TRM®
Test Results Management PC Software

User's Guide

Contents

Contents

Contents

Contents

General Information

Introduction

The TRM 2.0 Test Results Manager is an all-in-one basic and advanced PC analysis, viewer and comprehensive reporting tool for fiber testing. TRM permits technicians to quickly view results, generate acceptance reports, analyze OTDR traces, loss or certification results or batch edit OTDR traces uploaded from AFL M-Series, C-Series, CS-Series, OFL-Series, FLX-Series OTDRs and OPM products. TRM allows integration of fiber inspection images from the FOCIS Flex, FOCIS WiFi, or DFS1 FiberScope into customized reports. Advanced features of TRM support automatic Macro/Microbend detection, bi-directional OTDR trace averaging, and export of .SOR files to .CSV file format. Three software packages are available, TRM Basic software, TRM Advanced software and upgrade from TRM Basic to TRM Advanced software.

TRM Basic and TRM Advanced Software License

TRM is available as either licensed version or free 30-day evaluation download version.

Evaluation versions allow you to use both basic and advanced capabilities for 30 days after installation. If no license is activated within 30 days, both basic and advanced capabilities will expire after 30 days. All AFL OTDRs and OPM5 Power Meters are shipped with a license key for TRM 2.0 Basic. Each TRM 2.0 license may be installed in up to 5 PCs. Contact your AFL sales representative to purchase an upgrade license for TRM 2.0 Advanced.

Contacting Customer Service

If you have any questions about your AFL test and inspection equipment or TRM software, or if you need technical or sales support, please contact Customer Service. You may contact Customer Service between 8 a.m. and 5 p.m., United States Eastern Time, as follows:

Phone: 800-321-5298 (North America) • 603-528-7780

Fax: 603-528-2025

Web: www.AFLglobal.com

E-mail: NoyesTechSupport@AFLglobal.com

System Requirements

To use TRM application, you need the following hardware and software:

- A PC with a 1GHz (or faster) processor and an 800 x 600 (or larger) display
- A CD or DVD drive if installing from CD
- A USB port if installing from USB memory stick
- At least 1 GB of RAM
- A Windows compatible pointing device (mouse, trackball, etc.)
- MS Windows XP, SP3, Vista (32-bit and 64-bit), Windows 7 (32-bit and 64-bit)

Installing TRM

You can install TRM from the supplied CD-ROM or USB memory stick, or you can download it from our web site at www.AFLglobal.com > Products > Test and Inspection > Software.

Follow the steps below to install the TRM software.

To install from the application CD-ROM:

1. Start Windows. If Windows is running, quit all applications.
2. Insert the TRM CD into the CD-ROM drive, or insert USB memory stick into USB port.
3. The Installer will display the [Welcome] screen.

If the Installer does not start automatically, from Windows do one of the following:

- Click on the [Start] button and select the [Run] command from the pop-up menu.
- The [Run] dialog box appears. On the [Open] command line, type [D:\setup.exe].
- Click on the [OK] button to start.

OR

- Double-click the My Computer icon on the desktop to open the My computer folder.
- Double-click the CD-ROM or USB port icon.
- Double-click [Setup] or [Setup.exe].

4. When the Installer [Welcome] screen is displayed, click on the [Next] button to continue.
5. Follow the on-screen instructions.

6. When the Installer displays the [Complete] screen, click on the [Finish] button.

To download from the web:

1. From the www.AFLglobal.com web site, select the following:

   www.AFLglobal.com > Products > Test and Inspection > Software > TRM Software > click on the download link.

2. Follow the on-screen instructions. The software will download to your computer's hard drive.

3. Once downloaded, double-click on the [TRM] or [TRM.exe] file.

4. When the Installer [Welcome] screen is displayed, click on the [Next] button to continue.

5. Follow the on-screen instructions.

6. When the Installer displays the [Complete] screen, click on the [Finish] button.

Starting TRM

Follow the steps below to start the TRM application:

1. In Windows, click on the [Start] button.

2. From the [Start] pop-up menu, select the [All Programs] menu.

3. Locate the AFL Test and Inspection folder.

4. Click on the TRM shortcut Test Results Manager (TRM)

   If you have installed the TRM application in a folder other than AFL Test and Inspection, choose that folder from the Start > Programs menu.

Activating TRM License

1. At the Activation Wizard screen (**A**), select one of the following option:

    - Activate TRM Online option to activate purchased license with activation code provided by AFL

    - Begin a 30-day Evaluation

2. Click Next (**B**) to continue.

3. At the 'End-user License Agreement' screen (**C**) perform the following:

    - Read the End-user License Agreement

    - Check 'I accept...' box (**D**) if agree

    - Click Next (**E**) to continue

4. At the 'License Information' screen (**G**), enter the required information.

5. Click Next (**H**) to continue.
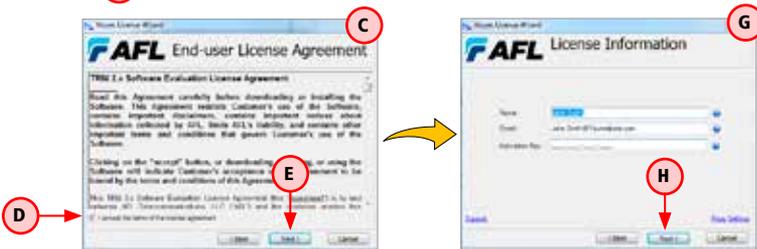
6. If Activation displays 'Proxy Error' screen (**J**), click OK and then click Proxy Settings (**K**).

7. At the Proxy Settings sub-screen (**L**), enter the required information and click OK (**M**) to continue.

The Server field is in the form of "server:port" e.g. "proxy.myco.com:3128"

8. Activation will display the progress (**N**) and confirm activation (**P**).

9. Click Finish (**R**) to finalize and display the TRM Main Menu screen (**S**).

Note:

The TRM 2.0 License Information and/or the Trial Expiration date (if a 30-day Evaluation is activated) will be available and accessible form the TRM Help menu.

• At the Main Menu screen, click Help (**A**).

• From the Help sub-menu, click License Information to display the information sub-screen (**B**).
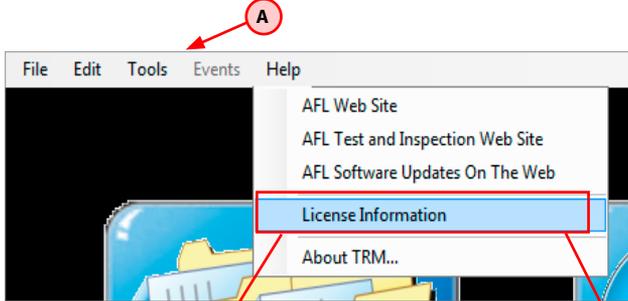
TRM 30-day Trial

TRM Advanced License
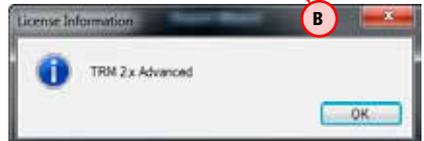
Selecting The Application Language

1. At the Main Menu scree, click Edit (**A**).

2. From the Edit sub-menu, click Preferences (**B**).

3. At the Preferences screen (**C**), select the desired language, where

- (**D**) - list of available Program languages
- (**E**) - list of available Report languages
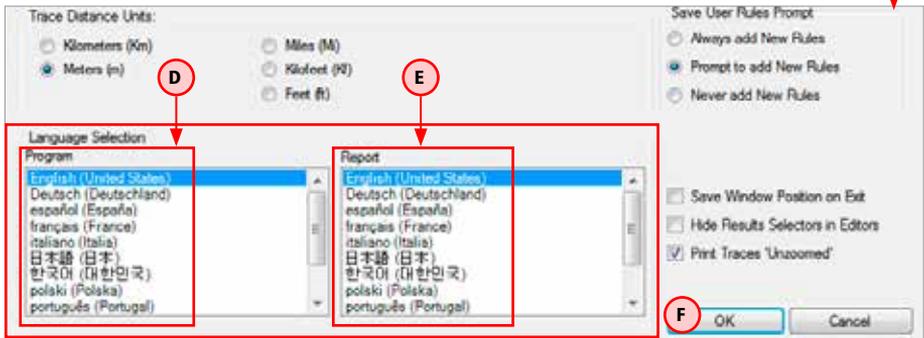
4. When done, click OK (**F**).

5. At the Warning screen (**G**), click Yes (**H**) to confirm the application restart.

6. TRM will restart in the selected language.
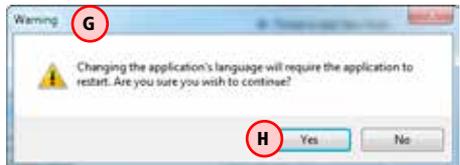
TRM Applications
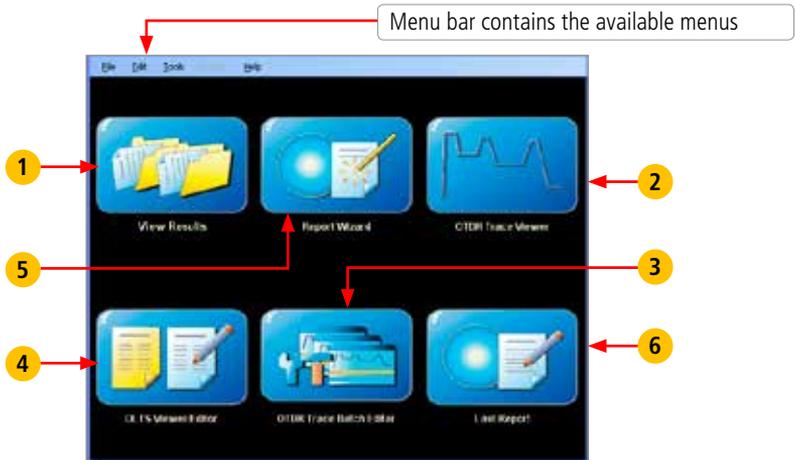
Ref	Application	Function
1	View Results (Results Explorer)	This application provides a brief preview of selected results within the Results Explorer screen. Use this application to navigate test results.
2	OTDR Trace Viewer	Use the OTDR Trace Viewer to analyze OTDR traces and edit single fiber single direction traces.
3	OTDR Trace Batch Editor	This application allows multiple trace files to be edited simultaneously.
4	OLTS Viewer/Editor	Use this application to view loss/power measurements. View certification results and select cabling standards, user rules and applications to be applied to certification results.
5	Report Wizard	Use this application to generate test reports for the selected data. Select from pre-defined report templates and cover sheets. Print generated test reports or store them as PDF files.
5	Last Report	This application will open the most recent report created by Report Wizard in the Report Preview Page, which allows the user to print the latest report, store it as PDF file, or return to the Report Wizard and modify the report.

Results Explorer

The Results Explorer is accessed from the Home screen by clicking the View Results icon -
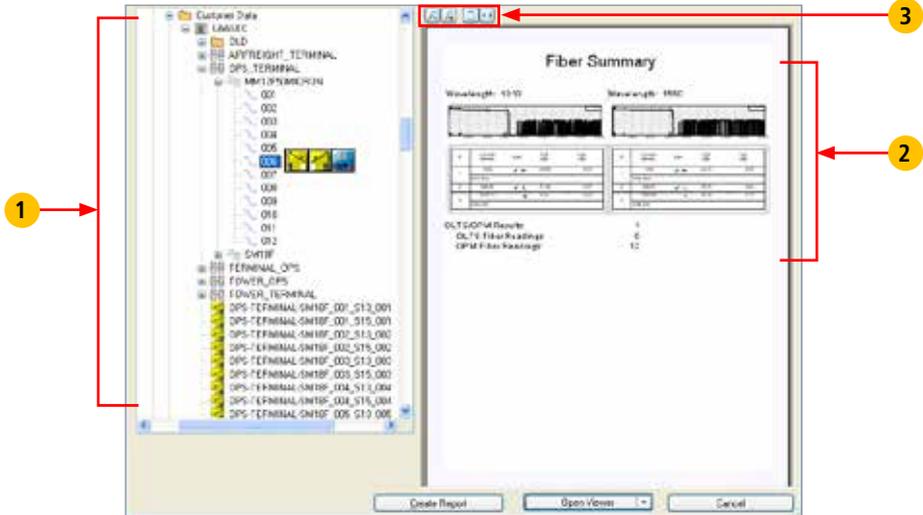
The Results Explorer application provides a brief preview of results within Results Explorer screen. Use this application to navigate test results, switch between OTDR and OLTS test viewers (when applicable), and access the Report Wizard as needed.

The table below gives a summary of the results Explorer features.

#	Feature	Description
1	File navigator	Displays folders and files hierarchy. Use to navigate saved test results.
2	Results window	Depending on the selected data on the "File Tree", the Results window will display various information as follows: • Path of the currently selected folder • Summary of the selected Job/Route/Cable/Fiber • Test result preview: OTDR thumbnail, OPM result, Certification result
3	Zoom buttons	Click to zoom in, zoom out, and reset pages back to their default value.

#	Feature	Description
4	Soft key button: [Edit] or [Open Viewer]	The current function of this key depends on the selection in the file tree and the type of results in the cable (indicated by a label on the button as follows):
		Selection: Job/Route/Cable file **Selection: Test Result file**
		Edit ▾ Open Viewer ▾
		OTDR Trace Batch Editor OLTS Viewer/Editor
		OLTS Viewer/Editor Trace Viewer MM A->Z
		Trace Viewer MM Z->A
5	[Create Report] button	Click on this button to access the Report Wizard, which enables generation of test reports and selection of pre-defined report templates and cover sheets.
6	[Cancel] button	Click on this button to return to the Home screen.

OTDR Trace Viewer Application

Opening Test Results with OTDR Trace Viewer

This application may be accessed in several ways:

- From the Home screen by clicking on the OTDR Trace Viewer icon - .

- From the Results Explorer by selecting a fiber and with a fiber selected double-clicking on a trace icon.
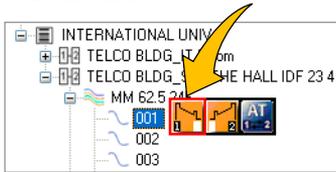
- From the Results Explorer by selecting a fiber and with a fiber selected, displaying the Open Viewer submenu and selecting a Trace Viewer for the desired test direction available.
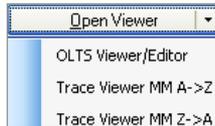
Use the OTDR Trace Viewer to analyze OTDR traces and edit single fiber single direction results.

Overview of Trace Viewer Interface

Ref	Feature	Description
1	Menu bar	Displays the available drop down menus.
2	Toolbar	Contains several icons for quick access to menu commands. Click on an icon to execute the associated command.
3	Applications tabs	Click on a tab to display the corresponding application window.
4	Results button	"On mouse over" the [Results] button (A), the Results window is displayed and "on mouse out" the Results window is auto hidden. **Note:** the [Results] button (A) looks like a heading (B) and the Auto Hide icon (C) looks like unless "auto hide" function is enabled by clicking the Auto Hide icon (C).
5	Results window	The Results window displays folders and files hierarchy and is used to navigate saved test results. To disable/enable the "auto hide" function, click the Auto Hide icon / located in the right top corner of the Results window (C).

Trace Viewer Screen Features (continued)

Vertical/Horizontal split bars - allow resizing of the [Trace graph], [Event table], and [Results Info] window vertically and/or horizontally

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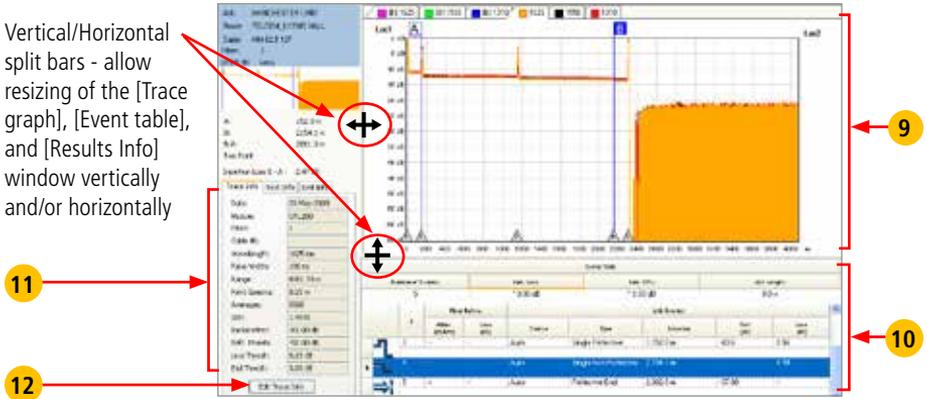
Ref	Feature	Description
6	Cables Info window	Contains informative fields: Job/Route/Cable name, fiber number and direction.
7	Zoom window	Shows the current trace view relative to the entire trace.
8	Cursors data	This field displays the following information: A and B cursor locations, distance from A to B, selected loss method, and (depending on the selected loss method) insertion loss, reflectance, or fiber attenuation.
9	Trace graph window	Shows a graph of the currently selected trace. Up to six traces can be displayed in the Trace graph window.
10	Event Table window	Displays saved events in a table format.
11	Trace Info/Text Info/Unit Info field	This field displays OTDR setup parameters or Text data or Test equipment data when the associated tab [Trace Info]/[Text Info]/[Unit Info] is selected.
12	[Edit Trace Info] button	Click on this button to display the Edit Trace Information window, which allows editing of the Trace and Text info for the selected trace file.

Trace Viewer Menu Bar

The Menu Bar contains File, Edit, Tools, Events, View, and Help menus. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.
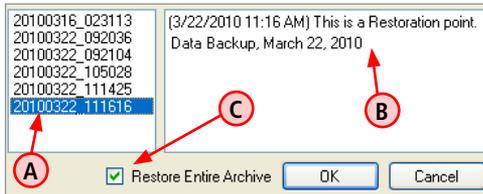
File Menu

Table below gives a summary of the available File Menu commands and their associated functions.

Command	Use to perform the following Function
Open...	Access the Results Explorer. Depending on the user preference setting (Edit >Preferences > Single-Wavelength or Multi-Wavelength), open a single trace file or a multiple trace file.
Open as Baseline...	Access the Results Explorer. Depending on the on the user preference setting (Single-Wavelength or Multi-Wavelength), open a single trace/multiple trace file as a baseline. **Note**: a baseline trace is a trace graph that is used as a point of reference for comparison.
Save	Save a trace file that already exists with its original name.
Save As...	Save an existing trace file under a new name and preserve the original file and/or to save the file in a different format (SOR v1 or SOR v2).
Convert	Convert M200 v1.0.x files into v2.0.x file format.
Print Trace	Access the TRM Report Wizard. Preview an OTDR Trace before printing. Print the currently displayed trace in one of three layouts: With Overlay, Single, Side by Side.
Close	Depending on the selected option for closing files, close selected files after automatically saving changes, or prompt the user to confirm saving.
Close All	Close all open trace & baseline files.
Import Results...	Download test data from an instrument.
Import OFL Results...	Download test data from an OFL250 or OFL280 (non-FlexTester).
Export Job to File...	Export the selected Job to a zip file.
Export Fiber OTDR Data (SOR) to CSV	**Licensed option, see page 2 for details** Export contents of currently selected .SOR file(s) to .CSV file(s) with same folder and file name(s).

Command	Use to perform the following Function
Backup Data...	To have a restoration point, create a non-visible backup copy of your data before editing: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a clear comment on backed up data to be able to identify it during restoration
Restore Data...	Restore previously backed up data to a visible folder. Use comments to identify data for restoration.
Exit	Close opened trace files and exit TRM.

How To Restore Data

1. Click on individual Backups (**A**) to review comments (**B**) saved during the [Backup Data] process.
2. Using comments, identify and select data for restoration (**A**).
3. Or select the "Restore Entire Archive" option (**C**).

4. Click OK.
5. In the displayed File Navigator window, select the desired location.
6. Click OK to save the restored data.

Tools Menu

This menu provides access to the Home screen menus.

Command	Function
View Results	Opens the Results Explorer screen.
Report Wizard	Opens the Report Wizard screen.
OTDR Trace Viewer	Opens the OTDR Trace Viewer screen.
OLTS Viewer/Editor	Opens the OLTS Viewer/Editor screen.
OTDR Trace Batch Editor	Opens the OTDR Trace Batch Editor screen.
Last Report	Opens the most recent report created by Report Wizard.

Edit Menu

The Edit menu allows the user to edit File Information and set up Preferences.

How to Edit File Information

These text fields allow the user to view test settings and edit some test parameters (Date, GIR, Backscatter Coefficient, and Reflectance Threshold). Changing GIR or Backscatter Coefficient will cause recalculation of the Event Table and fiber length.

These are the text editable fields, which allow the user to edit Cable Type, Operators ID, or Company name and add Trace Comments.

Trace Viewer Preferences Dialog Box

Use the Preferences menu to select the appearance of traces and how they are opened/closed/saved.

Advanced visual settings on/off

Options to save changed files

Options to display gridlines in Trace Window

Options to open and close files

Available distance units

Color options to display traces

Click to reset all settings to the factory default values

Number of recently open files to be displayed under [File] menu (allowed 1 to 99 files)

Licensed option, see page 2 for details

Event Table Advanced Analysis (Macrobends/Microbends detection and Bi-directional analysis) settings on/off

OTDR Trace Viewer: Events Menu

The Events menu contains all the commands you will need to select loss methods, add new events, and review or delete saved events. The table below gives a summary of the available Events menu commands and associated functions.
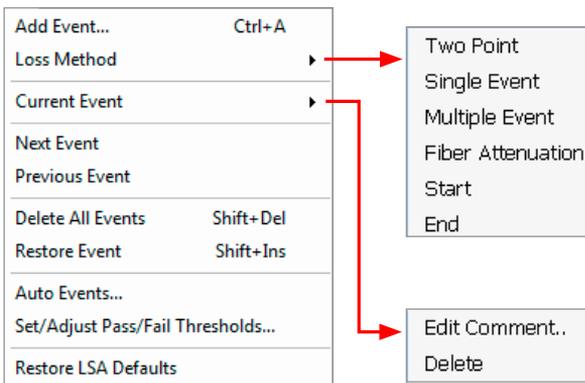
Command	Use to perform the following Function
Add Event...	Add an event using the selected Loss Method at the active cursor location (not available for the Two Point or Fiber Attenuation methods).
Loss Method	Select the desired Loss Measurement Method (for details, see page 39).
Current Event:	
• Edit Comment	Open a dialog box for adding and/or editing comments for the current event.
• Delete	Delete the current event.
Next Event	Display the next event: moves the active cursor to the next event and highlight this event in the event table.
Previous Event	Display the previous event: moves the active cursor to the previous event and highlight this event in the event table.
Delete All Events	Delete all saved events in the selected trace, event table.
Restore Event	Restore the last event that was deleted.
Auto Events...	Generate an event table.
Set/Adjust Pass/Fail Thresholds...	Edit Pass/Fail event and link Thresholds and recalculate events data.
Restore LSA Defaults	Restore LSA line lengths to the default values.

View Menu

The View drop down menu allows the user to see selections that affect the view of the OTDR trace. Also, the View menu displays the available keyboard shortcuts.
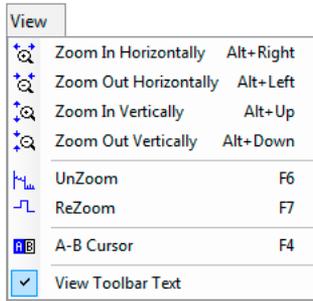
Help Menu

This menu provides access to the following:

- AFL web site
- AFL Test and Inspection web site
- AFL Software updates on the web
- License Information
- [About TRM...] screen
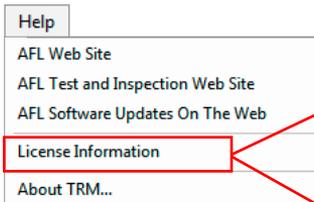
TRM Advanced License in this example
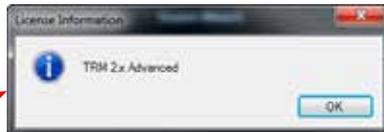
TRM 30-day Trial in this example

About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions.

Click to display the Details screen **A**

Click to display a sub-screen **B** to package the Error Log data

Clicking on 'Prepare Information' will package the Error Log data into zip folder that can be emailed to AFL Technical Support as an attachment.

Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the associated command.

Command	Function
Open	Access the Results Explorer and navigate the desired test results
Save	Save a trace file that already exists with its original name
Report Wizard	Open the Report Wizard
Last Report	Open the most recent report created by Report Wizard with options to save it as PDF, enlarge, or print
Prev File	Open the previous file in the current folder
Next File	Open the next file in the current folder
Horiz Zoom (+)	Zoom in horizontally around the active cursor
Horiz Zoom (-)	Zoom out horizontally around the active cursor
Vert Zoom (+)	Zoom in vertically from the trace level at the active cursor
Vert Zoom (-)	Zoom out vertically from the trace level at the active cursor
UnZoom	Display the trace view at 100%
ReZoom	Zoom to the previous zoom level around the active cursor
Prev Event	Select the previous event
Next Event	Select the next event
Switch Cursor	Switch the active cursor

Trace Graph Window

[B] label indicates a Baseline trace
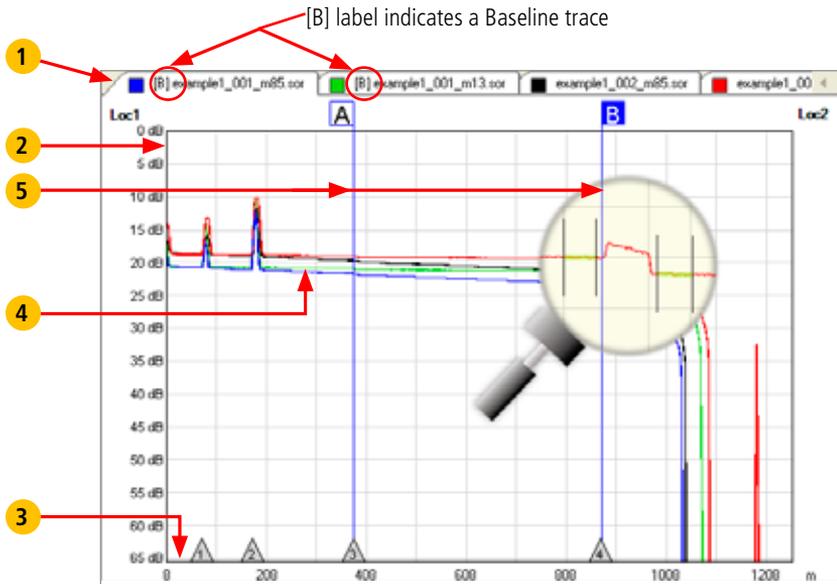
The Trace graph window displays OTDR test results in a graph format. Up to six traces can be displayed. The major features of the Trace graph window are explained below.

Ref	Feature	Description
1	Trace tab	Displays the name and color of the open trace. If several traces are open, click on a trace tab to display the associated trace graph.
2	Vertical axis	Shows insertion loss in dB.
3	Horizontal axis	Shows distance in user-selected units (km, m, mi, kf, ft).
4	Trace	This is a graph of insertion loss vs. distance.
5	Cursors A and B	Used to measure insertion loss, power level, reflectance, attenuation, and distance. To make a cursor active, click on the cursor line or label, or click on the Toolbar Cursor icon to toggle between A and B cursors. To move the active cursor, position the mouse pointer on a cursor, then click-and-drag along the trace graph. Also, you may use the Left and Right keyboard arrow keys.

[B] label indicates a Baseline trace
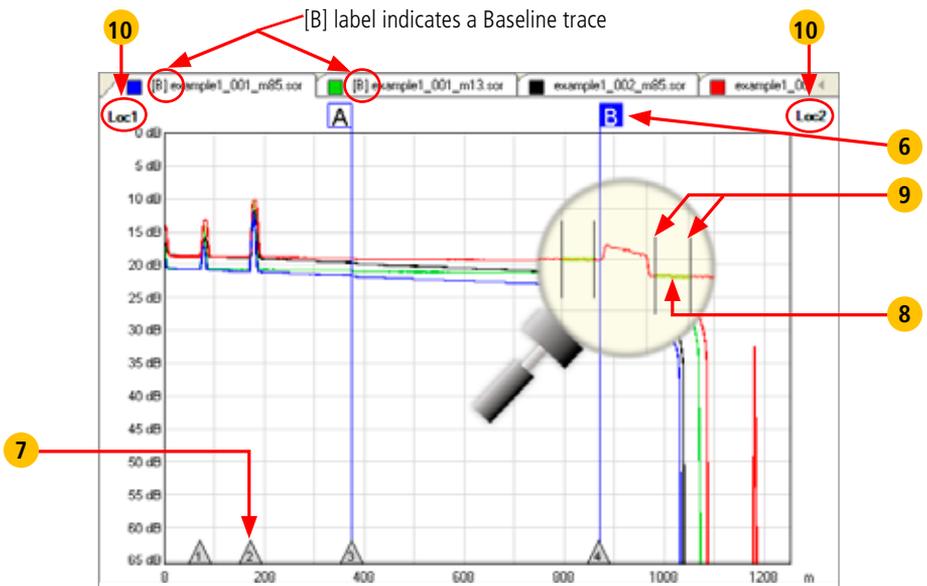
Ref	Feature	Description
6	Cursor label	To move the active cursor, position the mouse pointer on a cursor or a cursor label, then click-and-drag along the trace graph.
7	Event mark	Indicates the location and the number of a saved event. Events are listed in numerical order.
8	LSA lines	Available for certain loss measurement methods. Used for calculating insertion loss, trace level, and attenuation.
9	LSA line boundaries	Near and Far LSA line boundaries for each LSA line segment. Used to control length and position (relative to trace segment) of LSA line.
10	Trace end names	End names of the displayed trace are shown on the trace graph on each side to make directional information clearer.

Event Table

The [Event table] window allows the user to view test data associated with the trace displayed in the [Trace graph] window. If several traces are open, click the desired trace [Tab] located on top of the [Trace graph] window to display the [Event table] of the desired trace. Using the [Events] menu, the user may add or delete trace events and edit comments.

Features of the [Event table] window are explained below.

Ref	Feature	Description
1	Summary data row	This row contains the summary data of the displayed trace: number of saved events, link loss, link ORL, and link length.
2	Event type icon	Indicates the event type graphically. See section "Event Types" on page 26 for details.
3	Event number	Displays the number of the saved event in numerical/position order.
4	Atten. (dB/km)	The dB/km measurement is a slope of the fiber leading to the event **Note:** When the length of the fiber being measured is insufficient, the dB/km measurement is displayed followed by an asterisk [*] symbol. An asterisk [*] symbol indicates, "Section is too short to ensure an accurate fiber attenuation (dB/ km) measurement." The required minimum distance is wavelength dependent: 1625 nm = 3 km, 1550 nm = 5 km, 1310 nm = 3 km, 1300 nm = 2 km, and 850 nm = 0.3 km.
5	Loss (dB)	Shows Insertion loss in (dB) of the fiber segment before the event.

Ref	Feature	Description
6	Source	This column indicates how the event is added: • manual - added by operator. • auto - event table is generated by OTDR software.
7	Pass/Fail	Indicates Pass - ✔ or Fail - ✗ result for event (Reflectance or Loss).
8	Event Type	This column indicates the event type.
9	Location	Indicates Distance from the OTDR (or end of launch cable) to the event.
10	Refl. (dB)	Displays Reflectance in (dB) for each reflective event. Green highlight indicates Passing, Pink highlight indicates Failing.
11	Loss (dB)	Displays Insertion loss in (dB) for each event. Green highlight indicates Passing, Pink highlight indicates Failing.

Note: Pass/Fail column will be absent and Reflectance and Loss results will not be color-coded if Pass/Fail analysis was not performed in the OTDR. To perform Pass/Fail analysis, select Events menu, select 'Set/Adjust Pass/Fail Thresholds...', check the boxes for the thresholds to be applied, edit the threshold if necessary, and press 'OK.'

Event Types

Icon	Event Type	Description
	Start	The start of the fiber under test.
	End	The end of the fiber under test.
	Non-reflective Loss Event	An event with measurable loss but very small or unmeasurable reflectance, typically caused by a fusion splice, fiber break, or macrobend (with macrobend detection disabled).
	Non-reflective Gainer Event	An event with 'negative loss,' which can occur in OTDR traces where two fibers with very different backscatter coefficients are spliced or connected. A gainer will be seen as a normal (positive loss) event when tested from the other end of the fiber. The true loss of the event is approximately equal to the average of its loss measured from each end of the fiber under test.
	Reflective Event	An event with measurable loss and reflectance, typically caused by a connection or mechanical splice.
	Macrobend	A non-reflective loss event with significantly higher loss at longer wavelengths (1550, 1625, 1650 nm) than seen at shorter wavelengths (1310, 1490 nm). Typically caused by a sharp bend in the fiber.
	Splitter	PON splitters are detected only when Event thresholds are set to PON Default or PON User and a high loss event (> 6 dB) is detected which is determined not to be the end of the fiber.
	Group Start Event	First event in multiple event group. Reports loss of entire group. Reports reflectance of first event in group if reflectance of next event can be independently measured. Reports max reflectance of grouped events if next reflectance cannot be independently measured.
	Group Middle Event	Grouped events may contain zero, one, or more middle events. Loss of middle events is included in group loss reported in the group start event. Reports reflectance if it can be independently measured.
	Group End Event	Last event in a multiple event group. Loss of last event is included in group loss reported in group start event. Reports reflectance if it can be independently measured.

Bi-directional Analysis `Licensed option, see page 2`

Bi-directional test data for each event is organized in the Event Table by direction and indicated by direction labels [Loc1 —> Loc2] and [Loc2 —> Loc1]. See section "Trace Viewer Preferences Dialog Box" on page 17 for details on how to enable Bi-directional Analysis.

Features of the [Bi-directional Analysis] table are explained below.

Ref	Feature	Description
1	Header	Bi-directional analysis summary data is shown in the header as follows: • Number of Events • Maximum Average Splice Loss (non-reflective) between the directions • Maximum Average Connector Loss (reflective) between the directions • Max Reflectance between the directions • Link Loss End1 -> End2 • Link Loss End2 -> End1 • Average Link Loss • Link ORL End1 -> End2 • Link ORL End2 -> End1 • Link Length
2	Event type icon	Indicates the event type graphically. See section "Event Types" on page 26 for details.
3	Event number	Displays the number of the saved event in numerical/position order.
4	Direction	Indicates directions for each event.

Ref	Feature	Description
5	Atten. (dB/km)	The dB/km measurement is a slope of the fiber leading to the event. **Note:** When the length of the fiber being measured is insufficient, the dB/km measurement is displayed followed by an asterisk [*] symbol. An asterisk [*] symbol indicates, "Section is too short to ensure an accurate fiber attenuation (dB/ km) measurement." The required minimum distance is wavelength dependent: 1625 nm = 3 km, 1550 nm = 5 km, 1310 nm = 3 km, 1300 nm = 2 km, and 850 nm = 0.3 km.
6	Loss (dB)	Shows Insertion loss in (dB) of the fiber segment before the event.
7	Source	This column indicates how the event is added: • manual - added by operator. • auto - event table is generated by OTDR software.
8	Pass/Fail	Indicates Pass - ✓ or Fail - ✗ result for event (Reflectance or Loss).
9	Event Type	This column indicates the event type.
10	Location	Indicates Distance from the OTDR (or end of launch cable) to the event.
11	Refl. (dB)	Displays Reflectance in (dB) for each reflective event. Green highlight indicates Passing, Pink highlight indicates Failing.
12	Loss (dB)	Displays Insertion loss in (dB) for each event. Green highlight indicates Passing, Pink highlight indicates Failing.
13	Cum Loss (dB)	Displays cumulative loss (event loss plus fiber loss) for the fiber up to the event point in each direction.
14	Avg Loss (dB)	Displays average loss for the fiber up to the event point in each direction.

28

Macrobend/Microbend Analysis `Licensed option, see page 2`

Macrobend detection is the analysis performed to detect and quantify Macrobends and Microbends in a set of OTDR traces for a given fiber. This requires OTDR traces taken on the same fiber for at least two wavelengths in a single direction.

Macrobend/Microbend test data for each events is organized in the Event Table with new Macrobend/ Microbend icon (A) and Event type (B). See section "Trace Viewer Preferences Dialog Box" on page 17 for details on how to enable Macrobend/Microbend analysis.

Working with OTDR Trace Files

Converting Test Data to the preferred Job/Route/Cable structure

The TRM Convert function can be used for M200 test data (User Interface v1.x.x), OFL250 and OFL280 (non-FlexTester) test data to convert from a simple folder to the preferred Job/Route/Cable structure.

Note: Uploaded results from other AFL OTDRs may be used without applying the TRM Convert function.

To convert files, perform the following:

1. Make a backup copy of the files to be worked on.
2. Use the copy and save the original data in a safe place.
3. In Results window, select (highlight) the desired M200 v1.0.x file **(A)** for viewing and conversion.
4. From the [File] pull down menu **(B)** select [Convert] **(C)**.

Note that file 001 is highlighted in the Results tree, this file has been selected for viewing and conversion

5. In the [Convert] window, the user may perform the following:

   - Observe the Original Trace information **(D)**.
   - Select the location where to save the converted file **(E)**.
   - Define Job, Route, and Cable name to more accurately name the fiber **(F)**.
   - Select SOR version **(G)**: SOR Version 1 (GR-196-CORE) or SOR Version 2 (SR-4731 Issue 2).
   - When complete, click OK **(H)** twice.
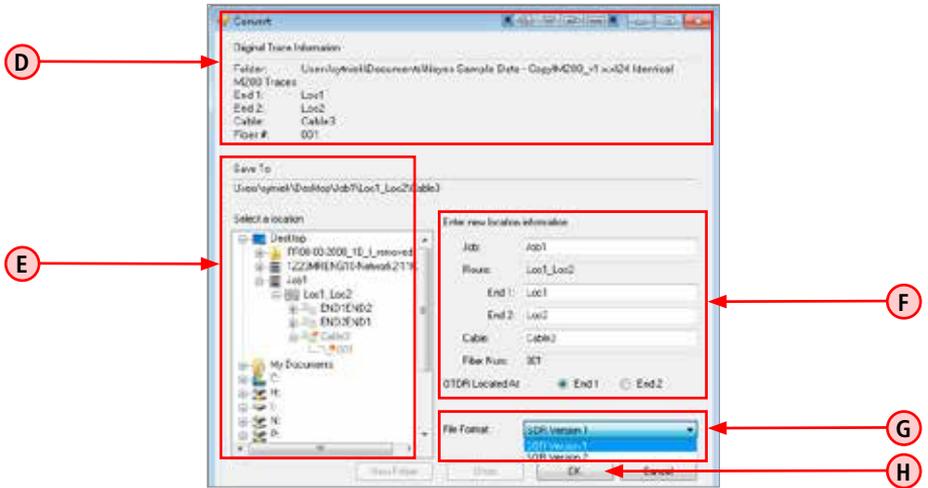
Note: Conversion will convert wavelength pairs of fibers
MM 850/1300 nm
SM 1310/1550 nm

6. The saved trace will appear in the new User Interface file format **(H)**.

31
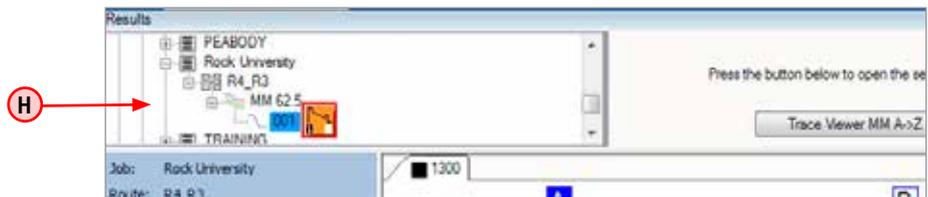
Opening Trace Files

Single-Wavelength or Multi-Wavelength

TRM offers two options for opening and closing trace files. Depending on the user preference setting (Edit >Preferences > Single-Wavelength or Multi-Wavelength), a single-wavelength trace or multi-wavelength trace (dual-wavelength/tri-wavelength trace) may be opened and closed within the current folder. For details, see section titled Edit Menu > Preferences Dialog Box.

If the Single-Wavelength option is enabled, then trace files will be opened and closed one at a time. If the Multi-Wavelength option is enabled, then trace files will be opened and closed in wavelength sets (files with the same name, fiber number, and fiber type but different wavelengths).

In addition to the open single trace or multi-trace file, the user may open a baseline trace for comparison with the current trace/multi-trace. If a tri-wavelength trace and a tri-wavelength baseline trace file are opened, a total of six traces will be displayed at one time.

To Select a Single-Wavelength Trace Option

1. From the [Edit] drop down menu, select [Preferences...] to display trace settings dialog box.
2. Select the [Single-Wavelength] option, and then click OK.

To Select a Multi-Wavelength Trace Option

Select to open a single trace file

When Opening or Closing Files:
⦿ Single-Wavelength
◯ Multi-Wavelength
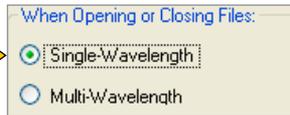
1. From the [View] drop down menu, select the [Options] command to display the [Preferences...] dialog box.
2. Select the [Multi-Wavelength] option, and then click OK.

Select to open trace files in wavelength sets

When Opening or Closing Files:
◯ Single-Wavelength
⦿ Multi-Wavelength
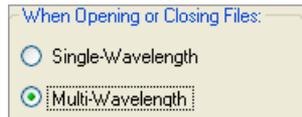
To Open a Trace

1. From the [File] drop down menu, select the [Open...] command or click the [Open] icon on the Toolbar to display the [Results Explorer] window.

2. From the displayed list, navigate to the desired fiber.

3. To display test results, perform one of the following.

Case I

The selected fiber contains two-direction test results and dB or AT results.

 or

- If you select on a fiber number, you will see the button labeled [Open Viewer] with three options. Click on [Open Viewer] and select the desired option from the drop down box.
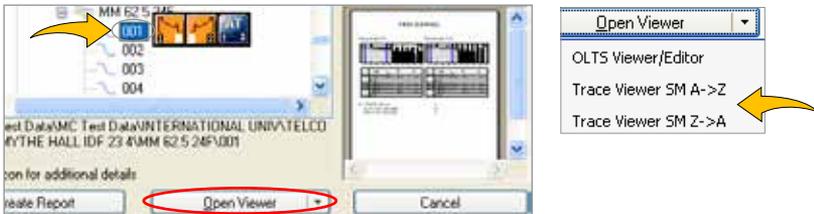
- If you select on a trace icon, you will see the button labeled [Trace Viewer A–>Z] or [Trace Viewer Z–>A]. Click on this button to open the selected test result.

Case II

The selected fiber contains test results in only one direction and dB or AT results.

 or

• If you select on a fiber number, you will see the button labeled [Open Viewer] with two options. Click on [Open Viewer] and select the desired option from the drop down box.
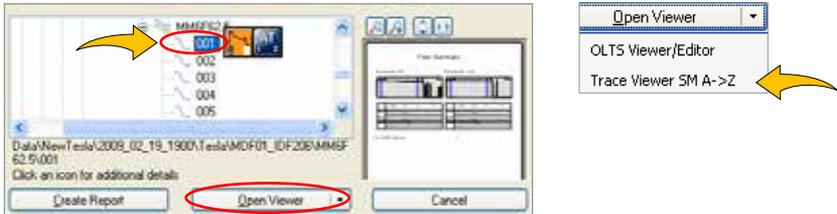
• If you select on a trace icon, you will see the button labeled [Trace Viewer A–>Z]. Click on this button to open the selected test result.
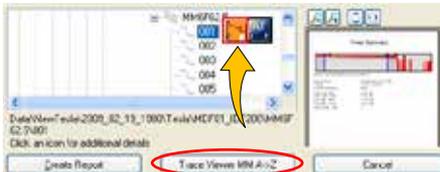
Case III

The selected fiber contains test results in only one direction. If you select the desired trace, you will see the button labeled [Trace Editor] or [Open Trace]. Click on this button to open the selected trace.
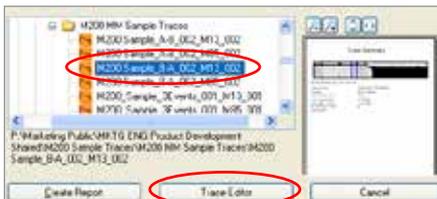
Opening Previous or Next Traces

After you open a single trace file or multiple trace file, you may use the [Prev File] and [Next File] commands to display the previous or next trace file or multiple trace file of the same fiber type (MM or SM) in the current folder by clicking the [Next File] or [Prev File] icon on the Toolbar.

Comparing Traces with a Baseline Trace

TRM allows you to open a baseline trace or trace set for comparison to another trace or trace set. If a tri-wavelength trace and a tri-wavelength baseline trace file are opened, a total of six traces will be displayed at one time.

1. From the [File] drop down menu, select the [Open as Baseline...] command to display the [Results Explorer] window.
2. From the displayed list, navigate and open the desired baseline trace (see Section "Opening Trace Files" for details).
3. From the [File] drop down menu, select the [Open...] command or click the [Open] icon on the Toolbar to display the [Results Explorer] window.
4. From the displayed list, navigate and open the desired trace (see Section "Opening Trace Files" for details).

Closing Files with Changes

Edit > Preferences menu offers two options for closing trace files with changes:

[Save Automatically] or [Ask "Would you like to save changes?"]

[Save Automatically] option	[Ask "Would you like to save changes?"] option
If a trace file has been edited and not saved, it will be saved automatically before closing. **Note:** [Save Automatically] will overwrite an existing file.	If a trace file has been edited and not saved, a dialog box will appear prompting you to save changes before closing.
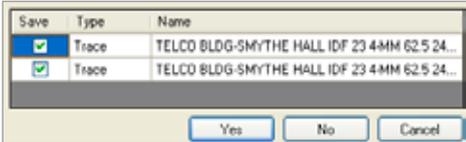
To specify how trace files will be closed:

1. From the [Edit] drop down menu, select the [Preferences...] command to display the [Preferences] dialog box.
2. Select the desired option, then click OK.

Moving Cursors and Zooming

The [A] and [B] cursors may be positioned to measure the insertion loss, power level (if applicable), reflectance (if applicable), attenuation (if applicable), and distance between any two points on a trace.

To make cursor positioning easier, TRM provides tools and commands for viewing different parts of a trace graph at various magnifications. [Zoom +] and [Zoom -] commands let you magnify or reduce the display of any area in the [Trace graph] window.

TRM zooms horizontally around the active cursor and vertically from the trace level at the active cursor.

Selecting the Active Cursor

To make a cursor active, do one of the following:

• In the [Trace graph] window, click on the desired cursor line or label.

• From the Toolbar, click on the [Switch Cursor] button to toggle between cursors.

Once the active cursor is selected, it can be moved along the trace graph.

Moving the Active Cursor

To move the active cursor, do one of the following:

• Position the mouse pointer on a cursor line or cursor label, then click-and-drag along the trace graph.

• Use the [Left] and [Right] keyboard arrow keys.

Note: The A cursor cannot be moved beyond the B cursor location, and vice versa.

• Click on an event in the event table, the active cursor will jump to that event on the trace graph.

Zoom In and Out of a Trace

To magnify or reduce the trace display, use the Toolbar Zoom Buttons as follows:

• Zoom In or Zoom Out horizontally around the active cursor.

• Zoom In or Zoom Out vertically from the trace level at the active ursor.

Note: Each click magnifies the view to the next preset percentage until the limit of magnification is reached.

UnZoom and ReZoom the Trace Display

In the zoomed view, TRM always displays the active cursor area. The [UnZoom] and [ReZoom] commands allow you to display different areas of a trace graph at the same level of magnification. If you need to view a different point of the trace, move the active cursor, UnZoom and then ReZoom. TRM will display the new position of the active cursor at the previous zoom level.

Perform the following steps:

1. In the [Trace graph] window, use the [Zoom +] and [Zoom -] commands to set the desired level of magnification.
2. Click on the [UnZoom] button to display the trace view at 100%.
3. Relocate the active cursor as needed.
4. Click on the [ReZoom] button to display the new cursor location at the previous zoom level.

Note: When you toggle between [A] and [B] cursors in the magnified view, the view changes to display area around the selected cursor at the same magnification level.

OTDR Trace Events

Adding Auto Events

Use the [Auto Events...] command to generate an event table.

- Display the Auto Events screen by clicking the [Auto Events...] command.
- Review Trace Properties **1** and Event Thresholds **2**.
- Edit Launch Cable **3** and/or Receive Cable **4** as needed.
- Enable/disable the Advanced Analysis options:
  - Use Bi-directional Information if available **5** **Licensed option, see page 2**.
  - Detect Macrobends/Microbends **6** **Licensed option, see page 2**.
- Click OK.
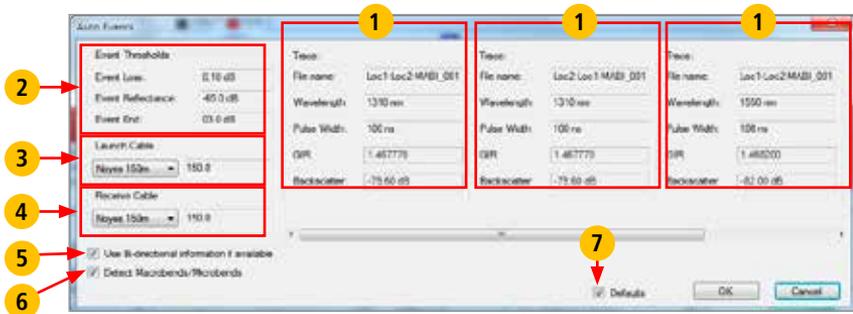
Ref	Feature	Description
1	Trace Properties window	Contains informative fields. File name, Wavelength, Pulse Width, GIR - Group Index of Refraction and Backscatter Coefficient.
2	Event Thresholds	Contains informative fields: Event Loss, Event Reflectance, Event End
3	Launch Cable drop down menu	Displays the available Launch Cable options as follows: None, NOYES 150m, NOYES 500m, NOYES 1km, User.
4	Receive Cable drop down menu	Displays the available Receive Cable options as follows: None, NOYES 150m, NOYES 500m, NOYES 1km, User.
5	Use Bi-directional information check box	**Licensed option, see page 2** Select/deselect this check box to enable/disable Bi-directional Analysis information
6	[Detect Macrobends/ Microbends] check box	**Licensed option, see page 2** Select/deselect this check box to enable/disable the Macrobends/Microbends detection
7	Defaults check box	Select this box to restore default settings for the Trace Editable Properties and Event Thresholds

Manual Events

Selecting Loss Method

For analyzing traces and adding events, TRM offers various Loss methods. The following table gives a summary of the available methods.

Loss Method	Applications	Measured parameters	# of cursors	# of LSA lines*
Two Point	General purpose	Insertion loss between any 2 points of a trace	2	0
Single Event	Used to analyze connections, splices, faults, etc.	Location, Reflectance, Insertion loss of any Reflective or Non-Reflective event	1	2
Multiple Event	Used if two or more events are too close to use other methods	Location and combined Insertion loss of multiple events	2	2
Fiber Attenuation	Used to measure dB/km of fiber between events	Attenuation per km ratio of any segment of a trace with no events	2	1
Start	Used to set start of fiber level	Starting location and level of a trace	1	1
End	Used to set end of fiber level.	Location, Reflectance, and Trace level of the fiber end	1	1

* LSA Line - least squared approximation segment line. Used to reduce the effects of noise and dead zone while calculating insertion loss, trace level, and attenuation.

To select the desired Loss method perform the following:

1. From the Menu bar, choose the [Events] drop down menu.
2. Choose the [Loss Method] command to display a list of the available options.
3. Select the desired Loss method.

Positioning Cursors Correctly

Depending on the selected Loss Method, you will need to position cursors and adjust LSA lines (if applicable) properly. The following graphs illustrate position of cursors and LSA lines for the available Loss methods.

Two Point Loss Method

1. Position the left cursor at the start of the event.
2. Position the right cursor beyond the event where the trace returns to a constant slope.
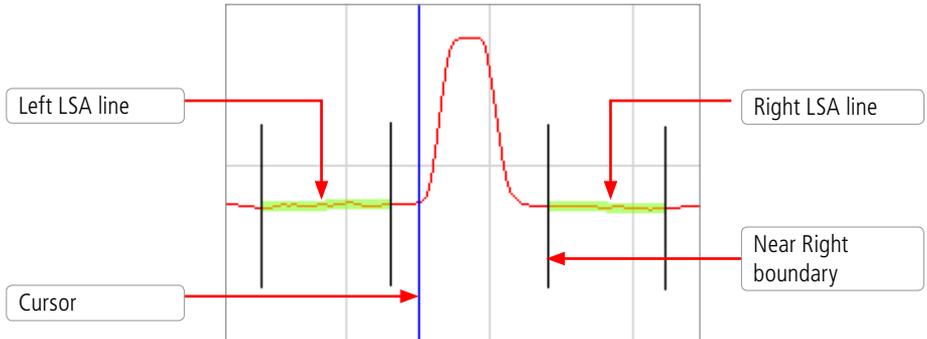3. Read the insertion loss measurement displayed in the [Cursor data] window.

Left cursor
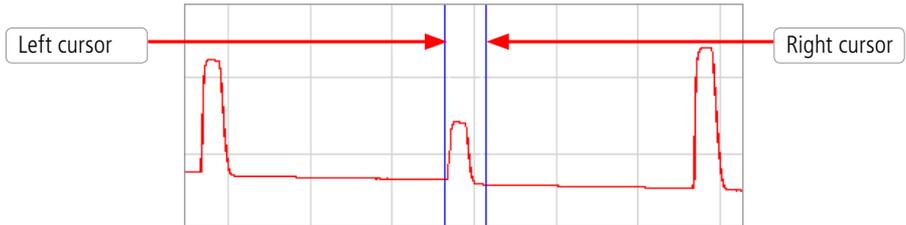
Right cursor

Single Event Loss Method

Position a cursor at the start of the event.

1. If required, adjust the right LSA line so the Near Right boundary is located beyond the event where the trace returns to a constant slope.
2. Read the insertion loss measurement displayed in the [Cursor data] window.
   or
3. From the [Events] drop down menu, choose the [Add Event...] command to add event manually.

Note: LSA line boundaries can be moved by clicking on and dragging the desired boundary line.

Left LSA line

Right LSA line

Near Right boundary

Cursor

Multiple Event Loss Method

1. Position the left cursor at the start of the first event.
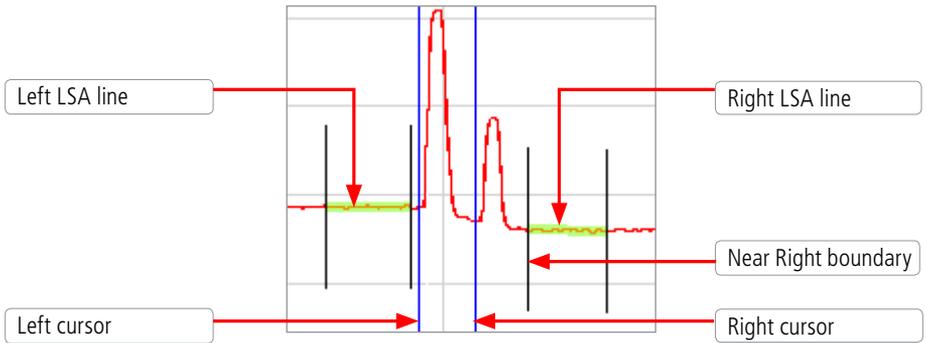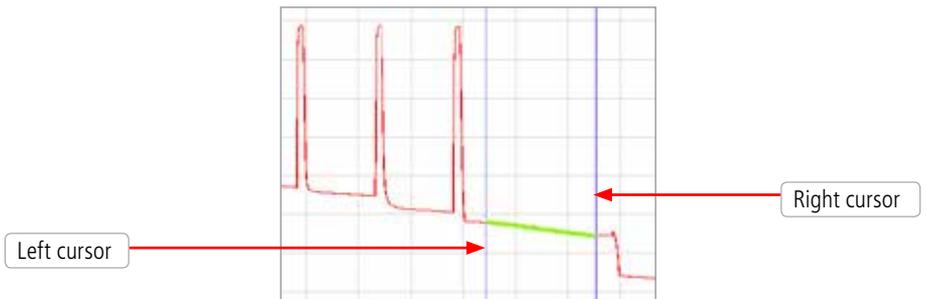2. Position the right cursor at the start of the last event.
3. If required, adjust the right LSA line so the Near Right boundary is located beyond the event where the trace returns to a constant slope.
4. Read the insertion loss measurement displayed in the [Cursor data] window.
   or
5. From the [Events] drop down menu, choose the [Add Event] command to add event manually.

Left LSA line

Right LSA line

Near Right boundary

Left cursor

Right cursor

Fiber Attenuation Loss Method

This method is used just for analyzing a trace.

1. Position left and right cursors on the trace as needed.
2. Read the attenuation coefficient (dB/km) measurement displayed in the [Cursor data] window.

Right cursor

Left cursor

Start Loss Method (No Launch Cable)

Position the left cursor at the beginning of the trace (0 meters).

1. If required, adjust the right LSA line so the Near Right boundary is located beyond the reflection where the trace returns to a constant slope.
2. Read the trace level measurement displayed in the [Cursor data] window.
3. OR, From the [Events] drop down menu, choose the [Add Event] command to add event manually.

Near Right boundary

Right LSA line

Cursor at the origin
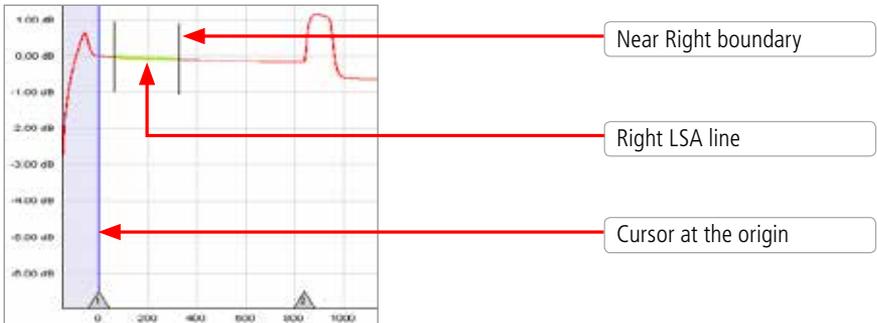
End Loss Method (No Receive Cable)

1. Position the Left cursor at the start of the Far-end reflection.
2. If required, adjust the left LSA line.
3. Read the trace level measurement displayed in the [Cursor data] window.
4. OR, From the [Events] drop down menu, choose the [Add Event] command to save.

Left LSA line

Left Cursor

Adjusting LSA Lines

If events of a trace are located very close to each other, you may have to adjust the LSA Lines. The graphs below illustrate an example of the LSA lines before and after the adjustment.

LSA Line before the adjustment

LSA Line after the adjustment

LSA boundary line
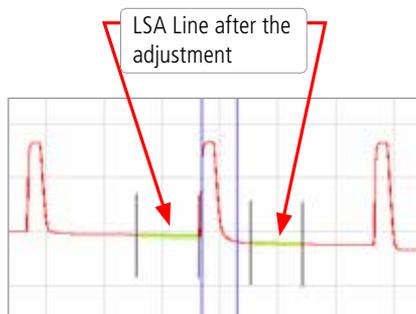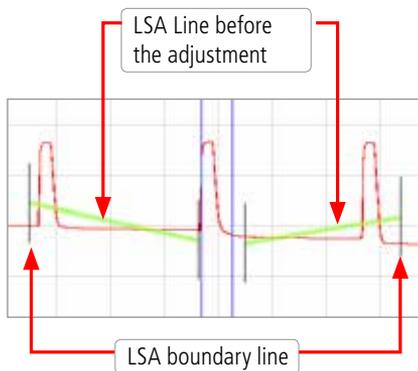
To adjust LSA lines, position the mouse pointer over an LSA line boundary, then click and drag to the desired location.

Note: if you need to restore the original lengths of the LSA lines, choose the [Restore LSA Defaults] command from the [Events] drop down menu.

Adding Manual Events

To manually add events, perform the following steps:

1. Select the desired Loss method.

Note: Event type displayed in the Event Table will match the currently selected loss method.

2. Move the active cursor to the event to be added.

3. From the [Events] drop down menu, select the [Add Event...] command.

4. The [Add New Event] dialog box opens displaying the event data that will be added to the [Event table] and allowing you to add a comment.

Event data - this information will be added to the [Event table]

Comment text field - this is the text field where you add comments if needed.

5. Type a comment in the Comment text field (maximum 94 characters) if needed.

6. Choose OK to save. TRM automatically adds an event data in the [Event table] window and places an event mark in the [Trace graph] window to indicate the added event.

Editing Event Comments

To edit a comment, do one of the following:

1. In the [Event Table], select the desired event by clicking on it.

   • From the [Events] drop down menu, select the [Current Event] > [Edit Comment...] command to display the [Edit Event] dialog box.

   • Edit comments as needed.

   • Click on the [OK] button to save changes.

or

1. In the [Event Table], select the desired event by clicking on it.

2. Right-click the selected event, to display a submenu.

    • From the displayed submenu, select the [Edit Comment...] command to display the [Edit Event] dialog box.

    • Edit comments as needed.

    • Click on the [OK] button to save changes.

Deleting Events

To delete an event, do one of the following:

1. In the [Event table], select the desired event by clicking on it.

    • From the [Events] drop down menu, select the [Current Event] > [Delete] or [Delete All Events] command.
      or

2. In the [Event table], select the desired event by clicking on it.

    • Right-click the selected event, to display a submenu.

    • From the displayed submenu, select the [Delete Event...] command.

Restoring a Deleted Event

From the [Events] drop down menu, select the [Restore Event] command to recover an event that was deleted last.

Note: TRM will only restore the last event deleted. All previously deleted events will not be restored.

Set/Adjust Pass/Fail Thresholds

TRM allows the user to edit Pass/Fail event and link Thresholds and recalculate the events data displayed in the event table.
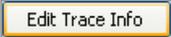
1. From the [Events] drop down menu, select the [Set/Adjust Pass/Fail Thresholds...] command to open the [Re-calculate Pass/Fail Thresholds] dialog box.

2. Edit Event and Link Thresholds to the allowed limits as needed. Click OK.

3. TRM will recalculate test results based on the new Thresholds data and display the updated results in the Event table window.

Thresholds Allowed Limits

Threshold	Min Value (dB)	Default Value (dB)	Max Value (dB)
Event Pass Thresholds			
Loss, Reflective Event	0.05	0.75	3.00
Loss, Non-reflective Event	0.05	0.30	3.00
Reflectance: 1310, 1550 nm	-65.0	-35.0	-20.0
Reflectance: 850, 1300 nm	-45.0	-22.0	-15.0
Event Marginal Thresholds			
Loss, Reflective Event	0.00	0.00	1.00
Reflectance	0.00	-5.00	-10.0
Link Pass Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	35.0
ORL: 850, 1300, 1310, 1550 nm	20.0	25.0	65.0
Link Marginal Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	5.00
ORL: 850, 1300, 1310, 1550 nm	0.00	0.00	10.0

Editing Information of a Single Trace

TRM allows you to edit trace information and certain setup parameters. This is done in the [Edit Trace Information] dialog box.

1. To display the [Edit Trace Information] dialog box, do one of the following:

   - From the [Edit] drop down menu, select the [Edit File Info...] command.

   - Select the [Trace Info] tab, and then click on the | Edit Trace Info | button.

2. In the [Edit Trace Information] dialog box, edit the desired trace parameters as needed.

3. Choose [OK] to save changes.

Note: Changes are wavelength dependent and apply to the trace indicated by the top tab in the graph window.

These text fields allow the user to view test settings and edit some test parameters (Date, GIR, Backscatter Coefficient, and Reflectance Threshold). Changing GIR or Backscatter Coefficient will cause recalculation of the Event Table and fiber length.

These are the text editable fields, which allow the user to edit Cable Type, Operators ID, or Company name and add Trace Comments

Printing a Single Report

1. From the [File] menu, select the [Print Trace...] > [With Overlay] or [Single] or [Side by Side] command to access the Report Preview page.

> With Overlay
> Single
> Side By Side

Depending on the selected printing style, TRM allows single or multiple trace view reports as follows:

- [With Overlay] style - prints all traces as a single view with overlay wavelength graph and event table for each wavelength if available.

- [Single] style - prints single trace and event table for each wavelength if available. If a trace file contains multi-wavelength test results, a report for each wavelength will be printed on individual pages.

- [Side by Side] - prints multi-view traces side by side and event tables if available.

2. From the Report Preview page, click on the [Print] button.
3. Select the desired printer.
4. Click Print to print a single trace report.

OTDR Trace Batch Editor Application

From the Home screen, click on the OTDR Trace Batch Editor icon - to access the OTDR Trace Batch Editor application. This application allows editing all or selected test properties in multiple trace files in the open folder.

Trace Batch Editor Screen Features
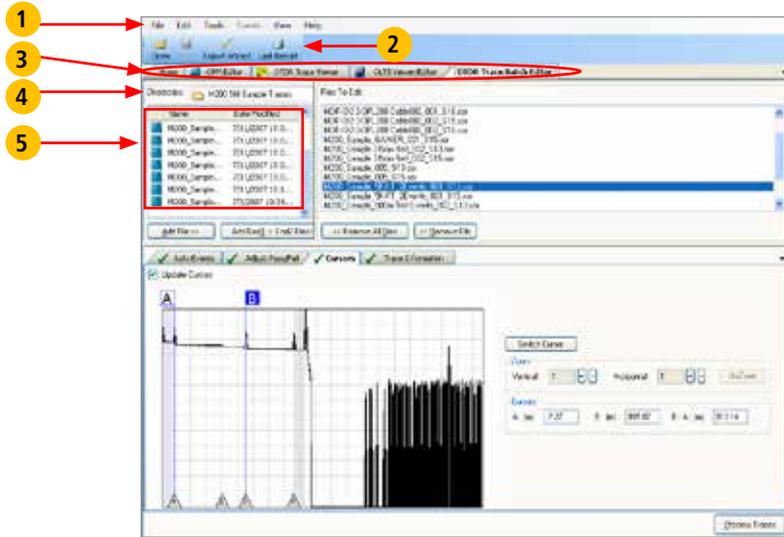
Features of the OTDR Trace Batch Editor screen are explained below:

Ref	Feature	Description
1	Menu bar	Displays the available drop down menus
2	Toolbar	Contains several icons for quick access to menu commands Click on an icon to execute the associated command
3	Applications tabs	Click on a tab to switch to the corresponding application
4	Directories menu	Allows navigation to the desired folder
5	Traces Selector window	Displays a list of saved traces in the selected folder
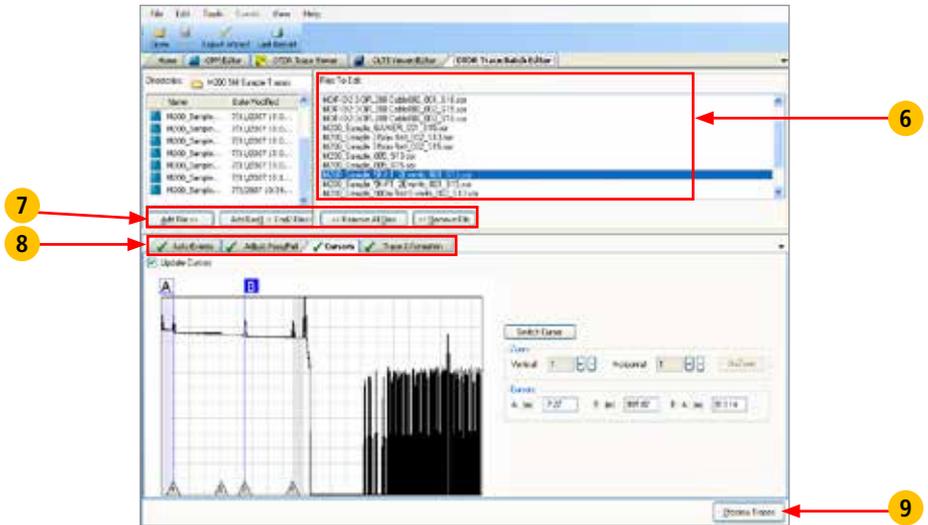
Ref	Feature	Description
6	Files to Edit window	Displays all trace files added to the batch edit list
7	[Add File] button	Adds the selected trace or multiple traces to the batch edit list
	[Add End1-End2 Files] button	Adds to the batch edit list all the traces in the selection showing End1 to End2 results
	[Add End2-End1 Files] button	Adds to the batch edit list all the traces in the selection showing End2 to End1 results
	[Remove File] button	Removes a single trace or multiple traces from the batch edit list
	[Remove All Files] button	Removes all traces from the batch edit list
8	Trace property editors tabs	Click on a tab to activate the corresponding property editor
9	[Process Traces] button	Click on this button to complete and finalize edits

Menu Bar

The Menu Bar contains File, Edit, Tools, Events, View, and Help menus. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

The File drop down menu contains commands for opening and closing traces, and exporting the selected Job to a zip file. The table below gives a summary of the available File Menu commands and their associated functions.

Command	Function
Open...	Access the Results Explorer and navigate the desired test results.
Import Results...	Download test data from an instrument.
Import OFL Results...	Download test data from an OFL250 or OFL280 (non-FlexTester).
Export Job to File...	Export the selected Job to a zip file.
Backup Data...	To have a restoration point, create a non-visible backup copy of your data before editing: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a comment on backed up data to be able to identify it during restoration
Restore Data...	Restore previously backed up data to a visible folder. Use comments to identify data for restoration (see "How To Restore Data" on page 15 for details).
Exit	Close all open files and exit TRM

Tools Menu

This menu provides access to the Home screen menus.

Command	Use to perform the following Function
View Results	Open the Results Explorer screen.
Report Wizard	Open the Report Wizard screen.
OTDR Trace Viewer	Open the OTDR Trace Viewer screen.
OLTS Viewer/Editor	Open the OLTS Viewer/Editor screen.
OTDR Trace Batch Editor	Open the OTDR Trace Batch Editor screen.
Last Report	Open the most recent report created by Report Wizard.

Edit Menu

The Edit menu allows the user to set up Preferences.

Preferences Dialog Box

Available distance units

Available languages

Options to save User Rules

Select this check box to save the size and position of the TRM windows on exit

Enables TRM Viewing and Report Generation in specific languages

Select/deselect this check box to enable/ disable the Zoom function for printed traces

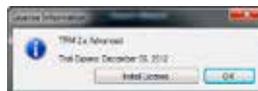Select/deselect this check box to enable/ disable the Results Selector in Editors
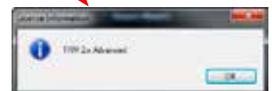
Help Menu

This menu provides access to the following:

- AFL web site
- AFL Test and Inspection web site
- AFL Software updates on the web
- License Information
- [About TRM...] screen

TRM 30-day Trial

TRM Advanced License

About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions. For details, see section "About TRM screen" on page 20.

Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the corresponding command as follows.

| Command	Function
Open	Locate and open the desired trace file
Save	Save a trace file that already exists with its original name
Report Wizard	Open the Report Wizard
Last Report	Print the most recent report created by Report Wizard

Auto Events Editor
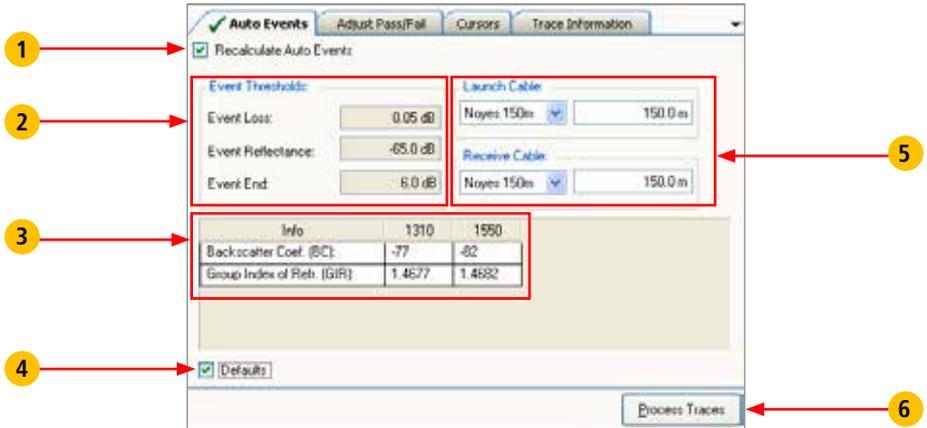
Features of the Auto Events Editor are summarized in the table below.

Ref	Feature	Description
1	Recalculate Auto Events check box	Select/deselect this check box to enable/disable the recalculation process.
2	Event Thresholds properties editable fields	The Event Thresholds default values may be edited when the [Defaults] check box is deselected.
3	Informative fields	These fields display Backscatter Coefficient [BC] and Group Index of Refraction [GIR].
4	Default Thresholds properties check box	Select/deselect this check box to enable/disable the default values for Event Thresholds.
5	Launch/Receive Cable user-defined fields	This section contains fields where the user may either select one of the predefined launch/receive cable option (None, NOYES 150 m/500 m/1 km) or enter the preferred length (User option).
6	[Process Traces] button	Click on this button to start the batch editing process.

Adjust Pass/Fail Editor

This editor allows the user to edit Pass/Fail event and link Thresholds to the allowed limits as needed.
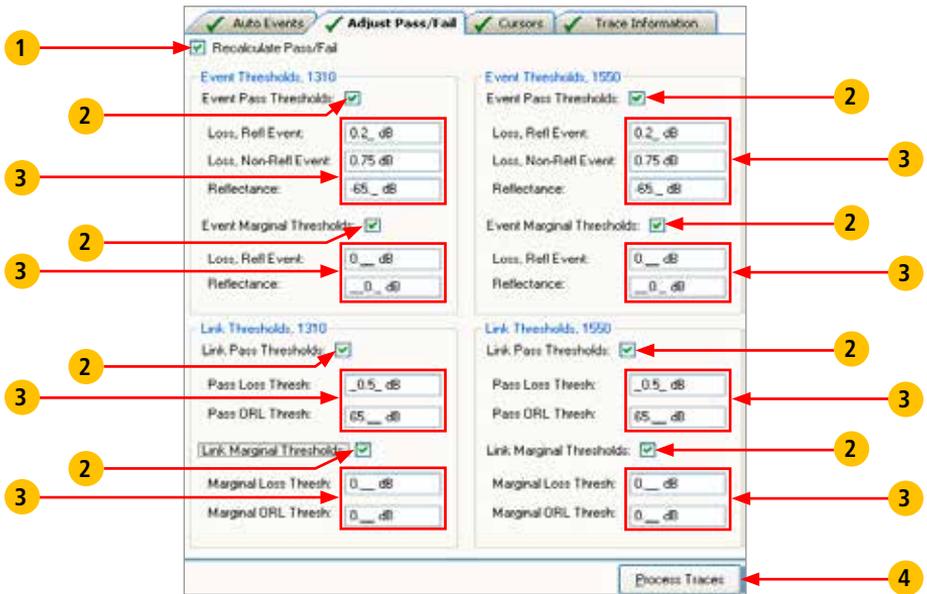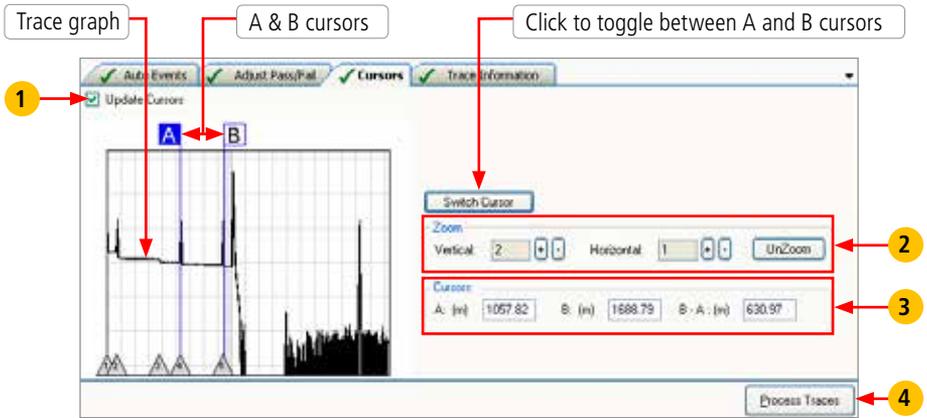

Features of the Pass/Fail Editor screen are summarized in the table below.

Ref	Feature	Description
1	Recalculate Pass/Fail check box	Select/deselect this check box to enable/disable the recalculation process.
2	Thresholds check box	Select a check box to enable the corresponding Thresholds editable field.
3	Thresholds editable fields	These fields allow editing Thresholds parameters to the allowed limits as needed.
4	[Process Traces] button	Click on this button to start the batch editing process.

Thresholds Allowed Limits

Event Threshold	Min Value (dB)	Default Value (dB)	Max Value (dB)
Event Pass Thresholds			
Loss, Reflective Event	0.05	0.75	3.00
Loss, Non-reflective Event	0.05	0.30	3.00
Reflectance: 1310, 1550 nm	-65.0	-35.0	-20.0
Reflectance: 850, 1300 nm	-45.0	-22.0	-15.0
Event Marginal Thresholds			
Loss, Reflective Event	0.00	0.00	1.00
Reflectance	0.00	-5.00	-10.0
Link Threshold	**Min Value (dB)**	**Default Value (dB)**	**Max Value (dB)**
Link Pass Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	35.0
ORL: 850, 1300, 1310, 1550 nm	20.0	25.0	65.0
Link Marginal Thresholds			
Loss: 850, 1300, 1310, 1550 nm	0.00	0.00	5.00
ORL: 850, 1300, 1310, 1550 nm	0.00	0.00	10.0

Cursor Editor

Trace graph | A & B cursors | Click to toggle between A and B cursors

Features of the Cursor Editor are summarized in the table below.

Ref	Feature	Description
1	Update Cursors check box	Select/deselect this check box to enable/disable updates.
2	Zoom adjuster	Allows changing horizontal/vertical magnification around the active cursor.
3	Cursors data	This field displays A and B cursor locations and distance from A to B.
4	[Process Traces] button	Click on this button to start the batch editing process.

Trace Information Editor

Click to clear all the text fields and check boxes
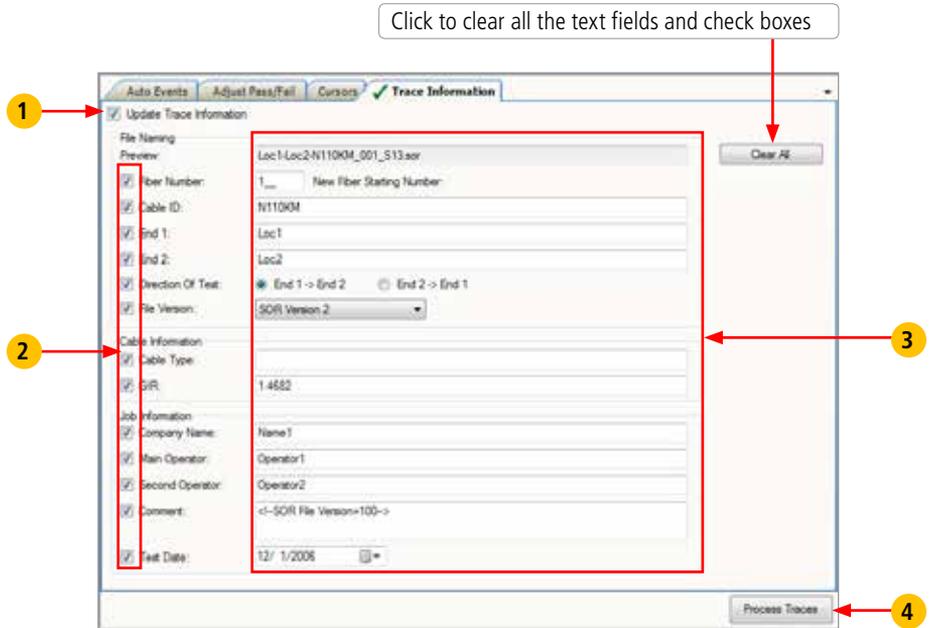
Features of the Trace Information Editor are summarized in the table below.

Ref	Feature	Description
1	Update Trace Information check box	Select/deselect this check box to enable/disable updates.
2	Trace properties check boxes	Select a check box to activate the corresponding editable text field.
3	Properties editable fields	This section contains text fields where the user may enter all information needed to identify traces.
4	[Process Traces] button	Click on this button to start the batch editing process.

Batch Editing OTDR Traces

1. Access the OTDR Trace Batch Editor application.
2. Navigate to the desired Job.

3. All trace files in the open folder will be displayed in the [Trace Selector] window.

4. From the displayed list, add the desired traces to the 'Files to Edit' list, which will be displayed in the [Files to Edit] window.
   Use the [Add File], [Add End1 –>End2 Files>>], or [Add End2 –>End1 Files>>] buttons for adding trace files.

   To add trace files in the current folder to the batch edit list individually:

   - Double-click the desired trace name listed in the [Folders/Files] window. The trace name added to the batch edit list will appear in the [Files to Edit] window.

   - Or, click on the desired trace name listed in the [Folders/Files] window, then click on the [Add File] button. The trace name added to the batch edit list will appear in the [Files to Edit] window.

   To add a group of traces in the current folder to the batch edit list:

   - Click on the first trace to be added to highlight it.

   - Hold the Shift key to scroll down to the last trace you wish to add to the batch edit list.

   - Click on the [Add File] button. The trace names of the selected files will appear in the [Files to Edit] window.

5. If you need to remove trace files from the batch edit list displayed in the [Files to Edit] window, use the [Remove File] or [Remove All Files] buttons.

   To remove trace files from the batch edit list individually:

   - Double-click the desired trace name displayed in the [Files to Edit] window. The trace name listed in the [Files to Edit] window will be removed.

   - Or, click on the desired trace name displayed in the [Files to Edit] window, then click on the [Remove File] button. The trace name listed in the [Files to Edit] window will be removed.

   To remove a group of traces from the batch edit list:

   - Click on the desired traces to be removed to highlight.

   - Click on the [Remove File] button. The trace names listed in the [Files to Edit] window will be removed.

   To remove all trace files from the batch list:

   - Click on the [Remove All Files] button. All trace names listed in the [Files to Edit] window will be removed.

6. Use Auto Events, Adjust Pass/Fail, Cursors, and Trace Information Editors as needed.

7. Click on the [Process Traces] button to complete updates/changes.

OLTS Viewer/Editor Application

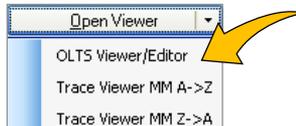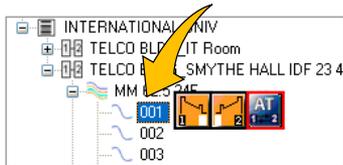## Opening Test Results with OLTS Viewer/Editor

The OLTS Viewer/Editor application may be accessed in several ways:

- From the Home screen by clicking on the OLTS Viewer/Editor icon - .

- From the Results Explorer by selecting a fiber and with a fiber selected double-clicking on the AT icon.
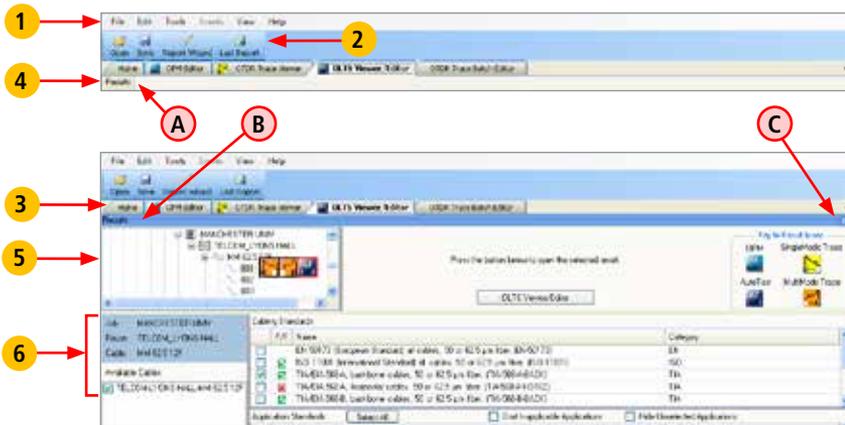

- From the Results Explorer by selecting a fiber and with a fiber selected, displaying the Open Viewer submenu and selecting the OLTS Viewer/Editor.

This application allows reviewing loss measurements and certification test results and selecting standards and applications to apply to certification test results.

OLTS Viewer/Editor Screen Features

Partial views

Ref	Feature	Description
1	Menu bar	Displays the available drop down menus.
2	Toolbar	Contains several icons for quick access to menu commands. Click on an icon to execute the associated command.
3	Applications tabs	Click on a tab to switch to the corresponding application.
4	Results button	"On mouse over" the [Results] button (A), the Results window is displayed and "on mouse out" the Results window is auto hidden. **Note:** the [Results] button (A) looks like a heading (B) and the Auto Hide icon (C) looks like ![icon] unless "auto hide" function is enabled by clicking the Auto Hide icon (C).
5	Results window	The Results window displays folders and files hierarchy and is used to navigate saved test results. To disable/enable the "auto hide" function, click the Auto Hide icon ![icon] / ![icon] located in the right top corner of the Results window (C).
6	Cables Info window	Contains informative fields: Job/Route/Cable name and Available Cables check box.

OLTS Viewer/Editor Screen Features (continued)
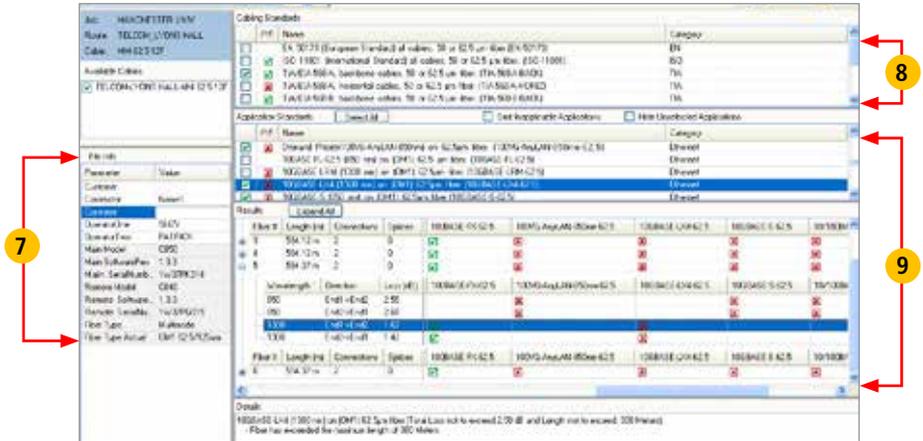
Ref	Feature	Description
7	File Info window	Contains both the editable and informative fields. Editable fields allow editing/adding Customer, Contractor, and Operators' ID and add comments. Informative fields display test equipment Model numbers, Software version, and tested fiber info.
8	Cabling and Application Standards windows	Contains user-selectable fields: Cabling Standards and Application Standards.
9	Auto Tests Results window	Depending on the selected Cabling Standards, User Rule, and Application Standards, this area displays certification test results with Pass/Fail by fiber number, wavelength and direction, measured Loss and Length.

OLTS Viewer/Editor Screen Features (continued)

Vertical/Horizontal split bars - allow resizing of the OLTS Viewer/Editor windows vertically and/or horizontally

Ref	Feature	Description
10	Details window	Displays the details of the selected standard, maximum loss, and maximum length. To display details of the desired standard:
		• Select check box of Cabling and/or Application standard - (A).
		• Click on ⊞ button to expand Results of the desired Fiber - loss values, direction of test, and Pass/Fail by wavelength - (B).
		• Click on the desired check box ☒/☑ - (C) to display Details of the selected Standard (max loss and length) - (D).

Menu Bar

The Menu Bar contains File, Edit, Tools, View, and Help menus. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

The File drop down menu contains several commands as follows.

Command	Function
Open	Access the Results Explorer and navigate the desired test results file.
Save	Save a file that already exists with its original name.
Save As...	Save an existing file under a new name and preserve the original file.
Print OLTS Report	Access the TRM Report Wizard. Preview an OLTS report before printing. Print the currently displayed OLTS report.
Close	Close the open cable results and clear the OLTS Viewer.
Import Results...	Download test data from an instrument.
Import OFL Results...	Download test data from an OFL250 or OFL280 (non-FlexTester).
Export Job to File...	Export the selected Job to a zip file.
Export Fiber OTDR Data (SOR) to CSV	**Licensed option, see page 2** Export contents of currently selected .SOR file(s) to .CSV file(s) with same folder and file name(s).
Backup Data...	To have a restoration point, create a non-visible backup copy of a test data: - navigate the desired Job /Route/Cable - click OK to display the [Backup Description] window - add a comment on backed up data to be able to identify it during restoration
Restore Data...	Restore previously backed up data to a visible folder.
Exit	Close opened files and exit TRM.

To Restore Data

1. Click on individual Backups **(A)** to review comments **(B)** saved during the {Backup Data] process.

2. Using comments, identify and select data for restoration **(A)**.

3. Or select the "Restore Entire Archive" option **(C)**.

4. Click OK.

5. In the displayed File Navigator window, select the desired location.
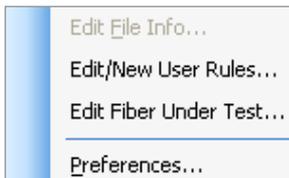
6. Click OK to save the restored data.

Tools Menu

This menu provides access to the Home screen menus.

Command	Function
View Results...	Opens the Results Explorer screen.
Report Wizard...	Opens the Report Wizard screen.
OTDR Trace Viewer...	Opens the OTDR Trace Viewer screen.
OLTS Viewer/Editor...	Opens the OLTS Viewer/Editor screen.
OTDR Trace Batch Editor...	Opens the OTDR Trace Batch Editor screen.
Last Report...	Open the most recent report created by Report Wizard.

Edit Menu

The Edit menu allows the user to edit existing or create new User Rules, edit Fiber Under Test data and set up Preferences.

Edit Fiber Under Test

These fields allow the user to define fiber under test (FUT) parameters: length, number of splices, and number of connections

These fields allow the user to define connectors type, fiber type, and test method

Edit or Create New User Rules

Click to delete Rules

Click to create New Rule

Rule name and description

Select Rule Type

Select Loss Type

Click to add wavelength

User-definable fields, which allow the user to select either MM or SM test port and set Pass/Fail criteria

Edit Preferences

Available distance units

Available languages

Options to save User Rules

Select this check box to save the size and position of the TRM windows on exit

Enables TRM Viewing and Report Generation in specific languages

Select/deselect this check box to enable/disable the Results Selector in Editors

Select/deselect this check box to enable/disable the Zoom function for printed traces

Help Menu

This menu provides access to:

- AFL web site
- AFL Test and Inspection web site
- AFL Software updates on the web
- License Information
- [About TRM...] screen

TRM Advanced License

TRM 30-day Trial

About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions. For details, see section "About TRM screen" on page 20.

Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the corresponding command as follows:


Command	Function
Open	Locate and open the desired file
Save	Save a file that already exists with its original name
Report Wizard	Open the Report Wizard
Last Report	Print the most recent report created by Report Wizard

Viewing OPM Results with OPM Viewer/Editor

Opening Test Results with OPM Viewer/Editor

The OPM Viewer/Editor application may be accessed from the Results Explorer by selecting a fiber with OPM test data and with a fiber selected, displaying the Open Viewer submenu and selecting the OPM Viewer/Editor.
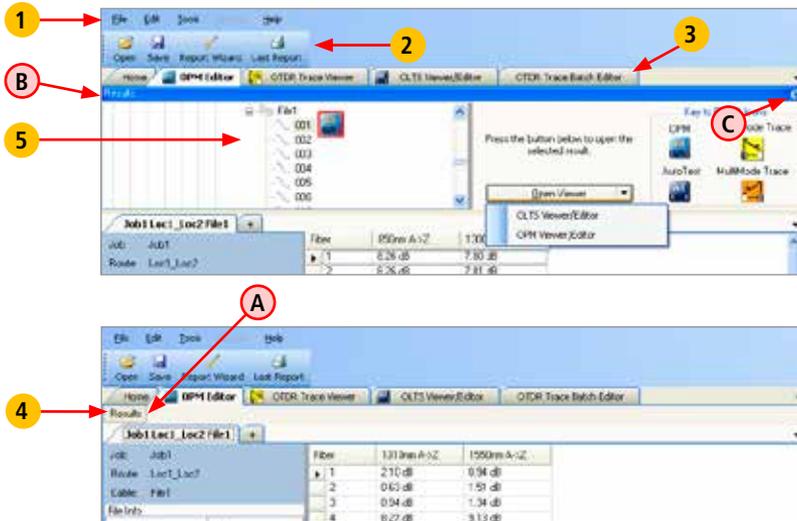
1. From the TRM Home screen, click the View Results icon - to access the Results Explorer screen (see Section 3 for details).
2. In the [File Navigator] window, locate the desired fiber with OPM test data - .
3. With a fiber selected, display the Open Viewer submenu and select the OPM Viewer/Editor.
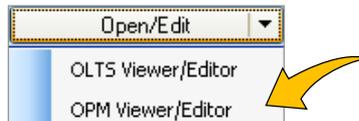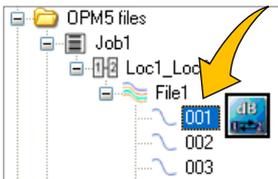
This application allows users to review loss measurements and organize test data into cables by direction for accurate test reporting.
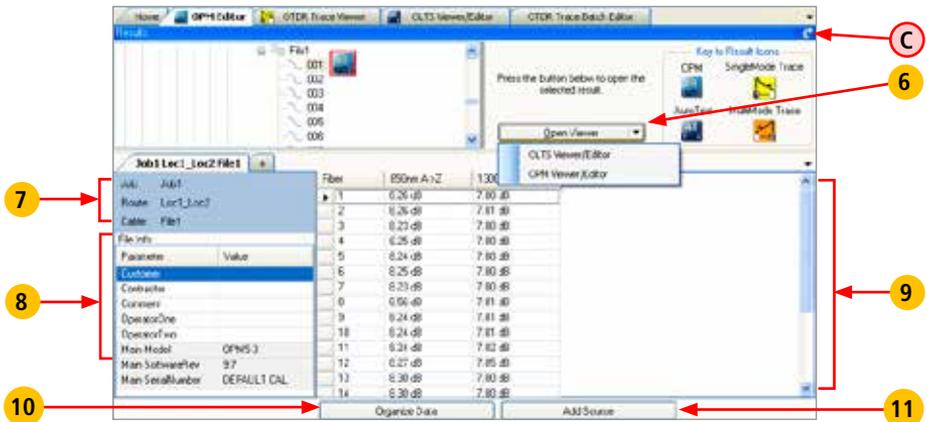
OPM Editor Screen Features

Ref	Feature	Description
1	Menu bar	Displays the available drop down menus.
2	Toolbar	Contains several icons for quick access to menu commands. Click on an icon to execute the associated command.
3	Applications tabs	Click on a tab to switch to the corresponding application.
4	Results button	"On mouse over" the [Results] button (A), the Results window is displayed and "on mouse out" the Results window is auto hidden. **Note:** the [Results] button (A) looks like a heading (B) and the Auto Hide icon (C) looks like ◄ unless "auto hide" function is enabled by clicking the Auto Hide icon (C).
5	Results window	The Results window displays folders and files hierarchy and is used to navigate saved test results. To disable/enable the "auto hide" function, click the Auto Hide icon 📌 / ◄ located in the right top corner of the Results window (C).

68

OPM Editor Screen Features - OPM Tests Results (continued)

Ref	Feature	Description
6	Viewer selector	Click to toggle between the OLTS and OPM Viewer/Editor.
7	Cables Info window	Contains informative fields: Job/Route/Cable name.
8	File Info window	Contains editable and informative fields. Editable fields allow editing/ adding Customer, Contractor, and Operators' ID and add comments. Informative fields display test equipment Model numbers, Software version, and tested fiber info.
9	Test Results window	Displays fiber number, wavelength, direction of test, and measured loss.
10	Organize Data button	Clicking this button allows users to select data for organization into cables by direction for accurate reporting (see next page for details).
11	Add Source button	Allows users to combine data taken with more than one OPM. Data will be combined into cables by direction for more accurate reporting.

OPM Editor Screen Features - OPM Tests Results (continued)
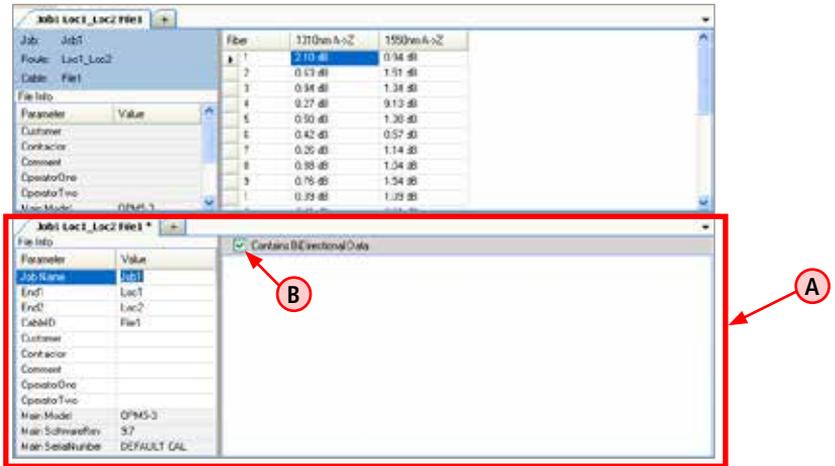
When the [Organize Data] button is pressed, additional block **(A)** appears at the bottom of the OPM Viewer/Editor window allowing users to perform the following:

- Edit File Info (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID).
- Break test results data into one or more cables with data in one direction or two directions. For creating bi-directional results, be sure to select the ☑ Contains BiDirectional Data option **(B)**.
- Combine test results from different sources into one cable.

Menu Bar

The Menu Bar contains File, Edit, Tools, Events, View, and Help menus. When a menu is selected, it displays a list of commands indicating functions that can be performed on selected files.

File Menu

The File drop down menu contains several commands as follows:

Command	Function
Open	Access the Results Explorer and navigate the desired test results file.
Save	Save a file that already exists with its original name.
Close	Close the open cable results and clear the OPM Viewer/Editor.
Import Results...	Download test data from an instrument.
Import OFL Results...	Download test data from an OFL250 or OFL280 (non-FlexTester).
Export Job to File...	Export the selected Job to a zip file.
Backup Data...	To have a restoration point, create a non-visible backup copy of your data before editing: - navigate the desired Job /Route/Cable, - click OK to display the [Backup Description] window, - add a clear comment on backed up data to be able to identify it during restoration.
Restore Data...	Restore previously backed up data to a visible folder.
Exit	Close opened files and exit TRM.

To Restore Data

1. Click on individual Backups (**A**) to review comments (**B**) saved during the [Backup Data] process.
   Note: Comments are used to identify data for restoration.

2. Select the desired data. Or, select the "Restore Entire Archive" option (**C**).

3. Click OK.

4. In the displayed File Navigator window, select the desired location.

5. Click OK to save the restored data.

Edit Preferences

Available distance units

Available languages

Options to save User Rules

Select this check box to save the size and position of the TRM windows on exit

Enables TRM Viewing and Report Generation in specific languages

Select/deselect this check box to enable/disable the Results Selector in Editors

Select/deselect this check box to enable/disable the Zoom function for printed traces

Tools Menu

This menu provides access to the Home screen menus.

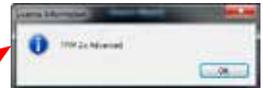| Command	Function
View Results...	Opens the Results Explorer screen.
Report Wizard...	Opens the Report Wizard screen.
OTDR Trace Viewer...	Opens the OTDR Trace Viewer screen.
OLTS Viewer/Editor...	Opens the OLTS Viewer/Editor screen.
OTDR Trace Batch Editor...	Opens the OTDR Trace Batch Editor screen.
Last Report...	Open the most recent report created by Report Wizard.

Help Menu

This menu provides access to:

- AFL web site
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TRM Advanced License

TRM 30-day Trial

About TRM screen

[About TRM...] screen displays TRM version number and allows to see included Modules/Versions. For details, see section

Toolbar

Several of the most commonly used commands can be accessed from the Toolbar. Click on a toolbar icon to execute the corresponding command as follows.

Command	Function
Open	Locate and open the desired file
Save	Save a file that already exists with its original name
Report Wizard	Open the Report Wizard
Last Report	Print the most recent report created by Report Wizard

Working with OPM Results

Reorganizing OPM Results into Bi-directional Data

Figure A shows an example of OPM results displayed by the [OPM Viewer/Editor].

- 10 fibers are tested bi-directionally with AFL OPM 5D power meter and OLS light source at 1310 nm and 1550 nm in direction A -> Z and Z -> A. Results are saved in OPM 5D as 20 fibers (results).

- When the saved results opened with TRM, they are displayed as 20 fibers tested in one direction A -> Z.

TRM allows reorganizing test results so they are displayed in A -> Z and Z -> A directions as tested.

To Reorganize OPM Test Results into Bi-directional Data
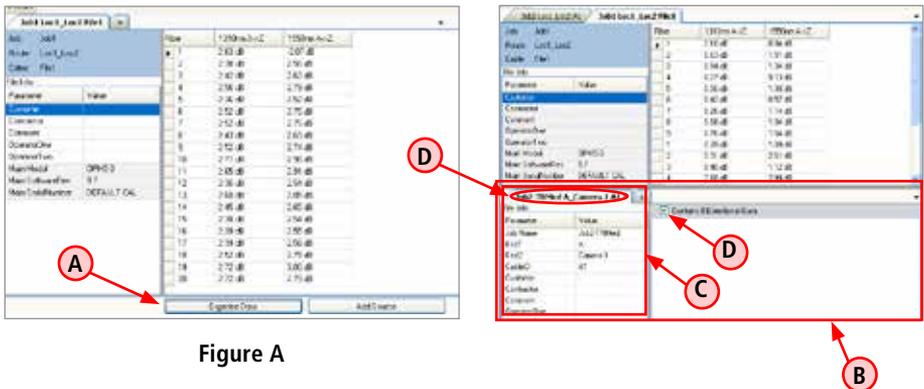
Figure A

- Click the [Organize Data] button **A**.
- Additional block appears at the bottom of the OPM Viewer/Editor window **B**.
- Edit File Info editable fields **C** as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID). Note that edited File Info appears on the job tab **D**.
- For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option **D**.

- Highlight the 1 to 10 fiber results at 1310 nm - **1** and 1 to 10 fiber results at 1550 nm - **2** and then drag the highlighted results to the [Bi-Directional Data] window - **C** as shown in Figure B.

- Results appear in the [Bi-Directional Data] window as 1 to 10 fiber results **1a** and **2a** in A -> Z direction columns as shown in Figure C.
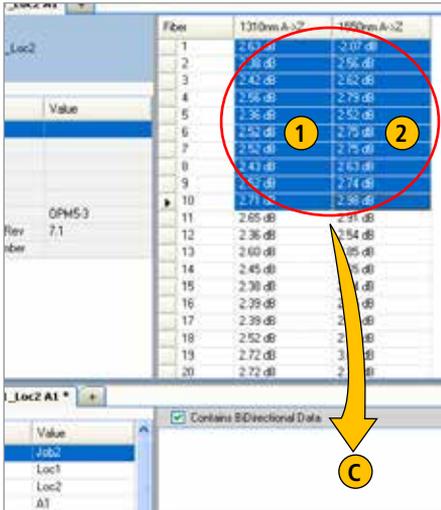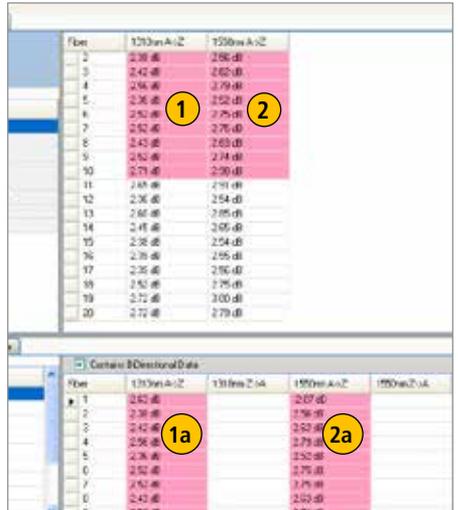

Figure B

Figure C

- Highlight the 11 to 20 fiber results at 1310 nm **(3)** and drag them to the [Bi-Directional Data] window as shown in Figure D. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.

- The 11 to 20 fiber results at 1310 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 10 fiber results at 1310 nm **(3a)** in Z -> A direction as shown in Figure E.
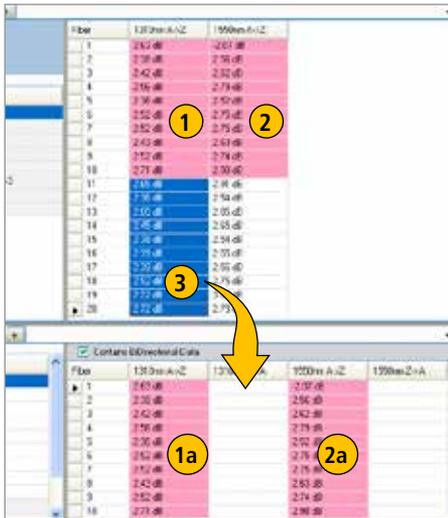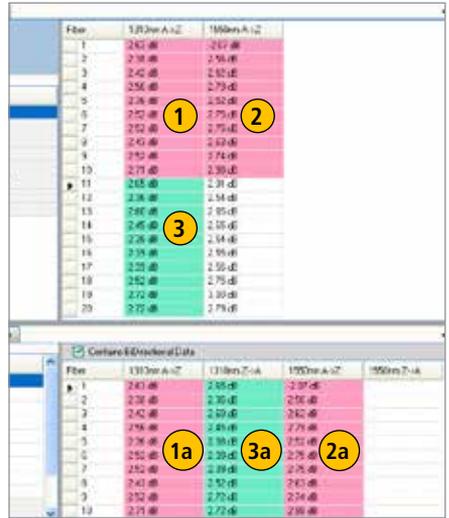

Figure D

Figure E

- Highlight 11 to 20 fiber results at 1550 nm (4) and drag them to the [Bi-Directional Data] window as shown in Figure F. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.

- The 11 to 20 fiber results at 1550 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 10 fiber results at 1550 nm (4a) in Z -> A direction as shown in Figure G.

Reorganized OPM test results may be saved with the [Save] option and then opened in the OLTS Viewer/Editor application.
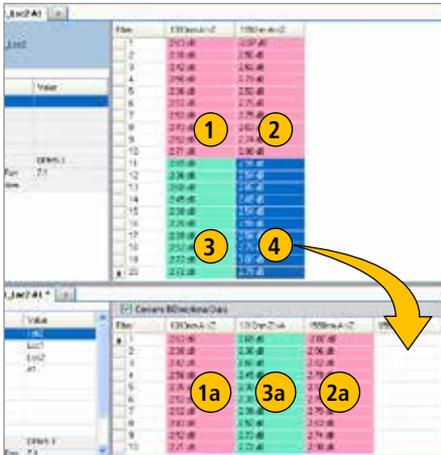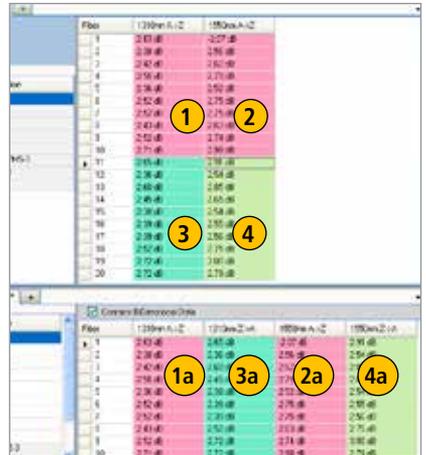

Figure F

Figure G

Reorganizing Test Data into Multiple Cables

Figure A shows an example of OPM results displayed by the [OPM Viewer/Editor].

• 10 fibers are tested bidirectionally with AFL OPM 5D power meter and OLS light source at 1310 nm and 1550 nm in direction A -> Z and Z -> A.
  Results are saved in OPM 5D as 20 fibers (results).

• When the saved results opened with TRM, they are displayed as 20 fibers tested in one direction A -> Z.

TRM allows reorganizing test results to break them into one or more cables with data in one direction or two directions.

To Reorganize Test Data into Multiple Cables
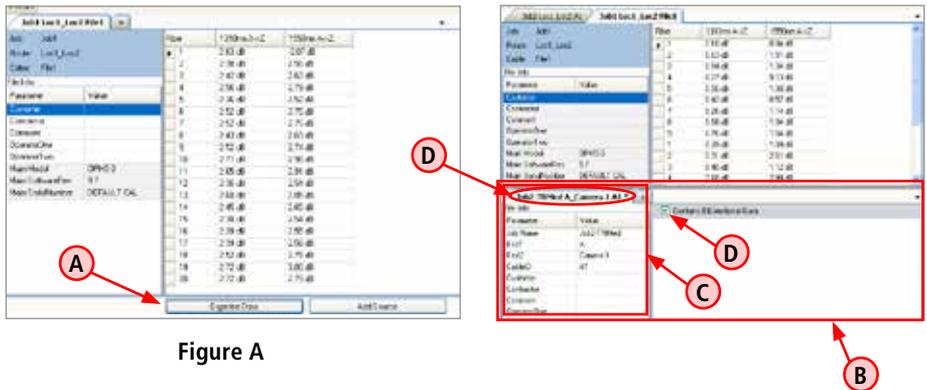
Figure A

• Click the [Organize Data] button **A**.

• Additional block appears at the bottom of the OPM Viewer/Editor window **B**.

• Edit File Info editable fields as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID) **C**. Note that edited File Info appears on the job tab **D**.

• For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option **E**.

Note: Fibers 1 to 2 are used in the example below. However, users may select as many fibers as needed.

1. Highlight the 1 to 2 fiber results at 1310 nm **(1)** and 1 to 2 fiber results at 1550 nm **(2)** and then drag the highlighted results to the [Bi-Directional Data] window - **(C)** as shown in Figure B.

2. Results appear in the [Bi-Directional Data] window as 1 to 2 fiber results **(1a)** and **(2a)** in A -> Z direction columns as shown in Figure C.

Figure B

Figure C

3. Highlight the 3 to 4 fiber results at 1310 nm **(3)** and drag them to the [Bi-Directional Data] window as shown in Figure D. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.

4. The 3 to 4 fiber results at 1310 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 2 fiber results at 1310 nm **(3a)** in Z -> A direction as shown in Figure E.

Figure D

Figure E

5. Highlight 3 to 4 fiber results at 1550 nm **(4)** and drag them to the [Bi-Directional Data] window as shown in Figure F. Make sure the pointer is pointing to the starting fiber cell of the desired wavelength and direction in the data destination area.

6. The 3 to 4 fiber results at 1550 nm appear in the [Bi-Directional Data] window. They are displayed as the 1 to 2 fiber results at 1550 nm **(4a)** in Z -> A direction as shown in Figure G.
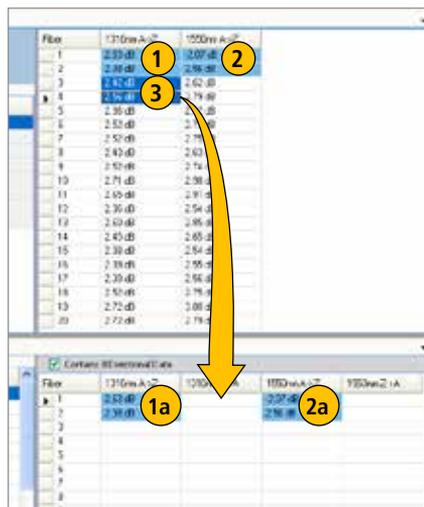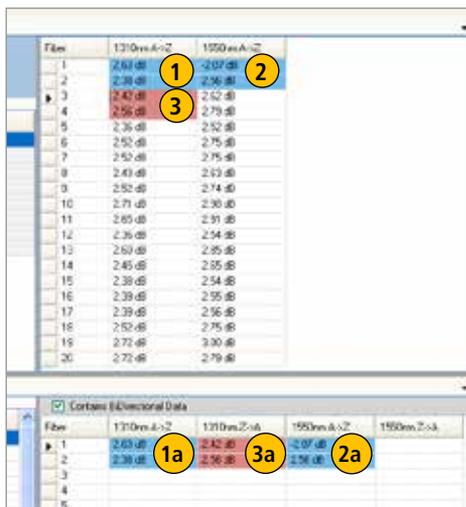
Figure G shows the OPM test results reorganized as new Job **(A)** .

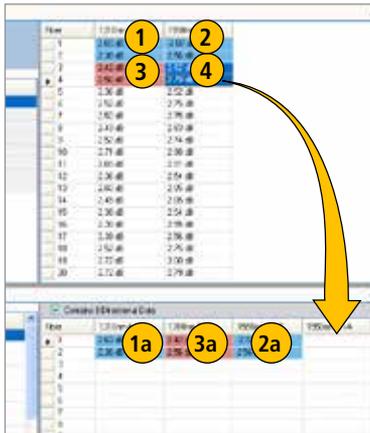• Click on the [+] button **(B)** to create an additional Job/Cable.

Figure F
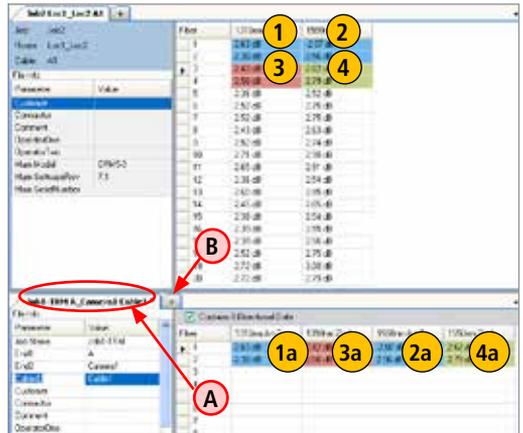
Figure G

- Additional [Bi-Directional Data] window (C) and tab (D) will appear indicating that an additional Job/Cable is added.

- Edit File Info editable fields (E) as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID). Note that edited File Info appears on the job tab (D).

- For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option (F).

- To add test data, copy fibers to the [Bi-Directional Data] window (C) as described in steps 1 to 6 selecting fiber numbers as needed.
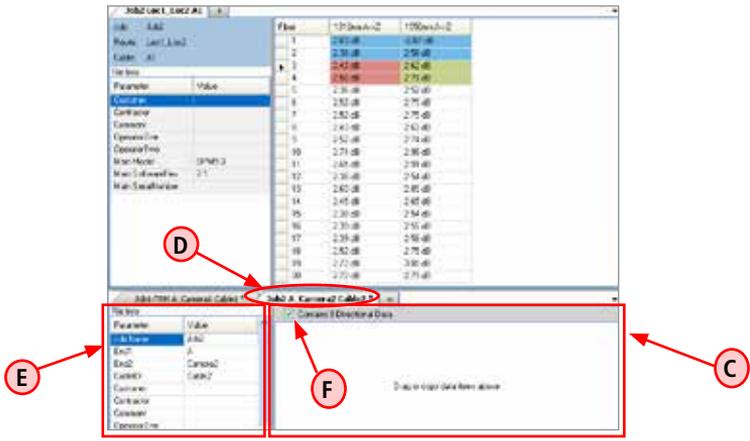
Combining Test Data from Two Sources into one Cable

- Click on the [Add Source] button **(A)** or the ⊞ button **(B)** to add test data from the additional source to the [Test Results] window.

- Click the [Organize Data] button **(D)**.

- Additional block appears at the bottom of the OPM Viewer/Editor window **(E)**.

- Edit File Info editable fields **(F)** as needed (Job Name, End 1/End 2, Cable ID, Customer, Contractor, Comments and Operators' ID). Note that edited File Info appears on the job tab **(G)**.

- For creating bi-directional data, be sure to select the ☑ Contains BiDirectional Data option **(H)**.

To Combine Test Data from Two Sources into one Cable
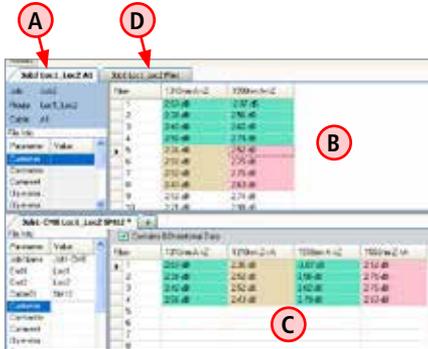
Figure A
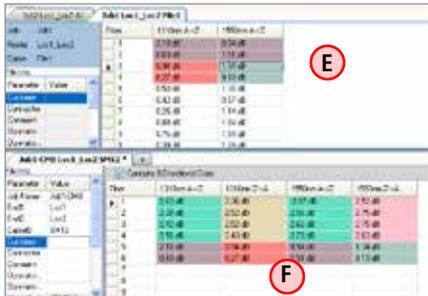
Figure B

- To add test data from the first source (A), copy fibers from the [Test Results] window (B) to the [Bi-Directional Data] window (C) as described in steps 1 to 6 selecting fiber numbers as needed.

- Click on the second source tab (D) to display stored test data (E).

- To add test data from the second source (D), copy fibers from the [Test Results] window (E) to the [Bi-Directional Data] window (F) as described in steps 1 to 6 selecting fiber numbers as needed.

- Test data from first source is combined with test data from the second source as shown in Figure B.

Viewing OPM Results in the OLTS Viewer/Editor

OPM test results may be opened in the OLTS Viewer/Editor application, which allows reviewing loss measurements by wavelength and direction and selecting standards and applications to apply to certification test results.

To Select Standards and Applications

1. Navigate the desired OPM test results and open them with OLTS Viewer/Editor application (see section titled "Opening Test Results with OLTS Viewer/Editor" for details).

2. Click the [Apply Rules] button to display the [Edit Fiber] menu **(A)**.

3. Edit fiber parameters as needed.

4. Click OK **(B)**.

5. As needed, select standards **(C)** and applications **(D)** to apply to certification test results (see section titled "OLTS Viewer/Editor Screen Features" for details).

These fields allow the user to define fiber under test (FUT) parameters: length, number of splices, and number of connections

These fields allow the user to define connectors type, fiber type, and test method

Report Wizard and Last Report Applications

Report Wizard

The Report Wizard application provides the user with a variety of pre-defined report templates and cover sheets and allows generating professional test reports that may be printed or stored as PDF files.

The Report Wizard application may be accessed either from the Home screen or from any Test Viewer/ Editor screen as follows:

- From the Home screen, click on the Report Wizard icon - .
- From the OTDR Trace Viewer, OTDR Trace Batch Editor, or OLTS Viewer/Editor, click on the Report Wizard icon .
- From the View Results application, click on the button.

Follow the on-screen instructions for generating, saving, and printing test reports.

Last Report Application

The Last Report application will open the most recent report created by Report Wizard in the Report Preview Page, which allows the user to print the latest report, store it as PDF file, or return to the Report Wizard and modify the created report.

The Last Report application may be accessed either from the Home screen or from any Test Viewer/ Editor screen as follows:

- From the Home screen, click on the Last Report icon - .
- From the OTDR Trace Viewer, OTDR Trace Batch Editor, or OLTS Viewer/Editor, click on the Last Report icon - .

Report Generation with Fiber End-face Inspection Images

Test results with fiber end-face inspection images are saved in .JPG, .GIF, or .PNG file format and displayed on the "file tree" as icon.
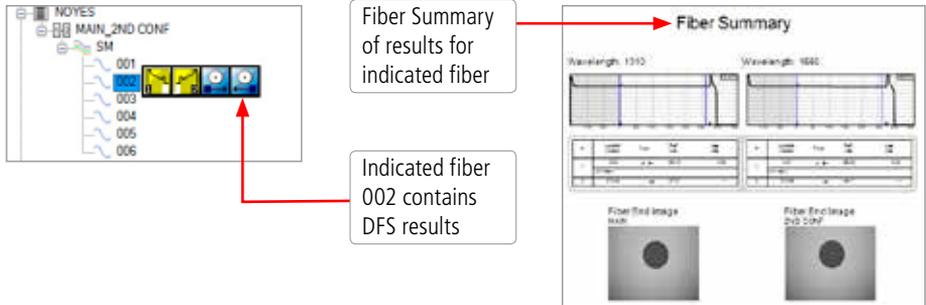
Fiber Summary of results for indicated fiber

Indicated fiber 002 contains DFS results

To include images in TRM reports, select the appropriate Template to support end-face images saved in the Job. There are two options:

Cable Summary: Allows the user to include Thumbnail images of the captured end-faces.

Result Detail Pages: These pages allow the user to generate dedicated inspection reports or include inspection images with OLTS and/or OTDR results.

TRM Template Selection Page

The Cable Summary Template includes the OTDR summary information and End-face image thumbnails.
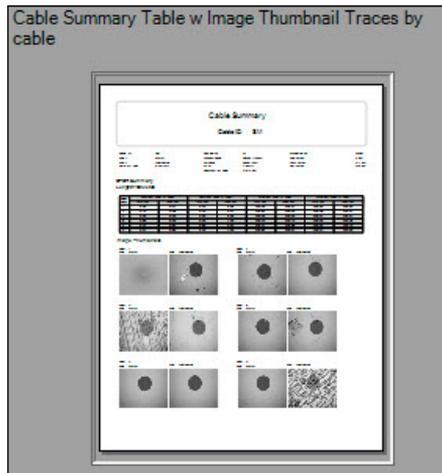
The OTDR Results Template shows OTDR traces, End-face image, Event Map, and Loss results if available.
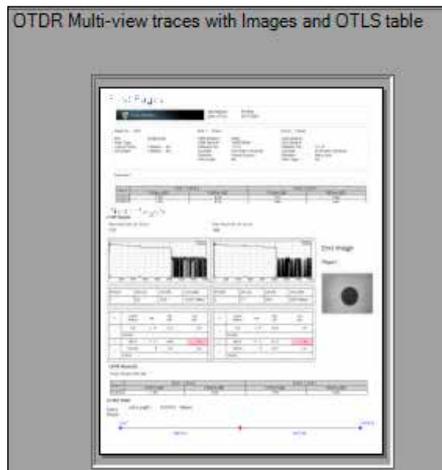
Macrobend/Microbend information In OTDR reports `Licensed option, see page 2`

The Macrobend/Microbend is indicated on all OTDR reports in Event table.

This includes the following report templates:

- OTDR Multi-view traces and OLTS table
- OTDR Multi-view traces with Images and OLTS table
- OTDR Multi-view traces with Overall Pass/Fail, Event Map and Complete OLTS table
- OTDR Multi-view traces NO Pass/Fail, Event Map and Complete OLTS table
- OTDR Single Graph with Overlay wavelength traces

Bi-directional information In OTDR reports

The Bi-directional OTDR information is part of a new report "OTDR Single Graph with Overlay wavelength trace with Bidirectional Events".
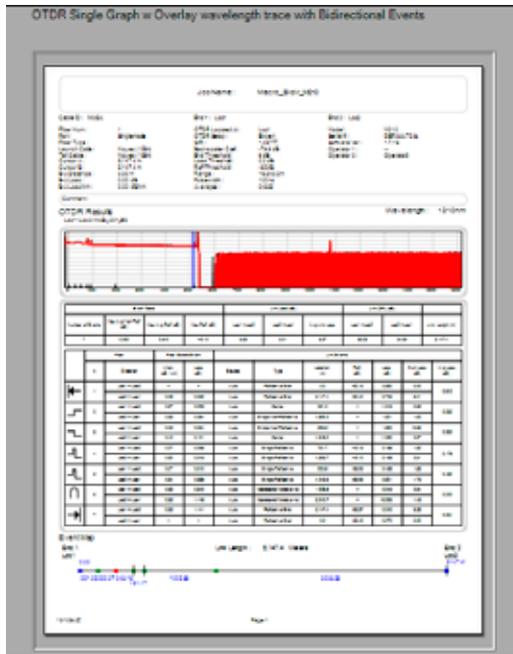
TRM report with OTDR traces and near end image of fiber under test.

BidirTest
Report Prepared: 06-Jun-2016 14:04

FAFL

Cable ID :	C001	End 1 :	END100	End 2 :	END200

Fiber Num :	1	OTDR Located At :	END100	Model :	FS200-100
Port :	Singlemode	OTDR Setup :	Expert	Serial # :	2D31UV140504
Fiber Type :		GIR :	1.4677	Software Ver :	1.0.0b010
Launch Cable :	None (0m)	Backscatter Coef :	-79.6 dB	Test Date:	10/17/2015
Tail Cable :	None (0m)	End Threshold :	3 dB	Test Time:	11:55:48 AM
Cursor A :	-61.2 m	Loss Threshold :	0.05 dB	Inspection Connector Type:	
Cursor B :	-61.2 m	Refl Threshold :	-65 dB		
B-A Distance :	0.00 m	Range :	2,392.9 m		
B-A Loss :	0.00 dB	Pulsewidth :	25 ns		
B-A Loss/km :	0.00 dB/km	Averages :	20000		

Comment :

OTDR Results

END100-END200-C001_001_S13

Wavelength : 1310 nm
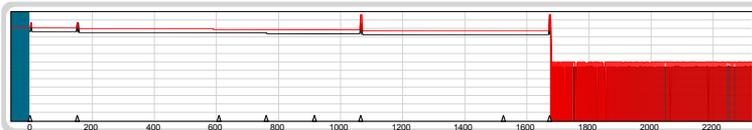
#	Location (Meters)	Type	Refl. (dB)	Loss (dB)	Atten. (dB/km)
1	0.08		-57.89	0.443	--
2	149.60		-58.22	0.524	--
3	607.35		--	0.000	6.563
4	760.40		--	0.185	0.418
5	914.31		--	0.000	0.877
6	1064.07		-44.06	0.415	--
7	1523.14		--	0.000	0.294
8	1672.77		> -16.01	--	0.301

# Events	Link Loss	Link ORL	Link Length	Link Atten
8	1.64 dB	< 17.61 dB	1,672.7 m	0.983 dB/km

Event Map

End 1	Link Length : 1,672.7 Meters	End 2
END100		END200
0.00		1672.68

149.52   457.75   153.05   153.91   149.76   459.07   149.63

END100-END200-C001 001 06-Jun-2016 13:55 AsBuilt

END100-END200-C001 001 06-Jun-2016 13:55 AsFound

1310S AZ

TRM Report with OTDR Traces Bi-directional and Macrobend/Microbend event map

Licensed option, see page 2

Job Name : Macro_Bidir_M210

Cable ID : MAGA   End 1 : Loc1   End 2 : Loc2

Fiber Num :	1	OTDR Located At :	Loc1	Model :	M210
Port :		OTDR Setup :	Expert	Serial # :	DEFAULTCAL
Fiber Type :	Singlemode	GIR :	1.4652	Software Ver :	1.7.15
Launch Cable :	Noyes (150m)	Backscatter Coef :	-52 dB	Operator 1 :	--
Tail Cable :	Noyes (150m)	End Threshold :	6 dB	Operator 2 :	Operator2
Cursor A :	5,147.0 m	Loss Threshold :	0.2 dB		
Cursor B :	5,144.9 m	Refl Threshold :	-65 dB		
B-A Distance :	-2.10 m	Range :	16,335.2 m		
B-A Loss :	0.02 dB	Pulsewidth :	100 ns		
B-A Loss/km :	-10.75 dB/km	Averages :	24522		

Comment :

OTDR Results
Loc1~Loc2~MAGI_001_S15

Wavelength : 1550 nm

Event Table

Number of Events	Max Avg Non-Ref (dB)	Max Avg Ref (dB)	Max Refl (dB)	Loc1→Loc2	Loc2→Loc1	Avg Link Loss	Loc1→Loc2	Loc2→Loc1	Link Length (m)
				Link Loss (dB)			Link ORL (dB)		
7	0.808	0.590	-50.40	9.49	9.02	9.25	38.87	38.35	5147.4

	#	Fiber Direction	Fiber Before Event Slope (dB/km)	Loss (dB)	Source	Type	Location (m)	Refl (dB)	Loss (dB)	Cum Loss (dB)	Avg Loss (dB)
←	1	Loc1→Loc2	--	--	Auto	Non-Reflective Start	0.0	--	0.488	0.00	0.612
		Loc2→Loc1	0.15	0.030	Auto	Reflective End	5146.9	-27.46	0.704	3.02	
⌐	2	Loc1→Loc2	0.28	0.079	Auto	Gainer	250.2	--	-0.857	0.27	0.158
		Loc2→Loc1	0.33	0.057	Auto	Single Non-Reflective	4996.8	--	1.129	1.68	
⌐	3	Loc1→Loc2	0.30	0.051	Auto	Single Non-Reflective	251.3	--	1.143	-0.23	0.158
		Loc2→Loc1	0.36	0.090	Auto	Gainer	4997.7	--	-0.879	2.67	
⊐⌐	4	Loc1→Loc2	0.29	0.071	Auto	Single Reflective	750.6	-50.91	0.168	0.98	0.128
		Loc2→Loc1	0.05	0.008	Auto	Single Reflective	4396.5	-50.90	0.158	3.49	
⊐⌐	5	Loc1→Loc2	0.34	0.051	Auto	Single Reflective	901.6	-55.15	0.680	1.02	0.590
		Loc2→Loc1	0.16	0.191	Auto	Single Reflective	4245.4	-56.96	0.597	1.68	
∩	6	Loc1→Loc2	0.21	0.205	Auto	Macrobend/Microbend	1909.3	--	0.478	1.82	0.808
		Loc2→Loc1	0.15	0.490	Auto	Macrobend/Microbend	3240.7	--	0.777	0.91	
→|	7	Loc1→Loc2	0.21	0.885	Auto	Reflective End	5146.9	-55.94	0.096	3.49	0.158
		Loc2→Loc1	--	--	Auto	Reflective Start	0.0	-56.94	0.430	0.00	

Event Map

End 1   Link Length : 5,146.9 Meters   End 2

Loc1   0.00   Loc2   5146.93

250.15   251.17   249.13   1007.74   2227.64

191.12

TRM report Inspection only results.

NetSim000000
Report Prepared: 06-Jun-2016 10:35

AFL

Cable ID:C001
End 1: END100; End 2: END200   **Fiber: SMF;**   **Connector: UPC**

END100-END200-C001 001 27-May-2016 15:45   FAIL ☒

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 5
B		2-5 µm: 16
	> 3 µm: 0	> 5 µm: 2
D		≥10 µm: 0

END100-END200-C001 002 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 003 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 004 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 005 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 006 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 5
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 007 27-May-2016 15:45   FAIL ☒

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 2
B		2-5 µm: 22
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 008 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 009 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 010 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 011 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

END100-END200-C001 012 27-May-2016 15:45   PASS ☑

IEC: SM, PC, RL ≥ 45dB

Zone	Scratches	Defects
A	> 0 µm: 0	> 0 µm: 0
B		2-5 µm: 0
	> 3 µm: 0	> 5 µm: 0
D		≥10 µm: 0

Transferring Files to a PC

From USB Flash Drive to PC

1. To transfer files from your test equipment to a PC using the USB drive, perform the following:
2. Copy any files stored on your test equipment Internal Drive to the USB drive.
3. Remove the USB drive from your test equipment and plug it into the USB port on your PC.
4. Copy files from the USB Flash drive to your PC.

From Test Equipment via USB Function Port to PC

C-Series, M-Series

To transfer files from your test equipment to a PC using a USB cable, perform the following:

5. Connect your test equipment to a PC using the supplied mini-USB to USB cable.
   Note: If your PC requests new USB drivers, install the CD-ROM or USB memory stick that comes with your test equipment, which contains the needed drivers (drivers may also be downloaded from our web at **www.AFLglobal.com** > Resources > Software). This step only needs to be performed the first time you connect your test equipment to your PC.
6. If your PC pops up a dialog box asking if you want to set up a new Partnership, select No (the test equipment should always be a 'guest').

   - Open My Computer >
     Mobile Device > File Storage > Internal folder.
     or
   - Open My Computer > Mobile Device > USB folder.

FLX380 or OFL280 FlexTester and CS260 OTDR

To transfer files from your FlexTester or OTDR to a PC using a USB cable, perform the following:

1. Connect your FlexTester (OTDR) to a PC using the supplied mini-USB to USB cable.
2. On the FlexTester (OTDR), press the [USB] key (**A**) to enable the 'USB connection' mode (**B**).
3. From the Windows Explorer, locate the FLX or OFL drive (**C**) and the [Results] folder (**D**).
4. Copy the desired traces (**E**) to your PC.

OFL250 or OFL280 (non-FlexTester)

To transfer files from the OFL250 or OFL280 OTDR (non-FlexTester) to a PC using a USB cable, perform the following:

1. Connect your OFL250/OFL280 OTDR to a PC using the supplied mini-USB to USB cable.
2. On the OFL250/OFL280 OTDR, press the [USB] key - **A** to enable the 'USB connection' mode.
3. From the TRM File menu, choose the [Import OFL Results ...] command to display the Import Results screen - **B** .
4. Click [Browse] **C** to navigate the OFL drive.
5. From the [Folder] drop menu - **D** , select the desired folder.
6. From the results list - **E** , select the desired results.
7. Choose the desired destination folder - **F** .
8. Enter Job/Route/Cable information - **G** as needed.
9. When done, Click [Convert] **H** .
10. Repeat steps 5 to 9 as needed.
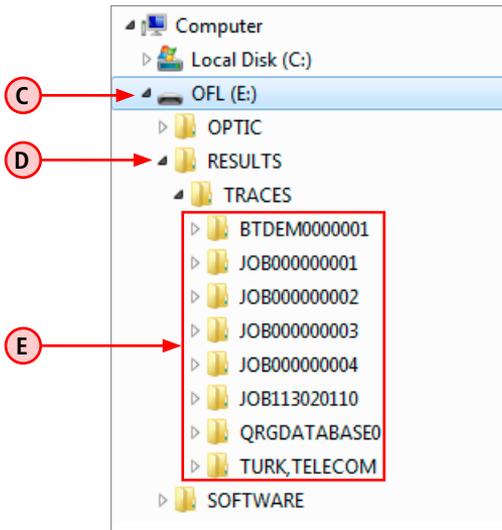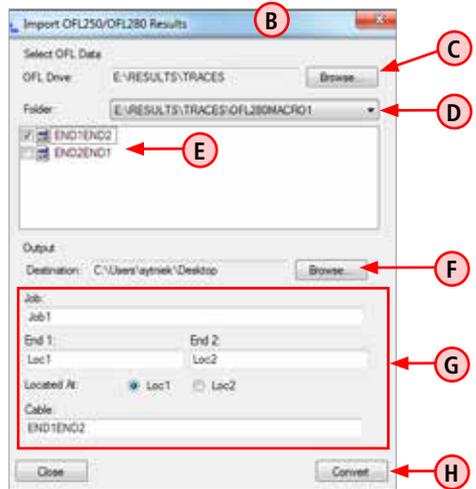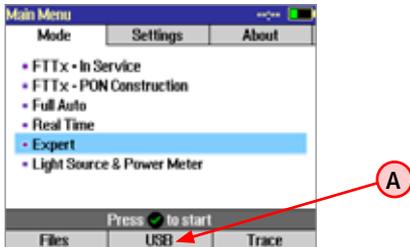
OPM-Series

To transfer files from your test equipment to a PC using a USB cable, perform the following:

1. Connect your test equipment to a PC using the supplied mini-USB to USB cable.
   Note: If your PC requests new USB drivers, install the CD-ROM or USB memory stick that comes with your test equipment, which contains the needed drivers (drivers may also be downloaded from our web at **www.AFLglobal.com** > Resources > Software). This step only needs to be performed the first time you connect your test equipment to your PC.

On Test Results Manager (TRM)

2. Select [File] > [Import Data...] to display the Import Data Wizard.
3. Select the destination for the downloaded files on your PC **(A)**.
4. From the pull-down menu, select your instrument for data download **(B)**.
5. Click [Next] to continue **(C)** and proceed to the next screen.
6. When the next screen is displayed, observe/edit information for the test data that is being transferred, then click [Next] to continue **(D)**.
7. Next screen allows you to download more test data or view transferred test results or create report. When done, click [Finish].
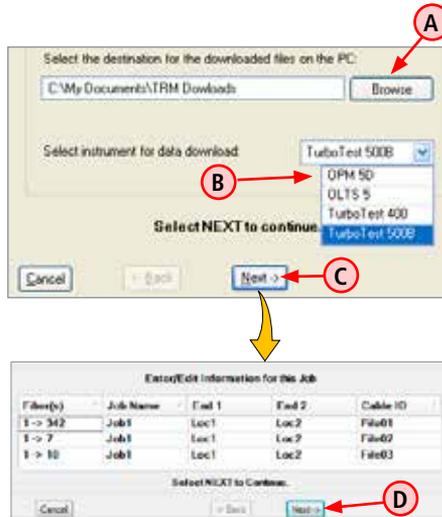
From Test Equipment via Serial Port to PC

OLTS5 Test Set

Using the supplied serial cable, connect your instrument to the available COM Port on your PC.

On Test Results Manager (TRM)

1. Select [File] > [Import Data...] to display the Import Data Wizard.
2. Select the destination for the downloaded files on your PC (A).
3. From the pull-down menu, select your instrument for data download (B).
4. Click [Next] to continue (C) and proceed to the next screen.
5. When the next screen is displayed, select the appropriate COM port (D).
6. Click [Next] to continue (E).

On OLTS5 Instrument

7. Click the Menu button to display the Main Menu.
8. Use the UP and DOWN arrow keys to highlight the [FILE] option, and then click the [SELECT] soft key to access the [FILE MENU] screen.
9. From the [FILE MENU] screen, use the Up and Down arrows to highlight the [XFER RECORDS] option.
10. Press the [SELECT] soft key to transfer the currently open file.

Return to Test Results Manager (TRM)

11. Click [Next] **(F)** to continue and proceed to the next screen.

12. You will see the [Download Progress] screen followed by the [Job Information] screen **(G)**.

13. The [Job Information] screen **(G)** allows users to enter and/or edit information (Name, Locations, Cable ID) for downloaded jobs.

14. Click [Next] **(H)** to continue and proceed to the next screen, which allows users to

   • restart to download more data **(J)**

   • view data **(K)**

   • create report **(L)**

15. When done, click [Finish] **(M)** to exit the Import Data Wizard.
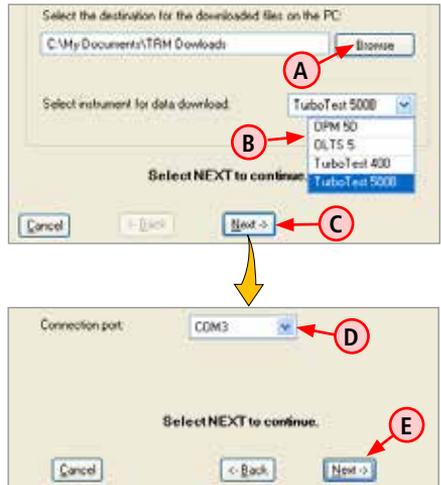
TurboTest 400 Test Set

Using the supplied serial cable, connect your instrument to the available COM Port on your PC.

On Test Results Manager (TRM)

1. Select [File] > [Import Data...] to display the Import Data Wizard.
2. Select the destination for the downloaded files on your PC (**A**).
3. From the pull-down menu, select your instrument for data download (**B**).
4. Select [Next] to continue (**C**) and proceed to the next screen.
5. When the next screen is displayed, select the appropriate COM port (**D**).
6. Click [Next] to continue (**E**).
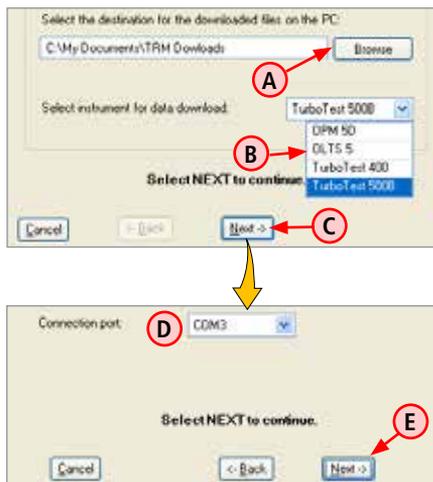
On TurboTest 400 Instrument

7. Press the Menu button to display the Main Menu.
8. Use the Up and Down arrow keys to highlight the [CONNECT TO PC] option.
9. Press the [SELECT] soft key to transfer the currently open file.

Return to Test Results Manager (TRM)

10. Click [Connect to Instrument] (**F**), then click [Next] (**G**) to continue and proceed to the next screen.

11. The next screen allows users to select files for transfer. Select the desired files (**H**).

12. Click [Next] (**J**) to continue.

13. You will see the [Download Progress] screen followed by the [Job Information] screen (**K**).

14. The [Job Information] screen allows users to enter and/or edit information (Name, Locations, Cable ID) for downloaded jobs.

15. Click [Next] (**L**) to continue and proceed to the next screen (**M**) which allows users to restart to download more data, view data, and create report.

16. When done, click [Finish] (**N**) to exit the Import Data Wizard.

TurboTest T500B Test Set

Using the supplied serial cable, connect your instrument to the available COM Port on your PC.

On Test Results Manager (TRM)

1. Select [File] > [Import Data...] to display the Import Data Wizard.
2. Select the destination for the downloaded files on your PC **(A)**.
3. From the pull-down menu, select your instrument for data download **(B)**.
4. Select [Next] to continue **(C)** and proceed to the next screen.
5. When the next screen is displayed, select the appropriate COM port **(D)**.
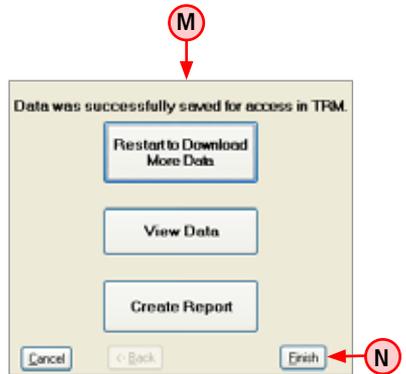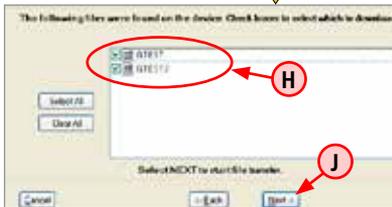6. Click [Next] to continue **(E)**.

On TurboTest 500B Instrument

7. Press the Menu button to display the Main Menu.
8. Use the UP and DOWN arrow keys to highlight the [FILE] option, and then press the [SELECT] soft key to access the [FILE MENU] screen.
9. From the [FILE MENU] screen, use the UP and DOWN arrow keys to highlight the [TRANSFER TO PC] option.
10. Press the [SELECT] soft key to access the [REPORT] screen of the current test mode.
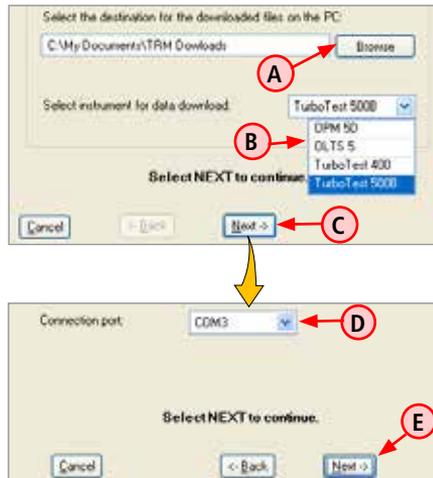
11. From the [REPORT] screen, choose one of the following:
    - You may press the [SELECT] soft key to transfer the current file.
    - You may press the [All] soft key to transfer all files of the current test mode.

Return to Test Results Manager (TRM)

12. Click [Next] (**F**) to continue and proceed to the next screen.
13. You will see the [Download Progress] screen followed by the [Job Information] screen (**G**).
14. The [Job Information] screen (**G**) allows users to enter and/or edit information (Name, Locations, Cable ID) for downloaded jobs.
15. Click [Next] (**H**) to continue and proceed to the next screen, which allows users to
    - restart to download more data (**J**)
    - view data (**K**)
    - create report (**L**)
16. When done, click [Finish] (**M**) to exit the Import Data Wizard.

FOCIS2Go Quick Reference Guide

AFL's FOCIS2Go is free software allowing users to import inspection images into TRM® 2.0 OTDR/OLTS reports. FOCIS2Go can be downloaded from AFL web at www.AFLglobal.com or installed from the TRM CD or USB memory stick.

FOCIS2Go with TRM 2.0 provides powerful Inspection analysis, viewer, and reporting tool for fiber testing. High-resolution FOCIS images with TRM 2.0 reports offers best-in-class OTDR, OLTS and Inspection analysis, correlation of measurement results, and customized reports useful to baseline for future performance validation and comparison.

Why Use FOCIS2Go?

FOCIS Flex, FOCIS WiFi and AFL's OTDRs don't always store results with same file names. To include inspection images with OTDR and/or OLTS results, inspection results must be named similar to OTDR/OLTS results and stored in same folder.

What does FOCIS2Go do?

Allows user to copy FOCIS Flex or FOCIS WiFi files, batch renaming them to closely match OTDR/OLTS file names, enabling TRM Report Wizard to associate inspection results with OTDR/OLTS results.

When Is FOCIS2Go Required?

Report Generation Application	FOCIS2Go Required?
Inspection only report; Inspection results uploaded from FOCIS Flex, FOCIS WiFi, FlexScan, FLX380, OFL280 or M&C-series OTDR	Not required
Report includes FOCIS Flex inspection results plus FlexScan, FLX380, or OFL280 OTDR/OLTS results (files named compatibly)	Not required
Report includes FOCIS Flex inspection results with FlexScan, FLX380, or OFL280 OTDR/OLTS results (files not named compatibly)	Required
Report includes FOCIS Flex inspection results with M and C-series OTDR/OLTS results	Required
Report includes FOCIS WiFi inspection results with FlexScan, FLX380, OFL280 or M&C-series OTDR/OLTS results	Required
Report includes DFS1 inspection images stored with M&C-series OTDR/OLTS results	Not required

How to Install FOCIS2Go on a PC

Downloading from the AFL Web

- From your browser, select www.AFLglobal.com.
- Select Resources, then select Software.
- Scroll down the page to find FOCIS2Go and **click to download.**
- Fill in the registration form to Register.
- Then scroll down the page and click on the **FOCIS2Go [EXE].**
- Save the .zip file to your PC, unzip it and extract contents.
- Double-click on the extracted setup.exe and follow prompts to install FOCIS2Go.

Installing from TRM CD or USB memory stick

- Insert the TRM CD or USB memory stick into your PC.
- View CD or USB memory stick contents and open the FOCIS2Go folder.
- Double-click on the setup.exe file and follow prompts to install FOCIS2Go.

Inspection Integration with M&C-Series Results

1. Copy Test Results from M and C-Series OTDR to a PC.
   - It creates Test Results in Job/Route/Cable format:
     e.g. Job1/Loc1_Loc2/Cbl1/Loc1-Loc2-Cbl1_001_S13.sor.
2. Run FOCIS2Go from the PC to merge Inspection images.
   - Make sure to select fiber-end images to be integrated in the OTDR report.
3. Generate OTDR /OLTS reports with the desired Inspection, OLTS or OTDR template.

Inspection Integration with FlexTester Results

1. Copy Results from FlexTester (FLX380 or OFL280) or CS260 OTDR to a PC.
   - It creates Test Results in End1-End2-Cable folder format:
     e.g. End1-End2-Cable / End1-End2-Cable_001_S13.sor.
2. Run FOCIS2Go from the PC to merge Inspection images.
   - Make sure to select fiber-end images to be integrated in the OTDR report.
   - If FOCIS Flex images were stored in FlexTester with appropriate naming and uploaded with OTDR/OLTS results, there is no need to rename using FOCIS2Go.

- If FOCIS Flex images were stored in FOCIS Flex with appropriate End1-End2-Cable naming, there is no need to rename using FOCIS2Go.

3. Generate OTDR reports with the desired inspection, OLTS or OTDR template.

## Inspection Integration with OFL250/OFL280 results

1. Import OTDR Test Results from non-FlexTester OFL (OFL250 and OFL280) OTDR to a PC using "Import OFL Results" from TRM® 2.0.
   - It converts results from a simple folder format to Job/Route/Cable format:
     e.g. Folder/Cable001_001_S13.sor —> Job1/Loc1_Loc2/Cbl1/Loc1-Loc2-Cbl1_001_S13.sor.
2. Run FOCIS2Go from the PC to merge Inspection images.
   - Make sure to select fiber-end images to be integrated in the OTDR report.
3. Generate OTDR reports with the desired Inspection, OLTS or OTDR template.

To transfer files from FOCIS WiFi mobile device to a PC

- If a mobile device supports USB transfers:
  - Connect a mobile device to a PC and view mobile device folders from a PC.
  - Drag inspection results (or folder of results) from a mobile device to a PC.
- Alternative: Email images to account where you can retrieve them on a PC.
- Alternative: Share images to cloud where you can retrieve them from a PC.

FOCIS2Go Workflow Steps

1. Select the desired source folder containing Inspection files to import into TRM 2.0 - **A**.

2. From the selected folder, chose inspection results to convert.

    • Click Select All **B**.

    • Or check the desired files **C** to select.

3. If merging with OTDR/OLTS results, select OTDR Series **D**:

    • C&M Series (M210, M310, M710, C840, C850)

    • OFL250/OFL280 (non-FlexTester)

    • OFL280 FlexTester (includes FLX380, CS260)

    • FS200 FlexScan series

    • Standalone Inspection Images

4. Select your Output Destination

    • Using the browse button, select the path to your uploaded OTDR/OLTS results folder **E**.

5. Set Job, End1, End2 **F** and Cable **G** to match job, end and cable names from uploaded OTDR/OLTS results.

6. Select the "Located At" **H** to the end from which inspection was performed.

7. Press the Convert button **J**.

8. Once conversion is complete, create reports using TRM® 2.0 with any Inspection, OTDR or OLTS template.
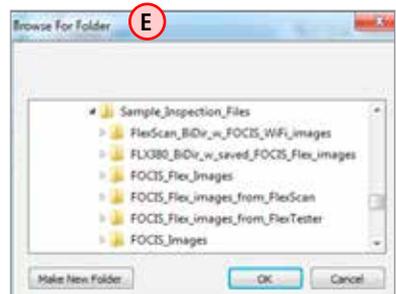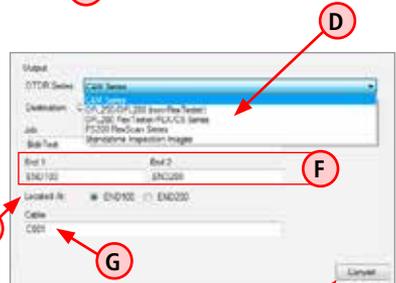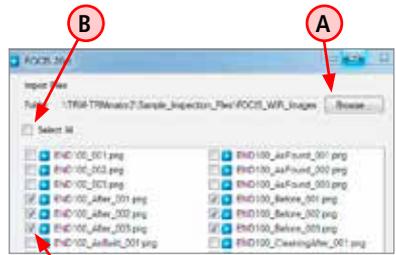
Thank you for choosing AFL Test and Inspection

www.AFLglobal.com