Fiber optic cable 1310 loss

Article Overview

The typical attenuation for single-mode fiber at 1310 nm is approximately 0.35–0.5 dB/km, depending on the fiber type and installation conditions.

Standard Loss Values

For single-mode fibers operating around the 1310 nm wavelength, the inherent fiber attenuation is generally about 0.35–0.5 dB per kilometer for outside plant installations, with slightly higher values for premises cabling due to tighter bends and shorter runs (0.5–1.0 dB/km) . This wavelength is near the zero-dispersion point, which minimizes chromatic dispersion while maintaining moderate loss, making it suitable for medium-distance transmission up to approximately 40 km without repeaters .

Comparison with 1550 nm

At 1550 nm, single-mode fiber exhibits lower attenuation, typically around 0.2–0.4 dB/km, but slightly higher chromatic dispersion. Therefore, 1310 nm is preferred for medium-range links where dispersion is less critical, while 1550 nm is favored for long-haul or WDM systems . In practice, insertion loss measurements at 1310 nm and 1550 nm for a properly manufactured cable assembly are very similar, with 1550 nm often showing a marginally lower loss by a few hundredths of a dB .

Loss Budget Considerations

When designing or testing a fiber link, the loss budget accounts for fiber attenuatio...

Article Content

Dec 22, 2025

Technical Characteristics Of 10G Optical Modules With 1310nm And

There are three wavelength windows for 10G optical module communication applications, namely the 850nm window,

May 19, 2026

Calculating Fiber Loss and Distance

Fiber optics provides exceptional bandwidth and can carry many signals concurrently. Fiber optics is immune to

Oct 07, 2025

1310nm vs 1550nm Wavelength: Which Has Lower Fiber Optic Loss?

Compare fiber optic cable loss at 1310nm and 1550nm wavelengths. Learn attenuation rates, transmission distances, and expert

Jan 23, 2026

What is the difference between 1310nm and 1550nm fiber?

The difference in attenuation between 1310nm and 1550nm arises due to the inherent properties of the fiber optic cable. As light

Oct 18, 2025

Fiber Optic Loss Calculator

Calculate fiber optic signal loss based on cable length, attenuation, and connector losses. Determine cable loss, connector loss, and

Jun 21, 2026

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

This document outlines the specifications for a single-mode optical fiber and cable designed for use around the 1310 nm zero

Nov 29, 2025

Loss Budget (3)

Calculate fiber optic loss budgets with this tool, considering network hardware and dynamic range for optimal performance.

Nov 26, 2025

Fiber Optic Link Loss Budget Calculation

Before you start your fiber optic link loss budget calculation, you need to know the minimum acceptable loss values.

Nov 06, 2025

Which Loss Measurement Wavelengths? | Kingfisher International

Application note: Which loss measurement wavelengths do I need to test for fiber optic cable and networks.

Jun 04, 2026

Insertion Loss Troubleshooting Tip: Singlemode 1310 vs. 1550

It''s normal that Insertion Loss values for a connector be ~0.01 - 0.05 dB better at 1550 than 1310. A connector, or an

Nov 03, 2025

Fiber Optic Wavelengths Explained: 1310nm vs 1550nm

Fiber wavelengths at 1310nm and 1550nm minimize signal loss and dispersion, enabling efficient long-distance data

Jan 06, 2026

Understanding Fiber Loss: What Is It and How to Calculate It?

This post introduces the main fiber loss types, the calculation process of link loss including fiber attenuation,

May 06, 2026

Calculate the Maximum Attenuation for Optical Fiber Links

Today, the 1310 nm region is popular because of the dramatically lower loss and lower dispersion. You can also use the 1550 nm

Jul 07, 2026

Determining optical fiber link loss

1) Determine the optical fiber loss at the testing wavelength--the product of a loss factor times cable length. The optical loss factor is

Mar 15, 2026

Backbone Optical Fiber Analysis at 1310 nm and 1550 nm

The optical propagation losses of such structures are simulated using the COMSOL Multiphysics for different

May 17, 2026

Understand Fiber Attenuation

Attenuation is the reduction or loss of optical power as light travels through an optical fiber. The longer the fiber is and

Mar 21, 2026

Link Loss Budget Calculator | Fiber Optic Link Loss Budget ...

Corning''s link loss budget calculator will calculate your total link loss and tell you if your system falls within Corning''s recommended

Jun 28, 2026

Guidelines On What Loss To Expect When Testing Fiber Optic Cables

Thus there is considerable overlap of the loss budget and the measurement results, so there is no reason to reject this fiber.

Sep 02, 2025

Single-Mode Optical Fiber (SMF)

Draka Single-Mode Fiber (SMF) provides optimum performance in both the 1310 nm and 1550 nm wavelength operation ranges

Aug 11, 2025

Insertion Loss Troubleshooting Tip: Singlemode 1310 vs. 1550

In Singlemode cable assembly, the 2 wavelengths used for Insertion Loss testing are 1310nm & 1550nm. Read the

Contact Us

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