PBN

Optical Fiber Aerial Cable-Central Tube

Single Mode Cable (OFAC-CT-SM)

N1-000

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April 2022

1. General

1.1. Scope

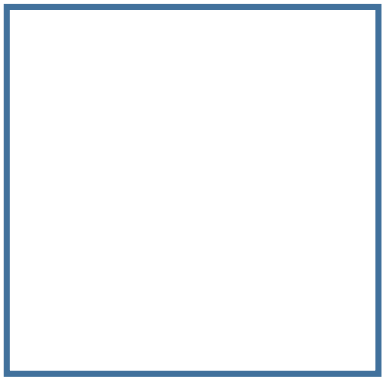
This specification covers the design and performance standards of the Central tube Optical Fiber Aerial Cable (OFAC-CT) with single-mode fiber (G652 D). In the following, the optical, constructional, and mechanical properties of the cable are discussed. All properties are completely compatible with the last edition of TCI technical specifications.

1.2. Cable description

PBN OFAC-CT-SM is an optical fiber aerial cable, constructed with single-mode fiber according to ITU/TIA G652D. This cable contains 2 to 12 fiber cores in a single loose tube, located in the center of the cable. The whole cable is coated with a UV-resistant high-density polyethylene (HDPE) jacket. This cable is well suited to use in severe aerial applications, due to using reinforced wires and having low weight.

1.3. Features

- Low weight
- Armored
- Water-proof
- UV-resistant
- Aerial cable
- Reinforced wire
- Single Jacket
- Single-mode fiber
- Central tube



2. Optical Fiber:

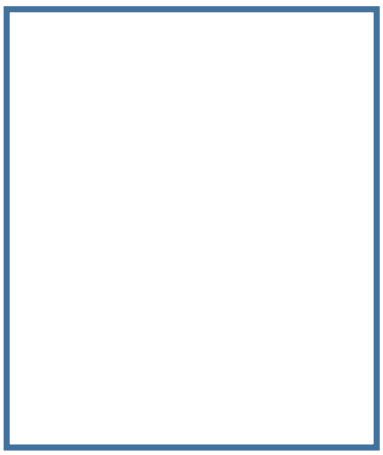
The fibers are single-mode fibers according to ITU-T G652D and contain the following parameters:

Optical characteristics		
Fiber attenuation:	@ 1310 nm	≤ 0.34 dB/Km
	@ 1550 nm	≤ 0.22 dB/km
	@ 1625 nm	≤ 0.24 dB/km
Effective area:		≥ 72 µm
Mode field diameter (MFD):	@ 1310 nm	9.2 ± 0.4 um
	@ 1550 nm	10.4 ±0.8 um
Cable cut-off (λ_{cc}):		≤ 1260 nm
PMD @ 1550 nm:		≤ 0.2 $ps/\sqrt{km}$

Physical characteristics	
Core diameter	Typ 9 µm
Core non-circularity	≤ 6%
Core-clad offset	≤ 0.5 µm
Clad diameter	125 ±0.7 µm
Clad non-circularity	≤ 7%
Coating diameter	245 ± 5 µm

3. Construction:

- Optical Fiber
- Central loose tube
- Swellable yarn and Tape for waterproofness
- Corrugated steel tape
- Reinforced wire
- Outer Jacket



3.1. Central Loose tube

The loose tube is made of Polybutene terephthalate (PBT) with minimum thickness of 0.4 mm. Fibers are helically placed in the loose tube to be capable of expansion and contraction of the fibers. In order to prevent water penetration, the loose tubes are filled with Thixotropic Jelly known as cold jell.

3.2. Swellable Tape and Yarn

For the waterproofness of the cable, the core is wrapped by swellable tape and yarn. The swellable tape also consists of corrosion inhibitors.

3.3.Corrugated Steel

To protect cable against mechanical damages, a layer of corrugated copolymer coated steel tape is used as cable armor. Thickness of steel is 0.155 mm and each coating of copolymer has 0.05 mm thickness on the tape. The tape is corrugated with 0.8 mm amplitude.

3.4.Reinforced wire

A steel wire

3.5. Ripcord:

Under both the inner jacket and outer jacket, two Ripcords are placed to help the operator in stripping the jacket.

3.6.Outer Jacket

Black HDPE (High-density polyethylene) according to ASTM-1248 standard covers the whole cable as an outer jacket with a thickness of 2mm.

4. PHYSICAL AND DIMENSIONAL PARAMETERS:

Number of cores	2 to 12
Configuration	(12 x 1)
Number of Loose tubes	1
Installation Tensile (N)	٢000
Operation Tensile (N)	1٠00
Outer diameter (mm)	8.1
Cable weight per meter (Kg/Km)	55

*. The diameters, weight, and tensions are intended to be typical values.

5. TEST REPORTS:

ITEM	REFERENCE	CONDITION
TWIST / Torsion	EIA/TIA 455-85	2m, 2 cycles, ±2π
COMPRESSION / Crush	EIA/TIA 455-41	220 N/cm
FLEXING	EIA/TIA 455-104	25 cycles
IMPACT	EIA/TIA 455-25	2 Impact at 3 locations, 4.5 kg
LOW OR HIGH-TEMPERATURE BEND	EIA/TIA 455-37	-30°c, +60°c, 4 turns
TEMPERATURE CYCLING	IEC ٦٠794-I-F1	10 cycles, -40°c to +85°c
Water penetration	FOTP-82	1m height, 1m length, 1 hour Retest: 1m height, 3m length, 24 hours