Specification

For

<Rectangle Type Drop Cable>

■ Type : Rectangle Type Drop Cable
G.657A1, G.657A2, 1F / 2F / 4F

■ Spec. No. : GOC251-4-191017 REV.0

■ CUSTOMER : UZBEKTELECOM

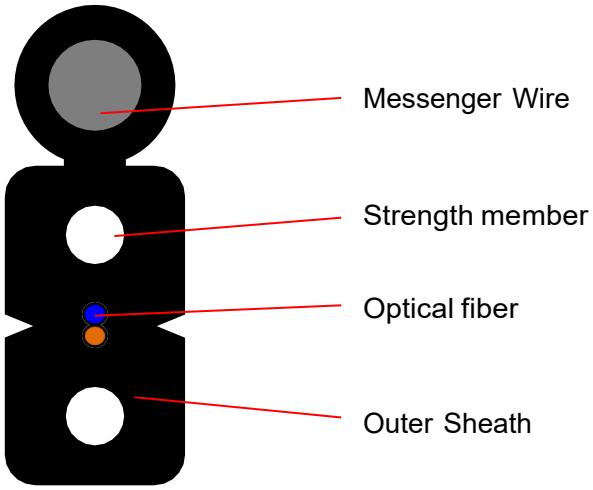
0	11/27/19	Original Issue	B. Y Jeon	S. H Kim	J. H LEE
REV.	DATE	DESCRIPTION	Prepared By	Reviewed by	Approved by

Customer		Reviewed by	Approved by
DATE			

1. Cable construction

1.1 Cross Section of Fiber Optic Cable

1.1.1 1~2F (Fiber Type)



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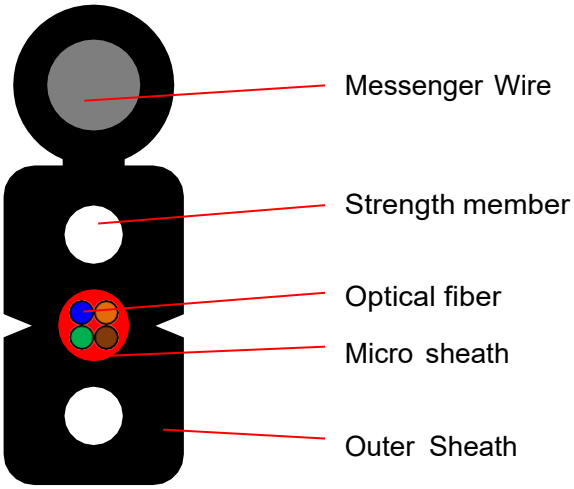
1.1.2 4F (Micro Module Type)



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1.2 Construction of Fiber Optic Cable

Structure		SPECIFICATIONS
Optical fiber		– G.657A1, G.657A2 – Color Construction 1F : Blue 2F : Blue, Orange 4F : Blue, Orange, Green, Brown
Micro Sheath		– LSZH – 4F : Dia. 0.9mm – Color : Red ● Micro-sheath is only for protection of optical fiber. Micro sheath will be torn when stripping the final jacket.
Strength member		– G-FRP Φ 0.5mm, 2ea
Messenger Wire		– Galvanized Steel Wire Φ 1.0mm, 1ea
Outer jacket	LSZH	– 1F, 2F, 4F : AVR.[w*h, mm] : 2.0±0.1 * 5.0±0.2mm
	Color	– Black
Marking		– Ink-jet, White Marking Interval 1m

1.3 Cable diameter & Construction detail

Fiber Count	Micro module Diameter	Outer Diameter (W * H, mm)	Tensile strength (N)	Weight (NET. Kg/km)
1F	N/A	2.0±0.1 * 5.0±0.2	200N(Without Messenger wire) 1000N(With Messenger wire)	19
2F	N/A			
4F	Nom. 0.9mm (± 0.1mm)			

2. Optical Fiber characteristic

2.1 Cable Optical Characteristics (G.657A1)

Parameter	Specification
Attenuation coefficient @ 1310 nm @ 1550 nm	(Cabled) ≤ 0.35dB/km ≤ 0.21dB/km
PMD	≤ 0.2dB(ps/km$^{1/2}$)
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm^2.km)
Chromatic dispersion @ 1285 ~ 1330m @ 1550 nm	≤ 3.2/(nm^2.km) ≤ 18.0 ps/(nm^2.km)
Mode field diameter @ 1310 nm	8.6± 0.4㎛
Core/Clad concentricity error	≤ 0.5 ㎛
Cladding diameter	125.0 ± 0.7
Cladding non-circularity	≤ 1.0 %
Primary Coating diameter	245 ± 5㎛
Proof test level	100 kpsi, 1%
Attenuation with bending Loss 20 mm diameter, 1 turn 30 mm diameter, 10 turn	(Fiber) 1550nm ≤ Δ 0.75 dB 1625nm ≤ Δ 1.5 dB 1550nm ≤ Δ 0.25 dB 1625nm ≤ Δ 1.0 dB

2.2 Cable Optical Characteristics (G.657A2)

Parameter	Specification
Attenuation coefficient @ 1310 nm @ 1550 nm	Cabled ≤ 0.35dB/km ≤ 0.21dB/km
PMD	≤ 0.2dB(ps/km$^{1/2}$)
Cable cut-off wavelength	≤ 1260 nm
Zero-dispersion wavelength	1300 ~ 1324 nm
Zero-dispersion slope	≤ 0.092 ps/(nm^2.km)
Chromatic dispersion @ 1285 ~ 1330m @ 1550 nm	≤ 3.2/(nm^2.km) ≤ 18.0 ps/(nm^2.km)
Mode field diameter @ 1310 nm	8.6± 0.4㎛
Core/Clad concentricity error	≤ 0.5 ㎛
Cladding diameter	125.0 ± 0.7
Cladding non-circularity	≤ 1.0 %
Primary Coating diameter	245 ± 5㎛
Proof test level	100 kpsi, 1%
Attenuation with bending Loss 15 mm diameter, 1 turn 20 mm diameter, 1 turn 30 mm diameter, 10 turn	Fiber 1550nm ≤ Δ 0.5 dB 1625nm ≤ Δ 1.0 dB 1550nm ≤ Δ 0.1 dB 1625nm ≤ Δ 0.2 dB 1550nm ≤ Δ 0.03 dB 1625nm ≤ Δ 0.1 dB

3. Cable Properties

3.1 Mechanical & Environmental properties

3.1.1 Cable bending radius: 15 x cable diameter (during operation)
30 x cable diameter (during installation)

3.1.2 Operating/Storage temperature range : -40°C to + 70°C
Installation temperature range : -10°C to + 70°C

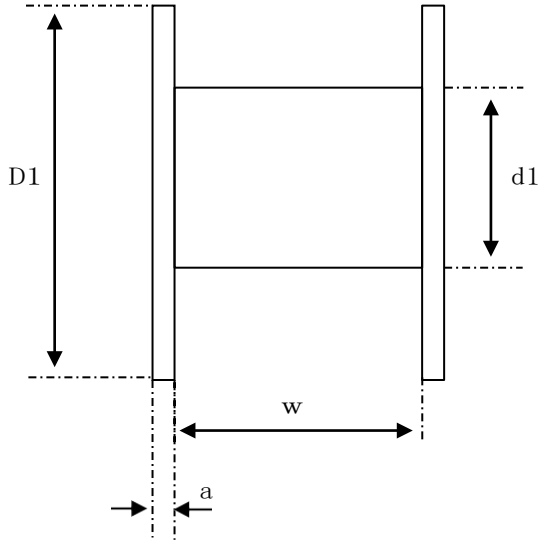
3.2 Mechanical & Environmental requirements

No	Item	Test Method	Specification
1	Tensile Loading test IEC60794-1-2-E1	- Load: Refer to para. 1.3 - Mandrel dia.: ≥ 360mm - Length: 50m↑ - Time: 10 mins.	-Loss change ≤ 0.1 dB @1550 nm -No Crack after test
2	Crush test IEC60794-1-2-E3	- Load: 1,000N - plate size: 100 mm - Time: 5 mins.	-Loss change ≤ 0.1 dB @1550 nm -No Crack after test
3	Impact test IEC60794-1-2-E4	- Impacted surface: 25 mm - Impact load(J): 3J - Falling height: 1,000mm - 10 different point	-Loss change ≤ 0.1 dB @1550 nm -No Crack after test
4	Torsion test IEC60794-1-2-E7	- Length: 1 m - Twist angle: ±180° - No. of cycle : 10	-Loss change ≤ 0.1 dB @1550 nm -No Crack after test
5	Repeated bending test IEC60794-1-2-E6	- Length: 2 m - Mandrel dia.: 30mm - Flexing speed : 30/min - Load: 1.5kg - angle: ±90° - No. of cycle : 25	-Loss change ≤ 0.1 dB @1550 nm -No Crack after test
6	Temperature Cycling IEC60794-1-F1	- Length : 1,000m: - Temperature cycle: 20°C→-40°C→+70°C→-40°C→+70°C→20° C - Number of cycle: 1 - Time per step: 12 hours	-Loss change ≤ 0.1 dB @1550 nm -No Crack after test

4. Packing

- Bobbin(Plastic or Plywood), Box, Pallet

Item	Length in Drum (m)	Drum Dimensions				Packing
		D (mm)	d (mm)	b (mm)	a (mm)	Material
Drop Cable 1F	1,000	317	147	264	10	Plastic Reel, Box, Pallet (3*3*5, 36box)
Drop Cable 2F						
Drop Cable 4F		430	220	290	10	Plywood, Box, Pallet, (3*3*4, 36box)



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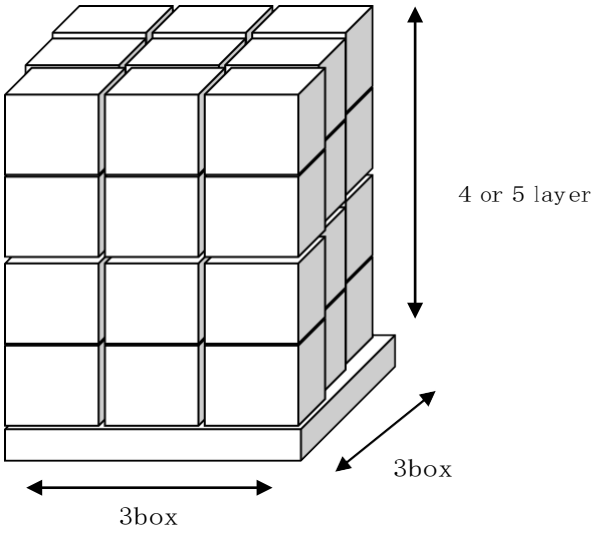

<Pallet>