Indoor/Outdoor Tight Buffer Fiber Drop Cable 3.6mm SM G657 2 core Aramid Yarn Single Jacket PVC-OFNP

v1.0

Shenzhen UnitekFiber Solution Limited

Catalogue

1 Cable requirements

1.1 Fiber requirements

Table 1 . Single mode fiber requirements

Item	Detail	Requirement
Fiber type	/	G.657A1
Mode field diameter	Wavelength	1310nm
	Range of nominal values	8.6μm -9.8μm
	Tolerance	±0.4 μm
Cladding diameter	Nominal	125.0μm
	Tolerance	±0.7 μm
Core concentricity error		≤0.5μm
Cladding non-circularity		≤0.7%
Coating diameter	Nominal	245μm
	Tolerance	±5μm
Coating-cladding concentricity error		≤12.0μm
Cut-off wavelength		≤1260 nm

Uncabled fiber macrobending loss	Radius(mm)	25	15	10
	Number of turns	10	1	1
	Max. at 1550 nm(dB)	0.03	0.1	0.5
	Max. at 1625 nm (dB)	0.1	0.2	1.0
Min. proof stress		0.69 GPa		
Dynamic fatigue parameter		≥20		
Chromatic dispersion coefficient	λ_{0min}	1300 nm		
	λ_{0max}	1324 nm		
	S_{0max}	0.092 ps/nm^2 × km		
Other parameters meet standard	ITU-T G.657			

1.2 Cable section view

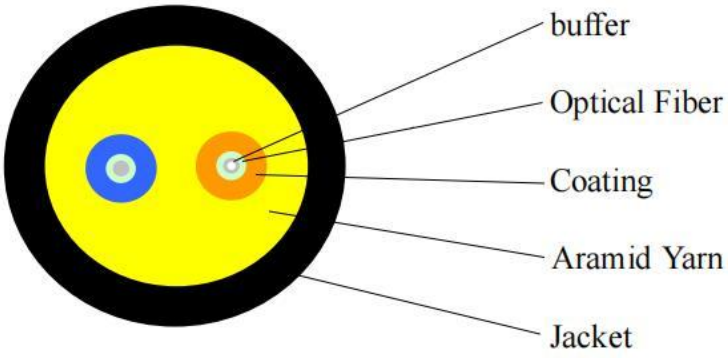

Figure 1 Optical cable section view

1.3 General requirements of optical cable

Table 2 . General requirements of optical cable

Items		Specifications
Fiber Count		2
Tight-buffered Fiber	Dimension	850±50μm
	Material	PVC
	Color	White
Jacket	Dimension	3.6±0.1mm
	Material	PVC-OFNP
	Color	Black

Mechanical and Environmental Characteristics

Items	Unite	Specifications
Tension(Long Term)	N	100
Tension (Short Term)	N	200
Crush（Long Term）	N/10cm	100
Crush（ Short Term）	N/10cm	500
Min. Bend Radius（Dynamic）	mm	20D
Min. Bend Radius（ Static）	mm	10D
Operating Temperature	℃	-20～+60
Storage Temperature	℃	-20～+60

	Sheath color	Black
Other performances		
Min. bending radius of work		20mm
Other parameter meet standar		IEC60794-2-50, YD/T1258.2, ITU-T G.657

Item	**Test Method**	**Requirements**
Tensile	Method: IEC 60794-1-2-E1A Diameter of chuck drums and transfer devices: approximately 250mm Rate of transfer device: 100 mm/min or 100N/min Sample length: not less than 50m Load: 100N for 5 min	No change in attenuation at 1550nm, and fiber strain shall be less than 0.4% during the test. Under visual examination without magnification, no damage to the sheath or to the cable elements after test.
Crush	Method: IEC 60794-1-2-E3 Force: 500 N/10cm Duration: 1 min Length between test locations: 500 mm	No change in attenuation at 1550nm after test. Under visual examination without magnification, no damage to the sheath or to the cable elements. The imprint of the striking surface on the sheath is not considered mechanical damage.
Impact	Method: IEC 60794-1-2-E4 Radius of striking surface: 12.5 mm Impact energy: 1.0 J Number of impacts: at least 3, each separated at least 500 mm	No fiber breakage. Under visual examination without magnification, no damage to the sheath or to the cable elements. The imprint of the striking surface on the sheath is not considered mechanical damage.
Repeat bending	Method: IEC 60794-1-2-E6 Bending radius: 30mm Number of cycles: 200 Mass of weights: 2kg	1.≤0.1dB change in attenuation at 1550nm during the test. 2. There shall be no damage to the cable elements under visual inspection.
Flexing	Method: IEC 60794-1-2-E8 Number of cycles: 300 Pulley diameter: 60mm Mass of weights: 2kg	No fiber breakage. Under visual examination without magnification, no damage to the sheath or to the cable elements
Bending	Method: IEC 60794-1-2-E11A Mandrel diameter: 30mm Tensile: 10N Number of turns per helix: 6	1. ≤0.1dB change in attenuation at 1550nm during the test. 2. There shall be no damage to the cable elements under visual inspection.

	Number of cycles: 3	
Torsion	Method: IEC 60794-1-2-E7 Number of cycles: 10 Distance between fixed and rotation clamp: 250mm Tension load: 20 N Torsion angle: ±180°	1. ≤0.1dB change in attenuation at 1550nm during the test. 2. There shall be no damage to the cable elements under visual inspection.
Kink	Method: IEC 60794-1-2-E10 Minimum loop diameter: 10mm	No kink shall occur
Sheath pull-off force	Method: IEC60794-2-50 Annex B. Rate of separation: ≤200mm/min. Strip length: 50 mm.	The force to strip the sheath shall not be greater than 15N

Remark: "No attenuation changes" is considered as the attenuation changes≤0.05 dB.

1.5 Environment requirements of optical cable (according to IEC60794-2-50 and YD/T1258.2)

Table 4. Environment requirements of optical cable

Item	**Test Method**	**Requirements**
Temperature cycling	Method: IEC 60794-1-2-F1 Temperature: -25℃~75℃ Sample length: ≥1000m Number of cycles: 2 The cooling and heating rate: 1 °C/min. hold time at every temperature plateau should be 8h.	The variation on attenuation shall be less than 0.5dB/km; There shall be no damage to the cable elements under visual inspection.
Cable bending at high temperature	Method: Huawei requirements Temperature :75℃ for 5 hours Bending diameter: 6mm Number of turns per helix: 4	No crack of cable sheath under visual inspection.
Cable bending at low temperature	Method: IEC 60794-1-2-E11A (see IEC 60811-1-4, Clause 8) Bending diameter: 30mm Test temperature:-25℃ for 8 hours Number of turns per helix: 10 Number of cycles: 2	No fiber shall break during the test, there shall be no damage to the cable elements under visual inspection.
Sheath shrinkage	Method: IEC 60794-2-50 Annex C. Sample length: 1050mm Exposure temperature: 75℃ Exposure duration: 24h per cycle Number of cycles: 4	The average of the sheath shrinkage values shall not exceed 20 mm.
Dual 85 test	Test method: Huawei requirements	There shall be no damage to the optical

	Temperature: 85 °C Relative humidity: 85% Sample length:10m Fiber cable coil diameter:40mm Duration of test: 1000 h	cable under visual inspection.
CE declaration	/	The finished cable shall comply with 2011/65/EU (RoHS)

1.6 Flammability

Table 5. Flame resistant index for OFNR cable

No	Item	Unit	Technology index
1	Flame propagation test	/	IEC 60332-1

1.7 Outer sheath mechanical performance

Outer sheath mechanical performance of indoor optical cable should meet the requirements of table 12.

Table 6. Outer sheath mechanism performance

Item	Requirements
Outer-sheath material	PVC (OFNR)
Un-aged mechanical performance	
Tensile strength, MPa	≥10
Elongation,%	≥125
Aging (100℃, 240H) mechanical performance	
After tensile strength variation absolute value,%	≤20
Elongation,%	≥100
Aging elongation variation absolute value,%	≤20

2 Packaging requirement

Packaging materials need to meet environmental protection requirements, and at the same time, during handling and transportation, the packaging needs to have good protection for the product so as not to damage the **product.**

3 Edition record

Date	Author	Reviewer	Version	Revision declaration
2022-1-29	赵朋		V1.0	Final version

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