

Optical Splitter Insertion Loss Table



Article Overview

Insertion loss of optical splitters varies by split ratio and type, with typical values ranging from 3.5 dB for 1×2 splitters to over 17 dB for 1×32 splitters, depending on FBT or PLC technology.

Overview

Optical splitters are passive devices used in FTTH and PON networks to divide a single optical signal into multiple outputs. Insertion loss (IL) is the reduction in optical power caused by the splitter and includes both the splitting loss and excess loss due to imperfections, splices, or misalignment . Minimizing IL is critical to maintain the power budget and ensure reliable signal transmission . Two common splitter types are:

- FBT (Fused Biconical Taper) Splitters: Typically used for lower split ratios; insertion loss increases with higher splits.
- PLC (Planar Lightwave Circuit) Splitters: Provide more uniform performance across higher split ratios and wider temperature ranges .

Typical Insertion Loss Values

Splitter Type	Split Ratio	Typical Insertion Loss (dB)
FBT	1×2	3.5 – 4.0
FBT	1×4	7.0 – 7.5
FBT	1×8	10.5 – 11.0
FBT	1×16	14.0 – 14.5
FBT	1×32	17.0 – 18.0
PLC	1×2	3.5 – 4.0
PLC	1×4	7.0 – 7.2
PLC	1×8	10.5 – 11.0
PLC	1×16	13.5 – 14.0
PLC	1×32	16.5 – 17.0

These values include typical excess loss, which ranges from 0.1 to 2 dB depending on manufacturing quality and environmental conditions . The actual IL may be slightly higher when considering connectors or adapters in the network

Article Content

Sep 11, 2025

Basic Knowledge about Split Ratio and Insertion Loss of Optical Splitter

Minimizing insertion loss from the optical splitter is crucial for conserving the power budget of a PON system. The table

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Optical Splitter Loss Calculator

Estimate optical splitter losses for fiber building projects fast. Include connectors, splices, excess loss, and margin safety. Export

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Optical Splitter Loss Calculator | EZ Virtual Tools

Calculate optical splitter insertion loss for PON, FTTH, and fiber distribution networks. Design passive splitter cascades for GPON,

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The FOA Reference For Fiber Optics

Testing a splitter or other passive fiber optic devices like switches is little different from testing a patchcord or cable plant using the

Dec 10, 2025

Understanding Signal Loss in PLC Splitters: A Comprehensive Analysis

Understanding Signal Loss in PLC Splitters: A Comprehensive Analysis Planar Lightwave Circuit (PLC) splitters are

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Fiber Optic Splitter Loss Chart: Complete Guide (1×2 to 1×64)

Fiber Optic Splitter Loss Understanding Insertion Loss in Fiber Optic Splitters Insertion loss is the reduction in optical

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Optical Splitter Loss Calculator

Free browser tool for estimating passive splitter insertion loss using $10 \cdot \log_{10}(N)$ plus datasheet excess loss.

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Basic understanding on Tap ratio for Splitter/Coupler

They serve as the backbone of passive optical networks (PONs), CATV distribution systems, and dense wavelength

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Why Fiber Optic Splitter Loss Table is Important

In order to conserve the power budget of a PON system, It is necessary to minimize the insertion loss from the splitter. All in all,

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PLC Splitter and download the loss chart of PLC splitter

Optical splitters, including FBT (Fused Biconical Taper) couplers and PLC (Planar Lightwave Circuit) splitters, are

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4 Important Technical Indicators of Fiber Optic Splitters

In this article, we will delve into four critical indicators: insertion loss, splitting ratio, isolation and stability. Help you

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How to calculate and measure fiber optic splitter loss

Let's explore the fiber optic splitter attenuation loss from the optical Wavelength, insertion loss, additional loss, and

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Fiber Optic Splitter Insertion Loss Table Reference for

The optical insertion loss is the loss of an optical signal resulting from the insertion of a component such as

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Fiber Optic Splitter Loss Chart: Complete Guide (1×2 to 1×64)

Below, I'll give you the complete Fiber Optic Splitter Loss chart for 1×2 through 1×64 configurations, show you how

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Basic Knowledge about Split Ratio and Insertion Loss of Optical Splitter

In summary, understanding split ratio and insertion loss of optical splitter is vital for optimizing fiber optic networks. The

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Fiber Optic Splitter Coupler, Passive Optical Splitter Loss

Please note that each 1x N Optical Splitter Coupler has its own specific INSERTION LOSS. It is the loss of signal power resulting

Feb 12, 2026

How to Calculate Splitter Loss in Optical Fiber

The splitter loss is crucial in evaluating the performance of fiber optic networks. The acquisitions guarantee its signal

Aug 17, 2025

Optical Splitter Insertion Loss Table

Optical Splitter Insertion Loss Table The document contains tables listing the insertion loss in dBm for various splitting ratios of an

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Insertion Loss – optical power, fiber connector, splice

Insertion loss is the reduction in optical power that results from inserting an optical device into a setup. It occurs in components like

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