



GJYXFCH

Self-Supporting Drop cable (wire messenger)

G.657A1, 1F

1. Scope

1.1. This document details Flat and Fig-8 Flat drop cables generally for installation in indoor or outdoor environment.

2. Fibers

2.1. Fibers supplied against this specification must meet the requirements of ITU-T recommendation G.657A1 fibers.

Characteristics		Conditions	Specified values	Units
Optical Characteristics				
Attenuation		1310nm	≤0.36	[dB/km]
		1550nm	≤0.22	[dB/km]
Attenuation vs. Wavelength Max. α difference		1285-1330nm, in reference to 1310nm	≤0.03	[dB/km]
		1525-1575nm, in reference to 1550nm	≤0.02	[dB/km]
Zero Dispersion Wavelength(λ_0)		--	1300-1324	[nm]
Zero Dispersion Slope(S_0)		--	≤0.092	[ps/(nm ² ·km)]
PMD	Maximum Individual Fiber	--	≤0.1	[ps/√km]
	Link Design Value (M=20, Q=0.01%)	--	≤0.06	[ps/√km]
	Typical Value	--	0.04	[ps/√km]
Cable Cutoff Wavelength (λ_{CC})		--	≤1260	[nm]
Mode Field Diameter (MFD)		1310nm	8.4-9.2	[μm]
		1550nm	9.3-10.3	[μm]
Effective Group Index of Refraction (N_{eff})		1310nm	1.466	--
		1550nm	1.467	--
Point Discontinuities		1310nm	≤0.05	[dB]
		1550nm	≤0.05	[dB]
Geometrical Characteristics				
Cladding Diameter		--	125.0±0.7	[μm]
Cladding Non-Circularity		--	≤0.7	[%]
Coating Diameter		--	235-245	[μm]
Coating-Cladding Concentricity Error		--	≤12.0	[μm]

Coating Non-Circularity	--	≤6.0	[%]
Core-Cladding Concentricity Error	--	≤0.5	[μm]
Curl(radius)	--	≥4	[m]
Delivery Length	--	Up to 50.4	[km/reel]
Environmental Characteristics	1310nm, 1550nm & 1625nm		
Temperature Dependence Induced Attenuation	-60°C to +85°C	≤0.05	[dB/km]
Temperature-Humidity Cycling Induced Attenuation	-10°C to +85°C, 98% RH	≤0.05	[dB/km]
Watersoak Dependence Induced Attenuation	23°C, for 30 days	≤0.05	[dB/km]
Damp Heat Dependence Induced Attenuation	85°C and 85% RH, for 30 days	≤0.05	[dB/km]
Dry Heat Aging	85°C, for 30 days	≤0.05	[dB/km]
Mechanical Specification			
Macro-bend Induced Attenuation	10 Turns Around a Mandrel of 15 mm Radius	1550nm	≤0.15 [dB]
	10 Turns Around a Mandrel of 15 mm Radius	1625nm	≤0.75 [dB]
	1 Turn Around a Mandrel of 10 mm Radius	1550nm	≤0.5 [dB]
	1 Turn Around a Mandrel of 10 mm Radius	1625nm	≤1.0 [dB]
Dynamic Fatigue Parameter(nd)	--	≥20	--

G.657A2 fiber(Bending insensitive fiber)

2.1.1. Dimensional Specifications

Parameters	Unit	Specifications
Cladding Diameter	um	125.0 ± 0.7
Cladding Non-circularity	%	≤1.0
Core/Cladding Concentricity Error	um	≤ 0.5
Coating Diameter [Uncolored]	um	242 ± 5

3. Cable construction

3.1 A typical cable construction can be seen in the section 5 of the Contract.

3.2 Fiber color code

No.	1
Color	Blue

3.3 Cable sheath marking

3.3.1 Marking legend

To be determined

3.3.2 The color of marking method is Ink Jet printing.

- BLACK LSZH Jacket

3.4 1km/Reel + Box.

4. Cable Properties

4.1. Mechanical & Environmental properties

4.1.1 Minimum Cable bending radius: 15 mm (without supporting wire)

20 mm (with supporting wire)

4.1.2 Operating temperature range : -30°C to +70°C
Storage/Transport temperature range : -30°C to +70°C
Installation temperature range : -10°C to +50°C

4.2. Mechanical & Environmental Requirements

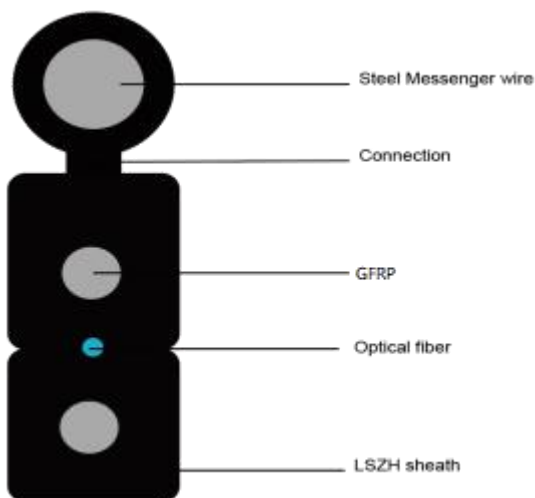
No	Item	Test Specification	Test Method	Specification
1	Tensile strength (Short term)	IEC 60794-1-2-E1	- Load: 80N(Flat cable) 600N(Fig-8 Flat cable include suspension wire) - Sample Length: 100m - Time: 5 minutes	- Attenuation change: ≤ 0.1dB at 1550nm After the test
	Tensile strength (Long term)		- Load: 40N(Flat cable) 100N(Fig-8 Flat cable include suspension wire)	- Attenuation change: ≤ 0.1dB at 1550nm During the test

			- Sample Length: 100m - Time: 60 minutes	
2	Crush test	IEC 60794-1-2-E3	- Load: 500N/100mm - Plate size : 100mm x 100mm - Time: 5 minutes	- Attenuation change: ≤ 0.1dB at 1550nm After the test
3	Impact test	IEC 60794-1-2-E4	- Impact Energy: 1J - Radius of hammer: 300 mm - Impact points: 3 - Impact time/each point: 1	- Attenuation change: ≤ 0.1dB at 1550nm After the test
4	Bending test (without suspension wire)	IEC 60794-1-2-E11A	- Mandrel radius: 15mm - No. of turn: 1 - No. of cycle: 1	- Attenuation change: ≤ 0.1dB at 1550nm After the test
5	Temperature Cycling	IEC 60794-1-2-F1	- Temperature step: +20°C → -30°C → +70°C → +20°C - Number of cycle: 1 - Soak time: 4hrs / each step	- Attenuation change: ≤ 0.1dB/km at 1550nm
6	Flame Propagation	IEC 60332-1	- Sample length :600mm - Time : 60s	- Un-charred surface length: Min. 50mm - shall meet specification

- In case of the test 2, 3, and 4 the supporting wire of the specimen for testing shall be removed prior to the test

5.1 Cable Construction 4

5.1.1 Flat Drop Cable drawing (not to scale)



5.1.2Weights and dimensions

Fiber Count	Diameter	Weight
	mm	KG/KM
1	5.0*2.0 ±0.2	18
Phosphide steel wire Messenger wire (mm)		GFRP strength member(mm)
1.0 ± 0.05		0.5 ± 0.05