Low-Water-Peak Non-Dispersion-Shifted Single-Mode Fiber

Low-water-peak non-dispersion-shifted single-mode fiber is designed for full-band optical transmission across the 1260–1625 nm wavelength range. By suppressing the water peak loss near 1383 nm—caused by hydroxyl (OH⁻) ion absorption in conventional fibers—this fiber eliminates the transmission barrier in the E-band (1360–1460 nm), unlocking approximately 100 nm of additional usable spectrum and increasing spectral bandwidth by over 50%.

The fiber delivers excellent attenuation and dispersion performance across the entire O-, E-, S-, C-, and L-bands, while enhancing macrobend resistance in the L-band (1565–1625 nm). This makes it ideal for high-channel-count, high-speed transmission over a single fiber, meeting the growing demands of modern communication networks.

Key Features:

- Full 1260–1625 nm operating window with low attenuation and optimized dispersion
- Suppressed water peak at 1383 nm enables efficient E-band utilization
- Superior optical performance for high-speed DWDM and CWDM systems
- Fully compatible with existing 1310 nm transmission equipment
- Excellent coating protection and ease of stripping
- Precise geometry ensures low splice loss and high splicing efficiency

Applications:

Ideal for Ethernet, IP, ATM, SONET/SDH, and WDM-based transmission technologies. Widely used in backbone, metropolitan, and access networks to support voice, data, and high-definition video services with abundant bandwidth.

Cable Compatibility:

Suitable for various cable structures, including fiber ribbon cables, loose-tube stranded cables, skeleton cables, central tube cables, and tight-buffered cables.

Compliance Standards:

Meets or exceeds ITU-T G.652.D and IEC 60793-2-50 category B1.3 specifications.

Specification Parameters

Characteristics			
Characteristics	Conditions	Data	Unit
Optical Characteristics			
Attenuation	1310nm	⩽0.34	[dB/km]
1383nm (After Hydrogen Aging)	⩽0.34	[dB/km]	
1550nm	⩽0.20	[dB/km]	

1625nm	⩽0.24	[dB/km]	
Attenuation Change vs. Wavelength	1285-1330nm, vs. 1310nm	⩽0.03	[dB/km]
1525-1575nm, vs. 1550nm	⩽0.02	[dB/km]	
Chromatic Dispersion vs. Wavelength	1285-1340nm	-3.5 to 3.5	[ps/(nm・km)]
1550nm	⩽18	[ps/(nm・km)]	
1625nm	⩽22	[ps/(nm・km)]	
Zero Dispersion Wavelength (λ0)	--	1300~1324	[nm]
Zero Dispersion Slope (S0)	--	⩽0.092	[ps/(nm²・km)]
Typical Zero Dispersion Slope	--	0.086	[ps/(nm²・km)]
Polarization Mode Dispersion Coefficient (PMD)	Maximum for Single Fiber	⩽0.1	[ps/√km]

Fiber Link Value (M=20, Q=0.01%)	≤0.06	[ps/√km]	
Typical Value	0.04	[ps/√km]	
Cable Cutoff Wavelength (λcc)	--	≤1260	[nm]
Mode Field Diameter (MFD)	1310nm	8.7~9.5	[μm]
1550nm	9.8~10.8	[μm]	
Effective Group Index (Neff)	1310nm	1.466	--
1550nm	1.467	--	
Point Discontinuity	1310nm	≤0.05	[dB]
1550nm	≤0.05	[dB]	
Geometrical Characteristics			
Cladding Diameter	--	125.0±0.7	[μm]
Cladding Non-Circularity	--	≤1.0	[%]
Coating Diameter	--	235~250	[μm]

Coating/Cladding Concentricity Error	--	⩽12.0	[μm]
Coating Non-Circularity	--	⩽6.0	[%]
Core/Cladding Concentricity Error	--	⩽0.6	[μm]
Warpage (Radius)	--	⩾4	[m]
Delivery Length	--	Max 50.4	[km/reel]
Environmental Characteristics at 1310nm, 1550nm and 1625nm			
Temperature Additional Attenuation	-60°C to 85°C	⩽0.05	[dB/km]
Temperature-Humidity Cycle Additional Attenuation	-10°C to 85°C, 98% Relative Humidity	⩽0.05	[dB/km]
Water Immersion Additional Attenuation	23°C, 30 days	⩽0.05	[dB/km]
Hot Humid Additional Attenuation	85°C, 85% Relative Humidity, 30 days	⩽0.05	[dB/km]
Dry Heat Aging	85°C, 30 days	⩽0.05	[dB/km]

Mechanical Characteristics			
Proof Stress	--	⩾9.0	[N]
--	⩾1.0	[%]	
--	⩾100	[kpsi]	
Macrobending Additional Loss	100 turns, radius 30mm	1625nm	⩽0.05 [dB]
100 turns, radius 25mm	1310nm and 1550nm	⩽0.05 [dB]	
1 turn, radius 16mm	1550nm	⩽0.05 [dB]	
Coating Strip Force	Typical Average	1.5	[N]
Peak	1.3~8.9	[N]	
Dynamic Fatigue Parameter (nd)	--	⩾20	--