



Optical Fiber Cable -
Corrugated Steel Tape -
Central Tube

Single Mode Cable
(OFC-CST-SM)

J1-000

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1. General

1.1. Scope

This specification covers the design and performance standards of the Optical Fiber Cable- Central tube (OFC-CT) with single-mode fiber (G652 D). In the following, 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 OFC-CST-SM is an optical fiber aerial cable, capable to be used in aerial or direct burial applications., constructed with single-mode fiber according to ITU/TIA G652D. The cable is UV-resistant due to using black high-density polyethylene (HDPE). This cable is well suited to use in Local area network applications, applicable with 2-12 optical fiber cores.

1.3. Features

- Water-proof
- UV-resistant
- Aerial cable
- Double Jacket
- Single-mode fiber
- Outdoor Cable



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^2
Mode field diameter (MFD):	@ 1310 nm	9.2 ± 0.4 μm
	@ 1550 nm	10.4 ± 0.8 μm
Cable cut-off (λ_{cc}):		≤ 1260 nm
PMD @ 1550 nm:		≤ 0.2 ps/ $\sqrt{\text{km}}$

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

3. Construction:

- Optical Fiber
- Central loose tube
- Glass yarn
- Swellable yarn and Tape for waterproofness
- Inner Jacket
- Corrugated Steel Or Aluminum Tape
- Outer Jacket



3.1. Central Loose tube

The loose tube is made of Polybutene terephthalate (PBT) with a 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. Strength member

Glass Yarn is wrapped around the central tube to provide excess force against external tension. It also will make the cable anti rodent by containing small pieces of glass which is harmful for rodents.

3.3. 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.

3.4. Inner Jacket:

Black LDPE (High density polyethylene) according to ASTM-1248 standard covers the whole cable as an outer jacket with the thickness of 1mm.

3.5 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 0.5 mm amplitude.

3.5.Outer Jacket:

Black HDPE (High density polyethylene) according to ASTM-1248 standard covers the whole cable as an outer jacket with the thickness of 1.2mm.

3.6. Ripcord:

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

4. PHYSICAL AND DIMENSIONAL PARAMETERS:

Number of cores	12
Configuration	12 x1
Number of Loose tubes	1
Installation Tensile (N)	1500
Operation Tensile (N)	1000
Outer diameter (mm)	9.6
Cable weight per meter (Kg/Km)	100

*. 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, $\pm 2\pi$
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 60794-1-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