



TECHNICAL
OVERVIEW

PATHWAVE

LCA Plugin for Test Automation

Workflow automation with the Lightwave Component Analyzer

The Keysight Test Automation on PathWave (TAP) software provides powerful, flexible and extensible test sequence and test plan creation with additional capabilities that optimize your test software development and overall performance. Keysight TAP is a modern Microsoft .NET-based application that can be used stand-alone or in combination with higher-level test executive software environments. Leveraging C# and the power of Microsoft Visual Studio, TAP is not just another programming language. It's a platform upon which you can build your test solutions, maximizing your team's productivity by using your existing software development tools and infrastructure.

Architecture

Included with Keysight TAP is the core sequencing engine, tools and plugins to minimize your test system development time and test execution speed. The LCA plugin provides test steps for frequency-dependent measurements of optical transponder devices (optical to electrical O/E, electrical to optical E/O and optical to optical O/O) with the N437x family of PNA-based Lightwave Component Analyzers. A template for display of the results in the TAP Results Viewer also simplifies effective use of the instrument.



Try the Software Today!

Experience TAP's powerful and flexible test sequence and creation capabilities and optimize your test software development today.

Download the 30-day trial
www.keysight.com/find/pathwavetest



N4370P01A Product Overview

With the Keysight LCA, the frequency-dependent S-parameters of devices for fiberoptic transceivers are measured. From these results, performance parameters like the absolute responsivity and bandwidth are determined. The instrumentation combines a PNA network analyzer with calibrated optical transponders and software to configure the measurement and calibration data. For automation, the full functionality and flexibility of the PNA are exposed and used together with the automation interface for the LCA software itself.

The N4370P01A LCA plugin simplifies automation by providing easy-to-use measurement steps for the integrated LCA that handle the details for configuring the instrumentation and LCA software. The flexibility of configuring workflow with sequences of steps and coordination with other instruments and resources using TAP is a powerful contribution to enhancing efficiency in test development and throughput. The plugin also provides a template for the display of commonly required results from the LCA.

Installation

The details needed to install and use the TAP software are given in the plugin help file. Briefly this entails the following steps.

- Installing PNA Proxy from the PNA on the measurement PC
- Downloading and installing TAP (KS8400A) and the LCA plugin (N4370P01A)
- Installing the purchased or temporary evaluation TAP licenses.
- Configuring the DCOM settings on the PC for remote access to the PNA
- Then starting TAP and adding the LCA with PNA as Instrument
- Adding TAP Results Listeners: SQLite for display in Results Viewer and CSV for file storage

Using the LCA plugin

The plugin provides a set of measurement steps that can be added to an automated test plan in TAP. The desired function can be chosen from the Step panel.

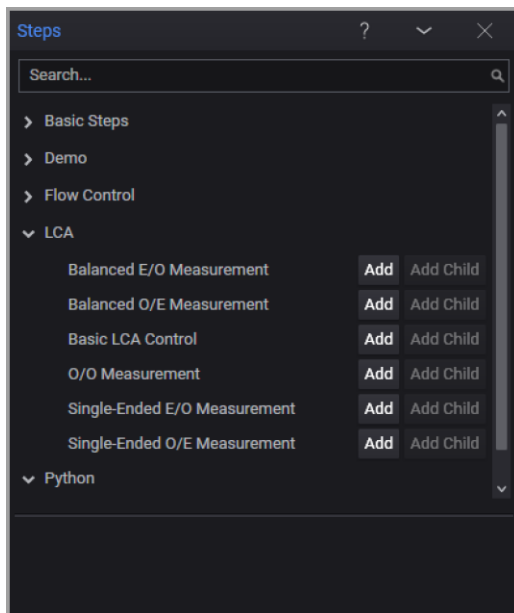


Figure 1. Steps panel of LCA plugin

The step can then be configured in TAP with the necessary details for the desired measurement.

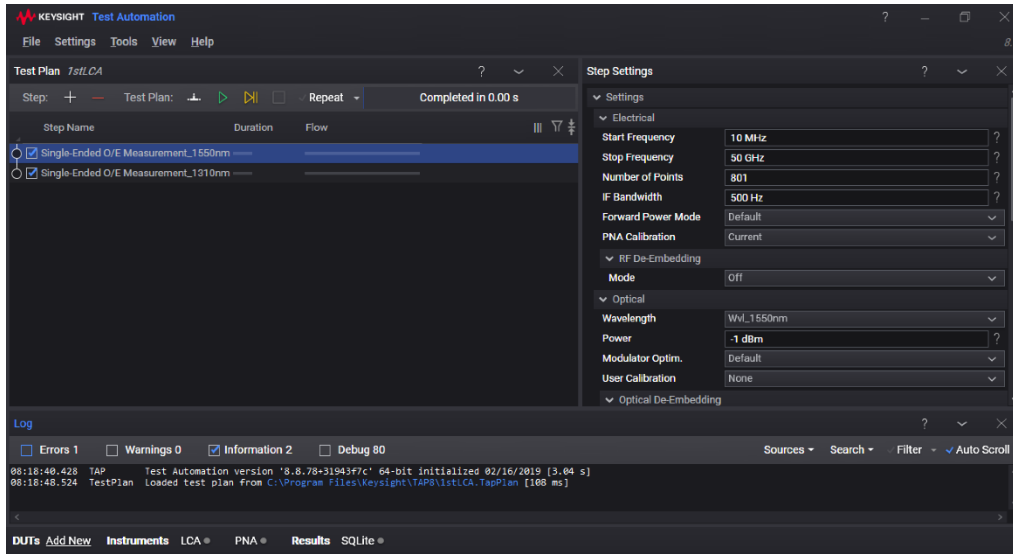


Figure 2. Settings panel for O/E measurements

Besides the desired frequency range and other sweep parameters, the settings support selection of the files for PNA calibration and both RF and optical path deembedding.

A possible simple test plan might look like this.

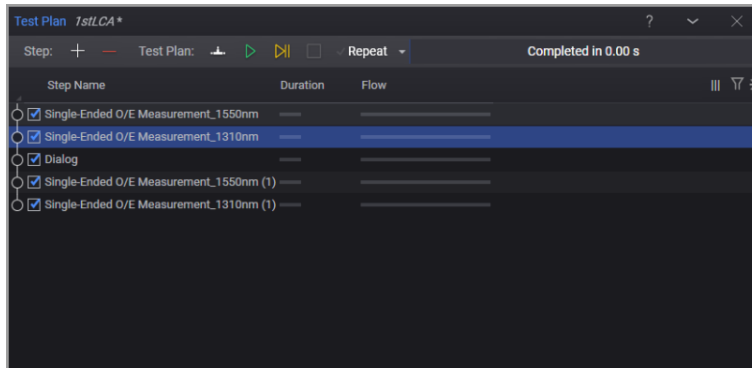


Figure 3. Sample test plan with LCA steps

Once a test plan has been set up, it can be run from the Test Automation software. A log of the process is recorded and flow timing is also displayed.

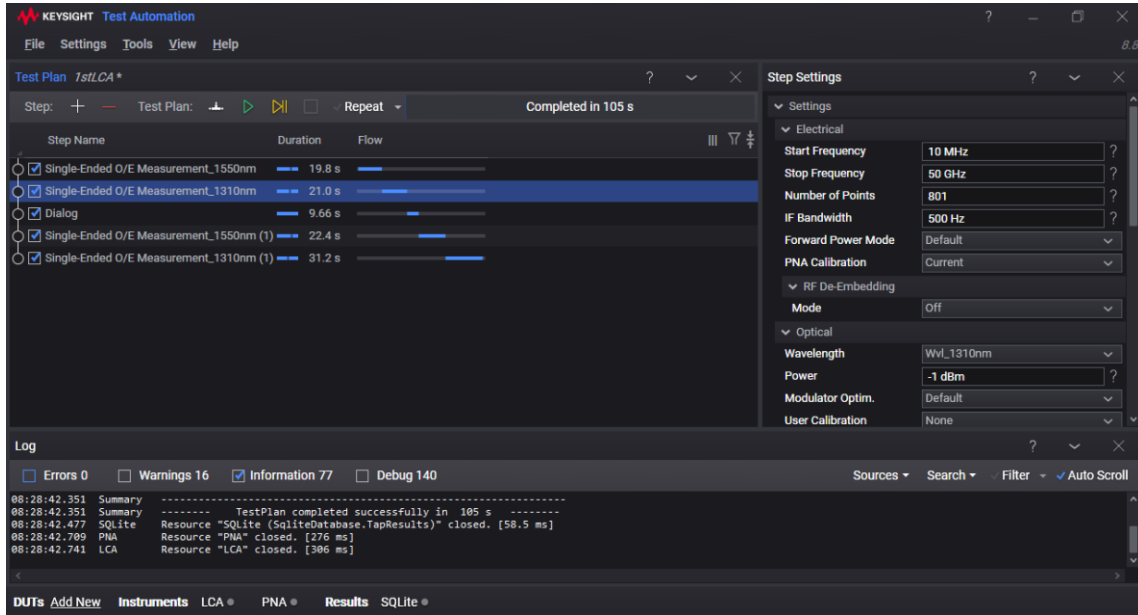


Figure 4. Display after running the test plan

The default configuration of the TAP Results Viewer can present the measurement spectra as several configurable graphs, like this:

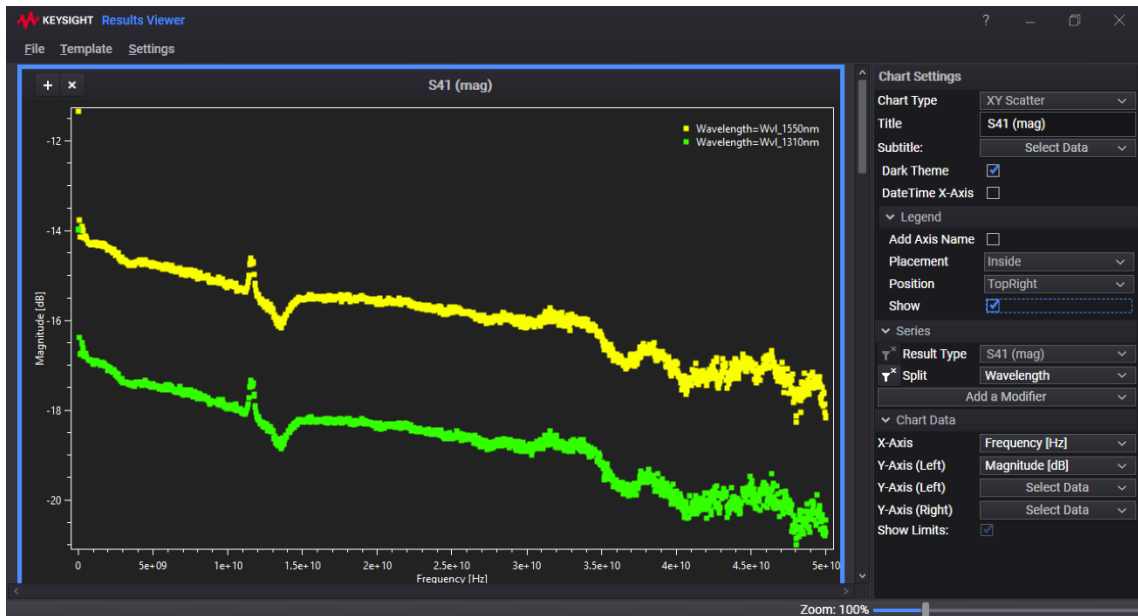


Figure 5. Sample LCA measurement in Results Viewer

A generic LCA template is provided to show the results most commonly required from the LCA measurements. Another example including the analysis for a balanced-port measurement is shown in Figure 6.

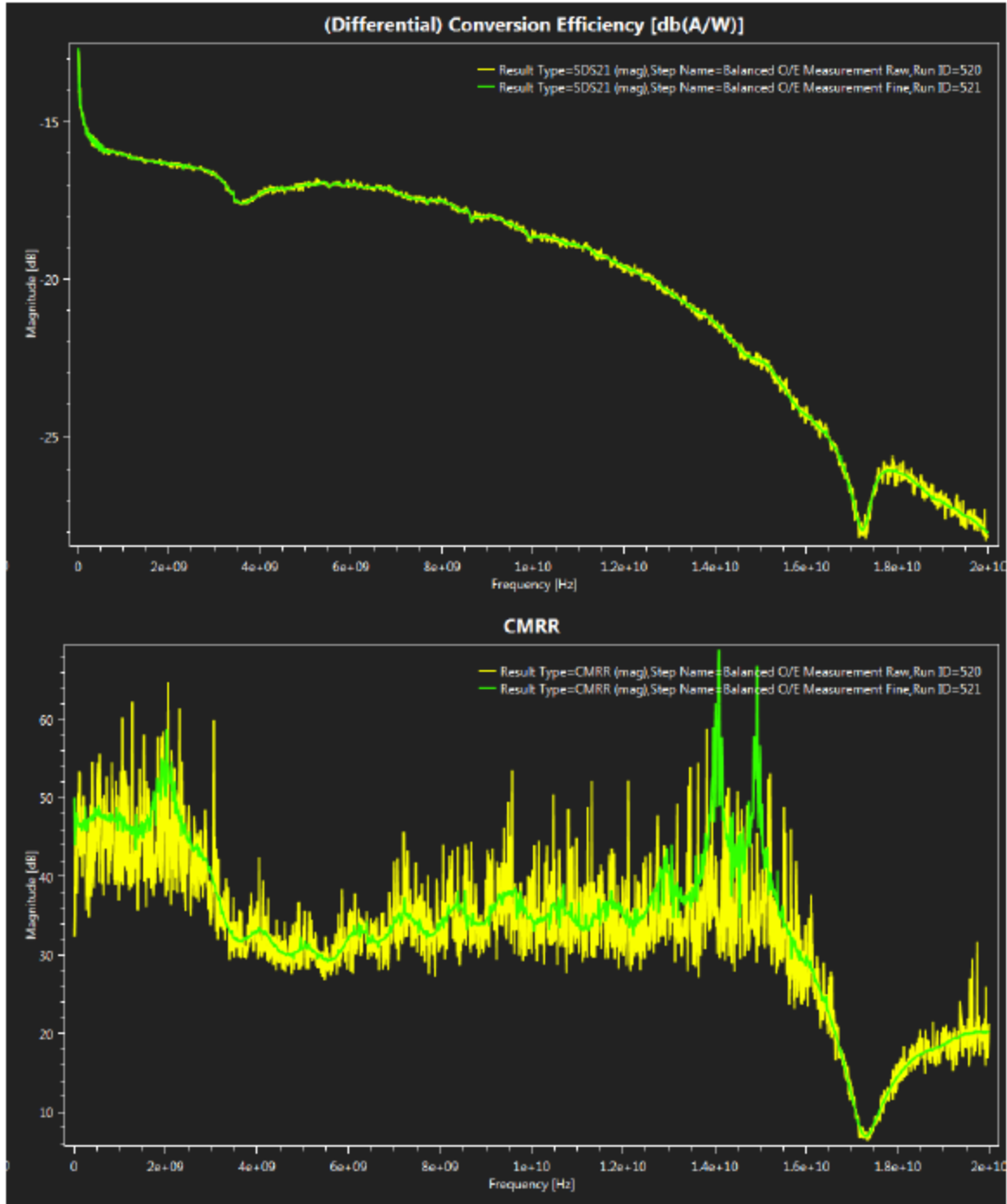


Figure 6. Results display for a balanced-port O/E measurement

Supported instruments

The N4370P01A LCA plugin provides automation for several generations of the PNA-based LCA family. These currently include:

- N4373E, N4373D, N4373C, N4373B
- N4375E, N4375D, N4375B
- N4376E, N4376D, N4376B

Available steps

Step Name	Description
Balanced E/O Measurement	For balanced RF input from and optical output to LCA
Balanced O/E Measurement	For optical input from and balanced RF output to LCA
Basic LCA Control	For controlling LCA settings
O/O Measurement	For optical input from and optical output to LCA
Single-Ended E/O Measurement	For single RF input from and optical output to LCA
Single-Ended O/E Measurement	For optical input from and single RF output to LCA

Ordering Information

The N4370P01A LCA Plugin is used with the KS8400A TAP software, which requires a separate license. The system prerequisites for KS8400A apply to use of the plugin.

N4370P01A software licensing

	Fixed, node-locked (single PC)	Transportable	Network floating (multiple PCs)	USB portable (dongle)
Perpetual license	X	X	X	X
6-month license	X	X	X	X
12-month license	X	X	X	X
24-month license	X	X	X	X
36-month license	X	X	X	X

Additional Information

Product webpages:

www.keysight.com/find/lca

www.keysight.com/find/PathWave

www.keysight.com/find/pathwavetest

Learn more at: www.keysight.com

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

www.keysight.com/find/contactus

