



A Furukawa Company

## The TeraWave® Family of Optical Fiber

Fiber for the Long Haul



Modern coherent transport technology enables 40 and 100 Gigabit per second speeds over legacy fiber networks, but new developments will enable even higher data rates up to 1 Terabit per second over a new generation of low loss, large area fibers. In response to these advances in signaling technologies, OFS introduced the TeraWave family of optical fibers designed for emerging terabit per second modulation formats. This guide lists the various TeraWave fibers offered by OFS and their suggested application spaces in long haul and submarine networks

Legacy fibers were designed with fiber-based dispersion compensation in mind. OFS' TeraWave fibers are optimized for on-chip electronic dispersion compensation. The large effective area and low loss of TeraWave fibers improves the optical signal to noise ratio to help increase the spectral efficiency for coherent transmission systems.

All TeraWave fibers are designed to support coherent systems transmitting at 100 Gb/s and beyond in the C and L bands. These fibers fall into the ITU-T G.654 category that was originally developed for demanding submarine systems but is now being used in for terrestrial cables as well.

- TeraWave fibers for terrestrial cables provide effective areas that are 49% higher than G.652 fibers and attenuations that are lower than most G.652 fibers.
- TeraWave fibers for submarine cables have even larger effective areas and lower losses to support more demanding transoceanic links.

## TeraWave® Optical Fibers



### Designed for Terrestrial Cables

ITU-T Category	Fiber	Application	Nominal Effective Area	Attenuation @ 1550 nm (dB/km)
ITU-T G.654.E	TeraWave Fiber	Provides lower system cost opportunities for coherent transmission by enabling reduced signal regeneration and/or longer spans between amplifiers.	125 $\mu\text{m}^2$	$\leq 0.19$
ITU-T G.654.E	TeraWave ULL Fiber	A combination of ultra-low loss and higher nonlinear performance recommended for the most challenging deployments including ultra-long haul, long unrepeated spans, and terrestrial extension of submarine links into data centers.	125 $\mu\text{m}^2$	$\leq 0.17$



### Designed for Submarine Cables

ITU-T Category	Fiber	Application	Nominal Effective Area	Average Attenuation @ 1550 nm (dB/km)
ITU-T G.654.B	TeraWave SLA+ Fiber	Cost-effective coherent fiber recommended for many regional cables	130 $\mu\text{m}^2$	0.184
ITU-T G.654.B	TeraWave SCUBA 125 Fiber	Recommended for trans-oceanic cables	125 $\mu\text{m}^2$	0.158
ITU-T G.654.D	TeraWave SCUBA 150 Fiber	Recommended for the highest capacity cables	153 $\mu\text{m}^2$	0.155

The complex signal constellations of coherent transmission systems are inherently more sensitive to non-linear distortion of the transmitted waveform. This is especially evident at speeds beyond 100 Gb/s. The higher effective area and lower attenuation of TeraWave G.654 fibers provide improved transmission characteristics as compared to conventional G.652.D fiber by reducing non-linear impairments.



For additional information please contact your sales representative.

You can also visit our website at [www.ofsoptics.com](http://www.ofsoptics.com)  
or call 1-888-FIBER-HELP (1-888-342-3743) in the USA  
and Canada or 1-770-798-5555 outside the USA.

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