

Properties of cable with Enhanced Single-Mode Fibre

C06



Applicable Standards

- IEC/EN 60793-2-50 Category B-652.D
- ITU-T Recommendation G.652.D
- EN 50 173-1: Category OS2 and OS1a
- ISO / IEC 11801: Category OS2 and OS1a

Optical properties

Attribute	Measurement method	Units	Limits
Mode field diameter at 1310 nm	IEC/EN 60793-1-45	μm	9.0 ± 0.4
Mode field diameter at 1550 nm		μm	10.1 ± 0.5
Chromatic Dispersion coefficient:	IEC/EN 60793-1-42		
In the interval 1285 nm – 1330 nm		ps/km • nm	≤ 3
At 1550 nm		ps/km • nm	≤ 18.0
At 1625 nm		ps/km • nm	≤ 22.0
Zero Dispersion Wavelength, λ_0		nm	1300 - 1324
Zero Dispersion Slope		ps/(nm ² • km)	≤ 0.092
Cut-off Wavelength	IEC/EN 60793-1-44	λ_{cc} nm	≤ 1260 *
Polarisation Mode Dispersion (PMD) coefficient	IEC/EN 60793-1-48	ps/√km	≤ 0.1
PMD ₀ Link Design Value (computed with Q=0.01%, N=20)	IEC/EN 60794-3	ps/√km	≤ 0.06

* guaranteed value according to the ITU-T (ATM G650) method

Attenuation

Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable at 1310 nm	IEC/EN 60793-1-40	dB/km	≤ 0.36
Maximum attenuation value of cable at 1383 nm**	IEC/EN 60793-1-40	dB/km	≤ 0.36
Maximum attenuation value of cable at 1460 nm	IEC/EN 60793-1-40	dB/km	≤ 0.26
Maximum attenuation value of cable at 1550 nm	IEC/EN 60793-1-40	dB/km	≤ 0.23
Maximum attenuation value of cable at 1625 nm	IEC/EN 60793-1-40	dB/km	≤ 0.25
Max. attenuation change in the interval 1285 - 1330 nm (ref. 1310 nm)		dB/km	≤ 0.03
Max. attenuation change in the interval 1525 - 1575 nm (ref. 1550 nm)		dB/km	≤ 0.02
Local discontinuity at 1310 and 1550 nm	IEC/EN 60793-1-40	dB	≤ ± 0.05

** Including H2-ageing according to IEC 60793-2-50, type B.1.3, @1383nm

Attenuation variation vs Bending

Attribute	Measurement method	Units	Limits
100 Turns on a R = 25 mm mandrel at 1310 & 1550 nm	IEC/EN 60793-1-47	dB	≤ 0.05
100 Turns on a R = 30 mm mandrel at 1625 nm	IEC/EN 60793-1-47	dB	≤ 0.05

Group index of refraction

Attribute	Measurement method	Units	Values
1310 nm	IEC/EN 60793-1-22	--	1.467
1550 nm	IEC/EN 60793-1-22	-	1.468
1625 nm	IEC/EN 60793-1-22	-	1.468

Rayleigh Backscatter coefficient (1ns pulse width)

Attribute	Measurement method	Units	Values
1310 nm	-	dB	-79.4
1550 nm	-	dB	-81.7
1625 nm	-	dB	-82.5

Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC/EN 60793-1-20	μm	125.0 ± 0.7
Cladding non-Circularity	IEC/EN 60793-1-20	%	≤ 0.7
Core-Cladding Concentricity Error	IEC/EN 60793-1-20	μm	≤ 0.5
Coating diameter - ColorLock ^{XS} and Natural	IEC/EN 60793-1-21	μm	245 ± 10
Coating non-Circularity	IEC/EN 60793-1-21	%	≤ 5
Coating-Cladding Concentricity Error	IEC/EN 60793-1-21	μm	≤ 12

Mechanical properties

Attribute	Measurement method	Units	Limits
Proof stress level	IEC/EN 60793-1-30	GPa	≥ 0.7 ($\approx 1\%$)
Strip force (average)	IEC/EN 60793-1-32	N	$1 \leq F_{\text{average.strip}} \leq 3$
Strip force (peak)	IEC/EN 60793-1-32	N	$1.2 \leq F_{\text{peak.strip}} \leq 8.9$
Dynamic Fatigue Resistance aged and unaged	IEC/EN 60793-1-33	-	$n_d \geq 20$

All measurements in accordance with ITU-T G650 recommendations

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