

Laser Ultra-Fox™ Fiber Performance

| Fiber Code | Industry Standard Designation | Core/Cladding Diameter (µm) | Numeric Aperture | Wavelength (nm) | Gigabit Ethernet Distance (m) | 10-Gigabit Ethernet Distance (m) | Maximum Cabled Attenuation (dB/km) | Minimum Laser EMB Bandwidth* (MHz-km) | Minimum OFL LED Bandwidth** (MHz-km) |
|------------|---|-----------------------------|------------------|-----------------|-------------------------------|-------------------------------------|------------------------------------|---------------------------------------|--------------------------------------|
| WLS | OM1 ISO/IEC 11801 | 62.5/125 | 0.275 | 850/1310 | 300/600 | 33/300* | 3.5/1.5 | 220/500 | 200/500 |
| WLX | OM1+ ISO/IEC 11801 | 62.5/125 | 0.275 | 850/1310 | 500/1000 | 33/300* | 3.5/1.5 | 385/500 | 200/500 |
| ALS | Laser Grade OM2+ Bend Insensitive ISO/IEC 11908 | 50/125 | 0.20 | 850/1310 | 600/600 | 82/300* | 3.5/1.5 | 510/500 | 500/500 |
| ALX | Extended Length Laser Grade OM2+ Bend Insensitive ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 750/600 | 150/300 ⁻² | 3.0/1.0 | 950/500 | 700/500 |
| ALT | Laser Optimized OM3 Bend Insensitive ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 1000/600 | 300/300 ⁻² | 3.0/1.0 | 2000/500 | 1500/500 |
| ALE | Laser Optimized OM4 Bend Insensitive ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 1040/600 | 550 ¹ /300 ⁻² | 3.0/1.0 | 4700/500 | 3500/500 |
| ALW | Laser Optimized OM5 Bend Insensitive ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 1040/600 | 550 ¹ /300 ⁻² | 3.0/1.0 | 4700/500 | 3500/500 |
| SLX | Low Water Peak Single-Mode ITU-T G.652.D | 9 ⁵ /125 | — | 1310/1550 | 5 km ³ | 10 km ⁴ | 0.5/0.5 | — | — |

| | | | | | | | | | |
|-----|---|---------------------|---|-----------|-------------------|--------------------|---------|---|---|
| SLA | Bend Insensitive Low Water Peak Single Mode ITU-T G.657.A1 and ITU-T G.652.D | 9 ⁵ /125 | — | 1310/1550 | 5 km ³ | 10 km ⁴ | 0.5/0.5 | — | — |
| SLB | Bend Insensitive Low Water Peak Single Mode ITU-T G.657.A2 and ITU-T G.652.D | 9 ⁵ /125 | — | 1310/1550 | 5 km ³ | 10 km ⁴ | 0.5/0.5 | — | — |
| SLC | Bend Insensitive Low Water Peak Single Mode ITU-T G.657.B3 and ITU-T G.652.D | 9 ⁵ /125 | — | 1310/1550 | 5 km ³ | 10 km ⁴ | 0.5/0.5 | — | — |

* Minimum Laser Effective Modal Bandwidth (EMB)

** For backward compatibility to LED based systems, overfilled launch (OFL)

^ 1310 nm CWDM lasers (10GBASE-LX4)

1. Reach assuming 3.0 dB maximum cabled attenuation at 850 nm and 1.3 dB total connection and splice loss
2. Supports 220 meter 10GBASE-LRM distance, or 300 meter 10GBASE-LRM distance with 300 meter capable equipment
3. 10 km for 1310 nm 1000BASE-LH, and 5 km for 1310 nm 1000BASE-LX
4. 10 km for 1310 nm 10GBASE-LR, and 40 km for 1550 nm 10GBASE-ER
5. Typical Mode Field Diameter at 1310 nm

Note: Many other fiber types, fiber bandwidth, and attenuation performances are available.

Ultra-Fox™ Plus Fiber Performance

| Fiber Code ⁵ | Industry Standard Designation | Core/Cladding Diameter (µm) | Numeric Aperture | Wavelength (nm) | Gigabit Ethernet Distance (m) | 10-Gigabit Ethernet Distance (m) | Maximum Cabled Attenuation (dB/km) | Minimum Laser EMB Bandwidth* (MHz-km) | Minimum OFL LED Bandwidth** (MHz-km) |
|-------------------------|--|-----------------------------|------------------|-----------------|-------------------------------|----------------------------------|------------------------------------|---------------------------------------|--------------------------------------|
| WST | OM1 ISO/IEC 11801 | 62.5/125 | 0.275 | 850/1310 | 275/550 | 33/300 [^] | 3.5/1.5 | 200/500 | 200/500 |
| WLS | Laser Grade OM1 ISO/IEC 11801 | 62.5/125 | 0.275 | 850/1310 | 300/600 | 33/300 [^] | 3.5/1.5 | 220/500 | 200/500 |
| AST | OM2 ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 550/550 | 82/300 [^] | 3.5/1.5 | 500/500 | 500/500 |
| ALS | Laser Grade OM2 ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 600/600 | 82/300 [^] | 3.5/1.5 | 510/500 | 500/500 |
| ALT | Laser Optimized OM3 ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 1000/600 | 300/300 ^{^1} | 3.5/1.5 | 2000/500 | 1500/500 |
| ALE | Laser Optimized OM4 ISO/IEC 11801 | 50/125 | 0.20 | 850/1310 | 1040/600 | 550/300 [^] | 3.5/1.5 | 4700/500 | 3500/500 |
| SLS | Low Water Peak Single-Mode ITU-T G.652.D ⁶ | 9 ² /125 | — | 1310/1550 | 5 km ³ | 10 km ⁴ | 0.5/0.5 | — | — |
| SLA | Bend Insensitive Low Water Peak Single-Mode ITU-T G.657.A1 and ITU-T G.652.D | 9 ² /125 | — | 1310/1550 | 5 km ³ | 10 km ⁴ | 0.5/0.5 | — | — |

* Minimum Laser Effective Modal Bandwidth (EMB)

** For backward compatibility to LED-based systems, overfilled launch (OFL)

[^] 1310 CWDM lasers (10GBASE-LX4)

¹ Supports 220-meter 10GBASE-LRM distance or 300-meter 10 GBASE-LRM distance with 300-meter-capable equipment

² Typical Mode Field Diameter at 1310 nm = 9 microns

³ 10 km for 1310 nm 1000BASE-LH, and 5 km for 1310 nm 1000BASE-LR

⁴ 10 km for 1310 nm 10GBASE-LR, and 40 km for 1550 nm 10GBASE-ER

⁵ Fiber Codes are available for composite cables containing a wide variety of mixed fiber types within the same cable. Call OCC Customer Service for the Fiber Code for your composite cable configuration.

⁶ For certain specialty applications SLS fiber may be ITU-T G.652.A

Note: Other fiber bandwidth, and attenuation performances are available. Laser optimized fiber types available as special order. Contact Optical Cable Corporation for details.