

Overview

BendBright A1+ fiber significantly exceeds the macrobend performance requirements of G.657.A1. BendBright A1+ fiber provides this increased macrobend performance while maintaining optimal splice compatibility with the installed base of Standard Single Mode Fibers. BendBright A1+ fiber meets and exceeds the requirements of G.657.A1 and G.652D. BendBright A1+ provides low bending losses down to a minimum bend radius of 10 mm.



Features and Benefits

Low bending losses

- Low bending 1550 nm loss at 15 mm bend radius; 10 turn loss ≤ 0.05 dB. ITU G.657.A1 specifies 0.25 dB.
- Specified down to a 10 mm bend radius; 1 turn loss ≤ 0.50 dB @ 1550 nm. ITU G.657.A1 specifies 0.75 dB.
- Allows a smaller bend radius with small diameter cables such as patch cords and distribution cables.
- Mitigates losses caused by improper installations.
- Allow the use of smaller splice trays or closures.
- Provides lower bending losses at higher wavelengths such as 1625 nm which future proofs the network.
- Improves long-term attenuation stability by reducing losses related to temperature cycling and mid-span buffer-tube storage.

Full industry standards compliance

- Fully compliant to both ITU G.657.A1 BIF and G.652.D SMF industry standards.
- Fully compliant to both IEC 60793-2-50 B-657.A1 and B-652.D SMF fiber standards.
- Fully compliant with Telcordia GR20 & GR409.
- Fully compliant with all ICEA fiber cable standards including ICEA 640, 696, & 596.
- Compliant with RUS 7 CFR 1755.900 fiber requirements.

Full backward ITU G.652.D SMF compatibility

- Compliant with ITU G.652.D and IEC 60793-2-50 B-652.D low water peak SMF specifications.
- Compatible with equipment designed for G.652 fibers; fully transparent from a transmission perspective.
- Splice compatible with ITU G.652 SMF using standard single mode fiber machine settings.
- Full 1260-1625 nm low water peak compliance.

BendBright™ A1+ Bend Insensitive Single Mode Fiber - North America

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Performance Specifications (Uncabled Fiber)

| Attenuation vs. Wavelength | |
|----------------------------|----------------------------------|
| 1285 nm to 1330 nm | $= \alpha_{1310} \pm 0.03$ dB/km |
| 1525 nm to 1575 nm | $= \alpha_{1550} \pm 0.02$ dB/km |

| Polarization Mode Dispersion (PMD) | |
|------------------------------------|----------------------------------|
| Max. Value In Uncabled Fiber | ≤ 0.1 ps/km ^{1/2} |
| Link Design Value | ≤ 0.04 ps/km ^{1/2} |

| Optical Parameters | |
|--------------------------------|--------------------|
| Mode Field Diameter @ 1310 nm | 9.2 ± 0.4 μm |
| Mode Field Diameter @ 1550 nm | 10.4 ± 0.5 μm |
| Cabled Cut-Off Wavelength | ≤ 1260 nm |
| Zero Dispersion Wavelength (λ) | 1304 nm to 1324 nm |

| Chromatic Dispersion | |
|--------------------------------------|---------------------------------------|
| 1550 nm | ≤ 18.0 ps/(nm*km) |
| 1625 nm | ≤ 22.0 ps/(nm*km) |
| Zero Dispersion Slope | ≤ 0.092 ps/(nm ² *km) |
| Point Discontinuity (1310 & 1550 nm) | ≤ 0.05 dB |

| Attenuation with Bending | | | |
|--------------------------|-----------------|------------------|------------------|
| Mandrel Radius (mm) | Number of Turns | Wavelength (nm) | Attenuation (dB) |
| 10 | 1 | 1550 | ≤ 0.50 |
| 10 | 1 | 1625 | ≤ 1.5 |
| 15 | 10 | 1550 | ≤ 0.05 |
| 15 | 10 | 1625 | ≤ 0.30 |
| 25 | 100 | 1310, 1550, 1625 | ≤ 0.01 |

| Dimensional Parameters | |
|--------------------------------------|---------------------|
| Outer Coating Diameter | 242 ± 7 μm |
| Coating/Cladding Concentricity Error | ≤ 12 μm |
| Cladding Diameter | 125.0 ± 0.7 μm |
| Cladding Non-Circularity | $\leq 0.7\%$ |
| Core-Clad Concentricity | ≤ 0.5 μm |
| Fiber Curl | ≥ 4.0 m radius |

| Mechanical Performance | |
|------------------------|---|
| Minimum Proof Test | 100 Kpsi (0.7 GPa); 1% strain equivalent |

| Environmental Performance | |
|---|--|
| Environmental Test | Induced Attenuation at 1310, 1550 nm (dB/km) |
| Temperature Cycling (-60°C to +85°C) | ≤ 0.05 |
| Temperature Humidity Cycling (-10°C to +85°C, up to 98% RH) | ≤ 0.05 |
| Water Immersion (23°C ± 2°C) | ≤ 0.05 |
| Accelerated Heat Aging (85°C ± 2°C) | ≤ 0.05 |
| Damp Heat (85°C, 85% RH) | ≤ 0.05 |

| Performance Characterization | |
|---|--|
| Effective Group Index of Refraction | @ 1310 nm 1.467 @ 1550 nm 1.468 |
| Fatigue Resistance Parameter (n _g) | 20 |
| Rayleigh Backscatter Coefficient (1 ns = pulse width) | @ 1310 nm. -77 dB @ 1550 nm. -82 dB |
| Core Diameter | 8.2 μm |

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