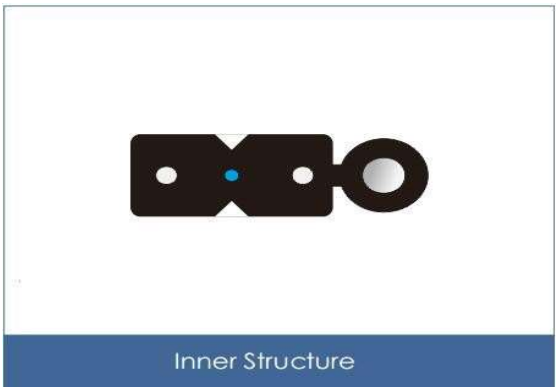
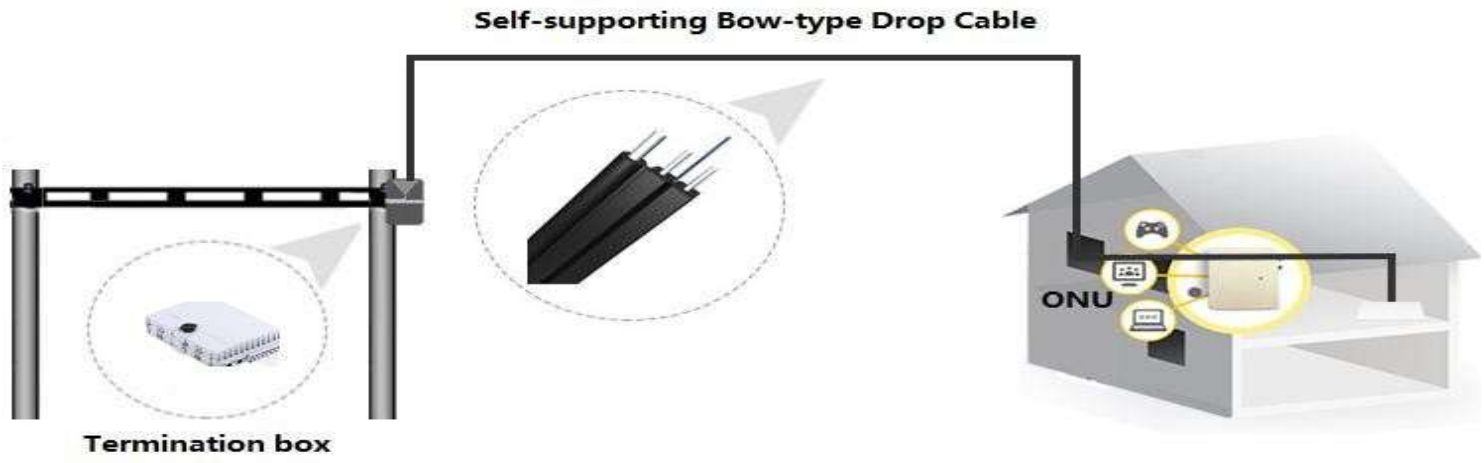
FTTH DROP CABLE with messenger

1. Introduction

FTTH outdoor drop cable is constructed with one or two singlemode fiber (G.657A). The cable is protected by a dielectric strength member made of fiberglass reinforced plastic (FRP), steel wire and a LSZH outer jacket. Designed for outdoor installation, the cable is well suited for connections between the dome closure and small dwelling unit/warehouse and independent villas.





Application

- Outdoor aerial application
- Used in the FTTH projects
- High performance optical network operation
- High speed optical routes in building

Optical Characteristics for G657A single mode fiber			
Attenuation		@ 1310nm	≤ 0.35dB / km
		@ 1383nm	≤ 0.35dB / km
		@ 1460nm	≤ 0.25dB / km
		@ 1490nm	
		@ 1550nm	≤ 0.21dB / km
		@ 1625nm	≤ 0.23dB / km
Attenuation vs. wavelength	@1310nm	1285 ~ 1330nm	≤ 0.03dB / km
	@1550nm	1525 ~ 1575nm	≤ 0.02dB / km
Dispersion coefficient		1285 ~ 1340nm @ 1550nm	-3.0~3.0ps / (nm.km)
		@1625nm	22 ps /(nm.km)
Zero dispersion wavelength			1302~1322 nm.km
Zero dispersion slope			
Zero dispersion slope (Typical)			
Polarization Mode	Maximum Individual Fiber		≤0.2 ps / √km^2
	Design Link Value (M=20, Q=0.01%)		≤0.1 ps / √km
Cable cut-off wavelength		≤1260nm	
Mode field diameter (MFD)		@1310nm	9.0 ± 0.4 μm
		@1550nm	10.1 ± 0.5 μm
Group Index of Refraction	21310nm	1.466	
	21550nm	1.467	√km

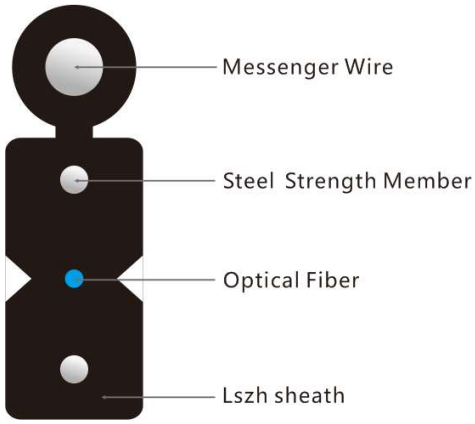
Backscatter Characteristics (@1310nm / @1550nm)	
Step (Mean of bidirectional measurement)	≤0.05dB
Irregularities over fiber length and point discontinuity	≤0.05dB
Difference backscatter coefficient (Bidirectional measurement)	≤0.03dB / km

Geometrical Characteristics	
Cladding diameter	124.8 ± 0.7 μm
Cladding non-circularity	≤1.0%
Coating diameter	245 ± 7 μm
Coating /cladding concentricity error	≤12.0μm

Environmental Characteristics (@1310nm/@1550nm)	
Attenuation at temperature cycling Δa(-60 °C~+85°C)	≤0.05dB / km
Attenuation at temperature-humidity cycling (-10°C~+85°C,98%R.H.)	≤0.05dB / km

Mechanical Characteristics		
Proof Test (Off line)		≥9.0 N (≥100 kpsi)
Attention at bending dependence	1 turn, 15mm diameter	-
	1 turn, 20mm diameter	≤ 0.1dB
	10 turns, 30mm diameter	≤ 0.1dB
	100 turns, 50mm diameter	≤0.05dB

2. Cable Structure



Cable Parameter			
Cable Type	FTTH Drop Cable	Fiber Count	1 Fibers
Construction	Self-supporting	Fiber Type	Single mode G.657A1
Outer Jacket Material	LSZH (Black)	Inner	Steel
Cable Diameter	(2.0±0.1)×(5.2±0.3)	Weight	22 kg/km
Tensile Strength (long/short term)	300/600N	Crush Load (long/short term)	1000/2200 (N/100mm)
Bending Radius (long/short term)	15D/30D (mm)	Operating/Storage Temperature	-40 to +60°C

COLOR IDENTIFICATION OF FIBER

The fibers shall be marked by a colored coating with 1 different color according to EIA/TIA 598:

3. Test Requirement

The cable is in accordance with applicable standards.
Routine tests for 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 for outdoor cable

3.1 Tension Loading Test

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

3.2 Crush/Compression Test

Test Standard	IEC 60794-1-2 E3
Load	Crush load
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

3.3 Impact Resistance Test

Test Standard	IEC 60794-1-2 E4
Impact energy	6.5J
Radius	13.6mm
Impact points	3
Impact number	2
Test result	Additional attenuation: ≤0.05dB

3.4 Repeated Bending Test

Test Standard	IEC 60794-1-2 E6
Bending radius	20 X diameter of cable
Cycles	25 cycles
Test result	Additional attenuation: ≤ 0.05dB No damage to outer jacket and inner elements

3.5 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

3.6 Bend Test

Test Standard	IEC 60794-1-2 E11B
Mandrel diameter	20 X diameter of cable
Turn number	4
Number of cycles	3
Temperature	20℃
Test result	No damage to outer jacket and inner elements

3.7 Temperature cycling Test

Test Standard	IEC 60794-1-2 F1
Temperature step	+20℃ →-40℃ →+85℃→+20℃
Time per each step	Transition from 0℃ to -40℃:2hours; duration at -40 ℃ :8 hours; Transition from -40 ℃ to +85 ℃ :4hours; duration at +85 ℃ :8 hours; Transition from +85℃ to 0℃:2hours
Cycles	5
Test result	Attenuation variation for reference value (the attenuation to be measured before test at +20±3℃) ≤ 0.05 dB/km

3.8 Water penetration Test

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

3.9 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

4. Packaging

We offer the following cable package for light-weight cables.