Optical And Electrical Hybrid Cable
(GDFHTH **G.657A2+2*2.5mm²)

1. General

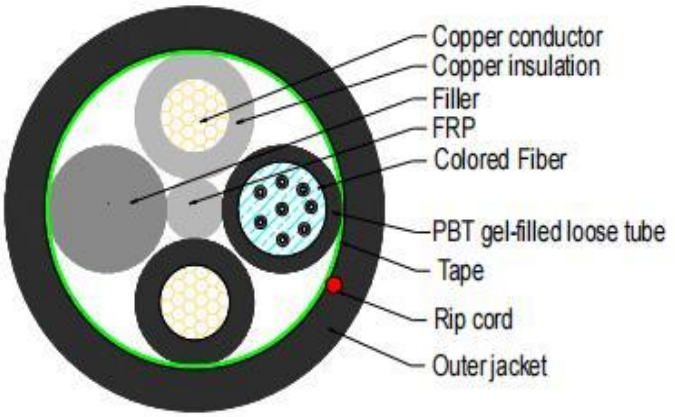
This specification covers the general requirements of optical and electrical hybrid cable. The technical requirement in this specification which is not stipulated is not inferior to the requirement of ITU-T and IEC.

2. Optical fiber (ITU-T G.657A2 & MTBF 131.400 Hour)

Characteristics		Units	Specified values
Optical characteristics			
Type of fiber			Single mode Doped silica
Attenuation	@1310nm @1550nm	dB/km	≤0.4 ≤0.3
Dispersion coefficient	@1288-1339nm @1550nm @1625nm	ps/(nm.km)	≤3.5 ≤18 ≤22
Zero dispersion wavelength		nm	1300～1324
Zero dispersion slope		ps/(nm².km)	≤0.092
Polarization Mode Dispersion PMD Maximum Individual Fibre PMD Link Design Value		ps/km1/2	 ≤0.2 ≤0.1
Cable Cut-offwavelength λcc		nm	≤1260
Mode field diameter (MFD) @1310nm		μm	8.6±0.4
Geometrical characteristics			
Cladding diameter		μm	125.0±0.7
Cladding non-circularity		%	≤1.0
Coating diameter (primary coating)		μm	245±10
Coating/Cladding concentricity error		μm	≤12.0
Core/cladding concentricity error		μm	≤0.6
Curl (radius)		m	≥4
Mechanical characteristics			
Proof test	off line	GPa % kpsi	≥0.69 ≥1.0 ≥100
Bending Dependence Induced Attenuation			
10 turns,30mm diameter	@1550nm	dB	≤0.03
10 turns,30mm diameter	@1625nm	dB	≤0.1
1 turn,20mm diameter	@1550nm	dB	≤0.1
1 turn,20mm diameter	@1625nm	dB	≤0.2
1 turn,15mm diameter	@1550nm	dB	≤0.5
1 turn,15mm diameter	@1625nm	dB	≤1.0
Temperature Dependence Induced Attenuation -60℃~+85℃	@1310&1550nm	dB/km	≤0.05

3. Optical Cable

3.1 Cable Construction



3.2.1 Power unit

Power cable quantity	2
Conductor size	2.5m² (≤300m) ,class 5, accordingtoIEC60228
Insulation	XLPE, brown &blue

3.2.2 Fibre unit

Fibre quantity		4FO, 8FO
Loose tube	Material	PBT, Gel-filled
	Color	EIA/TIA-598-A
	Diameter(mm)	2.7±0.1

3.2.3 Hybrid cable&Mechanical data

Assembling	Copper cables with fibre cable
Filler	PP filler
Wrapping	Polyester tape
Outer Jacket	LSZH, Black
Outer diameter(mm)	1.5mm²:9.0±0.3;2.0mm²:9.7±0.3;2.5mm²:11.0±0.3
Minimum bending radius	Installation:15D; Operation:10D
Tensile strength(N)	Short term:600; Long term:200
Crush(N/100mm)	Short term:1000; Long term:300

3.2 Environmental data

Temperature range operation/installation	-40℃ to +70℃
2011/65/EU (RoHS)	Polyester tape
Flammability	IEC 60332-1

3.3 Electrical Properties

Conductor resistance (single wire)	1.5mm²:13.30Ω/km; 2.0mm²: 9.30Ω/km; 2.5mm²: 7. 980Ω/km

Dielectric strength	AC 2500V,5min
Rating	300V

4. Marking and Packing

4.1 Cable Marking

The sheath shall be marked with white characters at intervals of one meter with following information. Other marking is also available if requested by customer.

(1) Length marking
(2) Cable type and fiber counts
(3) Name of the manufacture
(4) Year of manufacture
(5) Requested by customer

e.g.

0030m GDFHTH 4G.657A2+2*2.5mm² CENRF 2024
0030m GDFHTH 8G.657A2+2*2.5mm² CENRF 2024

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4.2 Cable packing

4.2.1 Each length of the cable shall be wound on a separate reel. Standard length of cable shall be 1000m, other cable length is also available if requested by customer.

4.2.2 Both ends of the cable shall be sealed. The ends shall be fastened to the reel. At least 1.5 meter of the cable inner end shall be remained for test purpose.