

# Single-mode optical cable attenuation table



## Summary of Content

Single-mode optical fibers typically have maximum attenuation of 1 dB/km for OS1 and 0.4 dB/km for OS2 at standard wavelengths, as defined by ITU-T G.652 and IEC 60793 standards.

### Standard Attenuation Values

Single-mode fibers are designed to minimize signal loss over long distances. The key attenuation standards are:

- OS1 Fiber: Maximum attenuation of 1 dB/km at 1310 nm and 1550 nm, suitable for indoor and short-distance applications .
- OS2 Fiber: Maximum attenuation of 0.4 dB/km at 1310 nm and 1550 nm, optimized for outdoor and long-haul networks .
- Low-Water Peak Fibers: Attenuation at 1383 nm is equivalent to 1310 nm, ensuring minimal loss in the 1360-1460 nm band for WDM applications . ITU-T G.652 defines the most widely used single-mode fibers, including the G.652.D variant, which supports full-spectrum operation and is compatible with DWDM systems . IEC 60793-1-40 provides standardized methods for measuring attenuation, including spectral modeling and backscattering techniques, ensuring consistent evaluation across fiber types .

### Measurement Considerations

Attenuation is measured in dB/km and depends on wavelength, fiber type, and installation conditions. Key points include:

## Article Content

Recommendation ITU-T G.652 (08/2024)

For the purpose of statistical link attribute values estimation for attenuation, chromatic dispersion typical values of

SINGLE-MODE OPTICAL FIBER IN LOOSE TUBE AND RIBBON

This ultra-low-loss single-mode fiber for long haul terrestrial applications utilized in optical fiber cable shall meet ITU

Calculate the Maximum Attenuation for Optical Fiber Links

This document describes how to calculate the maximum attenuation for an optical fiber.

ITU MyWorspace: ITU-T G.652 (11/2016)

These tables are still available in the 2009 edition of ITU-T G.652 Recommendation. These optical fibres and cables can be used for

Single-Mode Optical Fiber (SMF)

It can be used in all cable constructions, including loose tube, tight buffered, ribbon, and central tube designs. It supports long haul,

Recommendation ITU-T G.652 (08/2024)

Cable attributes focus on attenuation coefficient and polarization mode dispersion coefficient, with specifications based on statistical

ITU-T G.652: Single-Mode Optical Fiber Characteristics

ITU-T G.652 Recommendation details single-mode optical fiber and cable characteristics, including geometrical, mechanical, and

Optical Fiber and Cable Characteristics

ITU-T and IEC have implemented multiple changes to their respective documents regarding Single Mode Fiber (SMF) since the last

SINGLE-MODE OPTICAL FIBER IN TIGHT BUFFER CABLES

The single-mode bend-improved optical fiber utilized in the optical fiber cable shall meet ITU-T G.652, Table D, ITU-T G.657, Table

Attenuation In Optical Fibers And Calculation

We measured attenuation in decibels per kilometer (dB/km). It's 0.15 dB/km for single-mode fibers, but for plastic fibers,

## Contact Us

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