

Properties of cable with standard TeraLight® NZDS fibre

G655/G656: For high bit rate DWDM systems in the long-haul and Metro environment. To minimize your chromatic dispersion compensation CAPEX

General and application

Teralight® Non-Zero Dispersion Shifted Fibre (NZDSF) has set the standard for high bit-rate, multi-wavelength transmission. Its unique optimization of effective area, chromatic dispersion and dispersion slope enables excellent distortion management, cost-effective operation at 10 and 40 Gbps, tight channel spacing in C and L bands, compatibility with future S band and provides full compliance with the new ITU G.656 recommendation.

TeraLight® is further optimized for long-haul applications. It supports 10 Gbps transmission without dispersion compensation for distances of about 200 km, resulting in cost savings compared to standard single mode fibre. For longer distances or 40 Gbps operation, commercially available compensating devices can be used. The same fibre also supports short-length metro systems, providing additional cost savings.

Standards and Norms

IEC 60793-2-50 Category B4 and B5	ITU Recommendation G.655 C and E
EN 60793-2-50: Class B4 and B5	ITU Recommendation G. 656

Optical properties

Attribute	Measurement method	Units	Limits
Mode field diameter at 1550 nm	IEC/EN 60793-1-45	µm	9.2 ± 0.5
Chromatic dispersion coefficient:	IEC/EN 60793-1-42		
at 1440 nm		ps/km • nm	> 0.1
in the interval 1530 nm – 1565 nm		ps/km • nm	5.5 to 10.0
in the interval 1565 nm – 1625 nm		ps/km • nm	7.5 to 13.4
in the interval 1285 nm – 1330 nm		ps/km • nm	-10.0 to -3.0
Zero dispersion wavelength, λ_0		nm	≤ 1440
Zero dispersion slope at 1550 nm	typical	ps/(nm ² • km)	≤ 0.052
Cut-off wavelength	IEC/EN 60793-1-44	λ_{cc} nm	≤ 1300
Polarisation mode dispersion (PMD) coefficient	IEC/EN 60793-1-48	ps/√km	≤ 0.2
PMD _Q Link Design Value (Q=0.01%, N=20)	IEC/EN 60794-3	ps/√km	≤ 0.06

Attenuation

Attribute	Measurement method	Units	Limits
Maximum attenuation value of cable at 1310 nm	IEC/EN 60793-1-40	dB/km	≤ 0.40
Maximum attenuation value of cable at 1550 nm	IEC/EN 60793-1-40	dB/km	≤ 0.25
Maximum attenuation value of cable at 1625 nm	IEC/EN 60793-1-40	dB/km	≤ 0.28
Max. attenuation change in the interval 1525 - 1575 nm (ref. 1550 nm)		dB/km	≤ 0.03
Max. attenuation change in the interval 1550 - 1625 nm (ref. 1550 nm)		dB/km	≤ 0.05
Local discontinuity at 1310 and 1550 nm	IEC/EN 60793-1-40	dB	max. 0.1

Attenuation variation vs Bending

Attribute	Measurement method	Units	Limits
100 turns on a R=25 mm mandrel at 1550 nm	IEC/EN 60793-1-47	dB	≤ 0.05
100 turns on a R=25 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	-	1.4682
1550 nm	IEC/EN 60793-1-22	-	1.4683
1625 nm	IEC/EN 60793-1-22	-	1.4685

Rayleigh Backscatter coefficient (1ns pulse width)

Attribute	Measurement method	Units	Values
1310 nm	-	dB	-77.4
1550 nm	-	dB	-80.4
1625 nm	-	dB	-81.3

Geometrical properties

Attribute	Measurement method	Units	Limits
Cladding diameter	IEC/EN 60793-1-20	μm	125.0 ± 1.0
Cladding non-circularity	IEC/EN 60793-1-20	%	≤ 1.0
Core (MDF) -cladding concentricity error	IEC/EN 60793-1-20	μm	≤ 0.6
Primary coating diameter – ColorLock™ 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

Mechanical properties

Attribute	Measurement method	Units	Limits
Proof stress level	IEC/EN 60793-1-30	GPa	≥ 0.7 (≈ 1 %)
Strip force (peak)	IEC/EN 60793-1-32	N	1.2 ≤ F _{peak,strip} ≤ 8.9
Dynamic fatigue resistance aged and unaged	IEC / EN 60793-1-33	(N _d)	≥ 20
Static fatigue, aged	IEC / EN 60793-1-33	(N _s)	≥ 23

All measurements in accordance with ITU-T G650 recommendations

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