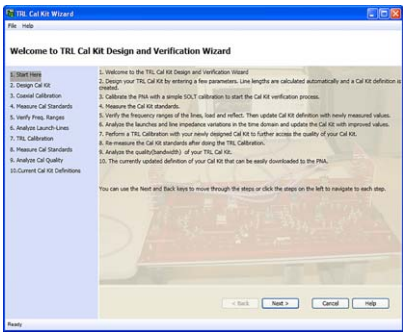
Agilent N1930B-5TP
Physical Layer Test System (PLTS)

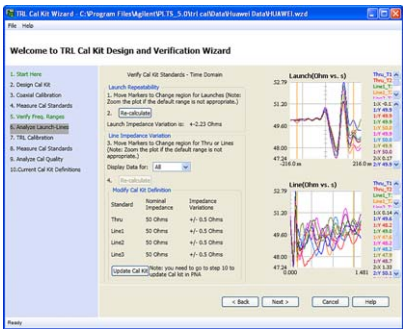
What's New with Physical Layer Test System Option 5TP?



The TRL Calibration Wizard in PLTS N1930B-5TP option is an industry first for enabling complex vector network analyzer error correction in an easy to use format for PCB fixtures.

Agilent has developed a breakthrough signal integrity software tool that enables digital interconnect designers never before available capabilities. The Physical Layer Test System (PLTS) version 5.0 software Option N1930B-5TP will incorporate three new advanced calibration tools that optimize the design of high speed connectors, cables, backplanes and printed circuit boards. The PLTS Option N1930B-5TP provides advanced calibration wizards for a complete suite of signal integrity capability including:

- Thru-Reflect-Line (TRL) calibration wizard for design and validation of customer-built test fixtures
- Differential crosstalk calibration wizard that takes into account coupling effects of differential transmission lines on fixtures for extremely accurate error correction
- Automatic fixture removal feature that requires only a symmetric "Thru" structure is measured for quick and easy fixture de-embedding



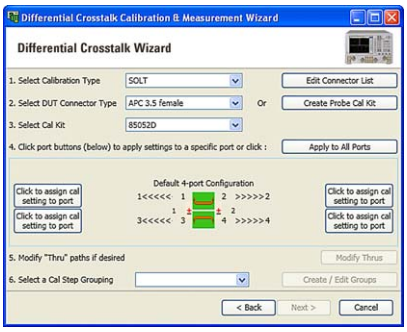
The TRL Calibration Wizard has a step-by-step procedure for validating the customer built TRL fixture and verifies the high frequency performance level in a quantitative fashion.

TRL Calibration Wizard

Many high-speed digital labs today must design test fixtures for data rates above 5 Gbps. More advanced design techniques must be used when designing test fixtures for these sensitive s-parameter measurements. The TRL calibration process has been the traditional method for microwave engineers for decades to precisely locate the measurement reference plane. However this advanced technique has been out of reach for most digital laboratories due to complexity. This is no longer the case.

The TRL calibration wizard is the world's first software tool that enables the design and validation of a PCB-based TRL calibration kit. This step-by-step process easily guides you carefully through the normally tedious and error prone process of TRL fixture design, saving at least 50% of the design cycle time from beginning to end, thus reducing the number of board spins. Now, with TRL calibration wizard, you can invoke the wizard to define the line lengths for each calibration structure. After sending the board layout details to a PCB house for manufacture, the wizard will measure the newly designed TRL test fixture to verify that it will work properly at the desired high frequency range.

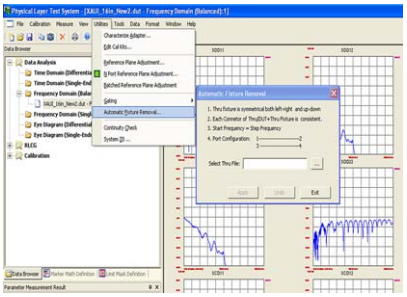
Agilent Technologies



One of the most difficult error corrections to do is remove differential coupling in test fixtures. The Differential Calibration Wizard is the first tool of its kind to perform a correction to remove error due to this type of coupling.

Differential Crosstalk Calibration Wizard

When designing test fixturing for interconnect characterization, the age old question is "How should I route my test fixture transmission lines, single-ended or differential?" Some engineers correctly route them single-endedly, some erroneously route them differentially and some just don't care. The biggest mistake is to route differentially and ignore the coupling effects. As long as a calibration algorithm is used to remove coupling effects, then this test fixture design flaw can be easily remedied. The differential crosstalk calibration wizard in PLTS 5.0 Option 5TP will automatically measure these coupling effects and remove them from the measurement using a proprietary calibration algorithm. Some steps in the wizard can be eliminated if the fixture is symmetric from front to back, thereby optimizing the algorithm in real time. There are test fixture amplitude measurement errors as large as 25 dB that have been fixed by the differential crosstalk calibration wizard.



The Automatic Fixture Removal Wizard is as simple as inputting a thru structure measurement and then clicking a single button entitled, "Apply".

Automatic Fixture Removal

It can sometimes be a complicated process to achieve accurate calibrations with a vector network analyzer (VNA). The time consuming part of the measurement sequence is often not the measurement itself, but the calibration. For those who feel that way, we have created the Automatic Fixture Removal Wizard. This is a simple two step process that entails inputting a Thru structure measurement of the two fixtures end-to-end. This structure can be built on the PCB board or it can be the boards themselves with a Thru connector to join the two fixture halves together. In either case, as soon as this measurement is input into the wizard and the total measurement of the DUT plus fixtures is in the active window of the wizard, then a simple click on the "Apply" button and the fixture is accurately removed. The resultant accuracy is better than a TDR calibration. It is simple, fast AND accurate.

Making VNAs Easier than TDRs

It has often been stated that VNAs are extremely accurate at the cost of being complicated. This is possibly true if the right tools are not at your disposal. Well, now the right toolset is available at the right time; just as data rates are driven to 5 Gbps and higher. No longer do you need to settle for the –40 dB dynamic range of a TDR when you have a VNA toolset that makes high dynamic range measurements a simple task. The PLTS 5.0 Option N1930B-5TP is exactly what you've been waiting for.

www.agilent.com/find/plts
www.agilent.com/find/ena
www.agilent.com/find/pna
www.agilent.com/find/ecal
www.agilent.com/find/multiport

Agilent Email Updates

www.agilent.com/find/emailupdates
Get the latest information on the products and applications you select.

Agilent Direct

www.agilent.com/find/agilentdirect
Quickly choose and use your test equipment solutions with confidence.

Product specifications and descriptions in this document subject to change without notice.

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

www.agilent.com/find/contactus

Printed in USA, February 18, 2009
5990-3566EN

Agilent Technologies