

Optical Fibers

Fibrain G.657.A1 fiber



OVERVIEW:

An increasing number of applications require high fiber-core density or tight bending radii, therefore bend-insensitive fibers become more and more popular in optical networks. They typically offer the well-known attenuation and dispersion characteristics of the basic G.652D fiber, with the added benefit of much smaller macrobending losses. Although theoretically fully compatible with the G.652D, in practice some aspects (like splicing) of many nominally G.652D-compliant fibers often require careful examination. Fibrain G.657A1 fiber guarantees full optical and practical compatibility with the G.652D fibers, at the same time delivering consistent and robust macrobending performance. Fibrain G.657A1 fiber is proudly manufactured in the EU.

APPLICATIONS:

- Access networks
- Indoor FTTH applications
- Microcables
- Other telecommunication cables

FEATURES:

- G.657.A1 and G.652.D-compliant
- Reliable macrobending performance
- Low attenuation
- Available as colored and ring-marked
- Made in the EU

TECHNICAL SPECIFICATIONS:

Optical parameters, attenuation and loss	Value	Unit	Comments
Attenuation at 1310 nm	typ. ≤0.33, max. ≤0.34	dB/km	
Attenuation at 1383 nm	typ. ≤0.29, max. ≤0.34	dB/km	After hydrogen aging
Attenuation at 1490 nm	typ. ≤0.22, max. ≤0.23	dB/km	
Attenuation at 1550 nm	typ. ≤0.19, max. ≤0.21	dB/km	
Attenuation at 1625 nm	typ. ≤0.21, max. ≤0.23	dB/km	For colored fiber
Attenuation uniformity 1285-1330 nm	≤0.03	dB/km	With reference to 1310 nm
Attenuation uniformity 1525-1575 nm	≤0.02	dB/km	With reference to 1550 nm
Point loss discontinuity at 1310 nm	≤0.05	dB	
Point loss discontinuity at 1550 nm	≤0.05	dB	
Macrobending loss			
15 mm radius mandrel	10 turns	1550 nm	≤0.25 dB
15 mm radius mandrel	10 turns	1625 nm	≤1.00 dB
10 mm radius mandrel	1 turn	1550 nm	≤0.75 dB
10 mm radius mandrel	1 turn	1625 nm	≤1.50 dB

Fully Rec. ITU-T G.657.A1 compliant

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Optical parameters, modal	Value	Unit	Comments
Mode field diameter at 1310 nm	9.1 ±0.4	µm	
Mode field diameter at 1550 nm	10.2 ±0.5	µm	
Cut-off wavelength	≤1260	nm	Cable cut-off
Effective group index at 1310 nm	1.466		
Effective group index at 1550 nm	1.467		
Rayleigh backscattering coefficient at 1310 nm	-78	dB	For 1 ns pulse width
Rayleigh backscattering coefficient at 1550 nm	-82	dB	

Optical parameters, dispersion	Value	Unit	Comments
Zero dispersion wavelength	1304-1324	nm	
Zero dispersion slope	≤0.092	ps/km/nm ²	
Chromatic dispersion in 1285-1330 nm range	≤ 3.4	ps/km/nm	
Chromatic dispersion at 1550 nm	≤18.0	ps/km/nm	
Chromatic dispersion at 1625 nm	≤22.0	ps/km/nm	
PMD link design value	≤0.06	ps/km ^{1/2}	M=20, Q=0.01%
Max. individual fiber PMD	≤0.20	ps/km ^{1/2}	Free tension conditions

Geometrical and mechanical parameters	Value	Unit	Comments
Cladding diameter	125.0 ±0.7	µm	
Core-cladding concentricity	≤0.5	µm	
Cladding non-circularity	≤0.7	%	
Fiber curl radius	≥4	m	
Coating diameter	242.0 ±5.0	µm	Neutral/uncolored
Coating-cladding concentricity	≤12.0	µm	
Proof-test level	100	kpsi	Other proof-test levels available
Dynamic fatigue parameter	≥20		
Delivery length	50.4	km	Other lengths available
Strip force, peak	1.3-8.9	N	
Strip force, average	1.5 ±0.5	N	

Environmental performance	Test conditions	Attenuation change	Unit
Temperature dependence	-60°C to +85°C	≤0.05	dB/km
Temperature-humidity cycling	-10°C to +85°C, 98% RH	≤0.05	dB/km
Water immersion	+23°C ±2°C	≤0.05	dB/km
Dry heat aging	+85°C ±2°C	≤0.05	dB/km
Damp heat aging	+85°C ±2°C, 85% RH	≤0.05	dB/km

Type:	Fibrain Optical Fiber series	02.01.2023
		REV: 1.3
		MD
Reference:	Z2-F-FIB-657A1-...	

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ORDERING SYSTEM:

Series	Fiber standard	Nominal coating diameter	Ring marking scheme	Color
Z2-F-FIB	657A1	250	00 – no ring marking	NT - neutral
			00 – scheme 1	BK – black
				BL – blue
				BR – brown
				GR – green
				GY – grey
				OR – orange
				PK – pink
				RD – red
				TQ – turquoise
				VL – violet
				WH – white
				YL – yellow

Example: Z2-F-FIB-657A1-250-00-RD – Fibrain G.657.A1 fiber, nominal coating diameter 250 µm, no ring-marking, red-colored.

Important notice

Buyer and/or user of this product has to make sure before using this product that it is suitable for the intended use. All questions of liability relating to this product are subject – in accordance with the prevailing – to the Terms of Sales of the selling Fibrain subsidiary.