

OS1/OS2 Singlemode Optical Fiber

(Americas, Asia Pacific)

Technical Information

PANDUIT OS1/OS2 fibers meet or exceed numerous standards for optical fiber, including ITU-TG.652 (Categories A, B, C and D), IEC 60793-2-50, ISO 11801 OS2, and TIA-492-CAAB and Telcordia GR-20. These fibers ensure performance over the entire 1260nm to 1625nm spectrum and are compatible with legacy fiber and the geometric properties contributing to minimizing splice loss and increasing splice yield.

Geometry

Dimension	Value
Core Diameter:	8.2µm typical
Cladding Diameter:	125µm ± 0.7µm
Cladding Non-Circularity:	≤ 1%
Core-Cladding Concentricity:	≤ 0.5µm
Coating Diameter:	245µm ± 5µm
Coating-Cladding Concentricity:	< 12µm

Mode-Field Diameter

Wavelength	Value
1310nm:	9.2 ± 0.4µm
1550nm:	10.4 ± 0.8µm

Attenuation

Wavelength	Value
1310nm:	≤ 0.34dB/km
1383nm @ Water Peak:	≤ 0.31dB/km
1550nm:	≤ 0.22dB/km

Attenuation vs. Wavelength

Wavelength	Ref. λ	Maximum Attenuation Difference
1285 – 1330nm:	1310nm	0.03dB/km
1525 - 1575nm:	1550nm	0.02dB/km
1625nm:	1550nm	0.03dB/km

Attenuation with Bending

Mandrel Diameter	Number of Turns	Wavelength	Induced Attenuation
32mm	1	1550nm	≤ 0.10dB
50mm	100	1310nm	≤ 0.05dB
50mm	100	1550nm	≤ 0.05dB
60mm	100	1550nm	≤ 0.05dB

Optical Characteristics

Property	Value
Cable Cutoff Wavelength λ_{ccf} :	$\lambda_{ccf} \leq 1260\text{nm}$
Point Discontinuity:	≤ 0.05dB @ 1310 or 1550nm
Numerical Aperture:	0.14 typical
Zero Dispersion Wavelength λ_0 :	1313 nm typical
Zero Dispersion Slope S_0 :	0.086 ps/(nm ² *km) typical
Refractive Index Difference:	0.36% typical
Group Index of Refraction N_{eff} - 1310nm:	1.466
1550nm:	1.467
Rayleigh Backscatter Coefficient (for 1ns pulsewidth) – 1310nm:	-77dB typical
1550nm:	-82dB typical

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Mechanical Properties

Property	Value
Fiber Curl:	≥ 4.0m radius of curvature
Proof Test:	≥100kpsi (0.7 GPa)
Coating Strip Force - Dry:	0.6 lbs (3 N) typical
Wet – 14 day room temperature:	0.6 lbs (3 N) typical

Environmental Properties

Test Condition	Induced Attenuation @ 1310/1550/1625nm
Operating Temperature Range:	-60° C to +85° C
Temperature Dependence (-60° C to +85° C*):	≤ 0.05dB/km
Temperature-Humidity Cycling (-10° C to +85° C*, up to 98% RH):	≤ 0.05dB/km
Water Immersion (23° C ± 2° C*):	≤ 0.05dB/km
Heat Aging (85° C ± 2° C*):	≤ 0.05dB/km

*Reference Temperature is 23° C

Application Reach

Ethernet Data Rate	Standard	Transceiver Type	Wavelength	Reach
1 Gb/s	IEEE 802.3z	1GBASE-LX	1310nm	Up to 10km
10 Gb/s	IEEE 802.3ae	10GBASE-LX4	CWDM (1310nm)	Up to 10km
10 Gb/s	IEEE 802.3ae	10GBASE-LX	1310nm	Up to 10km
10 Gb/s	IEEE 802.3ae	10GBASE-EX	1550nm	Up to 40km
Fibre Channel Data Rate	Standard	Transceiver Type	Wavelength	Reach
1 Gb/s	ANSI FC	100-SM-LL-V	1310/1550nm	Up to 50km
2 Gb/s	ANSI FC	200-SM-LL-V	1310/1550nm	Up to 50km
4 Gb/s	ANSI FC	400-SM-LC-L	1310nm	Up to 10km
8 Gb/s	ANSI FC	800-SM-LC-L	1310nm	Up to 10km
10 Gb/s	ANSI 10GFC	1200-SM-LL-L	1310/1550nm	Up to 10km
10 Gb/s	ANSI 10GFC	1200-SM-LC4-L	CWDM (1310nm)	Up to 10km