BAHÍA TELECOM

SPECIFICATION

Optical Fiber Cable

Drop cable

Type: DRDC-1FO-G657A2

1.GENERAL

1.1 Scope

This listed specification covers the design requirements and performance standard for the supply of optical fiber cable in the industry. It also includes GL premium designed cable with optical,mechanical and geometrical characteristics

Cable Type	Application
Drop cable G657A2	Aerial / duct

1.2 Cable Description

cable possesses high tensile strength and flexibility in compact cable sizes. At the same time, it provides excellent optical transmission and physical performance.

1.3 Quality

GL ensures a continuing level of quality in our cable products through several quality control programs including ISO 9001.

1.4 Reliability

Both initial and periodic qualification testing are performed to assure the cable's performance and durability in the field environments. .

1.5 The cable are designed, manufactured and tested according to international standards as follow

ITU-T G.657A2	Characteristics of a non-zero dispersion single mode fibers optical
IEC 60793-1	Optical fiber Part 1: Generic specifications
IEC 60793-2	Optical fiber Part 2: Product specifications
IEC 60794-4	Optical fiber cables-Part 4: Sectional specification-Aerial optical cables along electrical power lines

2. Fiber parameters: G.657A2

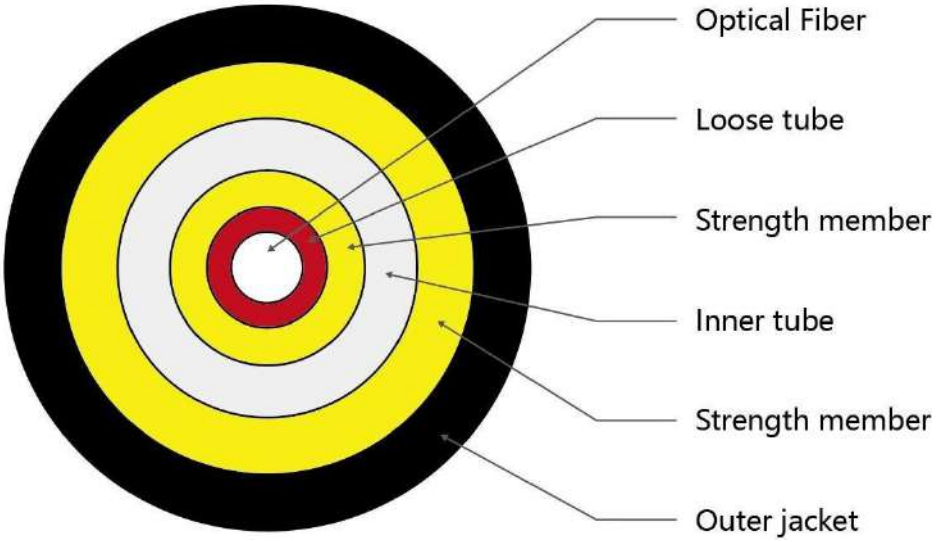
Optics Specifications		
Attenuation(dB/km)	@1310nm	≤0.35db/km
	@1383nm (after hydrogen aging)	≤0.35db/km
	@1550nm	≤0.21db/km
	@1625nm	≤0.23db/km
Dispersion	@1285nm~1330nm	-4.0~4.0ps/(nm*km)
	@1550nm	≤20ps/(nm*km)
	@1625nm	≤25ps/(nm*km)
Zero-Dispersion wavelength		1300~1324nm
Zero-Dispersion slope		≤0.092ps/(nm$_2$*km)
Mode field diameter @ 1310nm		8.8±0.4μm
Mode field diameter @ 1550nm		9.8±0.5μm
PMD	Max. value for fiber on the reel	0.2ps/km 1/2
	Max. Designed value for link	0.08ps/km 1/2
Cable cutoff wavelength,λ cc		≤1260nm
Attenuation caused by macroscopic curvature	1 turn, 5mm radius (@1550nm)	≤0.15dB
	1 turn, 7.5mm radius (@1550nm)	≤0.08dB
	1 turn, 10mm radius (@1550nm)	≤0.03dB
	1 turn, 5mm radius (@1625nm)	≤0.45dB
	1 turn, 7.5mm radius (@1625nm)	≤0.25dB
	1 turn, 10mm radius (@1625nm)	≤0.10dB

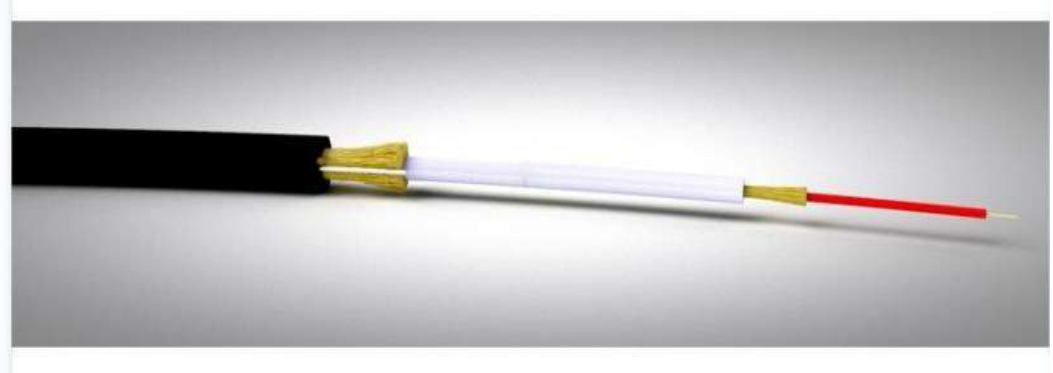
Geometrical characteristics	
Fiber core diameter	9μm
Cladding diameter	125±1μm
Cladding non-circularity	≤1%
Core/cladding concentricity error	≤0.5μm

Fiber diameter with coating(uncolored)	245±5μm
Mechanical characteristic	
Proof test	0.69GPa
Dynamic stress corrosion susceptibility parameter(typical value)	≥20
Environmental characteristics(@1310nm&1550nm)	
Temperature induced attenuation(-60~+85℃)	≤0.5dB/km
Dry heat induced attenuation(85±2℃,30days)	≤0.5dB/km
Water immersion induced attenuation(23±2℃,30days)	≤0.5dB/km
Damp heat induced attenuation(85±2℃,RH85%,30days)	≤0.5dB/km

3. Cable structure

3.1 Cable Type: Double jacket Drop cable DRDC-2FO-G657A2





4. Technical Characteristics

1) The unique extruding technology provides the fibers in the tube with good flexibility and bending endurance
2) The unique fiber excess length control method provides the cable with excellent mechanical and environmental properties Multiple water blocking material filling provides dual water blocking function
3) Max Span up to 50m for this type cable
4) Fiber shall be uniquely identifiable throughout the length of the cable
5) HDPE outer sheath

Fiber Number	1
Max. No of tight buffer tube .	1
Fiber No. per tube	1
Tight buffer tube	PBT
Strength member	Polyester Yarn
Inner sheath	Withe LSZH
Outer sheath	HDPE
Cable OD	5.0±0.2mm
Cable weight	22.0±1.0 kg/km
Operation temperature range	-30 deg C to + 60 deg C
Installation temperature range	-40 ℃ to + 70 ℃
Transport and storage temperature range	-40 ℃ to + 70 ℃
Max Span	50 meter
Tensile strength max installation	200N
Tensile strength at service	180 N
Crush resistance	200N /10cm
Minimal installation bending radius	5 x OD
Minimal operation bending radius	7 x OD
Glaciation	No hail

COLOR IDENTIFICATION OF FIBER

The fibres shall be marked by a coloured coating with RED according to EIA/TIA 598, or OEM according to customer's needs:

Fibre #1: Red

COLOR IDENTIFICATION OF TIGHT BUFFER

Loose Tube #1: Red

COLOR IDENTIFICATION OF INNER TUBU

Tube #1: Withe

COLOR IDENTIFICATION OF outer Jacket

Black

5. TEST REQUIREMENTS

Approved by various professional optical and communication product institution, GL also conduct various in-house testing in its own Laboratory and Test Center. She also conduct test with special arrangement with the Chinese Government Ministry of Quality Supervision & Inspection Center of Optical Communication Products (QSICO). GL possess the technology to keep its fiber attenuation loss within Industry Standards.

The cable is in accordance with applicable standard of cable and requirement of customer. The following test items are carried out according to corresponding reference. 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*

5.1 Tension Loading Test

Test Standard	IEC 60794-1-2 E1
Sample length	No less than 50 meters
Load	Max. installation load 450N
Duration time	1 hour
Test results	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements

5.2 Crush/Compression Test

Test Standard	IEC 60794-1-2 E3
Load	200N
Plate size	100mm length
Duration time	1 minute
Test number	1
Test results	Additional attenuation: ≤ 0.05dB No damage to outer jacket and inner elements

5.3 Impact Resistance Test

Test Standard	IEC 60794-1-2 E4
Impact energy	1.5J
Radius	10.0mm
Impact points	3
Impact number	3
Test result	Additional attenuation:≤0.05dB

5.4 Repeated Bending Test

Test Standard	IEC 60794-1-2 E6
Bending radius	7 X diameter of cable
Cycles	30 cycles
Test result	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements

5..5 Torsion/Twist Test

Test Standard	IEC 60794-1-2 E7
Sample length	2m
Angles	±180 degree
cycles	10
Test result	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements

5.6 Bend Test

Test Standard	IEC 60794-1-2 E11B
Mandrel diameter	7 X diameter of cable
Turn number	4
Number of cycles	10
Temperature	20℃
Test result	No damage to outer jacket and inner elements

5.7 Temperature cycling Test

Test Standard	IEC 60794-1-2 F1
Temperature step	0℃ → +70℃ → -40℃→ 0℃
Time per each step	Transition from 0 ℃ to +70 ℃ :2hours; duration at +70℃:12 hours; Transition from +60 ℃ to -40 ℃ :4hours; duration at -30 ℃ :12hours; Transition from -40 ℃ to 0℃:2hours
Cycles	4
Test result	Attenuation variation for reference value (the attenuation to be measured before test at +20±3℃) ≤ 0.05 dB/km

5.8 Water penetration Test

Test Standard	IEC 60794-1-2 F5
Height of water column	1m
Sample length	3m
Test time	48 hour
Test resul	No water leakage from the opposite of the sample

5.9 Drip Test

Test Standard	IEC 60794-1-2 E14
Sample length	0.3m
Temperature	70 ℃
Duration	24 hrs
Test result	No filling compound shall drip from tubes

5.10 Wind vibration test

Test Standard	IEC 60794 E19
Sample length	1.0m
Wind speed	50KM/hour
Duration	24 hrs
Test result	Additional attenuation:≤0.05dB No damage to outer jacket and inner elements

3. **PACKING**

The cable should be pack as reel in the box, with the followed detailed information:

Cable length: 500 meters/reel
Size of the reel: 315*315*320 mm/reel **Size of the box:** 410*410*325mm/box **Net weight**: 11KG/reel
Gross weight: 14KG/box

4. Mark On the Drum and Cable

The followed option is the default option, we can change it into OEM contents

4.1 The following details will be clearly marked with materials
Weathering resistance on both sides of the drum**:**
1) Buyer Name
2) Cable length (meters)
3) Gross weight (kg)
4) Coil number
5) Manufacturer's name
6) Year of manufacture
7) Direction of coil rotation
If requested by the customer, another brand can also be used.
The Senna hole provided on the reel should be approximately 60 millimeters

4.2 On the external cover and at intervals of 1 meter, the following inscriptions will be indelibly marked, in white and in such a way that it offers resistance to mechanical abrasion, including:
- BUYER NAME
- NAME OF THE MANUFACTURER
- MONTH/YEAR OF MANUFACTURE
- CABLE TYPE, QUANTITY AND TYPE OF FIBERS
- MANUFACTURING LOT OR NO. ROLL
- SEQUENTIAL METRIC

Example:
TB FIBER FTTH Drop cable Bahia Telecom 8/2022 CFO LSZH BLI SM 657A2 1FO YYYY(batch) ZZZZ(sequential metric)