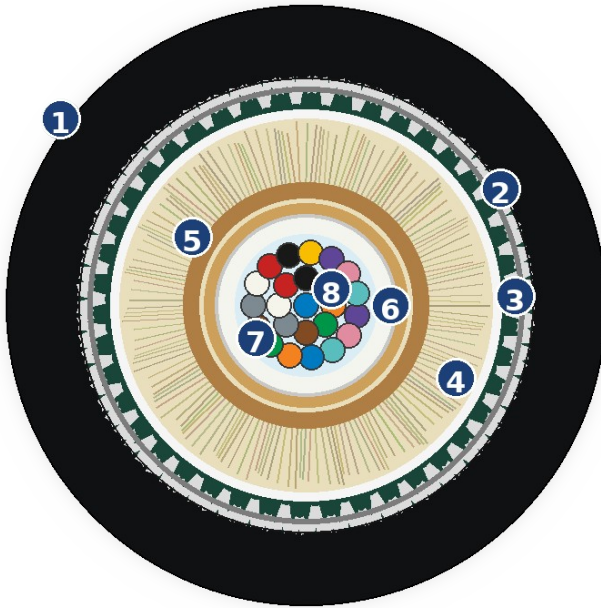


U-DQ(ZN)MT(SR)H

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

B2ca-s1a,d1,a1 FR-FE180 PH120 ITU-T G.657.A1 1000N

Numbered Cable Cross Section



Component legend

- 1 HFFR UV resistant outer jacket
- 2 Aramid ripcord
- 3 Copolymer coated corrugated steel tape armor
- 4 Glass yarn strength member
- 5 Two-layer mica tape fire barrier
- 6 Single loose tube - HFFR PBT
- 7 Thixotropic gel
- 8 24 optical fibers - ITU-T G.657.A1

Fiber Optic Core Color Scheme - ANSI/TIA 598-D

1 Blue	2 Orange	3 Green	4 Brown	5 Slate	6 White
7 Red	8 Black	9 Yellow	10 Violet	11 Rose	12 Aqua
13 Blue	14 Orange	15 Green	16 Brown	17 Slate	18 White
19 Red	20 Black	21 Yellow	22 Violet	23 Rose	24 Aqua

Tube color scheme: Natural

U-DQ(ZN)MT(SR)H - Cable Characteristics

Characteristics

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

Standard outer jacket marking

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>

Mechanical, Chemical and Optical Performance

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

Item	Statement
RoHS	Free of hazardous substances according to RoHS regulation.
REACH	Safe to use according to REACH regulation.

Temperature Range (Cabled)

Condition	Specified Value
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) - ITU-T G.657.A1

Property	Value
Maximum attenuation at 1310 nm	0.36 dB/km
Maximum attenuation at 1550 nm	0.24 dB/km

Optical Fiber Core Specification

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

Property	Condition	Value
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
Mode Field Diameter	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
Attenuation Coefficient	at 1383 nm ¹	0.32 – 0.35 dB/km
Attenuation Coefficient	at 1550 nm	0.19 – 0.21 dB/km
Attenuation Coefficient	at 1625 nm	0.20 – 0.23 dB/km
Point Discontinuity	at 1310 nm / 1550 nm	≤ 0.05 dB
Cable Cut-off Wavelength (λ _{cc})		< 1260 nm
Zero-dispersion Wavelength (λ ₀)		1300nm ≤ λ ₀ ≤ 1322 nm
Zero-dispersion Slope (S ₀)		≤ 0.09 ps/(nm ² ·km)
Chromatic Dispersion Coefficient	at 1310 nm	≤ 3 ps/(nm·km)
Chromatic Dispersion Coefficient	at 1550 nm	≤ 18 ps/(nm·km)
Chromatic Dispersion Coefficient	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
Bending Induced Attenuation	Ø=10 mm, 1 turn at 1625 nm	≤ 1.50 dB
Bending Induced Attenuation	Ø=15 mm, 10 turns at 1550 nm	≤ 0.25 dB
Bending Induced Attenuation	Ø=15 mm, 10 turns at 1625 nm	≤ 1.00 dB
Coating Strip Force (F)	peak	1.2 N ≤ F ≤ 8.9 N
Coating Strip Force (F)	average	1.0 N ≤ F ≤ 3.0 N
Dynamic Tensile Strength	median; 0.5 m, unaged	≥ 3.8 GPa (550 kpsi)
Dynamic Tensile Strength	median; 0.5 m, aged	≥ 3.8 GPa (550 kpsi)
Fatigue	nominal value	20
Environmental Characteristics²		
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
Effective Group Index of Refraction N _{eff}	at 1550 nm	1.468
Effective Group Index of Refraction N _{eff}	at 1625 nm	1.468

Notes: 1. Attenuation increase due to hydrogen aging at this wavelength will be 0.01 dB/km or less in accordance with IEC 60793-2-50 test procedure. 2. Induced attenuation at 1310 nm, 1550 nm and 1625 nm.