long term (tl)
77680	12x SM G.657.A1 (6x2)	13.9 mm	0.145	205 mm	275 mm	14500 N	14500 N
77681	24x SM G.657.A1 (6x4)	13.9 mm	0.147	205 mm	275 mm	15000 N	14700 N
77682	24x SM G.657.A1 (2x12)	15.0 mm	0.169	225 mm	300 mm	19000 N	16900 N
77683	48x SM G.657.A1 (6x8)	14.6 mm	0.163	220 mm	290 mm	15100 N	15100 N
77684	48x SM G.657.A1 (4x12)	15.0 mm	0.17	225 mm	300 mm	18600 N	16600 N

Article number	Description	Outer diameter approx.	Netto weight (kg/m)	Min. bending radius after installation	Min. bending radius during installation	Tensile load short term (tm)	Tensile load long term (tl)
77685	72x SM G.657.A1 (6x12)	14.9 mm	0.172	225 mm	300 mm	18700 N	16600 N
77686	96x SM G.657.A1 (8x12)	16.3 mm	0.202	245 mm	325 mm	18900 N	17500 N
77687	144x SM G.657.A1 (6x24)	16.7 mm	0.206	250 mm	335 mm	17400 N	17100 N

TECHNICAL PRODUCT INFORMATION

Product characteristics - optical fibres **21-06-2023**

Fibre specification G.657.A1

Fibre	
Type of fibre	Hydrogen passivated, dispersion unshifted, matched cladding, bending loss insensitive single mode fibre 9/125 µm Full compatible with G.652.D fibre Optical and geometrical properties exceed ITU-recommendations G.652.D and G.657.A1
Standard	IEC-60793-2-50, B-657.A1
Standard	ITU-T G.657.A1

Characteristics

Parameter		Properties	Unit
Mode field diameter: 1310 nm		9.0 ± 0.3	µm
Mode field diameter: 1550 nm		10.2 ± 0.4	µm
Core non-circularity	max.	6	%
Core/cladding concentricity error	max.	0.4	µm
Cladding diameter		125.0 ± 0.5	µm
Cladding non-circularity	max.	0.7	%
Coating diameter		242 ± 5	µm
Coating/cladding concentricity error	max.	8	µm
Temperature sensitivity: -60 to +85 ºC	max.	0.05	dB/km
Bending sensitivity - 100 turns around Ø50 mm - 1550 nm	max.	0.05	dB
Bending sensitivity - 100 turns around Ø60 mm - 1625 nm	max.	0.05	dB
Bending sensitivity - 10 turns around Ø30 mm - 1550 nm	max.	0.1	dB
Bending sensitivity - 10 turns around Ø30 mm - 1625 nm	max.	0.3	dB
Bending sensitivity - 1 turn around Ø20 mm - 1550 nm	max.	0.75	dB
Bending sensitivity - 1 turn around Ø20 mm - 1625 nm	max.	1.5	dB
Proof test level	min.	0.70	GPa
Fibre curl	min.	4	m
Cable cut-off wavelength	max.	1260	nm
Zero-dispersion wavelength		1300 – 1324	nm
Zero-dispersion slope	max.	0.090	$ps/nm^2 \cdot km$
Chromatic dispersion: 1285 - 1330 nm	max.	|3.2|	ps/nm·km
Chromatic dispersion: 1550 n	max.	17	ps/nm·km
Chromatic dispersion: 1625 nm	max.	21	ps/nm·km
Polarisation mode dispersion: max. individual fibre	max.	0.1	ps/√km
PMD_Q	max.	0.04	ps/√km
Max. attenuation at 1383 nm (α_{1383}) [note a]	< max.	α_{1310}	-
Effective group core refractive index: 1310 nm		1.4671	-
Effective group core refractive index: 1550 nm		1.4675	-
Effective group core refractive index: 1625 nm		1.4680	-

[note a: after hydrogen ageing]

Revision date: 19-12-2019

TECHNICAL PRODUCT INFORMATION

Catenary calculations

LTC ADSS-250

	Wind velocity			Ice thickness		Additional load		Temperature	
	m/s	km/h	mph	mm	inch	kg/m	lbs/ft	ºC	ºF
NESC light	26.5	95	59	0	0	0.073	0.05	-1	30
NESC medium	17.7	65	40	6.5	0.25	0.296	0.2	-10	15
NESC heavy	17.7	64	40	12.5	0.5	0.449	0.3	-20	0

				Installation			Operation		
	Fibre count	Tubes & fibers (n x m)	max. span (m)	nom. sag (%)	nom. tension (N)	nom. CS (%)	vect. sag (%)	max. tension (N)	max. CS (%)
NESC light	12	6 x 2	469	1.0	8462	0.56	3.1	12928	0.80
	24	6 x 4	465	1.0	8504	0.55	3.1	12995	0.78
	24	2 x 12	455	1.0	9550	0.50	2.9	14513	0.70
	24	3 x 8	451	1.0	8968	0.57	3.1	13377	0.80
	36	6 x 6	461	1.0	9336	0.46	2.9	14542	0.66
	48	6 x 8	450	1.0	9169	0.58	3.0	13518	0.80
	48	4 x 12	445	1.0	9394	0.50	2.9	14201	0.70
	72	6 x 12	446	1.0	9525	0.50	2.9	14312	0.70
	96	8 x 12	419	1.0	10645	0.55	2.8	15200	0.73
	144	6 x 24	410	1.0	10618	0.58	2.8	14929	0.77
NESC medium	12	6 x 2	371	1.0	6694	0.46	3.7	13038	0.80
	24	6 x 4	365	1.0	6675	0.45	3.6	13035	0.77
	24	2 x 12	365	1.0	7661	0.42	3.4	14551	0.70
	24	3 x 8	364	1.0	7238	0.38	3.6	13490	0.80
	36	6 x 6	367	1.0	7432	0.39	3.3	14642	0.66
	48	6 x 8	364	1.0	7416	0.49	3.6	13638	0.80
	48	4 x 12	361	1.0	7621	0.42	3.4	14376	0.70
	72	6 x 12	361	1.0	7710	0.43	3.4	14456	0.70
	96	8 x 12	352	1.0	8943	0.47	3.3	15401	0.73
	144	6 x 24	346	1.0	8961	0.51	3.3	15102	0.77
NESC heavy	12	6 x 2	252	1.0	4547	0.35	4.2	13186	0.80
	24	6 x 4	250	1.0	4572	0.34	4.2	13266	0.78
	24	2 x 12	250	1.0	5247	0.32	3.9	14684	0.70
	24	3 x 8	250	1.0	4971	0.36	4.2	13620	0.80
	36	6 x 6	250	1.0	5063	0.29	3.8	14818	0.66
	48	6 x 8	250	1.0	5094	0.36	4.1	13735	0.80
	48	4 x 12	250	1.0	5278	0.32	3.9	14611	0.71
	72	6 x 12	250	1.0	5339	0.33	3.9	14676	0.71
	96	8 x 12	250	1.0	6352	0.37	3.9	15613	0.73
	144	6 x 24	250	1.0	6474	0.39	3.9	15429	0.78

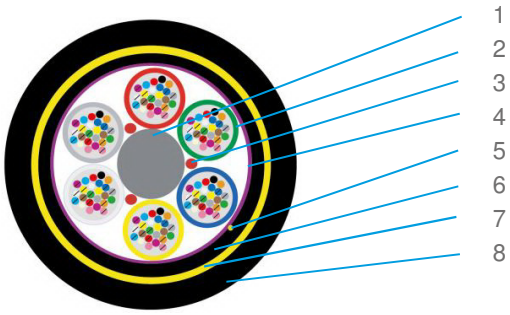
Revision date: 4-12-2019

TECHNICAL PRODUCT INFORMATION

Cable construction and colour code

LTC ADSS-250

FO cable with stranded loose tubes



Description

1	Central element (FRP)
2	Loose tube with optical fibres
3	Waterblocking yarns or tape
4	Swellable tape
5	Ripcord
6	Inner sheath
7	Waterblocking aramid
8	Outer sheath

Standard colours

Fibres				Tubes	
Group 1		Group 2		Layer 1	
1	Red	13	Red +t	1	Red
2	Green	14	Green +t	2	Green
3	Blue	15	Blue +t	3	Blue
4	Yellow	16	Yellow +t	4	Yellow
5	White	17	White +t	5	White
6	Grey	18	Grey +t	6	Grey
7	Brown	19	Brown +t	7	Brown
8	Violet	20	Violet +t	8	Violet
9	Turquoise	21	Turquoise +t	9	Turquoise
10	Black	22	Natural +t	10	Black
11	Orange	23	Orange +t	11	Orange
12	Pink	24	Pink +t	12	Pink

note +t: indicates a black tracer

DECLARATION OF PERFORMANCE (DOP) CE

Nr. DoP0084

1. Unique identification code for the product type:
This declaration concerns all optical fibre cables which are not tested for CPR rating.

2. Intended use of the construction product:
Supply of optical fibre cables in buildings and other civil engineering works with the objective of limiting the generation and spread of fire and smoke.

3. Manufacturer:
TKF (B.V. Twentsche Kabelfabriek)
Spinnerstraat 15
7481 KJ Haaksbergen
Netherlands
Tel.: +31(0)53 573 22 55
E-mail: info@tkf.nl

4. System of assessment and verification of constancy of performance of the construction product asset out in CPR, Annex V: **System 4**

5. Notified body: N.A.

6. Declared performance:

Essential characteristics	Performance	Harmonized technical specification
Reaction to fire	Fca	EN50575:2014/A1:2016
Dangerous substances	NPD	(EC) No 1907/2006, (REACH)

7. The performance of the product identified is in conformity with the declared performance.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in this document.

Signed for and on behalf of the manufacturer by:

H. Woldhuis
R&D Manager Optical Fibre Cables

Haaksbergen, September 20th 2023

Signature

