

FIBER OPTIC CABLE PRODUCT

MINI ADSS FIBER OPTIC SINGLE JACKET CABLE.



PRODUCT DESCRIPTION

The fibers are positioned in a loose tube made of a high modulus plastic.

The tubes are filled with a water-resistant filling compound. FRP rods filled.

The cable is completed with a polyethylene (PE) sheath.

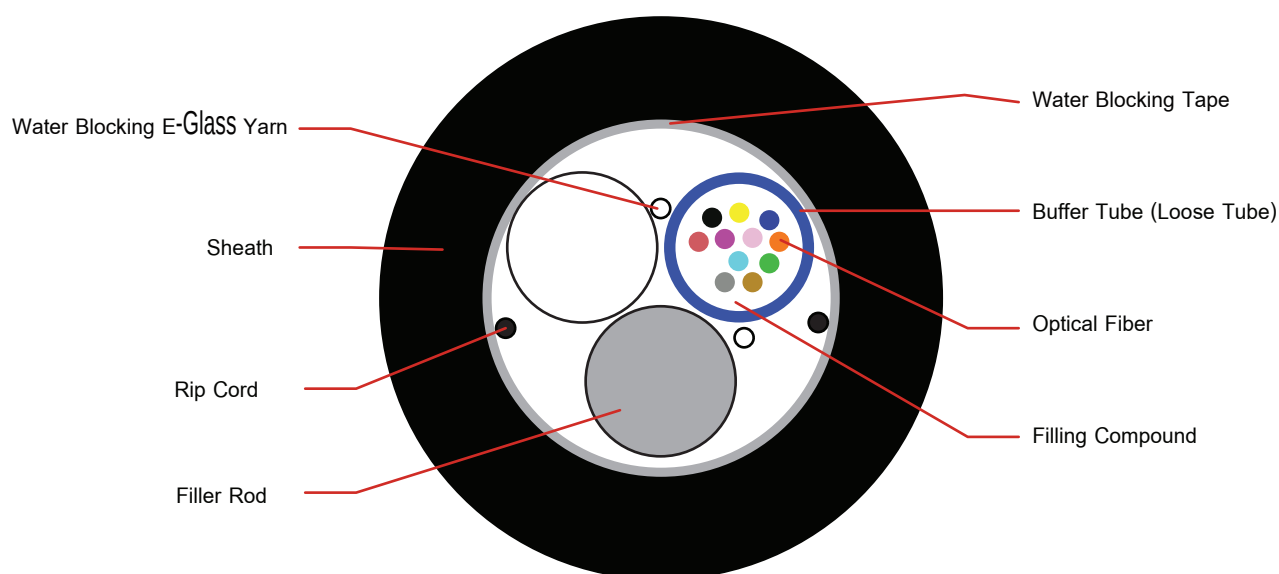
The cable shall be used for aerial or duct installed.

APPLICATION

The actual status of overhead power lines, covers the general requirements of single jacket ADSS dielectric Cable for aerial or duct

STANDARD

- TIA/EIA-598-A, TIA/EIA-598-C, ANSI/TIA/EIA-568-B.3, ANSI/TIA-568-C.3, ANSI/ICEA640, ANSI/TIA-568.3-D
- IEEE802.3 (LAN, Ethernet Fast Ethernet, Gigabit Ethernet and 10 Gigabit Ethernet), 10 G Ethernet, ATM, FDDI, FTTX, Fiber Channel, CATV, Communication
- ISO/IEC 11801:2011 (Ed.2.2)
- Telcordia (Bellcore) GR-20 CORE
- IEC 60793-2B1.3, IEC 60794-1-2, ICEA696, IEC61034-2, IEC60754-2, IEC 60793, IEC 596
- TIS 2166
- ITU-T G.652D, ITU-T G.657A2 (Singlemode)
- RoHS compliant
- Made in Thailand (MIT)



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Item		Specification
Fiber type		Single mode
Fiber material		High grade silica, compound silica glasses or equivalent material.
Fiber primary protective material		UV curable acrylate, UV curable urethane, epoxy acrylate or equivalent material.
Mode field diameter		9.2 μm $\pm$ 0.4 μm @ 1310 nm
Cladding diameter		125 μm $\pm$ 1 μm
Core-cladding concentricity error		$\leq$ 0.5 μm
Cladding non-circularity		$\leq$ 1.0 %
Coating diameter (primary coating)		245 μm $\pm$ 5 μm according to EIA/TIA-445-173
Weight		Approx. 43 $\pm$ 10 kg/km
Temperature Range	Operation	-40°C + 70°C
	Storage	-40°C + 75°C
	Installing	-40°C + 70°C

ATTENUATION COEFFICIENT

Wavelength (nm)	Maximum Attenuation (dB/km)
1310	0.33
1383*	0.30
1490	0.23
1550	0.20
1625	0.21

THE OTHER OPTICAL CHARACTERISTICS

Item		Specification
Zero dispersion wavelength(λ_0) Zero dispersion slope @ λ_0 Chromatic dispersion		1300 ~ 1324 nm
		$\leq$ 0.092 ps/(nm ² .km)
	@1310 nm	$\leq$ 0.35/ $\leq$ 0.33dB/km
	@1383 nm	$\leq$ 0.35/ $\leq$ 0.31dB/km
	@1383 nm	$\leq$ 0.24db/km
	@1550 nm	$\leq$ 0.21/ $\leq$ 0.19dB/km
	@1625 nm	$\leq$ 0.23/ $\leq$ 0.20dB/km
Cable Cut-Off Wavelength (λ_{cc})		$\leq$ 1260 nm according to EIA/TIA-455-170
Attenuation coefficient @ 1285 ~ 1330 nm		$\leq$ Measured attenuation @1310 nm + 0.03 dB/km
Attenuation coefficient @ 1525 ~ 1575 nm		$\leq$ Measured attenuation @1550 nm + 0.02 dB/km
Attenuation with macrobending of fiber 100 turns, 30 mn radius	@ 1550 nm	$\leq$ 0.10 dB
Coating Diameter , Primary		242 $\pm$ 5 μm
Coating Diameter , Secondary		250 $\pm$ 5 μm

Attenuation discontinuity		≤ 0.05 dB
Attenuation vs. Wavelength	1285 -1330 @1310nm	≤ 0.05 dB/km
	1525 -1575@1550nm	≤ 0.05 dB/km
Zero dispersion wavelength		1300 -1324 nm
Zero dispersion slope		≤ 0. 092 ps/(nm².km)
Dispersion	@1310nm	≤ 3.5 ps/nm.km
	@1550nm	≤ 18 ps/nm.km
Polarization mode dispersion(PMD)		≤ 0.2 ps/km ½
Cable cutoff wavelength (λ_{cc})		≤ 1260 nm
Effective group index of reaction	@1310nm	1.4676
	@1550nm	1.4682

Geometric Specifications

Mode field diameter	@1310nm	9.2 ± 0.6 μm
	@1550nm	10.4 ± 0.8 μm
Cladding diameter		125 ± 1 μm
Cladding non -circularity		≤ 0.7 %
Coating Material	Material	UV curable acrylate
	Diameter	245 ± 5μm (uncolored) 250 ± 15μm (Colored)
Coating/Cladding concentricity error		≤ 12 μm
Core/Cladding concentricity error		≤ 0.5μm
Color Fiber Diameter		250 μm ± 15 μm (Colored)
Fiber proof-tested		0.69 GPa (1.0%, 100kpsi) in accordance with the optical fiber proof test by IEC 60793-1-30

CABLE STRUCTURE

Fiber Capacities	NO. of Elements / No. of Fillers	Buffer Tube x Fiber in Buffer Tube	Cable Diameter (mm) (Approx. ± 0.5 mm)
4 Fibers	3/2	1 x 4	6.5
6 Fibers	3/2	1 x 6	6.5
8 Fibers	3/2	1 x 8	6.5
12 Fibers	3/2	1 x 12	6.5

COLOR CODE FOR FIBER AND BUFFER TUBE IDENTIFICATION

The color code of the loose tubes and the individual fibers within each loose tube shall be in accordance TIA/EIA-598-C(Rev.TIA/EIA-598-A) and EIA-359-A

Fibers/Buffer Tube Number	Fiber Identification	Buffer Tube Identification
1	Blue	Blue
2	Orange	-
3	Green	-
4	Brown	-
5	Slate	-
6	White	-
7	Red	-
8	Black	-
9	Yellow	-
10	Violet	-
11	Rose	-
12	Aqua	-

INSTALLATION CONDITIONS

Parameters	Test Method
Maximum pole span length	40 m
Temperature	Installation 75 °C Operation Tropical, -40 °C to 75 °C
Worst case loading condition (short-term)	Wind Velocity Max. 126 km/hr Temperature 75 °C
Initial Sag	0.5% of span length (40 m)
Relative humidity	Up to 90%, no frost

OPTICAL FIBER CHARACTERISTICS

CATEGORY	DESCRIPTION	SPECIFICATIONS
Mechanical Specifications		
Proof test level		≥ 1.0 %
Fiber curl radius		≥ 4.0 m
Peak coating strip force		1.3 - 8.9N
Relative humidity		Up to 90%, no frost
Maximum Span Length	Sag 0.5%	40 m.
	Sag 1.0%	80 m.
Maximum Wind Velocity		80 m and wind force 126 Km/hr
Max. Tensile load	Installation	1200 N.
	Operation	600 N.
Maximum Crush resistance		2200 N./10 cm.
Minimum bending Radius	Installation	20 x Diameter of Cable
	Operation	10 x Diameter of Cable

COLOR CODE FOR FIBER AND BUFFER TUBE IDENTIFICATION

Item		Description
Optical fiber	Construction	As per section 2
Filling compound	Material	Thixotropic compound or equivalent
	Characteristic	Non-hygroscopic, non-nutritive to fungus, electrically nonconductive, free from dirt and foreign matter. It shall be readily removable with conventional non-toxic solvents
Buffer tube	Material	Polybutylene terephthalate (PBT) or polycarbonate or equivalent
	Minimum	1.4 mm (inner)
	diameter	2.0 mm (outer)
	Characteristic	Resistant to kinking and stranded using stranding method of Reverse Oscillating Lay (ROL) Technique (SZ direction)
Filler rod	Material	Fiberglass Reinforced with Plastic (FRP)
	Assembly	placed on position where not interrupt the consecutive positioning of the buffer tube
Stranding	Method	Reverse Oscillating Lay (ROL) Technique (SZ direction)
Water blocking element	Material	Dry swellable materials such as tape or yarn or equivalents
	Characteristic	Dry core technology and fully water-blocked, contain super absorbent polymer (SAP) which rapidly swell upon contact withwater
Water Blocking Tape	Thickness	0.3 ± 0.05 mm
Core covering	Material	Dry swellable material or non-hygroscopic dielectric material
	Characteristic	Completely covered with one or more layers of dry swellable material or non-hygroscopic dielectric material
Core binder	Material	polyester or equivalent materials
	Characteristic	Helically applied around the core of stranded cables to secure the buffer tubes in their position
Additional strength member (if necessary)	Material	Aramid yarns
	Number	To assured that the tensile strength of the cable meet the tensile strength requirement.
		At least one layer or more layers of aramid yarns shall be wrapped around the core covering
Ripcord	Material	Aramid cords
	Number	2
	Characteristic	Capable of slitting the cable sheath for a continuous length of 1 (one) meter
Sheath	Material	UV-proof Black High Density Polyethylene (HDPE)
	Thickness	≥ 1.0 mm
Cable structure		Figure 1

TEST REQUIREMENTS

Item	Method	Acceptance criteria
Tensile test	- Max. tensile strength: 1200 N	-Fiber strain at maximum
IEC 60794-1-2-E1A	- Sample length: 100 meters	-Load max. 0.33 %
TIA/EIA-455-33A	- Times: 1 hour	-Attenuation increase $\leq 0.1\text{dB}$
Crush or Compression test	- Load: 2200 N	-No splits or cracks in the outer jacket
IEC 60794-1-2-E3	- Time: 10 minutes	-Attenuation increase $\leq 0.10\text{ dB}$
TIA/EIA-455-41A	- Length: 100 mm	
Impact test	- Impact energy: 450 g	- No splits or cracks in the outer jacket
IEC 60794-1-2-E4	- Height: 1 meter	-Attenuation increase $\leq 0.10\text{ dB}$ (after the test)
TIA/EIA-455-25B	- Impact points: min.1	
	- Number of impacts: 5	
Torsion or Twist test	- 1 m cable length with 150 N weight	- No splits or cracks in the outer jacket
IEC 60794-1-2-E7	- $\pm 180^\circ$,10 cycles	-Attenuation increase $\leq 0.10\text{ dB}$ (after the test)
TIA/EIA-455-85A		
Repeated bending	- Radius = $20 \times$ cable outer diameter	- No splits or cracks in the outer jacket
Cable bending Test	- 1m cable length with 150 N weight, 30 cycles	-Attenuation increase $\leq 0.10\text{ dB}$ (after the test)
IEC 60794-1-2-E6,		
TIA/EIA-455-104A		
IEC 60794-1-2-E11B		
Temperature cycling test	- Temperature step: $+20^\circ\text{C}$ - 40°C + 70°C - 40°C	-Attenuation variation for reference
IEC 60794-1-2-F1	+ 70°C + 20°C	value(the attenuation to be measured before
TIA/EIA-455-3A	- Time per each step: 16 hrs.	test at $+20\pm 3$) $\leq 0.10\text{dB/km}$
	- Number of cycles: 2 cycles	
Water penetration test	- Water height: 1m	-No water leakage at the end of the sample
IEC 60794-1-2-F5	- Sample length:3m	
TIA/EIA-455-82B	- Duration of test: 24hrs	
Drip test	- Five 0.3m samples suspended vertically in a climate	-No filling compound shall drip from tubes after 24 hrs.
IEC 60794-1-2-E14	chamber, raised temperature to $+70^\circ\text{C}$	

ORDER INFORMATION

