TECNICAL SPECIFICATION

1. GENERAL

1.1 SCOPE

Cable type	Application
Self-Supporting Aerial Drop Cable (GJYXCH-4B6)	Outdoor installation cable

1.2 REFERENCE

The cable provided by SUMEC need to pass the following international specifications:

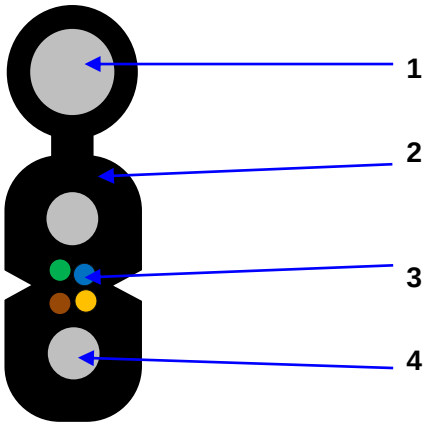
IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-1	Optical fiber cable Part 1-2: Generic specification-basic optical cable test procedures
IEC 60794-2	Optical fibr cables-part 2 indoor cables- sectional specification
ITU-T G.650	Definition and test methods for the relevant parameters of single-mode fibers
ITU-T G.657	Characteristics of a bending-loss insensitive single-mode optical fiber
EIA/TIA 598	Color code of fiber optic cables

2. OPTICAL FIBER

ITU-T G.657.A1 Fiber		
Category	Description	Specifications
Optical Specifications	Attenuation @1310 nm	≤0.40 dB/km
	Attenuation @1550 nm	≤0.30 dB/km
	Zero Dispersion Wavelength	1300~1324 nm
	Zero Dispersion Slope	≤ 0.092 ps/nm2·km
	Cable Cutoff Wavelength (λcc)	≤1260 nm
	Macro Bending Loss (10 turns; Φ30 mm) @1550 nm (10 turns; Φ30 mm) @1625 nm (1 turns; Φ20 mm) @1550 nm (1 turns; Φ20 mm) @1625 nm	 ≤ 0.25 dB ≤ 1.0 dB ≤ 0.75 dB ≤ 1.5 dB
	Mode Field Diameter @1310 nm	(8.6-9.2)±0.4μm
Dimensional Specifications	Cladding Diameter	125±0.7μm
	Cladding Non-circularity	≤0.5%
	Core/clad Concentricity Error	≤0.5μm
Mechanical Specifications	Proof Stress	≥0.69Gpa

3. CABLE STRUCTURE

3.1 CABLE TYPE: GJYXCH-4B6



Picture is only for reference

Features & Application

- Aerial installation
- Easy & simple installation
- Fiber To The Home (FTTH)
- Small diameter & Light weight
- Fiber To The Building/Premise/Curb (FTTB/FTTP/FTTC)

Construction:

1. Messenger wire (**Phosphated Steel Wire**)
2. Outer sheath **(LSZH, Black)**
3. Colored fibers
4. Strength member (**Steel wire**)

Dimensions and Properties

Physical	Fiber count	1-4 G.657A1	
	Messenger wire	1.0±0.1mm	
	Strength member	0.45±0.05mm*2	
	Cable OD(W*H)	2.0±0.1 mm*5.3±0.3mm	
	Cable weight	21kg/km±15%	
	Operation temperature range	-20 deg C to + 60 deg C	
	Installation temperature range	-10 deg C to + 50 deg C	
	Transport and storage temperature range	-20 deg C to + 60 deg C	
Mechanical	Max. tensile load	Long-term:300N	Short--term:600N
	Crush resistance	Long-term:1000 N/10cm	Short--term:2200N/10cm
	Minimal installation bending radius	40mm	
	Minimal operation bending radius	20mm	

Color code scheme:

Fiber color	blue	orange	green	brown

4. TEST REQUIREMENTS

Routine tests of optical fiber

Mode field diameter	IEC 60793-1-45
Mode field Core/clad concentricity	IEC 60793-1-20
Cladding diameter	IEC 60793-1-20
Cladding non-circularity	IEC 60793-1-20
Attenuation coefficient	IEC 60793-1-40
Chromatic dispersion	IEC 60793-1-42
Cable cut-off wavelength	IEC 60793-1-44

TEST LIST

4.1 Separability of wire

Test Standard	JB/T 10696.7-2007
Sample length	500mm
Separation length	200mm
Number of samples	At least 5
Test results	For the suspension wire: the suspension wire can be separated for 200mm from the gap, the tension should be between 3N and 15N. The sheath around the wire should be not damaged For the subunit: the subunit can be separated for 200mm from the gap, the tension should be between 3N and 10N. After separation, the fiber should be revealed completely, and The fiber indicates no damage. The sheath around the wire should be not damaged

4.2 Fiber Tightness

Test Standard	NONE
Sample length	300mm
Number of samples	At least 5
Test results	Without tools, fibers can’t be pulled out

4.3 Tightness of steel wire

Test Standard	NONE
Sample length	400mm
Number of samples	At least 5

Test method	At one end of the cable，the sheath is fixed and weights are suspended under the steel wire at the other end.
Test results	Pulled out force of the suspension wire ≥100N； Pulled out force of the Subunit wire ≥80N；

4.4 Tension Loading Test

Test Standard	IEC 60794-1-21 E1
Sample length	No less than 50 meters
Load	Short-term tension load:600N Long-term tension load:300N
Duration time	10 minutes
Test results	Fiber strain≤0.4% under short term load Fiber strain≤0.2% under long term load
	No change in additional attenuation after test under short term load No change in additional attenuation under long term load
	No damage to outer jacket and inner elements

4.5 Crush/Compression Test

Test Standard	IEC 60794-1-21 E3
Load	Short-term load:2200N Long-term load:1000N
Duration time	1minute
Test results	The additional attenuation≤0.4dB under short term load No change in additional attenuation under long term load
	No damage to outer jacket and inner elements

4.6 Impact Resistance Test

Test Standard	IEC 60794-1-21 E4
Impact energy	1J
Radius	12.5mm
Impact points	5
Impact number	1
Test result	After test, additional attenuation:≤0.2dB
	No damage to outer jacket and inner elements

4.7 Repeated Bending Test

Test Standard	IEC 60794-1-21 E6
Bending radius	30W
Cycles	300 cycles

Load	20N
Test result	Additional attenuation:≤0.4dB after test
	No damage to cable elements

4.8 Bend Test

Test Standard	IEC 60794-1-21 E11
Mandrel diameter	20W
Turn number	3
Cycles	4
Test result	After test, additional attenuation:≤0.2dB
	No damage to outer jacket and inner elements

4.9 Torsion/Twist Test

Test Standard	IEC 60794-1-21 E7
Sample length	1m
Angles	±180 degree
Load	150N
Cycles	10
Test result	No change in additional attenuation
	No damage to cable elements

4.10 Abrasion

Test Standard	IEC 60794-1-21 E2B
Experiment method	The wool felt should be thoroughly impregnated with water
Frequency	6-12cycles/min
Load	20N
Cycles	10
Test result	The marking should be legible after test

4.11 Cable kink

Test Standard	IEC 60794-1-21 E10
Min. Loop diameter	Operating: 20mm, Installation:40mm
Test result	No kink occur

4.12 Cable bending at low temperature

Test Standard	IEC 60794-1-21 E11A
Bending diameter	30mm

Testing temperature	-15℃
Testing time	At least 4 hours
Number of turns	4
Cycles	1
Test result	No change in additional attenuation
	The sheath and fiber should be not damaged under visual inspection

4.13 Temperature cycling Test

Test Standard	IEC 60794-1-22 F1
Temperature step	+20℃→ -40℃ →+70℃→+20℃
Time per each step	At least 8 hours
Cycles	2
Test result	Attenuation variation for reference value (the attenuation to be measured before test at +20±3℃) ≤0.4dB/km

4.14 Flame propagation

Test Standard	IEC 60332-1
Test result	Pass the single cable vertical flame test. Subject to final requirement.

4.15 Smoke density

Test Standard	IEC 61034-2
Test result	Transmittance≥60%

4.16 Environmental performance

Test Standard	RoHS
Test result	Pass the test.

Remark: “No change in additional attenuation” is considered as the addition attenuation≤0.05dB.