

Keysight N7700A Photonic Application Suite

User's Guide

Notices

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Safety Notices

CAUTION


A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

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Compliance and Environmental Information

Table 1 Compliance and Environmental Information

Safety Symbol	Description
	<p>This product complies with WEEE Directive (2002/96/EC) marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste.</p> <p>Product Category: With reference to the equipment types in WEEE Directive Annex I, this product is classed as a "Monitoring and Control instrumentation" product.</p> <p>Do not dispose in domestic household waste.</p> <p>To return unwanted products, contact your local Keysight office, or see http://about.keysight.com/en/companyinfo/environment/takeback.shtml for more information.</p>

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Quick Start Information

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This section explains how to install the Photonic Application Suite on your computer.

NOTE

You need administrative permissions to install the Photonic Application Suite.

If you obtained the Photonic Application Suite on a CD, the Package Manager should start automatically once you put the CD into the drive. Otherwise run “setup.exe” from the CD root directory.

If you downloaded the Package Manager from the Keysight web, site run “setup.exe”.

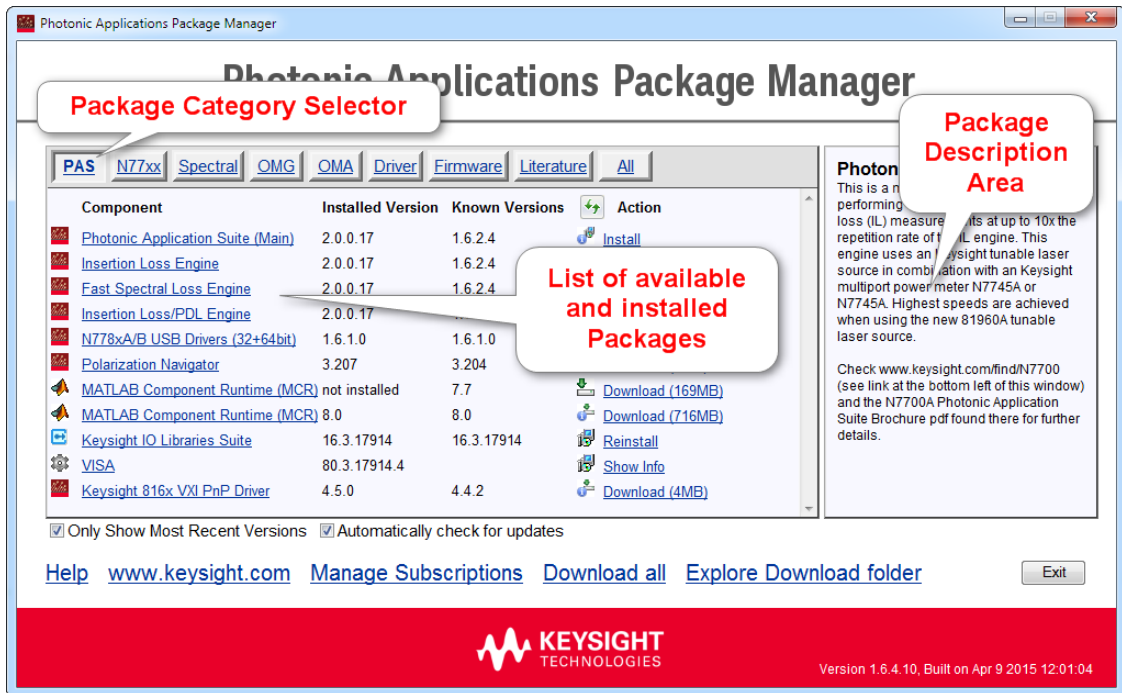
If the Photonic Application Suite (Main) Package 1.1 or higher is installed on your PC, you can launch the “Package Manager” from the “Keysight Photonic Application Suite” folder in the start menu.

NOTE

If an Internet connection is available, the Package Manager will check whether newer packages are available on the Keysight Update Server. Using the same mechanism, the Package Manager will update itself if a newer version is found on the Update Server.

NOTE

Press the Help link on the bottom right of the Package Manager window to access instructions and troubleshooting tips for using the Package Manager.



The Package manager lists all known packages and shows which version of each of the packages is installed on your PC, if any. It also lists all packages that are available for download or installation.

The packages are grouped into categories like “Driver” and “Literature”. Click on the group buttons to show only packages belonging to that group.

When moving the mouse cursor over the names in the “Components” column, a description of this package is shown in the package description area. When moving the mouse cursor over the links (download/install) or the version numbers of the “Known Versions” column, release notes (if available) and specific information (like missing requirements) for this package are displayed in the package description area.

The “Known Version” number is colored green, if there is a version available that is newer than the one currently installed.

To the right there is a list of available actions for each of the packages:

- Download

If your computer is connected to the Internet, the Package Manager will check for the latest available versions and show the action “Download” for any available packages. The size of the compressed package is listed for each one. Once download is complete, the Package Manager checks the file integrity.

- Install

If you’ve downloaded a package in the past or you’re running the Package Manager from CD, the packages don’t need to be downloaded.

By pressing install, the package will be uncompressed and the installer will be launched.

- Show Info

Some packages do not contain an installer, but documents instead. By pressing Show Info, these documents will be shown (e.g. text files).

- Not available

There may be package versions known to the Package Manager that are no longer available on the Update Server and that have not been downloaded to your PC before. Those packages are listed, but no action is available.

If there is an information icon to the left of an action, release notes are available. When moving the mouse over the information icon, the release notes are displayed in the Package Description Area.

NOTE

Certain packages require other packages to be installed. Once you installed a package that requires one or more other packages, those packages will be indicated by an arrow to the right of the action list. It is strongly recommended to install all these packages as well before running any applications.

NOTE

By removing the “Only Show Most Recent Versions” check-mark, all known and available package versions are listed.

NOTE

By default some of the applications of this suite will check regularly whether updates are available on the Keysight Update Server (requires Internet access). To disable this feature, remove the “Automatically Check for Updates” check-mark.

There are a number of functions at the bottom of the Package Manager Window:

- www.keysight.com/find/N7700
Show Photonic Application Suite product website including ordering information (Internet access required).
- Manage Subscriptions
Enter or remove access codes for accessing restricted packages (Internet access required).
- Download All
Download all packages visible in the current group, if they are newer than the installed ones (Internet access required).
- Explore Download Folder
Explore Photonic Application Suite download folder. You can copy 'setup.exe' and the 'Packages' folder to a removable disk or network drive to install downloaded packages to a PC without Internet access. Delete files from the 'Packages' folder to free disk space.
Select “Photonic Application Suite (Main)” to install the main part of the suite. It is required for most of the application packages including the Polarization Navigator.

NOTE

The instrument drivers should be installed on the PC before connecting the instruments, especially via USB. This can be ensured by first installing the indicated packages of the Photonic Application Suite. If you have connected the instrument(s) prior to software installation, you may have to delete the instrument(s) manually from the Windows Device Manager. This does not apply to instruments that are connected via GPIB.

NOTE

Please install the Keysight IO Libraries Suite before you connect any N774xA instruments to the USB port of your PC.

Software License

NOTE

Visit <http://www.keysight.com/find/N7700> to learn how to purchase or to obtain a trial license file.

Without obtaining a license file, the software is fully functional for 14 days after first installation. After these 14 days, certain features will stop working.

You can immediately obtain a trial license file to extend the trial period one time by visiting the following URL:

<http://www.keysight.com/find/N7700>

This trial license is not needed for all applications, so you can wait until it is needed before requesting or installing it.

NOTE

You can check the status of your license by clicking on “Show Licenses” in the Launch Pad:

KEYSIGHT TECHNOLOGIES

Photonic Application Suite
Version 2.0.0.17, Built on Apr 21 2015 09:34:19

Applications

- ▶ [File Viewer](#)
- ▶ [Insertion Loss](#)
- ▶ [Insertion Loss/Polarization Dependent Loss](#)
- ▶ [Polarization Navigator](#)
- ▶ [Fast Spectral Loss](#)

Documents

- [User Guide Photonic Application Suite](#)
- [User Guide IL/PDL Engine](#)
- [User Guide IL Engine](#)
- [User Guide N770xB instruments and PolNav](#)
- [User Guide Fast Spectral Loss Engine](#)

License

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- [Obtain Trial License](#)
- [Purchase](#)
- [Register License File](#)

Disk Serial Number: 7e8dac85

www.keysight.com/find/N7700 [Launch Package Manager](#) [Copy Log to Desktop](#)

Exit

Installing a Trial License

NOTE

Visit <http://www.keysight.com/find/N7700> to download the Photonic Application Suite and to obtain a trial license file. Note that for the first 14 days, you don't need an extra license file.

If you wish to extend the default trial period, please note down the Disk Serial Number of your computer. The Launch Pad will show you this number:

KEYSIGHT TECHNOLOGIES

Photonic Application Suite
Version 2.0.0.17, Built on Apr 21 2015 09:34:19

Applications

- File Viewer
- Insertion Loss
- Insertion Loss/Polarization Dependent Loss
- Polarization Navigator
- Fast Spectral Loss

Documents

- User Guide Photonic Application Suite
- User Guide IL/PDL Engine
- User Guide IL Engine
- User Guide N778xB Instruments and PolNav
- User Guide Fast Spectral Loss Engine

License

- Show Licenses
- Obtain Trial License
- Purchase
- Register License File

Disk Serial Number: 7e8dac85

www.keysight.com/find/N7700 [Launch Package Manager](#) [Copy Log to Desktop](#) [Exit](#)

Visit the above-mentioned URL and follow the steps to obtain a trial license. You will receive a license file (extension .lic) by email.

Now, click on “Register License File” to copy the license file into the software. The system makes a copy of the file. Thus, you may move it afterwards to a different directory. Please keep the file in a secure place. Note that you have to restart the Launch Pad to see the effect under “Show Licenses”.

Installing a License

NOTE

Visit <http://www.keysight.com/find/N7700> to download the Photonic Application Suite. After ordering a license, an Entitlement Certificate will be sent to you by regular mail. At the same time, you will receive an email containing the same document as PDF.

Follow the instructions in this document to download the license file from the Keysight website.

To download the license file, please note the Disk Serial Number of your computer. The Launch Pad will show you this number:

KEYSIGHT TECHNOLOGIES

Photonic Application Suite

Version 2.0.0.17, Built on Apr 21 2015 09:34:19

Applications

- File Viewer
- Insertion Loss
- Insertion Loss/Polarization Dependent Loss
- Polarization Navigator
- Fast Spectral Loss

Documents

- User Guide Photonic Application Suite
- User Guide IL/PDL Engine
- User Guide IL Engine
- User Guide N778xB instruments and PolNav
- User Guide Fast Spectral Loss Engine

License

- Show Licenses
- Obtain Trial License
- Purchase
- Register License File
- Disk Serial Number: 7e8dac85**

www.keysight.com/find/N7700 [Launch Package Manager](#) [Copy Log to Desktop](#)

Exit

Follow the instructions in the Entitlement Certificate to obtain the license file. You will receive the desired license file (extension .lic) by email.

Once you receive the license file, click on “Register License File” to copy the license file into the software. The system makes a copy of the file. Thus, you may move it afterwards to a different directory. Please keep the file in a secure place. Note that you have to restart the Launch Pad to see the effect under “Show Licenses”.

2 The Photonic Application Suite

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About this manual

This manual describes the usage of the Keysight Photonic Application Suite N7700A.

General

The *N7700A Photonic Application Suite* is a modular software platform for fast and easy characterization and analysis of optical components and signals. The range of measurement functions currently includes:

- IL & PDL characterization for components including:
 - Broadband (flat spectrum) components like circulators, splitters, couplers, optical switches, etc.
 - Wavelength dependent components like WSS, ROADMs, multiplexers, filters, etc.
- Multi-port component measurements
- Polarization analysis and control
- Measurement of parameters including: IL, PDL, TE/TM, PER, Stokes Parameters, etc.

The *N7700A Photonic Application Suite* contains a free-of-charge File Viewer which allows viewing and analyzing measurement data. It has been designed for sharing measurement results throughout whole development teams or manufacturing groups. The Viewer is included in the N7700A Photonic Application Suite main package, which can easily be downloaded from www.keysight.com/find/N7700.

For performing measurement tasks a range of application packages are available:

The Insertion Loss measurement package performs very accurate swept-wavelength insertion loss measurements using one of Keysight's tunable laser sources plus optical power meters.

The IL/PDL measurement package makes rapid and very accurate measurements of spectral insertion loss and polarization dependent loss (PDL) characteristics of multipoint optical components. The new single-sweep Mueller Matrix method provides speed and immunity from vibrations and noise.

The Filter / Multiplexer analysis package is a licensed extension of the measurement packages, installed with the main package, which contains functions for analysis of narrow-band components like filters, multiplexers and DPSK demodulators:

- Peak search
- TE/TM loss
- PDf / PD λ analysis
- DWDM channel analysis

The Polarization Navigator package provides all the tools needed for your work in the polarization domain: measurement of Stokes parameters and degree of polarization (DOP); representation on the Poincaré sphere or time dependent long term monitoring, spike analysis, etc. Also various functions for control, switching and scrambling the polarization of optical signals are provided.

Further functions and capabilities are added to the Photonic Application Suite on a continuous basis.

System Requirements

Personal Computer:

- Intel Pentium III, 1.3 GHz or higher
- Windows 10, Windows 7 or Windows XP SP2 (32 bit)
- Minimum Memory: 1 GB
- Minimum free HD Storage: 1 GB

Installation

Refer to the [Quick Start Information](#) on page 9 to learn how to use the Package Manager for installing the Photonic Application Suite.

NOTE

Please install the Photonic Application Suite before you plug in any USB-instrument(s) to the USB port of the PC.

If you want to use the N774xA instrument series via USB, you need to install the Keysight IO Libraries Suite as well.

Hint: If you plugged in a USB instrument before you installed the driver, you might need to delete the instrument from the device manager manually.

What do I need to install?

Photonic Application Suite (Main)

In any case, the “Photonic Application Suite (Main)” package needs to be installed. It provides main features and software infrastructure such as:

- File Viewer
- Example Measurement Files
- Code Examples
- COM Infrastructure Components
- Installed Package Manager and Launch Pad
- User's Guide

Insertion Loss Engine

Install this engine to perform swept-wavelength IL-Measurement using most Keysight power sensors and a Tunable Laser Source.

Insertion Loss / PDL Engine

Install this engine to perform swept-wavelength IL/PDL-Measurement using one or more N774xA Multiport Power Meters combined with an N7786B Polarization Synthesizer and Tunable Laser Source.

Fast Spectral Loss Measurement Engine

Install this engine to perform fast swept-wavelength IL-Measurement with very high repetition rates using a Keysight Tunable Laser Source and multiport power meters.

Polarization Navigator

Install the Polarization Navigator if you want to individually control instruments of the N778xB series. The software provides:

- Swept-wavelength PMD-Measurement using an N7788B and a tunable laser source.
- Polarization Analysis using an N7781B, N7786B or N7788B.
- Control of N7784B/N7785B/N7786B Polarization Controllers/Synthesizers.
- PER Analysis using the N7782B.

MATLAB Component Runtime (MCR)

Install the MCR if you want to use the IL/PDL measurement engine of the Photonic Application Suite. Also some features of the Polarization Navigator such as color plots make use of the MCR.

Please note that the MCR is distributed by TheMathWorks, Inc. (www.mathworks.com).

The MCR is deployed with the Photonic Application Suite Installer package. This deployment is subject to the license agreement that is part of Photonic Application Suite Installer package as well.

Matlab®. ©1984-2017 TheMathWorks, Inc.

Keysight IO Libraries Suite

You should install the Keysight IO Libraries Suite if you want to communicate with any Keysight instrument. If you have already installed any third-party VISA (e.g. NI), you can have Keysight IO Libraries install Keysight VISA as “secondary VISA” when prompted during installation.

8169 VXI PnP Driver

You can also use this package to directly control a Keysight 8169A.

This driver is needed for the Photonic Foundation Library.

816x VXI PnP Driver

Install this driver if you want to use the Insertion-Loss measurement engine of the Photonic Application Suite.

You can also use this package to directly control Keysight tunable lasers and power sensors.

This driver is needed for the Photonic Foundation Library.

N774xA IVI-COM/IVI-C Driver

Install this driver if you want to use it for programming N7744A or N7745A power meters.

Keysight N77xx Viewer Program

This is a user interface program for controlling basic functions and visualizing basic measurement data readout for the N771xA, N773xA, N774xA, N775xA and N776xA instruments.

Keysight Photonic Foundation Library

This package allows you to write your own passive component test applications. It provides an API for several high-level functions such as insertion loss measurements and PDL measurements using the Keysight 816x Lightwave Measurement System.

3 File Viewer / File Viewer Control

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Introduction

The *File Viewer* can be used to display and analyze measurement files. You can overlay different measurements and do post processing using the installed plugins.

The main file format is the .omr file format which is used by various measurement engines of the Photonic Application Suite for storing measurement and evaluation results.

Furthermore, the *File Viewer* can display Keysight file formats which have been generated by various instruments or applications.

The supported file formats are:

- .omr files, generated by
 - N7700A Photonic Application Suite
 - 81910A Photonic All-Parameter Analyzer
- .pbin files (only PMD-measurements), generated by
 - Keysight Polarization Navigator
- .pmr files, generated by
 - N3909 Polarization Mode Dispersion Analyzer
- .cd files, generated by
 - N3916AL Chromatic Dispersion Analyzer
- .cfp files, generated by
 - N4391A/N4392A Optical Modulation Analyzer (CFP2-ACO application)
- .icr files, generated by
 - N4391A/N4392A Optical Modulation Analyzer (ICR Test application)

You will find the *File Viewer Control* in various measurement engines as well. This control basically works like the stand-alone *File Viewer*.

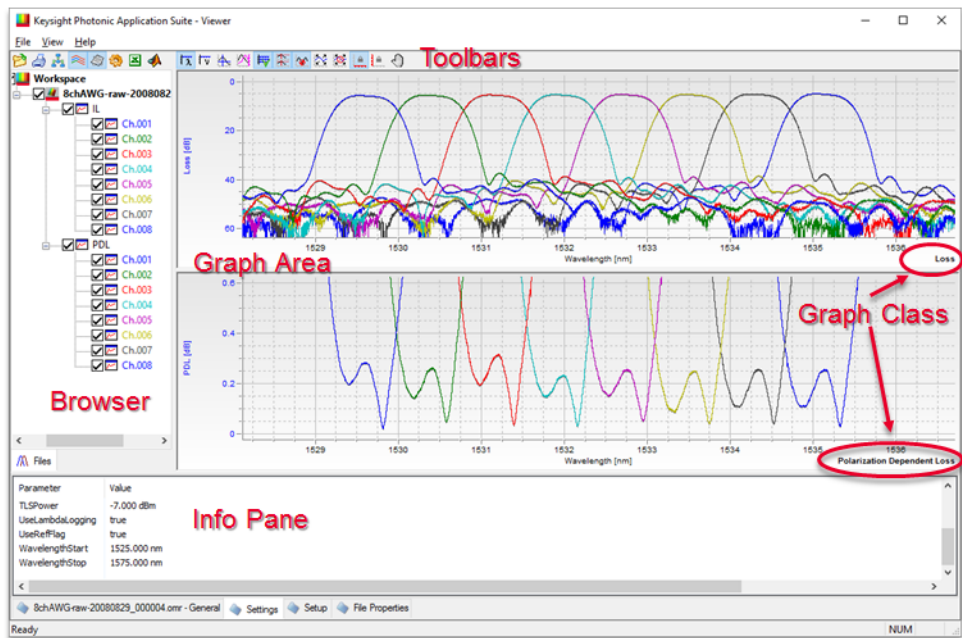
Therefore, all such engines have a consistent user interface in terms of file and graph handling.

Using the File Viewer

You can start the *File Viewer* by starting the *Launch Pad* and clicking on “File Viewer”. You can open files by clicking on File->Open. Note that you can select multiple files by keeping the ctrl-key pressed during selection.

The file extension .omr is linked to the *File Viewer*, so double-clicking .omr files will add these files to an already open *File Viewer* window or otherwise launch a *File Viewer* to display these files.

The *File Viewer* window consists of the illustrated elements in the figure below:



To close a file, select “Close” from that file’s context menu in the browser tree. You can close all open files by right-clicking Workspace and selecting “Close All”.

If you modified a file, you can save the file by clicking on “Save As” in the context menu.

The Graph Area

The graph area displays the selected graphs. One graph window will contain all selected graphical data of a specific graph class. That means, for example, all selected insertion loss data will be plotted into the same graph window. This allows comparison of the loss curves of different channels and files. You can select the curves to be displayed from the browser window.

Select “Remove Graph” from the context menu of the graph to close a window. Double-click on a data entry in the browser window such as “IL” (for insertion loss) or “PDL” (for polarization dependent loss) to open a new graph window.

NOTE

Open a graph window of a specific class by double-clicking an entry in the browser window such as “IL” or “PDL”. Close a graph class window using its context menu.

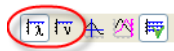
All selected data belonging to a special graph class (e.g. all insertion loss data) are plotted into the same window. This allows comparison of graphs of different channels and files.

NOTE

Use the mouse to select an area for zooming into the graphs. Double-click into a graph once or repeatedly to move back to the preceding zoom or to view the complete curve.

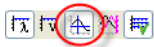
Switching between Wavelength and Frequency Scale

Use the toolbar buttons “Wavelength Scale” or “Frequency Scale” to switch the X-Axis between wavelength and frequency.



Using Markers

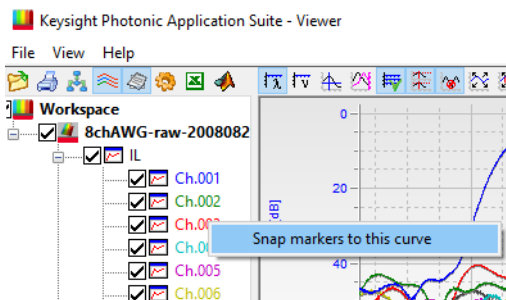
Use the toolbar button “Show/Hide Marker” to turn the markers on and off.



The markers snap to a curve which is displayed in the window.

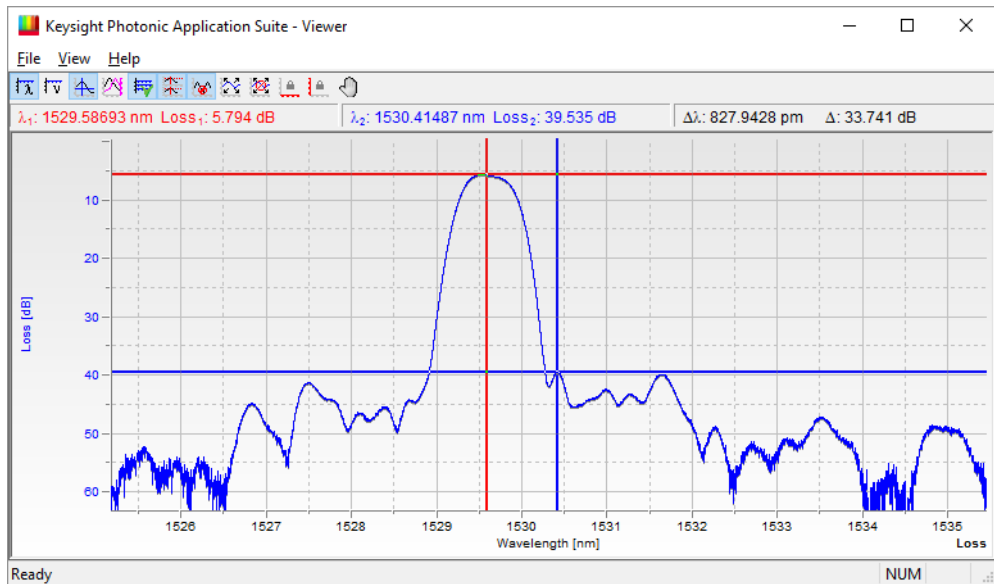
Use the mouse to move the markers. Move the mouse over the marker, press and hold the left mouse button and move the marker. Release mouse button, when marker is in desired position.

Select the curves the markers should snap to by using the context menu in the browser tree



NOTE

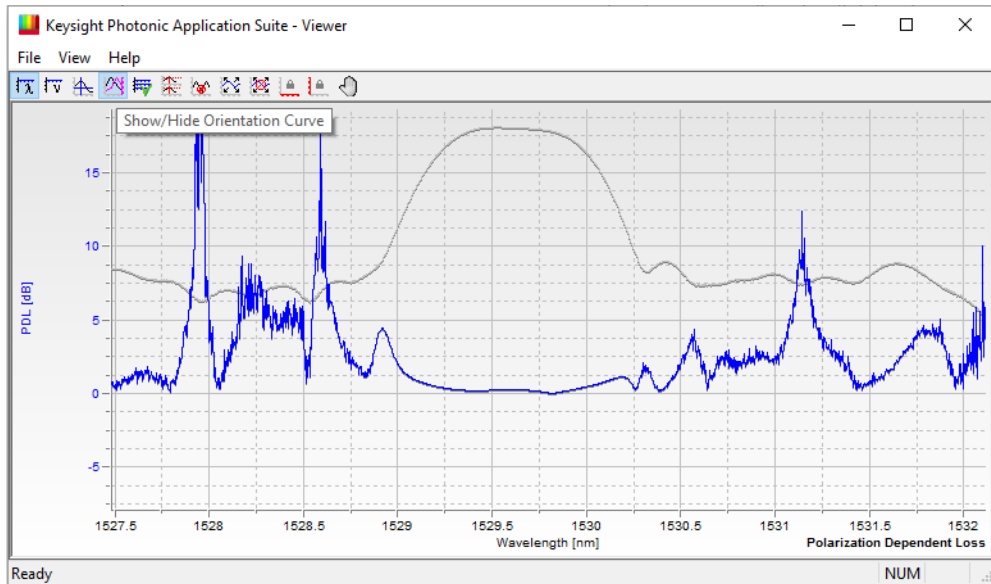
Marker snap targets are defined for each graph separately. Especially when using linked markers, remember to snap markers to the same trace / channel for each graph.



When markers are active, there is an additional information pane displayed above each graph, showing the x and y values corresponding to the current marker positions as well as the difference between them.

Showing Orientation Curves

When viewing a graph it is often useful to know how the graph relates to the loss curve. The software allows plotting the loss curve in the background of a graph to provide better orientation. Turn the orientation curves on/off using the toolbar button “Show/Hide Orientation Curves”.



Sync X-Axis

Use the toolbar button “Sync X-Axis” to synchronize the x-axes of all open graphs. Zoom and pan operations that are applied to any of the graphs will automatically be applied to all other graphs as well. Synchronizing will occur until “Sync X-Axis” is turned off.

Sync Markers

Use the toolbar button “Sync markers” to synchronize the marker position of all open graphs. Moving one of the markers in any graph window will cause the markers in all other windows to move as well. This will also update the marker information panes above the graph windows. Synchronizing will occur until “Sync Markers” is turned off.

NOTE

When markers are synchronized, but x-axes are not, markers may disappear from certain graphs, if markers are moved in another graph.

Hide High Loss Data

When measuring multichannel devices, one often wants to analyze in-channel regions. Measurement parameters other than power or insertion loss are usually not well defined or noisy outside the channel bandwidth. Therefore the channel feature of interest is hard to distinguish, due to the presence of many noise-like traces. By setting “Hide High Loss Data” to on, regions will be hidden for which the insertion loss exceeded the set limit. This applies to all open graph windows, except for the insertion loss trace itself. This is a toggle function, i.e. data hiding will occur until “Hide High Loss Data” is turned off.

NOTE

Hide High Loss Data is set to active by default, each time the File Viewer is started. To permanently disable hiding of high-loss regions, set the Loss Limit to a very large value.

NOTE

You can change the Loss Limit value from the options dialog (see “Loss Limit on page 41” on page 33).

NOTE

The Hide High Loss Data option requires the OMR files to contain appropriate insertion loss graphs for each channel.

Reset Zoom

Pressing “Reset Zoom” will reset the zoom of all graphs, so that all data is visible simultaneously, regardless of the “Sync X-Axis” setting. However, if “Lock X-Range” and/or “Lock Y-Range” are active, “Reset Zoom” will only operate along the non-locked dimensions.

Lock X-Range

When a file is loaded or a new measurement is acquired, the zoom ranges will automatically extend, if required, so that all data will be visible. If “Lock X-Range” is active, the current x-range of all graph windows will be frozen. This affects manual zoom-in, zoom-out and “Reset Zoom” operations as well.

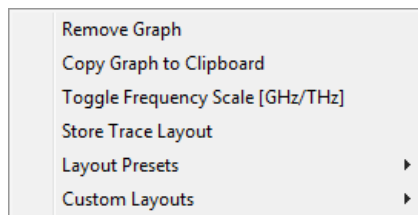
Lock Y-Range

When a file is loaded or a new measurement is acquired, the zoom ranges will automatically extend, if required, so that all data will be visible. If “Lock Y-Range” is active, the current y-range of all graph windows will be frozen. This affects manual zoom-in, zoom-out and “Reset Zoom” operations as well.

NOTE

Automatic zoom extension only occurs upon loading files and acquiring new measurement data. Operations like toggling the display of certain channels and files may toggle data that is not visible in the current view. Use the “Reset Zoom” button to make such data visible.

When right-clicking the graph area with the mouse cursor not directly pointing at trace data, a context menu shows additional options.



Remove Graph

Selecting Remove Graph hides the graph type, e.g. PDL, that the context menu has been opened on. You can get it back by double-clicking (right-clicking, then choosing View Graph) the appropriate graph type in the tree on the left.

Copy Graph to Clipboard

By selecting “Copy Graph to Clipboard”, a bitmap (bmp) copy of the active graph will be put on the clipboard, which can be inserted into other applications.

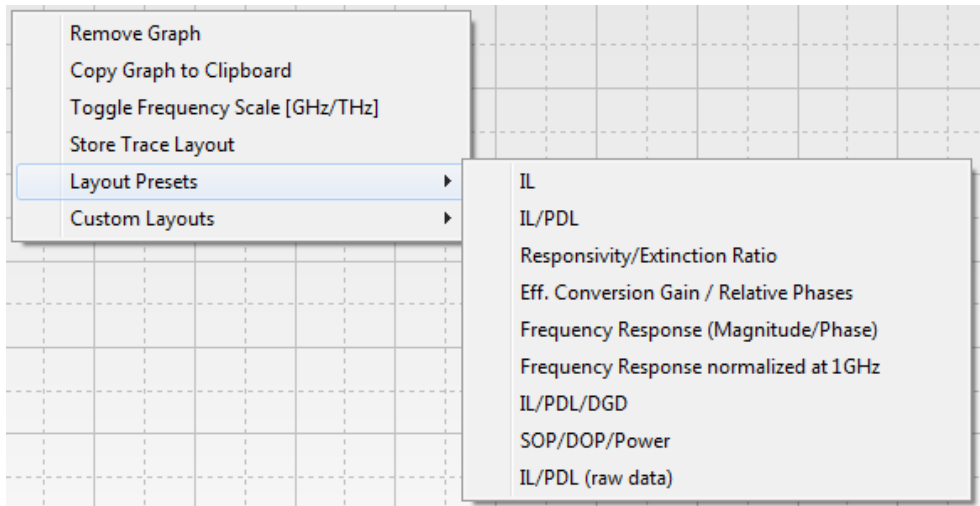
Toggle Frequency Scale

Use this option to choose whether the frequency scale should be displayed in GHz or in THz.

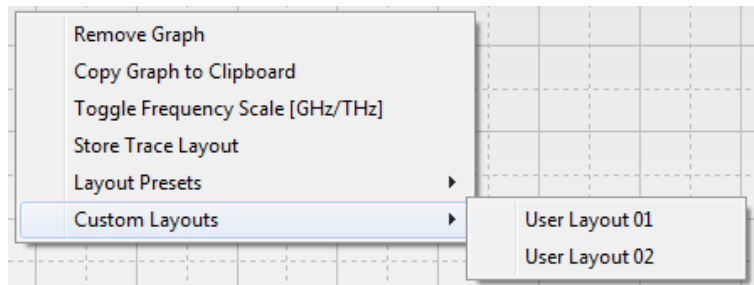
Trace Layouts

Since the graph layout is a global setting, switching between measurement engines, such as IL/PDL and FSIL, between different user applications or user DUTs, different layouts may be desired.

Layout Presets contains several predefined layouts, such as for different applications or for viewing measurement raw data with a single click.



Custom layouts can be saved by selecting **Store Trace Layout** and selecting them from **Custom Layouts** at a later time.



It is not possible to rename or remove custom layouts from the File Viewer itself. However, being very careful and creating a backup copy first, this can be achieved by editing this file:

```
C:\ProgramData\Agilent\Photonic Application Suite\
AgGraphContainer.xml
```

NOTE

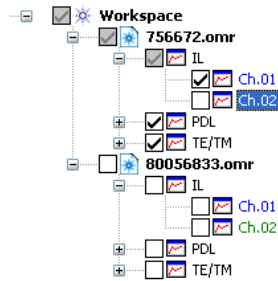
Make sure that no instance of the FileViewer or any measurement engine is currently running. Otherwise any changes to the file will be overwritten when the corresponding program is stopped.

The Browser

The browser contains an overview of all currently opened files as well as the selected graphs to display.

Showing / Hiding Channels and Files

You can select the displayed information by checking or unchecking the channels or files.



Showing / Hiding Graphs

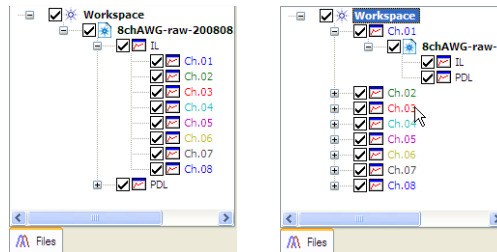
To add graphs (data types like IL or PDL) that are currently not shown, you can double-click them in the browser tree or select “View Graph” from their context menu. To remove such graphs, uncheck “View Graph” from the same menu or select “Remove Graph” from the context menu on the graph area.

Sort by Files / Sort by Channels

Normally, the filenames are on top of the tree follows by the graph classes and the channels. Use the toolbar button “Change Tree Order” to select an alternate hierarchy.



The alternate hierarchy shows the channels on top. That might be useful if you want to select/deselect specific channels.



Color by Files / Color by Channels

Depending upon the files you are viewing, you might want to view all channels of a measurement shown in different colors (e.g. DWDM devices) or all open files shown in different colors (e.g. single channel devices). You can toggle the color mode by pressing the corresponding button. The default mode is “Color by Channels”.



The Info Pane

The info pane shows information contained in a single file. Select one file by single-clicking it in the browser. The information contained in that file will be displayed in the info pane on the bottom of the window. Use the tabs to browse through this information.

NOTE

Running plug-ins usually causes additional tabs to appear in the info pane.

NOTE

Different engines generate tabs with different names, or tabs with identical names but different content.

NOTE

All data from the currently selected tab can be copied to the clipboard by pressing CTRL-A (no CTRL-C required afterwards).

NOTE

There's a tab called File Properties that is showing the currently selected file's location.

The Options Dialog

View the options dialog by clicking on the toolbar icon shown below.



Graphs

Color Shading

Uncheck this box if you prefer a background without any color shading.

Initial Graphs

This read-only field shows the graph classes which are opened on startup. By adding or removing graphs to or from the graph area (see [Showing / Hiding Graphs](#) on page 38), this setting can be changed.

Detail Level

The default value is 0. In that case, only standard measurement data are shown. Some measurement files may contain raw data needed to re-evaluate the measurement. Set the detail level to 1 if you want to browse these information, too.

Loss Limit

This is the maximum loss threshold that is applied if “Hide Low Loss Data” is set to on in the viewer pane (see [Hide High Loss Data](#) on page 34).

Hide IL

If this check-box is set, the insertion loss trace will be affected by the Hide High Loss Data mechanism as well (see [Hide High Loss Data](#) on page 34).

Files

Keep Files Open

Normally this box is checked. In this mode, the opened measurement files are kept open and the data is only read if they are really needed. If unchecked, the whole measurement file is loaded into memory and closed afterwards. Keeping the files open increases speed and saves memory. However, it is not possible to move or delete files when they are opened by the file viewer.

Number of Measurements Kept

When using measurement engines, this value defines the number of most recent measurement files that are stored automatically. Details on this feature can be found in the corresponding measurement engine's user's guide.

Plugins

The contents of the “Plugins” section depends on the installed plugins. See next chapter for details on the default plugins.

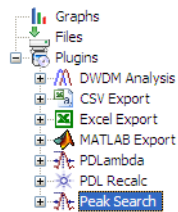
4 The Plugin System

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The Plugin System

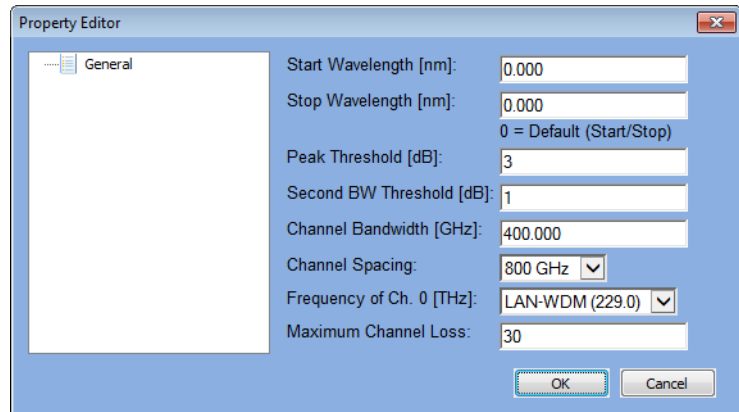
The plugin system allows adding features to the File Viewer Component. That means that these plugins can be used in all measurement engines that use the File Viewer Component, such as the IL engine or the IL/PDL engine.

The software comes with the following pre-installed plugins:



Some Photonic Application Suite engines and packages may include additional plugins. Check their respective user's guides for information on those plugins.

DWDM Analysis



This plugin allows you to characterize filter transmission peaks. In a multi-channel measurement, one peak per channel will be detected and evaluated. So this is particularly adapted to measuring multiplexer passbands.

It is provided by licensing the Filter/Multiplexer Analysis package.

Right-click on a file and select “DWDM Analysis” from the context menu.

You will be asked for setup parameters:

- Start Wavelength [nm]
The start wavelength of the evaluation interval. Set this value to 0 if you want to evaluate from the beginning.
- Stop Wavelength [nm]
The start wavelength of the evaluation interval. Set this value to 0 if you want to evaluate to the end of the measurement.
- Peak Threshold [dB]
Determines the threshold for the edge detection which is used to calculate the channel bandwidth. The result will appear in a column named “Bandwidth (x dB)” where x is the selected Peak Threshold. For example, the full-width half-maximum width, FWHM, is given with a setting of 3 dB.
- Second BW Threshold [dB]
This is basically identical to Peak Threshold, but will be listed as another column in the DWDM results, so two different bandwidths may be analyzed simultaneously.

- Channel Bandwidth [GHz]
Defines the channel bandwidth, also called operating wavelength range. This value is used by the plugin to determine maximum insertion loss per channel and channel isolation. It will typically be a small fraction, like 25% of the channel spacing.
- Channel Spacing
The spacing of the channels.
- Maximum Channel Loss
The maximum insertion loss to detect peaks. Peaks with higher insertion loss will not be detected. This value is used to avoid noise variations being detected as peaks.
- Frequency of Ch. 0 [THz]
Defines the frequency grid origin. Currently this supports ITU-DWDM and LAN-WDM.

The result of the evaluation will create the tab “DWDMAnalysis” in the Info pane.

The generated columns are defined as follows:

- Channel
The Channel number as shown in the browser window.
- Peak Wvl
The wavelength with the maximum transmission.
- Center Wavelength
The center wavelength derived by analyzing the filter edges at the chosen threshold.
- nom. Wavelength
The closest nominal wavelength for the chosen channel spacing.
- nom. Wavelength Error
The deviation from the closest nominal wavelength.
- Loss at nom. Channel
The loss value at the nominal wavelength.
- Ch-Loss (max)
The maximum loss value within the channel bandwidth.

NOTE

This parameter is evaluated with respect to the selected channel grid. If the DUT channels are not located at matching channel frequencies, the loss values may not represent the actual channel loss with respect to the measured channel's center-wavelength.

- Channel Ripple
The transmission / loss variation within the channel.

NOTE

This parameter is evaluated with respect to the selected channel grid. If the DUT channels are not located at matching channel frequencies, the ripple values may not represent the actual channel ripple with respect to the measured channel's center-wavelength.

- Ch-Isolation (adj)
The isolation between adjacent channels.

NOTE

This parameter is evaluated with respect to the selected channel grid. If the DUT channels are not located at matching channel frequencies, the isolation values may not represent the actual channel isolation with respect to the measured channel's center-wavelength.

- Ch-Isolation (nonadj)
The isolation between non-adjacent channels.

NOTE

This parameter is evaluated with respect to the selected channel grid. If the DUT channels are not located at matching channel frequencies, the isolation values may not represent the actual channel isolation with respect to the measured channel's center-wavelength.

- Total Crosstalk
The cumulative crosstalk to this channel from all other channels (limited by start and stop wavelength parameters).

NOTE

This parameter is evaluated with respect to the selected channel grid. If the DUT channels are not located at matching channel frequencies, the crosstalk values may not represent the actual channel crosstalk with respect to the measured channel's center-wavelength.

- PDL at nom. Channel
The polarization dependent loss at the nominal channel wavelength.

- Ch-PDL (max)
The maximum PDL value within the selected channel bandwidth.

NOTE

The PDL parameters are evaluated with respect to the selected channel grid. If the DUT channels are not located at matching wavelengths, these are not valid parameters.

- Loss at Center
The loss at the center wavelength.
- Bandwidth (x dB)
The bandwidth defined by the Peak Threshold.
- Bandwidth (x dB)
The bandwidth defined by Second BW Threshold.

Averaging

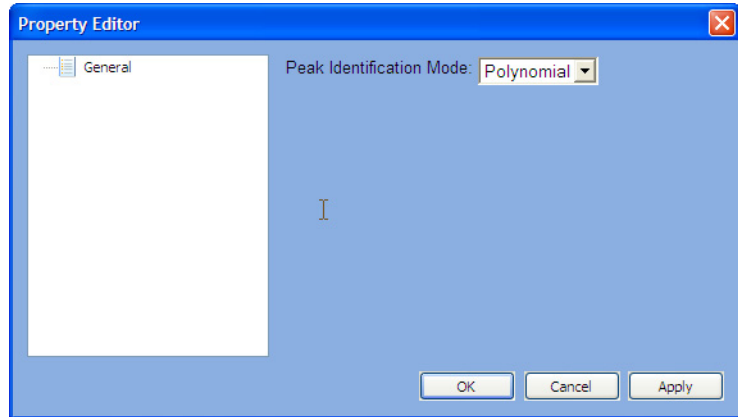
The averaging plugin calculates average values of the

- Insertion Loss Curve
- PDL Curve
- DGD Curve

Right-click on a file and select “Averaging” from the context menu.

The Averaging plugin adds an additional tab called “Average” to the *Info Pane* at the bottom of the window. This tab contains a column for each type of data contained in the file, e.g. Insertion Loss and Polarization Dependent Loss. Each channel is represented in one row on that tab, with the average values of this channel displayed in the columns.

Peak Search



The peak search plugin looks for several peaks in each channel. This plugin is licensed with the Filter/Multiplexer package.

Right-click on a file and select “Peak Search” from the context menu.

You will be asked for setup parameters:

- Peak Identification Mode
 - Polynomial: A polynomial fit is used to accurately detect the peak. This mode should be used for non-flat-top filter characteristics.
 - 3dB Edge: Use this mode for flat-top filters. The center wavelength is calculated by detecting the 3dB transition of the side-lobes.

The result of the evaluation will create the tab “Peak” in the Info pane.

The generated columns are defined as follows:

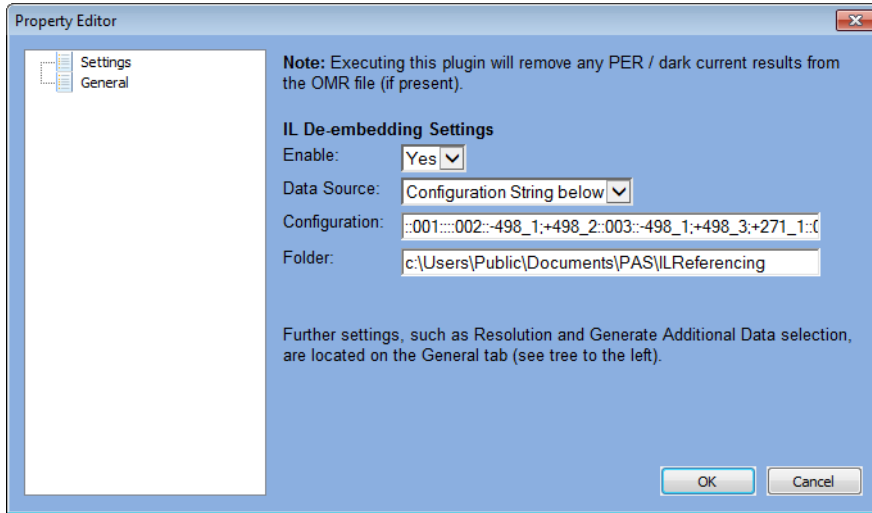
- Channel
 - The Channel number as shown in the browser window.
- Peak Wvl
 - The peak center wavelength.
- Peak Freq
 - The peak center frequency.
- Loss at Peak
 - The loss value at the peak center.

- PDL at Peak
If the measurement contain PDL data, this column shows the PDL at the peak center.
- DGD at Peak
If the measurement contain DGD data, this column shows the DGD at the peak center.

In addition to the table data, graphs are generated to visualize the evaluation result. They appear in the browser window and can be selected and deselected for viewing. Depending on the content, they are named IL (Peak), PDL (Peak) or DGD (Peak).

You can save the evaluated data by right-clicking on the file and selecting "Save As".

PDL Recalculate



Measurement data generated by the IL/PDL engine can be re-evaluated if the measurement file contains raw data. In the IL/PDL engine, make sure “Keep Raw Data” is selected.

Right-click on a file and select “PDL Recalculate” from the context menu.

NOTE

PDL Recalculate plugin will be available only if a valid IL/PDL engine license is found (option N7700A-100).

NOTE

If the OMR file does not contain raw data, the plugin will be disabled in the file context menu. Refer to the *IL/PDL Engine User's Guide* for details on how to make the application save raw data.

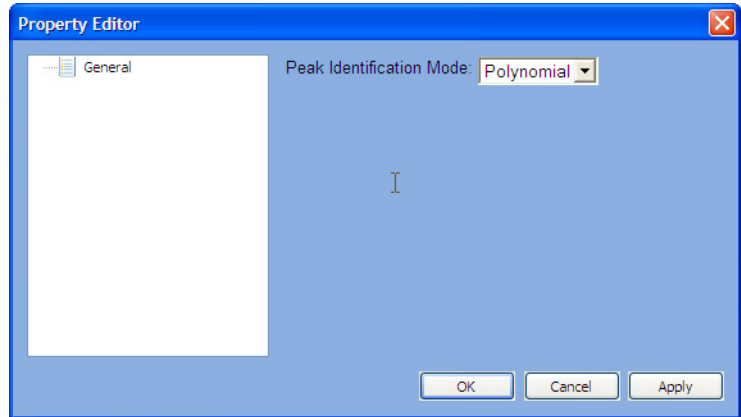
The plugin asks for the following settings:

- Resolution [nm]
Defines the averaging bandwidth. Set this value to 0 if you want to use the highest available resolution.

- Generate TE/TM data
Set this value to Yes for generating TE and TM graphs in addition to IL and PDL graphs. When set to Yes, another graph will be generated, containing the first row of the Mueller matrix of the measured device. Set this value to No to keep the size of the data files low.
- Additional evaluation options, depending upon the specific instruments used in the measurement setup.
- Configuration settings for IL de-embedding
See the *IL/PDL Engine User's Guide* for details on these settings.

The result will overwrite the current IL and PDL graphs.

PD Lambda



This plugin calculates the polarization dependent wavelength shift (often referred to as PD- λ). The plugin detects the difference of the peak center wavelengths of the TE and TM curve. Therefore, it can only run if the measurement contains a TE/TM graph. This plugin is licensed with the Filter/Multiplexer package.

Right-click on a file and select “PD Lambda” from the context menu.

You will be asked for setup parameters:

- Peak Identification Mode
 - Polynomial: A polynom fit is used to accurately detect the peak. This mode should be used for non-flat-top filter characteristics.
 - 3dB Edge: Use this mode for flat-top filters. The center wavelength is calculated by detecting the 3dB transition of the side-lobes.

The result of the evaluation will create the tab “PDLambda” in the Info pane.

The generated columns are defined as follows:

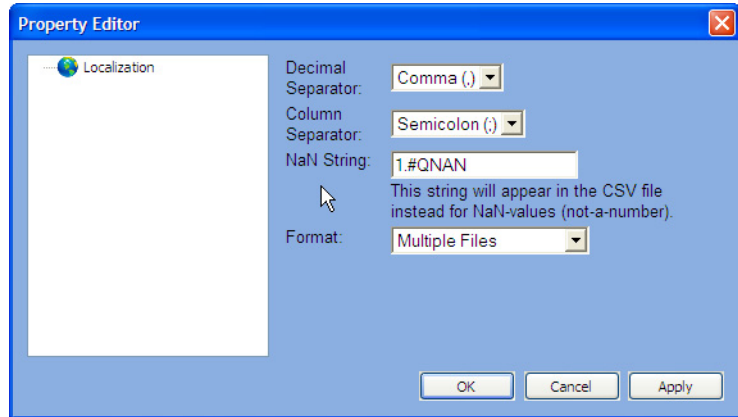
- Channel
 - The Channel number as shown in the browser window.
- Peak Wvl
 - The peak center wavelength. This is the average value of the TE and TM peak center wavelengths.

- Peak Freq
The peak center frequency. This is the average value of the TE and TM peak center frequencies.
- PDLambda
The polarization dependent wavelength shift. Note that the sign is arbitrary since it is unknown which of the curve is TE or TM. This limitation is given by the measurement principle. In order not to lose information, the algorithm does not simply calculate the absolute values, since changes of the sign can in fact be detected. The algorithm chooses the sign in a way that the majority of the PDLambda values within each trace are negative. Thus, the majority of the Pdf values will be positive.
- PDf
Polarization dependent frequency shift. This is the same information as shown in PDLambda, but in GHz.

In addition to the table data, graphs are generated to visualize the evaluation result. They appear in the browser window and can be selected or deselected for viewing. Depending on the content they are named “PD Lambda” or “PD f”.

You can save the evaluated data by right-clicking on the file and selecting “Save As”.

Export to CSV

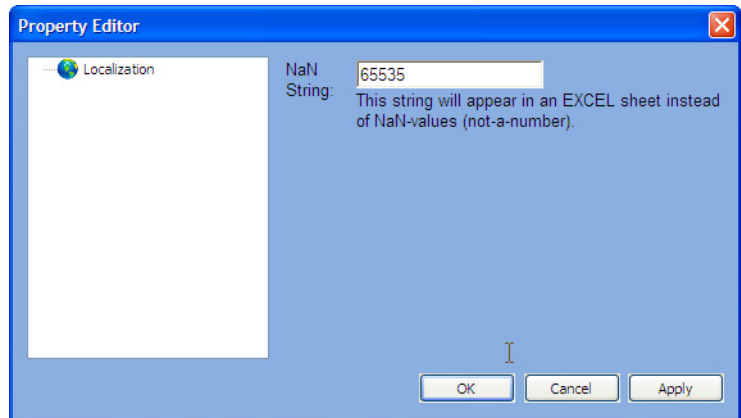


This plugin exports data into a comma-separated values (CSV) file.

You will be asked for setup parameters:

- Decimal Separator
The decimal separator.
- Column Separator
The character used to separate the columns.
- NaN String
Graph data can contain NaN values (“Not a Number”). E.g. if the linear transmission is 0, the value in dB becomes undefined. This string will be printed into the file if a NaN value occurs.
- Format
 - Single File, All: This will write all information contained with the measurement into a single file. The file starts with the info pane data followed by graph-blocks containing the individual traces.
 - Single File, Only Data: This will export only the graph data, i.e. the traces.
 - Multiple Files: This will write the info pane information as well as each graph into separate files. These files typically can be loaded with Microsoft Excel just by double-clicking.

Export to Excel

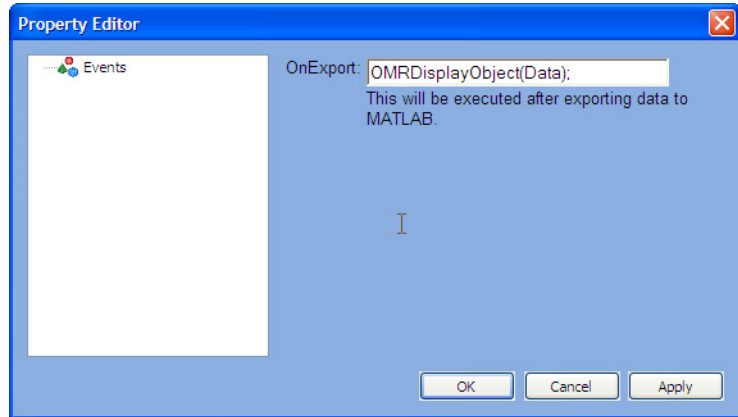


This plugin exports data into Microsoft Excel. Excel needs to be installed on your computer. When you use this plugin, Excel will be started and the data will be transferred.

You will be asked for the setup parameter:

- **NaN String**
Graph data can contain NaN values (“Not a Number”). E.g. if the linear transmission is 0, the value in dB becomes undefined. This string will be printed into the spreadsheet. This is because the automation interface of Excel does not support NaN values. Thus, you need to use a value or string which does not normally occur in a measurement. Default is 65535.

Export to MATLAB



This plugin exports data directly into MATLAB. MATLAB needs to be installed on your computer. When you use this plugin, MATLAB will be started and the data will be transferred into the workspace. The data will be written into the variable “Data”.

Data.Graphs will contain the graph information.

Data.Overview will contain the Info Pane information.

The graph information is organized column-wise. The first column normally contains the wavelength. For example,

`Data.Graphs.IL(:,1)`

denotes the wavelength of the insertion loss graph.

You will be asked for setup parameter:

- OnExport
You can define a command which is executed in the MATLAB workspace after the data has been transferred. The default is “OMRDisplayObject(Data);” which calls the m-File “OMRDisplayObject” to display the data in a graph window.

5 Automation

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COM-Components

Automation is implemented using a mechanism called “COM”. COM has been introduced by Microsoft on the Windows platform to allow a unified way to communicate between different software components. Today, almost every programming language such as C#, C++, LabView, Keysight Vee as well as MATLAB offers ways to use these so-called COM-components. Once familiar with handling COM-components, programming can be done using function browsers or auto-completion that show you the available properties and functions/methods including their parameter names. It is thus often possible to use the available functions without consulting the documentation.

Since the syntax of calling COM-components is a little different in every programming language, we focus in our examples on MATLAB code. MATLAB has a very generic syntax and it should be easy to adapt the code to any other language. Further examples are included in the software distribution including examples in LabView.

The following sections contain references for common objects, such as OMR files (IOMRFile), graph objects (IOMRGraph) and property objects (IOMRProperty).

For details on the COM interfaces for controlling a specific Photonic Application Suite measurement engine, refer to that engine’s User’s Guide.

NOTE

Up to version 2.0 of the Photonic Application Suite (PAS), the library was implemented as a DLL and accessed through the COM class `OMRCOMFileHandler`. This DLL did not support 64 bit remoting environments.

With PAS version 2.1 it has been replaced by a COM server executable accessed through the class `AgServerOMRFileHandler` which does support 32 bit and 64 bit remoting environments.

Migrating from the old class to the new class just means changing the name of the class at the very beginning of an automation program / method.

For sake of compatibility, the DLL is still part of any PAS installation.

Reference: Interface “IOMRFile”

The IOMRFile interface is invoked using the following PROGID to identify the COM-server:

```
AgServerOMRFileHandler.OMRFile
```

MATLAB:

```
File = actxserver('AgServerOMRFileHandler.OMRFile');
```

The above line is only required when loading an OMR file from disk. For accessing the measurement result of an active engine, the IOMRFile interface is also returned by the method

```
LEngine.MeasurementResult
```

It provides access to the content of the measurement result.

method Property

Type-Library:

```
get: HRESULT Property([in] BSTR PropertyName,
[out, retval] IOMRProperty** Property);
```

MATLAB:

```
Property = MeasurementResult.Property('');
```

Returns a reference to the underlying IOMRProperty object which contains information about the measurement file, e.g. measurement setup parameters and plugin results. Use an empty string as a parameter to access the root level of the properties tree. Refer to [Reference: Interface “IOMRProperty”](#) on page 68 for details on how to access individual property values and sub-properties.

property GraphNames

Type-Library:

```
get: HRESULT GraphNames([out, retval]
SAFEARRAY(BSTR)* pVal);
```

MATLAB:

```
StringArray = MeasurementResult.GraphNames;
```

Returns a string array containing the names of the graphs contained in the OMR-file. Pass this value to the “Graph” property to access the graph content.

method Graph

Type-Library:

```
HRESULT Graph([in] BSTR GraphName, [out,retval]
IOMRGraph** GraphPtr);
```

MATLAB:

```
Graph = MeasurementResult.Graph('TLS0_RXTXAvgIL');
```

Returns a reference to the underlying graph object which contains a single parameter graph such as IL or PDL. You need to provide the graph name which can be one of the following with “x” being the number of the TLS in a multi-TLS setup:

“TLSx_RXTXAvgIL” for IL graphs

“TLSx_RTXPDL” for PDL graphs

“TLSx_TETM” for TE/TM graphs

“TLSx_MuellerRow1” for Müller graphs

“TLSx_ReturnLoss” for return loss graphs

“TLSx_Responsivity” for diode responsivity graphs

“TLSx_ResponsivityMaxMin” for more diode responsivity graphs

“TLSx_CMRR” for common mode rejection ratio (DC) graphs

“TLSx_ExtinctionRatio” for polarizer / polarization beam splitter extinction ratio graphs

“TLSx_DiodeCurrent” for diode current graphs

The result is a reference to an IOMRGraph interface. Please refer to the next pages to see the methods and properties.

Additional Graphs may be present containing raw or reference data.

Subsequent application of plugins may create additional graphs. Refer to those plugins for the respective names.

TLSx_DiodeCurrent, TLSx_Responsivity and TLSx_ResponsivityMaxMin will be only available, if a power meter with electrical inputs was used in the measurement and the calculation of these graphs has not been turned off.

TLSx_ReturnLoss will be only available, if a return loss module was used in the measurement and the calculation of these graphs has not been turned off.

TLSx_TETM and TLSx_MuellerRow1 will be only available if `Engine.GenerateTETMData` has been set to 1.

TLSx_CMRR will only be available if responsivity calculation is enabled and at least two ports are selected (CMRR will be computed from data from each pair of two adjacent ports).

TLSx_ExtinctionRatio will only be available if PBS Extinction Ratio measurement has been activated in Supplementary Measurements section of the IL/PDL engine.

NOTE

Earlier versions of the IL/PDL engine, as well as other engines which do not support multiple TLS contain graph names without the leading "TLSx_".

property Plugins

Type-Library:

```
get: HRESULT Plugins([out, retval] SAFEARRAY(BSTR) * pVal);
```

MATLAB:

```
StringArray = MeasurementResult.Plugins;
```

Returns a string array containing the names of the available plugins. Pass the name of the desired plugin to the "Plugin" property to access the plugin.

method Plugin

Type-Library:

```
HRESULT Plugin([in] BSTR PluginName, [out, retval] IOMRPlugin** PluginPtr);
```

MATLAB:

```
Plugin = MeasurementResult.Plugin('Average');
```

Returns a reference to the plugin object which allows for applying the plugin to the data contained in the OMR file. You need to provide the plugin name which can be found by checking the “Plugins” property. See [Reference: Interface “IOMRPlugin”](#) on page 71 for details on using plugins.

method Write

Type-Library:

```
HRESULT Write([in] BSTR Filename);
```

MATLAB:

```
MeasurementResult.Write('test.omr');
```

Saves the data as OMR-file. Will automatically overwrite an existing file.

method OpenRead

Type-Library:

```
HRESULT OpenRead([in] BSTR Filename);
```

MATLAB:

```
File.OpenRead('test.omr');
```

Loads an OMR file from disk.

method Close

Type-Library:

```
HRESULT Close;
```

MATLAB:

```
File.Close;
```

Closes an open OMR file.

NOTE

If an OMR file is opened using the IOMRFile interface, e.g. by your own automation application, the same file cannot be opened by another application using the IOMRFile interface, e.g. the Photonic Application Suite FileViewer.

Reference: Interface “IOMRGraph”

The IOMRGraph interface is returned by the property

IOMRFile.Graph

It provides access to the content of a single measurement plot.

Note that a graph contains 2-dimensional plots. The data can be stored using two arrays with X and Y data. If the X-axis is equally spaced, the X-axis will be omitted and the properties xStart and xStep are used to define the X-axis.

A graph can consist of several channel plots. Each channel consists of one or more curves. This is used for representing vectorial data such as polarization state (e.g. a channel of 3-element Stokes vectors consists of 3 curves).

method Property

Type-Library:

```
get: HRESULT Property([in] BSTR PropertyName,
[out, retval] IOMRProperty** Property);
```

MATLAB:

```
Property = Graph.Property('');
```

Returns a reference to the underlying IOMRProperty object which contains information about the graph. Use an empty string as a parameter to access the root level of the properties tree. Refer to [Reference: Interface “IOMRProperty”](#) on page 68 for details on how to access individual property values and sub-properties.

property XData

Type-Library:

```
get: HRESULT XData([out, retval] SAFEARRAY(double)*
pVal);
```

MATLAB:

```
XData = Graph.XData;
```

Returns an array of double-precision floating point numbers containing the X coordinates. If this array is empty, the graph has an equidistant X-axis and the axis is defined by the properties xStart and xStep.

property YData

Type-Library:

```
get: HRESULT YData([out, retval] SAFEARRAY(double) *
pVal);
```

MATLAB:

```
YData = Graph.YData;
```

Returns an array of double-precision floating point numbers containing the Y coordinates.

property xStart

Type-Library:

```
get: HRESULT xStart([out, retval] DOUBLE* pVal);
```

MATLAB:

```
xStart = Graph.xStart;
```

If the property XData is an empty array, the X-axis data is equally spaced. xStart defines the start value of the X-axis.

property xStep

Type-Library:

```
get: HRESULT xStep([out, retval] DOUBLE* pVal);
```

MATLAB:

```
xStep = Graph.xStep;
```

If the property XData is an empty array, the X-axis data is equally spaced. xStep defines the increment per step.

property xStop

Type-Library:

```
get: HRESULT xStop([out, retval] DOUBLE* pVal);
```

MATLAB:

```
xStop = Graph.xStop;
```

If the property XData is an empty array, the X-axis data is equally spaced. xStop defines the stop value of the X-axis. Normally xStop equals xStart+n*xStep, where n is the number of samples (can be determined by the property dataPerCurve).

property noChannels

Type-Library:

```
get: HRESULT noChannels([out, retval] LONG* pVal);
```

MATLAB:

```
noChannels = Graph.noChannels;
```

Returns the number of channels in the plot.

property noCurves

Type-Library:

```
get: HRESULT noCurves([out, retval] LONG* pVal);
```

MATLAB:

```
noCurves = Graph.noCurves;
```

Returns the number of curves per channel. This value is normally 1. In case measurement sweeps with vectorial data such as Polarization State, this value is greater than 1. The total number of samples returned by YData should be noCurves*dataPerCurve*noChannels.

property dataPerCurve

Type-Library:

```
get: HRESULT dataPerCurve([out, retval] LONG* pVal);
```

MATLAB:

```
dataPerCurve = Graph.dataPerCurve;
```

Returns the number of samples per curve. The total number of samples returned by YData should be noCurves*dataPerCurve*noChannels.

Reference: Interface “IOMRProperty”

The IOMRGraph interface is returned by the properties
 IOMRFile.Property,
 IOMRGraph.Property
 and
 IOMRPlugin.Property

property PropertyNames

Type-Library:

```
get: HRESULT PropertyNames([out, retval]
SAFEARRAY(BSTR)* pVal);
```

MATLAB:

```
StringArray = Property.PropertyNames;
```

Returns a string array containing the names of the sub-properties contained in the property object. Pass any of these names to the “Property” property to access that properties value or sub-properties.

method Property

Type-Library:

```
get: HRESULT Property([in] BSTR Path, [out,retval]
IOMRProperty** Property);
```

MATLAB:

```
SubProperty = Property('');
SubProperty = Property('General');
SubProperty = Property('General.Date');
```

Returns a reference to a sub-property. If an empty string is used as parameter, the top-level property is referenced. Refer to [property PropertyNames](#) on page 68 for a list of available properties. You can use a property name to directly access a certain property. Concatenate property names using the dot character to directly access sub-properties.

property Value

Type-Library:

```
get: HRESULT Value([out, retval] VARIANT* pVal);
```

```
put: HRESULT Value([in] VARIANT newVal);
```

MATLAB:

```
v = Property('General.Date').Value;
```

```
Property('General.Date').Value = v;
```

Sets or gets a property value.

property FlagInfoPane

Type-Library:

```
get: HRESULT FlagInfoPane([out, retval] VARIANT_BOOL* pVal);
```

```
put: HRESULT FlagInfoPane([in] VARIANT_BOOL newVal);
```

MATLAB:

```
b = Property('CustomInfo').FlagInfoPane;
```

```
Property('CustomInfo').FlagInfoPane = b;
```

Defines whether this property is a measurement info pane or not. If set to true, an additional info pane with this property's name will be shown in the FileViewer, listing all sub-properties of this property.

NOTE

We recommend storing user defined properties in custom tabs, to make sure the engine does not overwrite custom data, or vice versa.

property FlagHide

Type-Library:

```
get: HRESULT FlagHide([out, retval] VARIANT_BOOL* pVal);
```

```
put: HRESULT FlagHide([in] VARIANT_BOOL newVal);
```

MATLAB:

```
b = Property('CustomInfo.CustomValue').FlagHide;
```

```
Property('CustomInfo.CustomValue').FlagHide = b;
```

Defines whether this property is visible in the FileViewer or not. The property will still be accessible using the COM interface, even if hidden in the FileViewer.

Reference: Interface “IOMRPlugin”

The IOMRPlugin interface is returned by the property IOMRFile.Plugin.

See [The Plugin System](#) on page 43 for an overview about some of the available plugins. Some Photonic Application Suite engines and packages may include additional plugins. Check their respective user's guides for information on those plugins

property IsFileCompatible

Type-Library:

```
get: HRESULT IsFileCompatible([in] BSTR GraphName, [out, retval] VARIANT_BOOL* pVal);
```

MATLAB:

```
b = Plugin.IsFileCompatible('');
```

Can be used to check whether the plugin can be used with the OMR file.

NOTE

Use an empty string as GraphName parameter unless noted otherwise.

property SettingsXML

Type-Library:

```
get: HRESULT SettingsXML([out, retval] BSTR* SettingsXML);
```

```
put: HRESULT SettingsXML([in] BSTR SettingsXML);
```

MATLAB:

```
xml = Plugin.SettingsXML;
```

```
Plugin.SettingsXML = xml;
```

Transfers the plugin properties to or from the plugin. By changing the values in the XML string and writing it back to the plugin, the behaviour of certain plugins can be customized.

method Evaluate

Type-Library:

```
HRESULT Evaluate([in] BSTR GraphName);
```

MATLAB:

```
Plugin.Evaluate('');
```

Performs the plugin operation to the OMR file. In case the plugin allows for customizing parameters, settings from the “SettingXML” property will be used. Use “EvaluateInteractive” instead, to get a settings dialog prior to plugin execution.

NOTE

Use an empty string as GraphName parameter unless noted otherwise.

NOTE

When using the Evaluate method of the CSV Export plugin, the target filename is provided through the GraphName parameter.

method EvaluateInteractive

Type-Library:

```
HRESULT EvaluateInteractive([in] BSTR GraphName);
```

MATLAB:

```
Plugin.EvaluateInteractive('');
```

Performs the plugin operation to the OMR file after showing a dialog of the plugin parameters. Use “SettingsXML”, and “Evaluate” instead, to achieve silent plugin execution.

NOTE

Use an empty string as GraphName parameter unless noted otherwise.

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