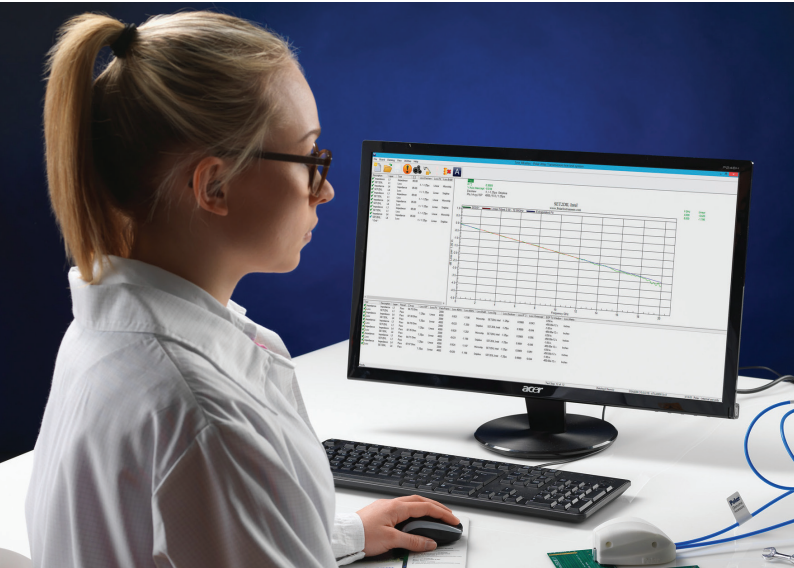


PCB insertion loss test system

(advance information)



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

Ensures accurate insertion loss measurement

Atlas Si for Delta-L

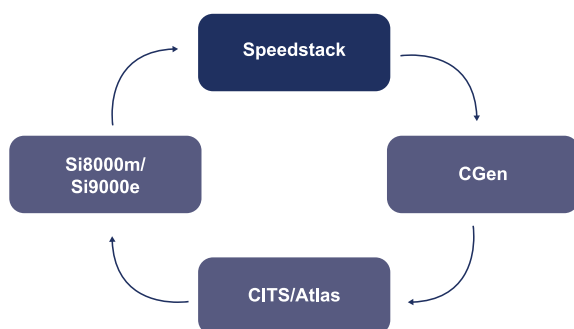
Incorporates time (TDR) & frequency domain measurement

Atlas Si for Anritsu VNA

Easy to use for non-skilled operators

Supports Delta-L insertion loss test

Extracts effective ϵ_r





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.

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.

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

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.



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.

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

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 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.

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Specifications Advance information – specifications may change before official release

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	SDD21 measured using Delta-L technique
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
Accessories	ACC383: USB footswitch
PC requirements	ACC383: USB footswitch PC requirements PC running Windows 10 or later Refer to Polar Application Note AP605
Applicable standards	IPC TM-650 2.5.5.12

Ordering Information

Atlas for Anritsu	VNA
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Additional requirements:

Anritsu MS46524B 43.5GHz Vector Network Analyser
(Customer supplied – may be bundled on request)

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). Their innovative 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 class-leading tools for fast and accurate design and testing of controlled impedance in PCBs. Polar also leads the industry in tools for automated PCB layer stackup design and documentation. Polar Instruments was established in 1976 and now has operations and channel partners in the US, UK, Europe and Asia Pacific.

