TeraWave® ULL Single-Mode Optical Fiber
Fiber for the Long Haul

Features and Benefits
- Effective area of 125 µm²
- Ultra low loss ≤0.17 dB/km at 1550 nm
- Long term attenuation and mechanical reliability
- Ultra low PMD
- Low latency
- Improved OSNR
- Supports coherent and non-coherent transmission systems
- Optimized for 100 G and beyond
- Designed for terrestrial cables
- 1.5 dB increase in non-linear limit
- High performance D-Lux® Ultra Coating

Product Description

TeraWave® ULL Single-Mode Optical Fiber is a 125 µm² large area, ultra low loss ITU-T G.654.B and ITU-T G.654.E fiber designed for terrestrial optical networks. The fiber is optimized for long haul transmission in the C- and L-bands (1530 nm – 1625 nm) at 100 Gb/s, 400 Gb/s and beyond. It features a core with an effective area 49% greater than G.652.D single-mode fiber to reduce nonlinear effects that limit the reach of G.652.D fiber. As a result, TeraWave ULL fiber supports greater distances between regeneration and amplification sites, helping to lower the overall cost of deploying coherent systems – now and in the future.

TeraWave ULL fiber features very good cabling properties, and an ultra low loss to provide superior optical signal-to-noise ratio (OSNR) performance in optical links compared to low loss G.652.D fibers. The fiber takes the best aspects of highly engineered submarine fibers and combines them with cabling performance that is similar to conventional single-mode terrestrial fiber. These improvements allow system designers to increase distances between amplification and regeneration sites to help reduce overall system costs.

Operating optical systems beyond 100 G will require a significant improvement in the optical signal noise ratio (OSNR) for the end user to have regeneration distances comparable to those observed with G.652.D fiber at 100 Gb/s. Optimizing fiber attributes and amplification strategy is needed to increase the regeneration distances. The graph shows that in a 400 G system with TeraWave ULL fiber and Raman amplification regeneration distances comparable to 100 G systems using erbium-doped fiber amplifiers (EDFA) with G.652.D fiber can be achieved.

Expected regeneration distance at 400 G compared to standard single-mode fiber at 100 G using EDFA
Applications

A combination of ultra-low loss and higher nonlinear performance recommended for the highest spectral efficiency TeraWave® ULL Single-Mode Optical Fiber provides outstanding cable performance and design freedom for terrestrial long haul systems:

- 100 Gb/s, 400 Gb/s, and 1 Tb/s using coherent modulation formats
- Ultra-long haul 10 Gb/s and 100 Gb/s
- Terabit super-channels
- Dense wave-division multiplexing
- Optically-routed mesh networks
- Long unrepeatered spans such as those encountered in remote regions
- POP-to-landing-site connections for submarine cables