
Technical Specification

Stranded loose tube optical fiber cables For Outdoor Application for Telecommunication

GYTA53 48B1.3



1. General

1.1 Scope

this specification applies to pipeline non self-supporting overhead communication core network and access network and semi-dry fiber cable. This specification sets the product classification, mode, structure, technical parameters and test methods of optical fiber and fibers, as well as requirements of package and storage

1.2 Description

this product has good mechanical property and environmental performance

1.3 Reliability

The product has completed mass production, with mature and stable production process, strict quality control requirements, regular product performance verification to ensure the reliability of the product.

1.4 Reference

This product is designed, purchased, manufactured, tested and tested according to the following standards, and is subject to the latest published standards.

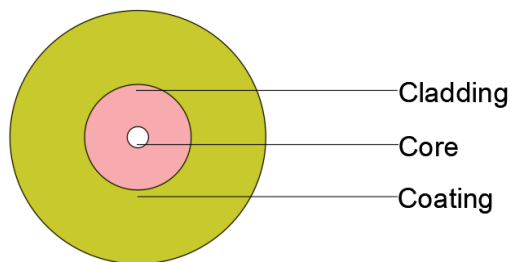
Standard NO	Standard Name
GB/T 9771.3	Single mode fiber for communication: third parts: non dispersive shift mode single mode optical fiber extended at wavelength band
GB/T 12357.1	Multimode optical fiber for communication: first parts: class A1 multimode optical fiber characteristics
YD/T 901	Stranded communication outdoor optical cable
GB/T 7424.2	General specification for optical fibre cables: second part: Basic test methods for optical cables
YD/T 839	Filling and coating composites for telecommunication cables and cables (all parts)
YD/T 1118.1	second coating materials for optical fiber first part: polybutylene terephthalate
YD/T 1181.1	Characteristics of non-metallic reinforcement for optical cable first part: glass fiber reinforced plastic rod
YD/T 1115	Water blocking materials for telecommunication cables and cables (all parts)
YD/T 1113	Characteristics of low smoke zero halogen flame retardant materials for optical cable sheath
YD/T 723.2	Metal plastic composite belt for communication cable optical cable second part: aluminum plastic composite belt
YD/T 723.3	Metal plastic composite belt for communication cable optical cable third part: steel plastic composite belt
GB/T 15065	Black polyethylene plastic for wire and cable

2. Fiber

2.1 Description

Quartz glass (silica) is used as the material of optical fibers, which is generally divided into three layers: the core is a 9 μm high refractive index glass core, the second layer is a 125 μm low refractive index cladding, and the outermost layer is a protective resin coating with a diameter of 245 μm .

2.2 Section of fiber

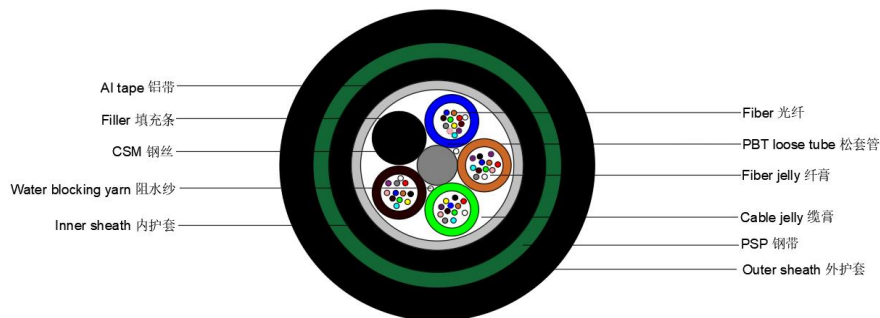


2.3 Technical requirements of fiber

No	Items	Value	Test Standard
1	Core noncircularity	$\leq 6\%$	GB/T 15972
2	Cladding diameter	125.0 $\pm$ 0.7 μm	
3	Core/cladding concentricity error	$\leq 0.6\mu\text{m}$	
4	Cladding noncircularity	$\leq 1.0\%$	
5	Coating diameter	245 $\pm$ 10 μm	
6	Coating/cladding concentricity error	$\leq 12\mu\text{m}$	
7	Attenuation coefficient	1310nm $\leq$ 0.35dB/km	
		1550nm $\leq$ 0.21dB/km	
8	Zero dispersion slope	$\leq 0.092\text{ps}/(\text{nm}^2 \cdot \text{km})$	
9	Zero dispersion wavelength	1300~1324nm	
10	Polarization mode dispersion	$\leq 0.20 \text{ ps}/\sqrt{\text{km}}$	
11	Mode field diameter	1310nm: 9.0 $\pm$ 0.4 μm	
12	Cut-off wavelength λ_{cc}	$\leq 1260\text{nm}$	
13	Chromatic dispersion	1288~1339nm $\leq$ 3.4ps/(nm $\cdot$ km)	
		1271~1360nm $\leq$ 5.3ps/(nm $\cdot$ km)	
		1550nm $\leq$ 18 ps/(nm $\cdot$ km)	
		1625nm $\leq$ 22 ps/(nm $\cdot$ km)	

3.Cable

3.1 Section of cable



3.2 Fiber and Loose Tube Color Code

No	Colors	
1	Blue	
2	Orange	
3	Green	
4	Brown	
5	Grey	
6	White	
7	Red	
8	Black	
9	Yellow	
10	Voilet	
11	Pink	
12	Turquoise	

3.3 Structure parameters of optical cable

No	Item	Parameter
1	Fiber colors	blue/orange/green/brown/grey/white/red/black/yellow/voilet/pink/turquoise
2	Tube colors	blue/orange/green/brown
3	Fiber per tube	12
4	Outer sheath	2.00 mm
5	Cable diameter	14.1 mm
6	Cable section	156mm ²
7	Cable weight	201kg/km
8	Printing	CHANGGUANG GYTA53 48B1. METER YEAR

4.3 Impact Test

Test standard	GB/T 7424.2 - E4
Weight of impact	450g
Height of impact	1m
Points of impact	5
Test results	There is no apparent residual attenuation at 1550nm wavelength. No visible cracking of sheath.

4.4 Repeated Bending

Test standard	GB/T 7424.2 - E6
Bending radius	Cable diameter less than 20 times
Tension loading	150N
Bending times	30
Test results	There is no apparent residual attenuation at 1550nm wavelength. No visible cracking of sheath.

4.5 Torsion/Twist Test

Test standard	GB/T 7424.2 - E7
Sample length	1m
Tension loading	150N
Twist times	10
Twist angle	±180°
Test results	In the reverse to the limit position, there is no significant additional attenuation at 1550nm wavelength. There is no residual residual attenuation in the starting position, and no visible crack in the sheath.

4.6 Water penetration Test

Test standard	GB/T 7424.2 - F1
Temperature range	-40~+60℃
Cycle times	2
Sample length	≥2km
Duration	12h
Test results	Optical fiber has no significant additional attenuation.