

C03e: Properties of cabled Standard Enhanced SM fibre

ESMF : Low waterpeak G652D, OS2

General and application

The optical fibres are made of a high grade doped silica core surrounded by a silica cladding; They are coated with a dual layer, UV cured acrylate based coating.

This enhanced Single mode fibre provides improved performance across the entire 1260 nm to 1625 nm wavelength spectrum due to its low attenuation in 1383 nm, the water-peak region.

Standards and Norms

IEC / EN 60793-2-50 Category B.1.3	EN 50 173-1:2007, cat. OS2 and OS1
ITU-T Recommendation G.652.D and C, B, A	ISO / IEC 11801:2002, cat. OS1
IEEE 802.3 – 2002 incl. 802.3ae	ISO / IEC 24702: 2006, cat. OS2 and OS1

Cable attenuation

IEC 60793-1-40

Maximum attenuation value of cable in the interval 1310 nm – 1625 nm	≤ 0.39 dB/km
Maximum attenuation value of cable at 1550 nm	≤ 0.25 dB/km
Inhomogeneity of OTDR trace for any two 1000 metre fibre lengths	Max. 0.1 dB/km

Group index of refraction

IEC 60793-1-22

Effective group index at 1310 nm	1.467
Effective group index at 1550 and 1625 nm	1.468

Other properties

IEC 60793-1-xx

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
Primary coating diameter – ColorLock™-XS coloured and natural	IEC / EN 60793-1-21	µm	242 ± 7
Primary coating non-circularity	IEC / EN 60793-1-21	%	≤ 5
Primary coating - cladding concentricity error	IEC / EN 60793-1-21	µm	≤ 12
Chromatic dispersion coefficient: In the interval 1285 nm – 1330 nm At 1550 nm At 1625 nm	IEC / EN 60793-1-42	ps/km • nm	≤ 3 ≤ 18.0 ≤ 22.0
Zero dispersion wavelength, λ ₀		nm	1300 - 1322
Zero dispersion slope		ps/(nm ² • km)	≤ 0.090
Cut-off wavelength	IEC / EN 60793-1-44	λ _{cc} nm	≤ 1260 *
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
Macrobanding loss 100 turns on a ø 50 mm mandrel at 1310 and 1550 nm 100 turns on a ø 60 mm mandrel at 1625 nm	IEC / EN 60793-1-47	dB	≤ 0.05 ≤ 0.05
Polarisation mode dispersion (PMD) coefficient, max. uncabled	IEC / EN 60793-1-48	ps/√km	≤ 0.5
PMD _Q Link Design Value (calculated with Q=0.01%, N=20)	IEC / EN 60794-3	ps/√km	≤ 0.2
Proof stress level	IEC / EN 60793-1-30	Gpa	≥ 0.7 (≈ 1 % strain)
Fibre curl radius	IEC / EN 60793-1-34	m	> 4
Strip force (peak)	IEC / EN 60793-1-32	N	1.2 ≤ F _{peak.strip} ≤ 8.9
Dynamic fatigue resistance aged and unaged (N _d)	IEC / EN 60793-1-33		≥ 20
Static fatigue resistance (N _s)	IEC / EN 60793-1-33		≥ 23

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