

# Loss values of various optical splitters



## Article Overview

Optical splitter loss depends on the splitter type, number of output ports, and additional excess losses, typically ranging from 0.5 dB to over 20 dB for high split ratios.

### Theoretical Split Loss

The ideal insertion loss of a 1×N splitter is determined by the number of output ports using the formula:  $\text{Loss (dB)} = 10 \times \log_{10}(N)$

- 1×2 splitter: 3.0 dB
  - 1×4 splitter: 6.0 dB
  - 1×8 splitter: 9.0 dB
  - 1×16 splitter: 12.0 dB
  - 1×32 splitter: 15.0 dB
  - 1×64 splitter: 18.0 dB
- This represents the ideal power division without considering imperfections .

### Excess Loss

Real-world splitters have excess loss due to internal imperfections, core misalignment, and packaging. Typical values are:

- PLC splitters: 0.5–2.0 dB depending on the split ratio and quality
  - FBT splitters: Slightly higher at large split ratios, often 1–3 dB for 1×16 or higher
- The total insertion loss is the sum of the theoretical split loss and the excess loss fr...

## Article Content

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How to Calculate Splitter Loss in Optical Fiber

These measurements help in verifying the actual splitter loss against the theoretical values, crucial for troubleshooting

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Basic Knowledge about Split Ratio and Insertion Loss of Optical Splitter

Optical splitters are vital in FTTH PON systems, distributing a single signal efficiently. Key parameters, Split Ratio and

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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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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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Design and optimization of optical power splitters for optical access ...

This paper aims to study the design, simulation, and optimization of low-loss Y-branch passive optical splitters up to

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Why Fiber Optic Splitter Loss Table Is So Important?

Do you know how to realize the performance of the FBT and PLC splitter? The primary important thing is to check its

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#### 4 Important Technical Indicators of Fiber Optic Splitters

Among the various indicators, isolation is particularly important for fiber optic splitters. In practical system

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#### Optical Splitters in Modern Networks

Various split configurations are available, such as 1x2, 1x8, 2x32, 2x64, etc. Classified by Transmission Medium Based

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#### Fiber Optic Loss & Power Calculator

Splitter loss values are "Typical" and include a connector in and out. These values are approximate and should not be exceeded by

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#### Understanding Optical Splitter Loss in Fiber Optic Networks

5. Minimizing Splitter Loss in Networks - Minimizing splitter loss in fiber optic networks involves a combination of using

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#### Ultra low loss broadband 1 × 2 optical power splitters with various ...

We designed Si-based all-dielectric 1 × 2 TE and TM power splitters with various splitting ratios by combining the use

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#### PON crib: splitters, ratios, gains, losses

Even splitter ratios and losses What happens if the splitter has three or more outputs? Here's a table with calculated

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#### Basic understanding on Tap ratio for Splitter/Coupler

Basic understanding on Tap ratio for Splitter and Coupler Understanding Power Division, Insertion Loss, and Practical

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#### Fiber Optic Splitters in FTTH: Loss and Budget Calculation

Learn how to calculate the optical loss and budget of fiber optic splitters in FTTH using a simple formula. Compare FBT and PLC

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## The Working Principle and Application Scenarios of Fiber Optic Splitters

Fiber optic splitters are essential passive devices in modern optical communication systems, enabling the division of a

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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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## 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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## Ultimate Guide 2023: PLC Splitter / FBT Fiber Splitter Loss Chart

How to measure fiber optic splitter insertion loss with calculation? The maximum allowable insertion loss for an optical

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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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## Calculating Fiber Optic Loss Budgets

Power Budgets And Loss Budgets The terms "power budget" and "loss budget" are often confused. The power budget refers to the

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## Fiber Optic Splitter Loss Calculator

Estimate splitter, fiber, connector, and splice loss with this fiber optic splitter loss calculator. Check margin fast, plan cleaner links,

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## Tutorial of Optical Splitter Loss Test

Optical splitters are usually used in passive optical networks (PONs) to distribute fiber to individual homes or

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How to Calculate Splitter Loss in Optical Fiber

One of the most valuable uses of optical splitters is to determine splitter loss. This loss occurs because the signal level

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Optical Splitter Loss Calculator

Optical Splitter Loss Calculator the quick  $10 \cdot \log_{10}(N)$  estimate, plus your datasheet excess. A passive optical splitter divides an

## Contact Us

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