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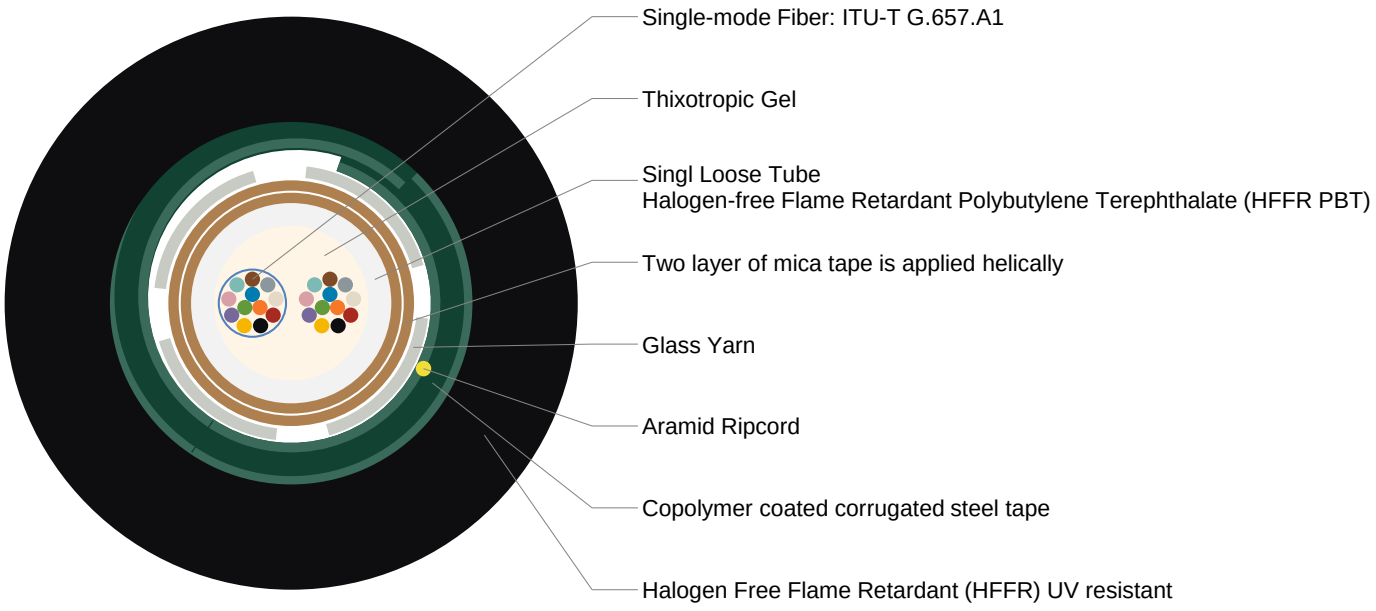
U-DQ(ZN)MT(SR)H

Single loose tube, corrugated steel tape armor, halogen-free jacket, fiber optic cable

Fiber Optic Cable Drawing



• Not to scale.

Fiber Optic Cable Tube and Fiber Core Colors

Tube Color Scheme

1
Natural

Fiber Optic Core Color Scheme

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua

13	14	15	16	17	18	19	20	21	22	23	24
Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua

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Characteristics		
Optical Fiber Core and Tube Color Standard	ANSI/TIA 598-D Color Coding	
Reaction to Fire	B2ca -s1a, d1, a1	
Optical Fiber Type	Single-mode Fiber: ITU-T G.657.A1	
Optical Fiber Dimensions	9/125/245/260 µm	
Optical Fiber Count	12	24
Optical fiber identification method	-	Bundled
Number of Bundles	-	1
Cable Type	Single Loose Tube	
Tube Material	Halogen-free Flame Retardant Polybutylene Terephthalate (HFFR PBT)	
Tube Diameter (mm)	2,8	3
Tube Filling Compound Material	Thixotropic Gel	
Active Tube Count	1	
Single Loose Tube Tube Color	Natural	
Tensile Strength	1000 N	
Dielectric Tensile Strength Member	Glass Yarn	
Fire Barrier Material	Two layer of mica tape is applied helically	
Armor Material	Copolymer coated corrugated steel tape	
Armor Thickness	255 µm	
Jacket Strip Method	1 Aramid Ripcord	
Jacket Material	Halogen Free Flame Retardant (HFFR) UV resistant	
Jacket Color	Black	
Jacket Wall Thickness	1,8 mm	
Outer Jacket Marking Method	Inkjet marking	
Outer Jacket Marking Area	One side	
Outer Jacket Marking Application	Applied in one meter intervals	
Nominal Cable Diameter (mm)	8,6	8,8
Net Cable Weight (kg/km)	110	113
Reel Length	2000 meters %±5	

UPCOM Telekomunikasyon - CLT, Armored, 1000N xxF Fiber Type LSZH CPR B2ca, s1a, d1, a1 - FO Cable - EN 50200 - U-DQ(ZN)MT(SR)H FR-FE180 PH120 - ww/yy – <length marking in meter>

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Mechanical Characteristics (Cabled)		
Test	**Reference Standard**	**Specified Value**
Maximum Tensile Strength	IEC 60794-1-21-E1	≥ 1000 N
Crush Resistance	IEC 60794-1-21-E3	2000 N/100 mm (15 minutes)
Smoke Density	IEC 61034-2	
Corrosive Gas	IEC 60754-2	
Halogen-Free	IEC 60754-1	
Flame Retardancy	IEC 60332-1-2	

Chemical Characteristics	
RoHS	Free of hazardous substances according to RoHS regulation.
REACH	Safe to use according to REACH regulation.

Temperature Range (Cabled)	
Transportation	-40 °C to 70 °C
Storage	-40 °C to 70 °C
Installation	-30 °C to 60 °C
Operation	-40 °C to 70 °C

Optical Fiber Attenuations (Cabled)		
	Property	**Value**
ITU-T G.657.A1	Maximum attenuation at 1310 nm	0.36 dB/km
	Maximum attenuation at 1550 nm	0.24 dB/km

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Optical Fiber Core Specification
Low Macro Bending Sensitive Single-Mode Optical Fiber
Standard, ITU-T G.657.A1 (Uncolored Fiber)

Structural Specifications		
Fiber Materials		
Core Material		Silica (SiO_2) Doped with Germanium Dioxide (GeO_2)
Cladding Material		Pure silica (SiO_2)
Coating Material		Dual layers of UV-cured acrylate.
Dimensions		
Mode Field Diameter	at 1310 nm	9.0 ± 0.4 µm
	at 1550 nm	10.1 ± 0.5 µm
Cladding Diameter		125.0 ± 0.7 µm
Coating Diameter (Uncolored)		242 ± 7 µm
Core/Cladding Concentricity Error		≤ 0.5 µm
Cladding Non-circularity		≤ 0.7 %
Coating/Cladding Concentricity Error		≤ 12 µm
Coating Non-circularity		≤ 5 %
Fiber Curl Radius		≥ 4.0 m
Optical Characteristics		
Attenuation Coefficient	at 1310 nm	0.33 – 0.35 dB/km
	at 1383 nm [1]	0.32 – 0.35 dB/km
	at 1550 nm	0.19 – 0.21 dB/km
	at 1625 nm	0.20 – 0.23 dB/km
Point Discontinuity	at 1310 nm / 1550 nm	≤ 0.05 dB
Cable Cut-off Wavelength (λcc)		< 1260 nm
Zero-dispersion Wavelength (λ_0)		1300nm ≤ λ_0 ≤ 1322 nm
Zero-dispersion Slope (S_0)		≤ 0.09 ps/(nm²·km)
Chromatic Dispersion Coefficient	at 1310 nm	≤ 3 ps/(nm·km)
	at 1550 nm	≤ 18 ps/(nm·km)
	at 1625 nm	≤ 22 ps/(nm·km)
Maximum Individual Fiber PMD		≤ 0.1 ps/√km
Fiber PMD Link Design Value		≤ 0.06 ps/√km
Mechanical Characteristics		
Proof Stress Level		0.70 GPa (1.0%, 100 kpsi)
Bending Induced Attenuation	Ø=10 mm, 1 turn at 1550 nm	≤ 0.75 dB
	Ø=10 mm, 1 turn at 1625 nm	≤ 1.50 dB
	Ø=15 mm, 10 turns at 1550 nm	≤ 0.25 dB
	Ø=15 mm, 10 turns at 1625 nm	≤ 1.00 dB
Coating Strip Force (F)	peak	1.2 N ≤ F ≤ 8.9 N
	average	1.0 N ≤ F ≤ 3.0 N
Dynamic Tensile Strength	median; 0.5 m, unaged	≥3.8 Gpa (550 kpsi)
	median; 0.5 m, aged	≥3.8 Gpa (550 kpsi)
Fatigue	nominal value	20
Environmental Characteristics [2]		
Temperature Cycling	-60 °C to 85 °C	≤ 0.05 dB/km
Temperature Humidity Cycling	-10 °C to 85 °C at 98% R. H.	≤ 0.05 dB/km
Water Immersion	at 23 °C, 14 days	≤ 0.05 dB/km
Dry Heat	at 85 °C, 30 days	≤ 0.05 dB/km
Damp Heat	85 °C at 85% R. H., 30 days	≤ 0.05 dB/km
Performance Characteristics		
Effective Group Index of Refraction N_{eff}	at 1310 nm	1.467
	at 1550 nm	1.468
	at 1625 nm	1.468

1. Attenuation increase due to hydrogen aging at this wavelength will be 0.01 db/km or less in accordance with IEC IEC60793-2-50 test procedure.
2. Induced attenuation at 1310 nm, 1550 nm and 1625 nm

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