

How to Use a Desktop Insertion Loss Analyzer Intelligent Type



Article Overview

Using a desktop insertion loss analyzer involves proper setup, calibration, measurement of test coupons, and data analysis to accurately quantify signal losses in PCBs or other transmission lines.

Step 1: System Setup

Begin by connecting the vector network analyzer (VNA) or intelligent insertion loss analyzer to your test environment. Ensure the analyzer software (e.g., Atlas VNA or Delta-L integrated software) is installed and configured for your hardware. Connect the test fixture or PCB coupon to the analyzer ports using high-quality coaxial cables or probes to minimize additional losses .

Step 2: Calibration

Perform a full calibration to remove systematic errors from cables, connectors, and test fixtures. Common calibration methods include thru, open, short, load (TOSL) or thru-only calibration for simpler measurements. For PCB measurements, consider de-embedding the test fixture to shift the reference plane directly to the device under test (DUT), eliminating lead-in and via effects .

Step 3: Measurement

- Select the frequency range relevant to your PCB or device (e.g., 50 kHz to 50 GHz for high-speed PCBs)....

Article Content

May 21, 2026

Testing insertion loss of PCB signal structures with Delta-L 4.0

In case only the insertion loss per inch on a certain PCB layer is of interest, Delta L provides a straightforward and tailored method to

Aug 17, 2025

SET2DIL and SPP PCB Sdd21 insertion loss test & measurement

Using the Si9000e to analyse and predict losses during the design stage, the fabricator can quickly model a range of scenarios,

Nov 04, 2025

How to Measure Insertion Loss – A Complete Guide by BitWise ...

To measure insertion loss effectively, the first step is to use a calibrated signal generator and a reliable power meter

May 05, 2026

Attenuation networks and their measurement

All attenuators have an associated insertion loss. In that many attenuators are designed to operate in the RF range,

Oct 30, 2025

Understanding VSWR and Insertion Loss Plots

The information supplied in the plots from our RF products data sheets is intended to help anticipate the impact on the imperfections

Aug 14, 2025

Signal Integrity & Insertion Loss Analysis

Discover how Signal Integrity Engineers optimize insertion loss analysis in computer hardware manufacturing using data analytics.

Jul 08, 2026

Avoid Signal Insertion Loss by Proactively Detecting It

Insertion loss is measured in decibels (dB). The lower the dB level the better. Use a spectrum analyzer to measure insertion loss.

Jan 12, 2026

Keysight N7700 Photonic Application Suite Insertion Loss Measurement ...

This document describes how to use and program the Photonic Application Suite, Insertion Loss Engine.

Apr 04, 2026

Signal Insertion Loss How to Accurately Diagnose | Learn

Understanding the relationship of the components within a transmission line and understanding the measurement parameters of

Aug 28, 2025

What are insertion loss and return loss and how can I measure them?

What about insertion loss? Insertion loss refers to the amount of signal power lost in a system such as that in Figure 1

Oct 09, 2025

RFI Power Inlet Filter Insertion Loss Measurement

1 Executive Summary This application note describes how to measure the common mode and the differential mode insertion loss of

Jul 27, 2026

Insertion Loss Definition, Formula, Causes, Troubleshooting | Fluke ...

Learn about insertion loss causes, measurement, budgets, troubleshooting tips, testing, fixing, and what to look for in

Jun 07, 2026

Signal Integrity & Insertion Loss Analysis

In this comprehensive guide, we explore the ins and outs of insertion loss analysis from a signal integrity engineer's perspective. We

Aug 19, 2025

Co-Axial Cable Insertion And Return Loss Measurement

Frequency source Network Analyzer (either a scalar network analyzer or a vector network analyzer) Detector with calibration source.

May 04, 2026

Insertion Loss Measurement Methods Application Note

Insertion loss measurement is one of the critical measurements used to analyze transmission feed line installation and performance

Jul 22, 2026

Insertion Loss Calculator

Return loss measures reflected power, while insertion loss measures transmitted power. How do I measure insertion loss in a

Apr 30, 2026

Study of PCB Insertion Loss Variation in Manufacturing

The traditional laboratory method of measuring PCB insertion loss is difficult to adopt in high volume manufacturing (HVM)

Mar 10, 2026

INSERTION LOSS MEASUREMENT

The insertion loss is frequency dependent, it increases with operating frequency. Hence, insertion loss of Circulator / Isolator

Feb 10, 2026

Comprehensive Guide on How to Measure Insertion Loss for Signal ...

Conclusion Understanding How to measure insertion loss is essential for assessing the performance of communication and

Apr 19, 2026

Introduction to Measuring Insertion Loss and Gain

Understanding Insertion Loss Measurement Insertion loss and gain play crucial roles in assessing the performance of

Feb 10, 2026

Measuring insertion loss in automated test systems

Insertion loss characterization is important because you use it to calibrate all measurements the power meter,

Dec 30, 2025

Modifying Insertion Loss Values in Cable Tests

Customize insertion loss values with the Advanced Cable Tester v2 to adjust signal integrity testing parameters.

Sep 15, 2025

A method for improving high-insertion-loss measurements with a

We present a method for improving high-insertion-loss measurements with a calibrated vector network analyzer (VNA) requiring only

Aug 31, 2025

How to measure cable loss

R&S® ESSENTIALS | Spectrum analyzers fundamentals How to measure cable loss
Paul Denisowski, Product Management

Feb 14, 2026

Normalized Insertion Loss

There is too much uncertainty in calculating the Normalized Insertion Loss, so none of the cabling standards use it for

Nov 18, 2025

PCB insertion loss test system

Stackup design environment Atlas Si is a precision insertion loss measurement package designed specifically for PCB fabricators

Aug 19, 2025

Transmission Loss Measurements with the iVA Cable & Antenna Analyzer

Refer to Kaelus white paper "Branch Insertion Loss Measurements with the iVA" for details. The second step is to perform an OSL

May 09, 2026

Polar | ATLAS

ATLAS VNA uses powerful mathematical processing techniques to allow measurement of differential frequency-dependent losses

Dec 26, 2025

PCB Signal Integrity and insertion loss testing, modeling and

Atlas Attenuation / Loss Analysis System completes the range of products for insertion loss. Atlas combines with a Tektronix

Nov 01, 2025

Improving the Way We Measure Insertion Loss

This standard was originally developed in 1952 to measure the insertion loss of filters used to mitigate radio

Aug 10, 2025

Insertion Loss Measurement Methods | Anritsu America

The following section explains the procedure to measure insertion loss in cable loss mode and return loss mode. The measurement

Dec 12, 2025

How to measure cable loss

Learn about RF cable loss measurement. Understand S11 measurement, S21 measurement and the steps of measuring cable loss

Apr 08, 2026

How to Measure Insertion Loss: Formula and Methods

Learn how to measure insertion loss using the core formula, plus practical methods for fiber optics, RF systems, and

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