



Documents n. 11  
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## TECHNICAL DATA SHEET - CABLE CONSTRUCTION

### Specification for Low Water Peak Single-Mode OS2 Optical Fibre - G.652.D (Uncoloured Fibre)

Single-mode optical fiber optimized at a wavelength of 1310nm and 1550nm region, but also it can be used in the wavelength of 1380nm region, complying with the latest ITU-T recommendation G.652.D. Unless otherwise stated, the characteristics below are measured at ambient temperature, following the latest IEC standards.

Structural Characteristics			
Core material	Silica (SiO <sub>2</sub> ) doped with germanium dioxide (GeO <sub>2</sub> )		
Cladding material	Pure Silica (SiO <sub>2</sub> )		
Coating material	Dual layers of UV-cured acrylate (Uncolored)		
Geometrical Characteristics			
Mode field diameter	at 1310 nm	9.2 ± 0.4 μm	IEC60793-1-45
	at 1550 nm	10.4 ± 0.5 μm	
Cladding diameter	125.0 ± 0.7 μm		IEC60793-1-20
Coating diameter (uncoloured)	240 ± 5 μm		IEC60793-1-21
Core concentricity error	≤ 0.6 μm		IEC60793-1-20
Cladding non-circularity	≤ 0.7 %		IEC60793-1-20
Coating/Cladding concentricity error	≤ 12 μm		IEC60793-1-21
Fibre curl radius	≥ 4.0 m		IEC60793-1-34
Optical Characteristics			
Attenuation	at 1310 nm	≤ 0.34 dB/km	IEC60793-1-40
	at 1383 nm	≤ 0.32 dB/km* <sup>1</sup>	
	at 1550 nm	≤ 0.192 dB/km	
	at 1625 nm	≤ 0.22 dB/km	
Attenuation vs. Wavelength * <sup>2</sup>	1285-1330nm, ref. λ of 1310nm	α ≤ 0.03 dB/km	IEC60793-1-40
	1525-1575nm, ref. λ of 1550nm	α ≤ 0.02 dB/km	
Macrobending * <sup>3</sup>	1 turn on 32 mm diam. at 1550 nm	≤ 0.05 dB	IEC60793-1-47
	100 turn on 50 mm diam. at 1310 nm	≤ 0.05 dB	
	100 turn on 50 mm diam. at 1550 nm	≤ 0.05 dB	
	100 turn on 60 mm diam. at 1625 nm	≤ 0.05 dB	
Attenuation uniformity	No point discontinuity greater than 0.05 dB at either 1310nm or 1550nm in the OTDR trace		IEC60793-1-40
Cable cut-off wavelength (λ <sub>cc</sub> )	λ <sub>cc</sub> ≤ 1260 nm		IEC60793-1-44
Chromatic dispersion	at 1285 - 1330 nm	≤ 3.5 ps/nm x km	IEC60793-1-42
	at 1550 nm	≤ 17.0 ps/nm x km	
	at 1625 nm	≤ 22.0 ps/nm x km	
Zero dispersion wavelength (λ <sub>0</sub> )	1302nm ≤ λ <sub>0</sub> ≤ 1324nm		
Zero dispersion slope S <sub>0</sub>	S <sub>0</sub> ≤ 0.089 ps/nm <sup>2</sup> x km		



Fibre polarization mode dispersion	PMD $\leq 0.15$ ps/ $\sqrt{\text{km}}$ (Uncabled fibre) * <sup>4</sup>		IEC60793-1-48
	PMD <sub>Q</sub> $\leq 0.06$ ps/ $\sqrt{\text{km}}$ (PMD link design value)		
* <sup>1</sup> : Attenuation at 1383nm after hydrogen aging in accordance with IEC60793-2-50			
* <sup>2</sup> : Attenuation in a given wavelength range does not exceed the attenuation of the reference wavelength ( $\lambda$ ) by more than the value $\alpha$			
* <sup>3</sup> : Induced attenuation due to fiber wrapped around a mandrel of a specified diameter ( $\Phi$ )			
* <sup>4</sup> : Characteristic guaranteed under the free tension condition only			
<b>Mechanical Characteristics</b>			
Proof stress level	$\geq 1\%$ (100 kpsi or 0.7 GPa)		IEC60793-1-30
<b>Induced attenuation at 1310 nm, at 1550 nm and at 1625 nm</b>			
• Temperature Cycling -60°C ~ +85°C	$\leq 0.05$ dB/km		IEC60793-1-52
• Dump Heat Cycling -+85°C/up to 98% RH	$\leq 0.05$ dB/km		IEC60793-1-53
• Dry Heat +85°C $\pm 2^\circ\text{C}$	$\leq 0.05$ dB/km		IEC60793-1-51
• Water Immersion +23°C $\pm 2^\circ\text{C}$	$\leq 0.05$ dB/km		IEC60793-1-50
<b>Performance Characteristics</b>			
Core diameter	8.3 $\mu\text{m}$		
Zero dispersion wavelength	1315 nm		
Zero dispersion slope	0.086 ps/mm <sup>2</sup> x km		
Refractive index profile	Matched clad, step index profile		
Refractive index difference $\Delta$	$\Delta = 0.36\%$		
Effective group index of refraction N <sub>eff</sub>	at 310nm	1.4675	
	at 1550nm	1.4681	
Dynamic stress corrosion susceptibility parameter (n <sub>d</sub> )	$\geq 20$		IEC60793-1-33
Coating strippability F	1.3N $\leq F \leq 8.9$ N		IEC60793-1-32