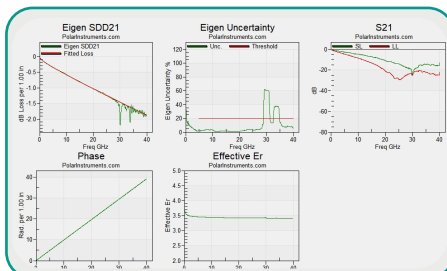
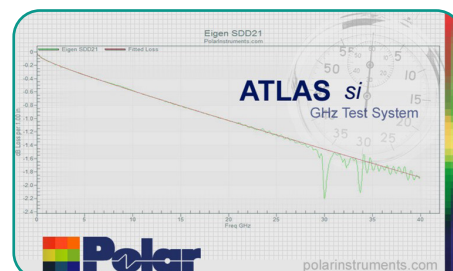




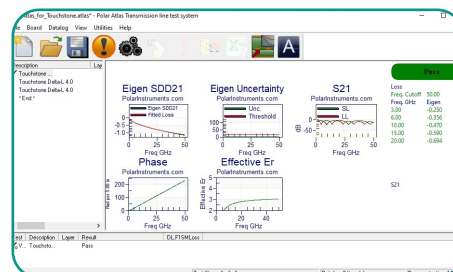
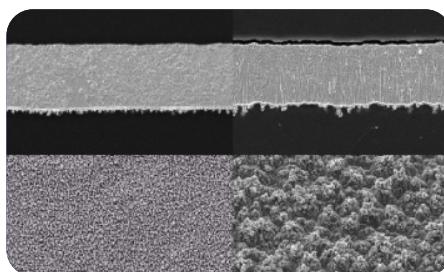
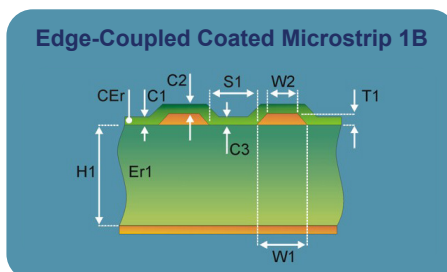
PCB insertion loss test system



Atlas



Easy to use
Accurate insertion loss measurement
Incorporates time (TDR) & frequency domain measurement
Supports Delta-L4.0



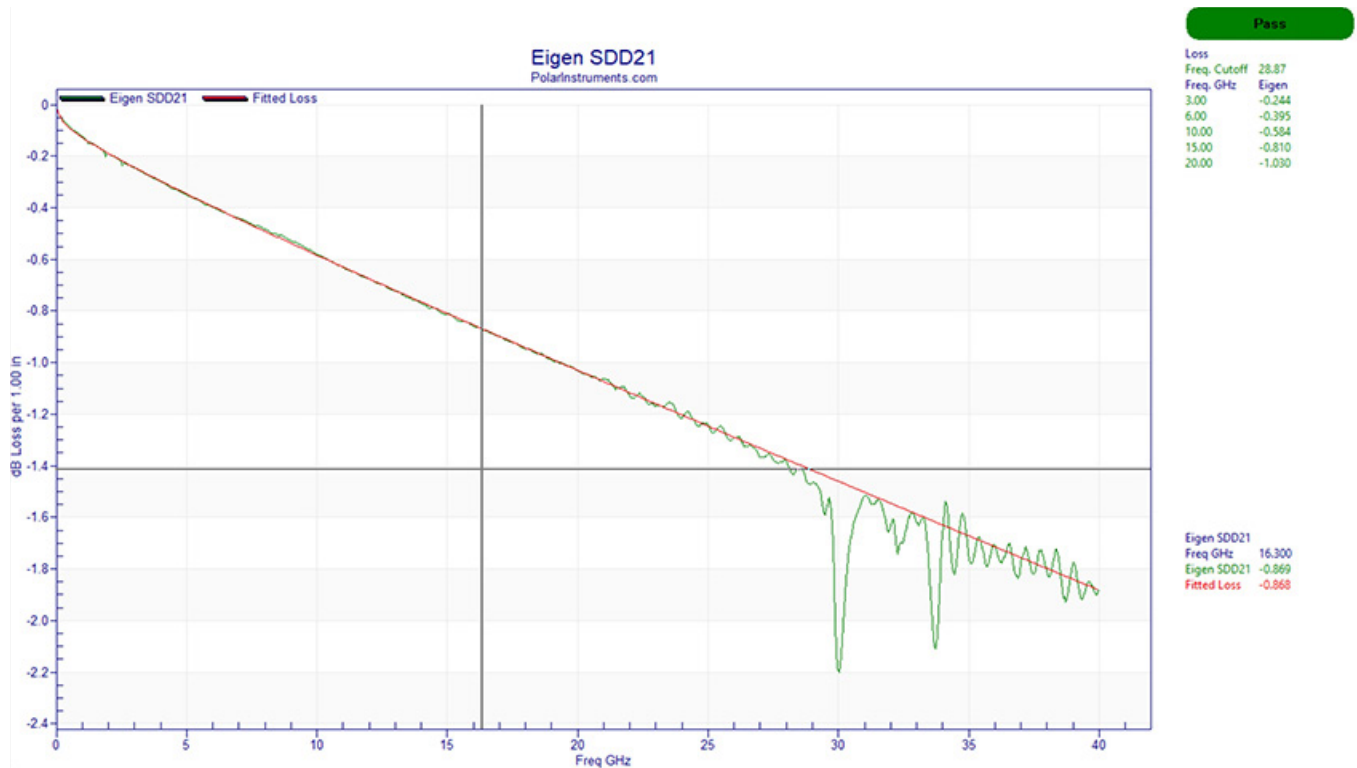
Accurate measurement of transmission line insertion loss for multi-GHz PCB fabrication

Atlas Si for Delta-L 4.0 with Eigenvalues

For Anritsu ShockLine™ and VectorStar™ 4-Port VNA

polarinstruments.com





Stackup design environment Atlas Si is a precision insertion loss measurement package designed specifically for PCB fabricators and OEMs. It provides accurate, repeatable measurements of frequency based transmission line losses, allowing fabricators to meet stringent targets that maintain signal integrity within the limits of the latest high-speed chipsets.

Snapshot archive of full or single test data including both results and SDD21 displays

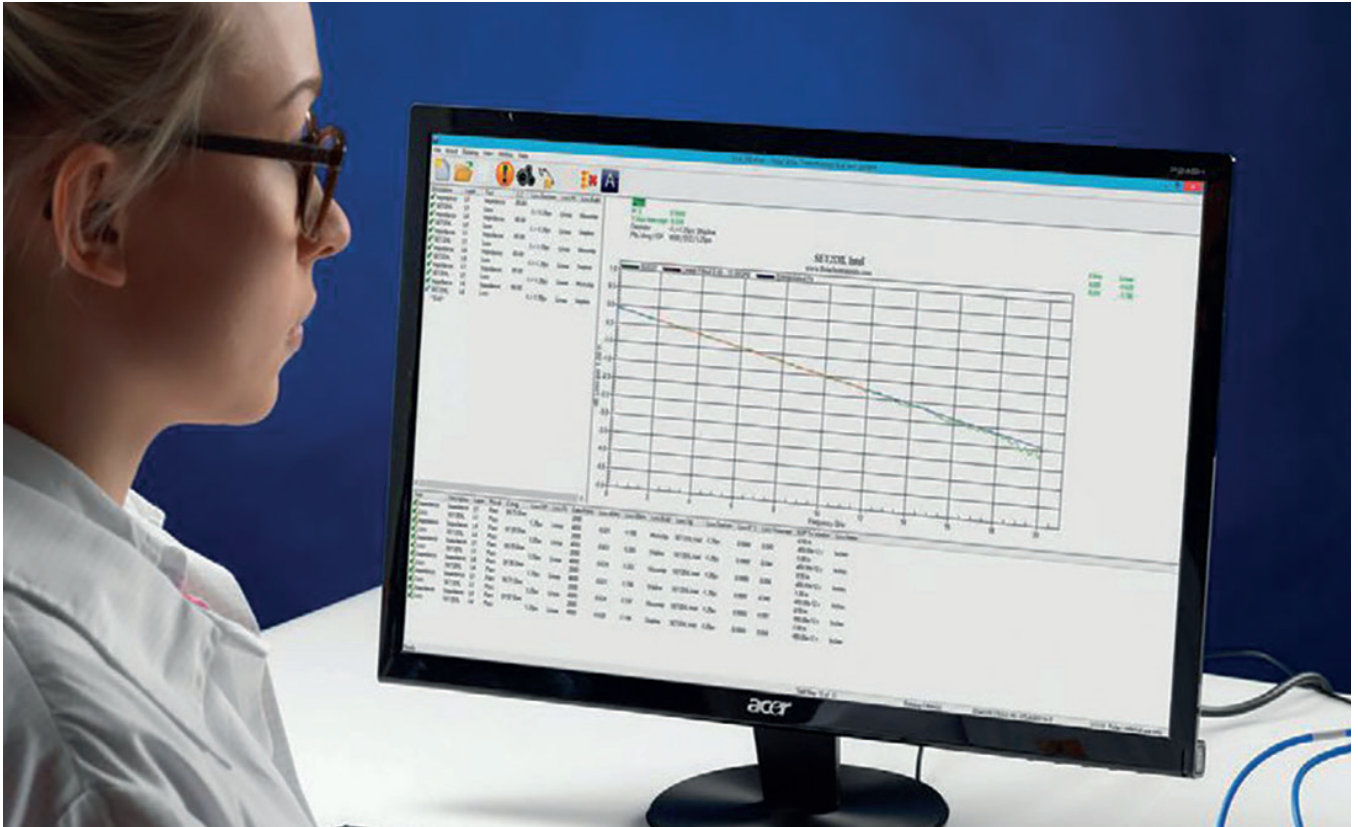
The emergence of a new generation of high speed busses, means that PCB fabricators must be ready to provide tight control over losses from multi-GHz PCB transmission lines. The differential signalling techniques used by these new busses allow PCBs operating at multi-GHz to be manufactured using conventional and cost-effective PCB base materials. However, while this gives OEM designers the combination of high performance and low PCB costs, it means that PCB fabricators must be able to accurately measure and control transmission line losses.

Using Polar Atlas insertion loss measurement systems in conjunction with the industry standard Si9000e field solver enables PCB fabricators to predict and measure the characteristics of ultra high speed differential signal lines and reduce the number of prototype turns before committing to production.

Atlas for Anritsu 4-Port Performance VNA processes insertion loss data with Delta-L 4.0 math using Eigenvalue methods to extract the insertion loss from 2 or 3 line test coupons. Atlas is compatible with both ShockLine™ MS46524B 43.5GHz 4-Port Performance VNA and VectorStar™ MS4647B 70GHz 4-Port Performance VNA.

ACCURATE AND REPEATABLE INSERTION LOSS MEASUREMENTS IN A PCB FABRICATION ENVIRONMENT





Multi-GHz PCB fabrication

While frequency-based losses are usually negligible on PCBs operating below 2GHz, above this level signal losses become a major problem for PCBs manufactured in conventional FR4 and other low-cost laminate materials.

As more OEMs integrate high-speed chipsets onto their boards, the need for PCB fabricators to measure and control frequency-based losses increases. Measuring transmission line losses presents fabricators with a set of challenges very different from those for controlling impedance: whereas trace width and dielectric separation are among the most important criteria for impedance control, dielectric loss and smoothness of the copper foils are the crucial parameters for controlling frequency-based losses.

Fast and accurate measurement of transmission line losses in the production environment allows you to increase manufacturing yield and reduces the comparatively high cost of multi-GHz PCB fabrication.

Atlas software

Atlas uses powerful mathematical processing techniques to allow nonskilled operators to measure differential frequency-dependent losses from a test coupon quickly and easily. The system is easy to set up, easy to use and delivers fast results without the need for extensive operator training. A single insertion loss test can be performed in a fraction of the time needed for traditional techniques.

Atlas for Anritsu ShockLine™ and VectorStar™ 4-Port Performance VNA is compliant with IPC TM650 2.5.5.12 (Test Methods to Determine the Amount of Signal Loss on Printed Boards) and provides support for Delta-L methodology.

Atlas now offers direct export of results in Microsoft® Excel® format.



Specifications

Insertion Loss measurement	SDD21 magnitude vs frequency
Impedance measurement	Single ended and differential impedance Accuracy specifications: as defined by the by Anritsu Shockline product specification
Delta-L 4.0	Delta-L 4.0 with Eigenvalues
Impedance	Controlled (characteristic) lossless impedance
Datalogging and output	All tests data logged and output as pipe delimited text files for customer processing
Microsoft® Excel®	CSV file export Printable test lists and waveforms
Optional Accessories	Polar IPS series probes for impedance test
PC requirements	Running Windows 10 or later Refer to Polar Application Note AP605
Standard Accessories	ACC383 footswitch
Applicable standards	IPC TM-650 2.5.5.12

Additional Requirements:

Anritsu ShockLine™ MS46524B-002⁽¹⁾ 43.5GHz 4-Port Performance VNA (Time domain with gating option)
Anritsu VectorStar™ MS4647B-002⁽¹⁾ 70.0GHz 4-Port Performance VNA (Time domain with advanced capabilities)
VNA Anritsu Cal kit TOSLKF50A-43.5⁽¹⁾ DC — 43.5 GHz K(f)
(Above customer supplied – may be bundled on request)
Microprobes to suit customer specific coupon design - consult the board designer for insertion loss microprobe style.

Ordering Information

Atlas for Anritsu ShockLine™ or VectorStar™ VNA
Note ¹ - 3rd party measurement systems change from time to time and we recommend consulting Polar before placing an order to confirm specific options and versions.

About Polar Instruments

Polar Instruments is a market leader in designing and manufacturing tools to simplify and enhance the design, fabrication and testing of printed circuit boards (PCBs). Tools include the industry-standard Controlled Impedance Test System (CITS) which provides the global PCB industry with an easy-to-use test system for high-speed digital and RF boards, as well as Speedstack PCB and Si which leads the way in documenting PCB layer stackup across the PCB supply chain. Established in 1976 with operations and channel partners in the US, UK, Europe and Asia Pacific.

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