



**SINGLE MODE
OPTICAL FIBER CABLE SPECIFICATION
(ADSS-Span= 100m)**

No. OP17058

Version: A

Issued: 11. 26, 2021

(ITU-T Rec. G.652.D)

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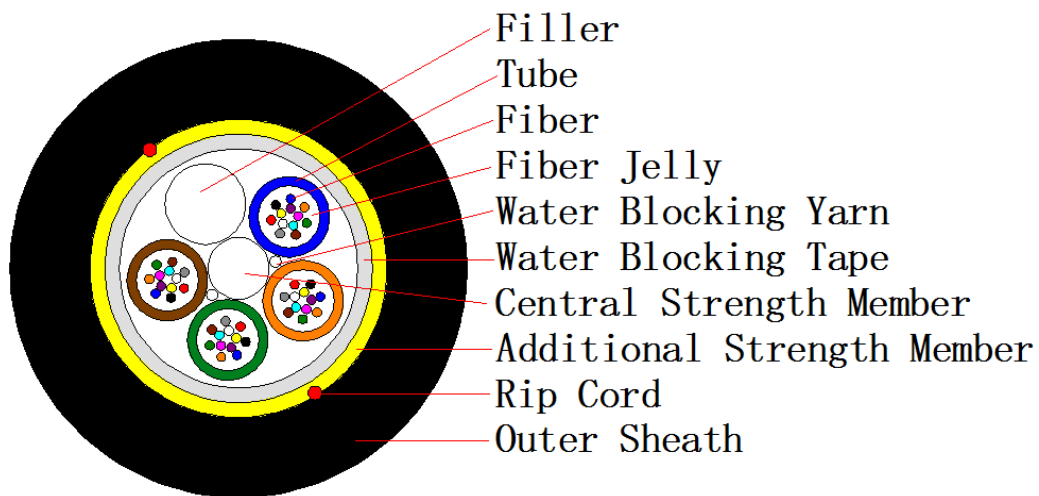
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1. General

- 1.1 The specification covers the construction and properties of single mode optical fiber cable.
- 1.2 The cable shall be used for aerial installation. (Span \leq 60m, Initial sag: 0.5%, flat ground)
- 1.3 The cable generally meets any latest relevant IEC, ITU-T and EIA Recommendation or better.
- 1.4 The fiber shall operate in 1310nm and 1550nm.
- 1.5 The cable could serve for more than 25 years without any significant deterioration.

2. Cross Section of Cable



(ADSS- 48 G.652.D)

3. Optical Fiber in the Cable

➤ Construction

Fiber	Type	Single mode type ITU-T G.652.D
	Material	Ge doped fused silica
Mode field diameter	1310 nm	9.2±0.4 μm
	1550 nm	10.4±1.0 μm
Core- Cladding concentricity error		≤ 0.5 μm
Cladding diameter		125±1 μm
Cladding non-circularity		≤ 1.0 %
Coating	Material	UV curable acrylate
	Diameter	245±5 μm(uncolored) according to TIA/EIA 455-173

➤ Optical characteristics

Attenuation	1310 nm	≤ 0.36 dB/km
	1383 nm	≤ 0.35 dB/km
	1550 nm	≤ 0.22 dB/km
Attenuation coefficient @ 1285~1330nm		≤ Attenuation at 1310nm + 0.03 dB/km
Attenuation coefficient @ 1525~1575nm		≤ Attenuation at 1550nm + 0.02 dB/km
Zero-dispersion Wavelength		1300~1324 nm
Zero-dispersion slope		≤ 0.092 ps/(nm ² /km)
Chromatic Dispersion Coefficient	1285-1330 nm	≤ 3.5 (ps/nm.km)
	1550 nm	≤ 18 (ps/nm.km)
Cable Cut-off Wavelength (λ _{cc})		≤ 1260 nm
Polarization Mode Dispersion(PMD)		≤ 0.2 ps/km ^{1/2}
Macrobend Attenuation (100 turns, Radius: 30mm)	1550 nm	≤ 0.10 dB
Refractive index (typical)	1310 nm	1.466
	1550 nm	1.467
Fiber proof-tested		0.69 GPa (1.0%, 100kpsi) in accordance with the optical fiber proof test by IEC 60793-1-B1

4. Optical Cable

4.1 Construction

Cable Type		ADSS
Number of Fibers		4~216
Fiber	Construction	Consult 3.1
Central Strength Member	Material	FRP or FRP with PE coating
Water Blocking Member	Material	Water Blocking Tape and Water Blocking Yarn
Tube	Material	PBT
	Filling Compound Material	Fiber Jelly
Filler	Material	PP
Additional Strength Member	Material	Aramid or E-glass Yarn
Rip Cord	No.	2
	Material	Polyester (Non-hygroscopic, Non-wicking)
Outer Sheath	Material	HDPE (Black) (With UV radiation protection)
	Thickness	Nom. 1.6 mm

4.1.1 Buffer Tube Stranding

Fiber count	Fiber number per tube	Number of tube / filler		Nom. Diameter (mm)	Nom. Weight (kg/km)
4	2	2/3		9.3	65
8	4	2/3		9.8	75
12	6	2/3		9.9	75
24	6	4/1		9.9	75
36	12	3/2		10.3	80
48	12	4/1		10.3	80
60	12	5/0		10.3	80
72	12	6/0		11.1	95
96	12	8/0		12.5	125
108	12	9/0		13.3	140
120	12	10/0		13.9	155
144	12	12/0		15.7	195
216	12	1 st layer	6/0	15.9	190
		2 nd layer	12/0		

4.2 Identification

Color Code for Fiber and Tube (TIA/EIA-598-A)

No.	1	2	3	4	5	6
Color	Blue	Orange	Green	Brown	Slate	White
No.	7	8	9	10	11	12
Color	Red	Black	Yellow	Violet	Rose	Aqua

5. Optical Fiber Cable Characteristics

5.1 The Mechanical and Environmental Performance of the Cable

Item	Test Condition	Specification at 1550nm
Tensile Loading	IEC 60794-1-2-E1 Mandrel diameter: $\geq 30 \times$ cable diameter Load: $\geq 1,800 \text{ N}$ ($60 \leq F$) $\geq 2,500 \text{ N}$ ($72-120 \leq F$) $\geq 3,000 \text{ N}$ ($144-216 \leq F$) Hold time: 10 minutes	(after test) Attenuation change $\leq 0.10 \text{ dB}$ No fiber break and no sheath damage
Crush	IEC 60794-1-2-E3 Load: 1,000N/100mm Loading time: 10 minutes (one point and one time)	Attenuation change $\leq 0.10 \text{ dB}$ No fiber break and no cable damage
Flexibility	IEC 60794-1-2-E8 Mandrel radius: $20 \times$ cable diameter Flexing speed: 30 cycle /min No. of flexing cycles: 25	Attenuation change $\leq 0.10 \text{ dB}$ No fiber break and no cable damage
Water Penetration	IEC 60794-1-2-F5 Head of water: 1 m Test time : 24 hours Sample length: 3 m	No water leakage at end of cable
Torsion/Twist	IEC 60794-1-2-E7 Length: 2 m Twist angle: $\pm 180^\circ$ Rate: < 1 minute/cycle No. of cycles: 10 cycles	Attenuation change $\leq 0.10 \text{ dB}$ No fiber break and no cable damage
Temperature Cycling	IEC 60794-1-2-F1 Temperature: 0 to $+60^\circ\text{C}$ No. of cycles: 2 Soak time: 24 hours	Attenuation change $\leq 0.10 \text{ dB/km}$ No fiber break and no cable damage

5.2 Installation Conditions

Parameters		Value
Maximum pole span length		60 m
Temperature	Installation	32 °C
	Operation	Tropical, -10 °C to 70 °C
Worst case loading condition (short-term)	Wind Velocity	Max. 126km/hr (40m/s)
	Temperature	25 °C
Initial Sag		0.5% of span length
Relative humidity		Up to 90%, no frost
Min. bending radius of cable	Dynamic	20* cable diameter
	Static	15* cable diameter

6. Cable sheath Marking

- Marking Color: White
- Interval: 1m+1.0%
- Contents(for example):

TTT: The name of Customer

OPTICO: The name of manufacturer.

Laser symbol

20 **:** The year and month of manufacture:eg. 2017 02

AM-ADSS-:** Type of cable, fiber and number of cores:eg.SM-ADSS-24

******M:** Length marking ,starting number is 0000M

※The sheath marking can be changed with customer's requirement

7. Packing and shipping

7.1 Cable Drum: Fumigation wooded drum

Diameter of the barrel $\geq 30 \times$ outside diameter of cable; Spindle hole > 75 mm

Standard reel length: 4,000m/reel (according to customer's requirement)

Drum test: the inner end of the cable shall be recessed into a slot in the drum flange and protected by a metal cover firmly secured to the flange. A minimum length of 1 m. of the inner end shall be accessible.

7.2 Labeling

The direction of rotation of the color scheme is shown by making the clockwise and anti-clockwise ends with red and green adhesive cap respectively. A protective wrap shall be applied over the outer convolutions of the cable on each reel.

The markings are on both sides of the flanges as follows(for example):

- TTT,
- Arrow showing the direction the drum shall be rolled;
- Country of origin;
- The label , 'CAUTION-OPTICAL FIBRE CABLE NOT TO BE LAID FLAT';
- OPTICO;
- A mark indicating the location of the inner end of the cable if located internally

※Can be changed with customer's requirement

Marking Plates

The contents on the plates as follows(for example)

- Cable type: eg. SM-ADSS;
 - Number of fibers and size: eg. OF-24;
 - Cable length in meters;
 - Gross weight in kilograms;
 - Reel number;
 - Manufacturer's name;
 - Year and month of manufacture; eg. 2017.02
 - Project number or Purchasing number;
- ※Can be changed with customer's requirement

-----END OF SPECIFICATION-----