

Light ADSS Optical Fiber Cable

Cable Design

Loose Tube Optical Fiber Cable-Dielectric-Dry Core-Aramid Yarn Reinforcing-G.652D/G.657A1 Fiber



- **Central Strength Member (CSM):** glass fiber reinforced plastic rod (GFRP), with PE sheath covering when needed.
- **Loose Tube:** PBT plastic material, containing 12 fibers and filled with a suitable water tightness jelly.
- **Filler Elements:** nature PP plastic rods, when needed.
- **Stranding:** loose tubes & fillers, SZ stranded around the CSM.
- **Longitudinal Water Tightness:** dry core with water swellable elements.
- **Inner Sheath:** Black PE
- **Aramid yarn:** additional strength member
- **Ripcord:** 1 aramid ripcord under outer sheath.
- **Outer Sheath:** Black HDPE.

Cable Specification

Cable Cores		36	48	72
No. of Tubes		3	4	6
No. of Fillers		3	2	0
Fiber Counts in Tube		12		
Tube/Filler-Φ	mm	2.05		
CSM-Φ	mm	2.1		
Coated CSM-Φ	mm	/		
Thickness of Outer PE Sheath	mm	1.2		
Nom. Cable Diameter	mm	8.6		
Nom. Cable Weight	Kg/km	60		
Coefficient of the Thermal Expansion		1.2E-5	1.4E-5	1.6E-5
Modulus of Elasticity	MPa (N/mm ²)	8500		
MAT	N	1100		

Cable Application

Temperature Range		Minimum Bend Radius	
Transportation & Storage	-25~+70°C	Load	20×D
Operation	-25~+70°C	Unload	10×D

Main mechanical and Environmental Characteristicion

Test	Test Standard	Specified Value	Acceptance Criteria
Tensile	IEC 60794-1-2-E1	MAT, 5min	$\Delta\alpha \leq 0.05\text{dB}$, fiber strain $\leq 0.1\%$
Crush	IEC 60794-1-2-E3	1500N/10cm, 1min	$\Delta\alpha$ reversible, no damage

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Impact	IEC 60794-1-2-E4	4J, R=10mm, 3impacts	$\Delta\alpha$ reversible, no damage
Repeated Bending	IEC 60794-1-2-E6	R=20D,100N,100cycles	$\Delta\alpha$ reversible, no damage
Torsion	IEC 60794-1-2-E7	100N, 5cycles, +/-180°	$\Delta\alpha$ reversible, no damage
Temperature Cycling	IEC 60794-1-2-F1	-25~+70°C, 1cycles, 8h	$\Delta\alpha\leq 0.05\text{dB/km}$, no damage
Water Penetration	IEC 60794-1-2-F5	3m cable, 1m water, 24h	No water leakage

Cable Fiber Performance (G.652D)

Characteristics		Acceptance Value
Attenuation	@1310nm	$\leq 0.40\text{dB/km}$
	@1550nm	$\leq 0.30\text{dB/km}$
Mode Field Diameter	@1310nm	$9.2\pm 0.4\mu\text{m}$
	@1550nm	$10.4\pm 0.5\mu\text{m}$
Dispersion	@1300 +30/-15nm	$\leq 3.5\text{ps}/(\text{nm}\cdot\text{km})$
	@1550nm	$\leq 18.0\text{ps}/(\text{nm}\cdot\text{km})$
	@1625nm	$\leq 22\text{ps}/(\text{nm}\cdot\text{km})$
Zero-Dispersion slope		$\leq 0.092\text{ps}/(\text{nm}^2\cdot\text{km})$
Cable cutoff wavelength λ_{cc} (nm)		$\leq 1260\text{nm}$
Cladding diameter		$125\pm 0.7\mu\text{m}$
Cladding non-circularity		$\leq 0.7\%$
Core/cladding concentricity error		$\leq 0.5\mu\text{m}$
Fiber diameter with coating (uncolored)		$242\pm 5\mu\text{m}$
Cladding/coating concentricity error		$\leq 12.0\mu\text{m}$
Proof stress		$\geq 0.69\text{GPa}(100\text{kpsi})$
Dynamic stress corrosion susceptibility parameter (typical value)		≥ 20

Cable Fiber Performance (G.657A1)

Characteristics		Acceptance Value
Attenuation	@1310nm	$\leq 0.35\text{dB/km}$
	@1383nm	$\leq 0.34\text{dB/km}$
	@1550nm	$\leq 0.21\text{dB/km}$
	@1625nm	$\leq 0.23\text{dB/km}$
Mode Field Diameter	@1310nm	$8.8\pm 0.4\mu\text{m}$
Dispersion	@1300 +30/-15nm	$\leq 3.5\text{ps}/(\text{nm}\cdot\text{km})$
	@1550nm	$\leq 18\text{ps}/(\text{nm}\cdot\text{km})$
	@1625nm	$\leq 22\text{ps}/(\text{nm}\cdot\text{km})$
Zero-Dispersion Wavelength		$1300\text{nm}\sim 1324\text{nm}$
Zero-Dispersion Slope		$\leq 0.092\text{ps}/(\text{nm}^2\cdot\text{km})$
Cable Cutoff Wavelength λ_{cc} (nm)		$\leq 1260\text{nm}$
Cladding Diameter		$125\pm 0.7\mu\text{m}$

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Macrobend loss	30mm radius, 10 turn, @1550	≤0.25dB
	30mm radius, 10 turn, @1625	≤0.10dB
	20mm radius, 1 turn, @1550	≤0.75dB
	20mm radius, 1 turn, @1625	≤1.5dB
Cladding Non-circularity		≤0.7%
Core/Cladding Concentricity Error		≤0.5μm
Proof Test		≥0.69GPa (100kpsi)
Dynamic Fatigue		≥20

Fiber & Tube Color

Color Identification of Fiber

No	1	2	3	4	5	6	7	8	9	10	11	12
Color	Red	Green	Yellow	Blue	Brown	White	Grey	Violet	Black	Orange	Aqua	Pink

Color Identification of Tube

No	1	2	3	4	5	6
Color	Red	Green	Yellow	Blue	Brown	White

Sheath Marking

The outer sheath is marked in 1 meter intervals as follows:

In Accordance with Custom's Requirement

Delivery Length

Standard delivery length will be 4 or 6km.

Drum Marking

Drum marking will comply with custom's requirement.