ofs
A Furukawa Company

Zero Water Peak Fiber

For several years, the optical fiber user community has been rapidly shifting from traditional single-mode fibers to new "Full Spectrum" single-mode fibers meeting the International Telecommunications Union (ITU-T) G.652D specification. These Reduced Water Peak (RWP) fibers are considered Full Spectrum because the reduction of loss in the water absorption spectral region (the E band) allows transmission in this previously unusable portion of the spectrum. This supports the exponential bandwidth growth occurring in all networks today.

While all RWP fibers have lower loss in the E band (1360 - 1460 nm), not all such fibers are created equal. In fact, there are two very distinct types of these fibers: Low Water Peak (LWP) fibers, which simply lower the loss in the water peak E band of the spectrum; and Zero Water Peak (ZWP) fibers, which eliminate the loss in the water peak and further lower the loss across the entire spectrum. The differences in network support between the two are significant.

G.652D Fibers Dominate

Traditional single-mode fibers have very high loss in the 1360 - 1460 nm band because they absorb OH ions during manufacturing (in a process called "water absorption"). The loss can continue to increase even after cable installation. The high attenuation makes transmission in this spectral region impractical for traditional single-mode fibers.

Traditional single-mode fibers are fast becoming a thing of the past, as the migration to G.652D fibers is now a clear global trend. All major suppliers have a product offering in this area.

The performance difference between LWP and ZWP fibers affects not only the loss at 1383 nm (the water peak), but also affects loss performance across the entire spectrum. Lower loss has always been the critical enabling parameter for optical fiber. The fact that ZWP fibers have lower loss than LWP fibers across the entire spectrum makes ZWP fibers significantly better for network applications.

Lower Loss, Greater Reach

ZWP fiber eliminates the initial water peak loss and guarantees stable loss over time. As a result ZWP fiber has up to 22 percent lower loss at the 1383 nm water peak and superior performance in the entire 1360 - 1460 nm band compared with LWP G652.D fiber. That translates to as much as 22 percent longer reach and 66 percent greater served area than LWP Standard G652.D fiber.

Zero Water Peak Fiber

OFS' AllWave® Zero Water Peak fiber offers up to 12 percent more reach and 27 percent greater served area than the leading LWP competitor. ZWP fiber's lower inherent loss allows higher network design margins, and thus can support more connections and splices than LWP fiber.

ZWP fiber is manufactured using a process that consistently ensures low loss at 1383 nm and across the whole spectrum. By comparison, LWP fibers are often selected out of a conventional single-mode fiber process and may not provide stable loss performance over time.

AllWave ZWP fiber is the original Full Spectrum fiber, while LWP fibers were introduced more than three years later. AllWave ZWP fibers guarantee ZWP performance using a patented process that locks out (and keeps out) the water peak defect, while assuring benchmark low and stable loss across the spectrum. Most RWP fibers are compliant with the ITU-T G.652C, or the latest G.652D standard, but that's where the difference ends.

For Campus, FTTx, Access, or Metro applications, ZWP fibers such as OFS' AllWave ZWP fiber can reach more customers, provide greater network design flexibility, and can generate more revenue than LWP fiber - significantly increasing return on investment in network infrastructure.

For additional information please contact your sales representative. You can also visit our website at www.ofsoptics.com/ofs-fiber or call 1-888-fiberhelp. For regional assistance, contact:

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