DR-500 Series Handheld OTDR PC Software User Manual

Reflect.exe

19 Norfolk Ave * Easton * MA * USA * 02375 - Phone: 508.238.7100 * Fax: 617.507.0784

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DR-500 Series PC Software "Reflect"

Reflect.exe is a Windows based application and is compatible with a Windows ™ operating system. The software is capable of displaying, storing, reading, printing and analyzing several traces at the same time. **Reflect.exe** is capable of controlling the operation of the DR-500 series OTDR via a USB cable and windows mobile device interface **AcitveSyn** if desired by the OTDR operator.

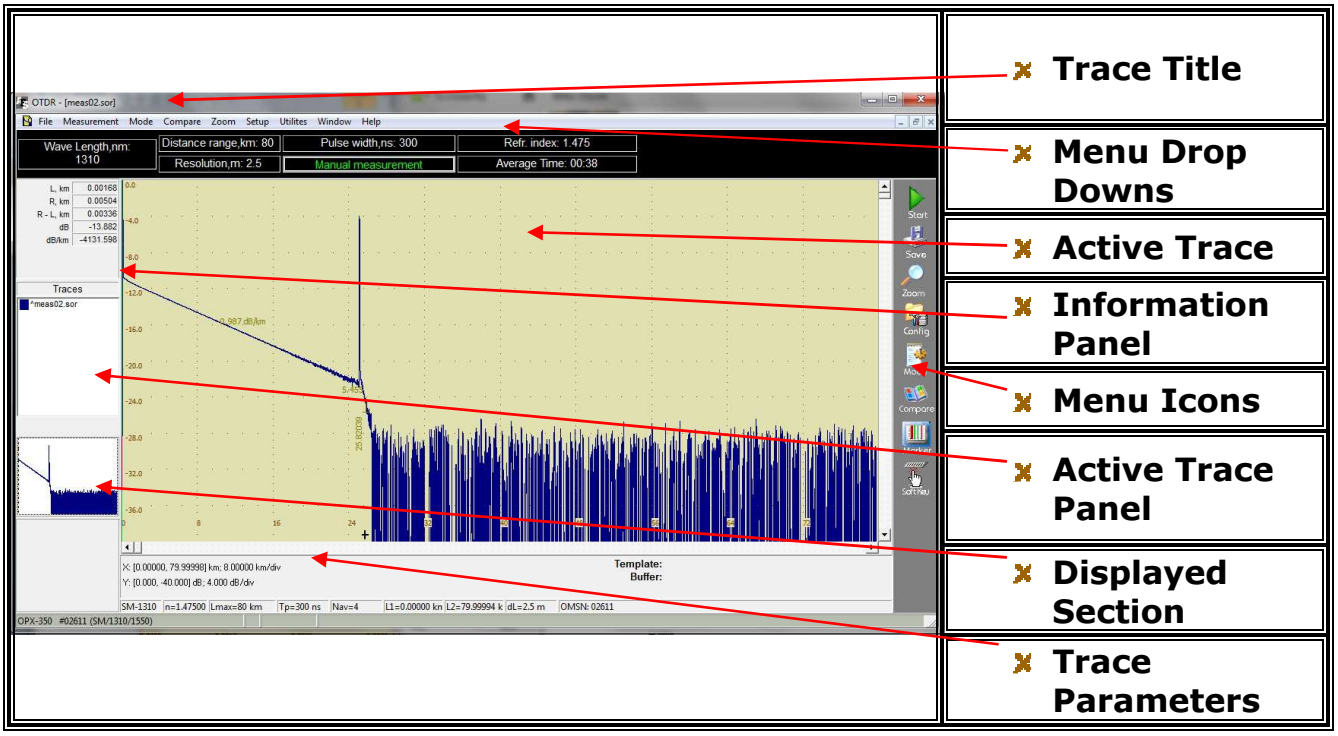
Software Installation

1. Insert CD in PC
2. In CD drive open SetupAFS_eng
3. Allow PC to run installation

Functional Description

Trace Screen

Table 1.0



A Trace screen on the Reflect software is illustrated above

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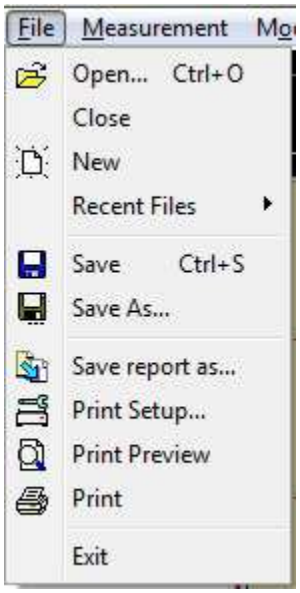
Menu Tool Bar

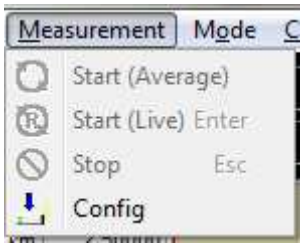
File Menu

Table 2.0

	Shortcut	File Drop Down Menu
	**Save As** 	✘ **Open -** Open a saved trace ✘ **Close -** Close the current trace window ✘ **New** - Open a New screen ✘ **Recent Files** - List recently open files
		✘ **Save -** Save the current trace ✘ **Save As –** Save the current trace under another name
		✘ Save Report As… - Save trace Report as a .pdf file ✘ **Print Setup** - Print options ✘ **Print Preview -** Preview print ✘ **Print -** Print the current trace
		✘ **Exit**

Measurement Menu

Table 2.1

	Shortcut	Measurement Drop Down Menu
	**Start**  **Config** 	✘ **Start (Average)** - Run a normal measurement with Averaging ✘ **Start (Live)** – Run a measurement in the real time mode ✘ **Stop –** Stops the measurement process ✘ **Config -** Parameters setup and USB/DR500 Series connection configuration

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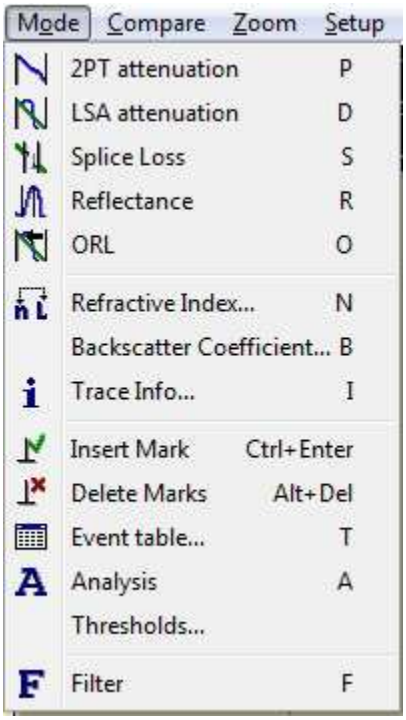
Mode Menu

Table 2.2



Shortcut	Mode Drop Down Menu
2PT **LSA** **Splice** **Reflect Co** **ORL**	✖ **2PT attenuation –** Attenuation between two points ✖ **LSA attenuation –** Attenuation by straight line approximation ✖ **Splice Loss –** Attenuation of an OF event using the 5 marker method ✖ **Reflection Coefficient** – Reflection measurement mode ✖ **ORL –** Optical return loss measurement
Ref Index **Trace Info**	✖ **Refractive Index –** Enables adjustment of the RI ✖ **Backscatter Coefficient –** Enable adjustment of the BC ✖ **Trace Info –** Trace details
Insert Marks **Delete Marks** **Events Table** **Analysis**	✖ **Insert Mark –** Inserts section or events between the two marker into the Events Table ✖ **Delete Marks –** Deletes section or events between the two markers from the Events Table ✖ **Events Table –** Opens the Events Table ✖ **Analysis -** Performs Auto Trace Analysis ✖ **Thresholds –** Enable adjustment of Auto Trace Threshold values
Filter	✖ **Filter –** Enables adjustment of trace filtration level

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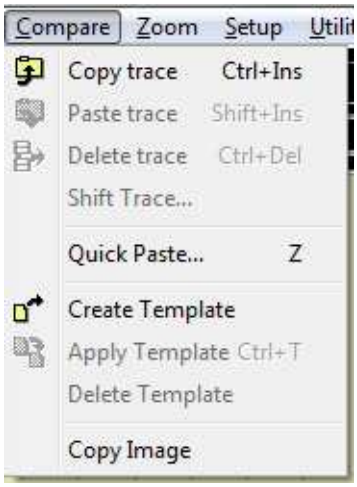
Compare and Trace Menu

Table 2.3



Shortcut	Compare Drop Down Menu
Copy Trace **Paste Trace** **Delete Trace**	▪ **Copy Trace –** Copies trace to clip board ▪ **Paste Trace –** Insert trace from clip board to current trace ▪ **Delete -** Deletes inserted trace ▪ **Shift Trace -** Enable shifting of the trace vertically
	▪ **Quick Paste –** Enable a shortcut to paste previously opened traces
Create Template **Apply Template**	▪ **Create Template –** Stores current trace as template ▪ **Apply Template –** Applies template to trace ▪ **Delete Template –** Delete template
	▪ **Copy Image –** Copies image to clip board

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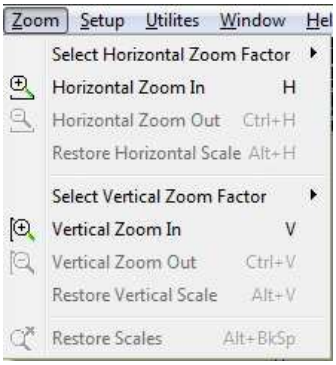
Zoom Menu

Table 2.4



Shortcut	Zoom Drop Down Menu
Horizontal **Zoom In** **Zoom Out**	✘ **Select Horizontal Zoom Factor –** Select a zoom factor (x1.1, x1.3, x 2, x5, x10) ✘ **Horizontal Zoom In –** Zoom in Horizontally ✘ **Horizontal Zoom Out –** Zoom out Horizontally ✘ **Restore Horizontal Scale –** Restore H scale
Vertical **Zoom In** **Zoom Out**	✘ **Select Vertical Zoom Factor –** Select a zoom factor (x1.1, x1.3, x 2, x5, x10) ✘ **Vertical Zoom In –** Zoom in Vertically ✘ **Vertical Zoom Out –** Zoom out Vertically ✘ **Restore Vertical Scale –** Restore V scale
	✘ **Restore Scales -** Restore both scales to default settings

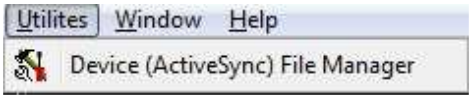
Setup Menu

Table 2.5

Setup Drop Down Menu
✘ **Preferences –** Software preferences setup
✘ **Colors –** Element color selection

Utilities Menu

Table 2.6



Utilities Drop Down Menu
✘ **Device (ActiveSync) File Manager –** Enables DR-500 series file management

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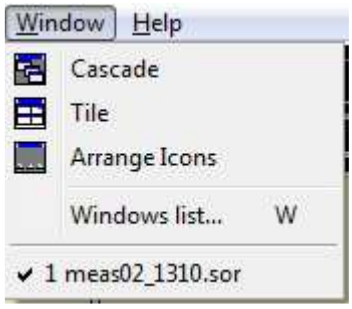
Windows Menu

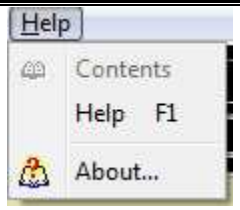
Table 2.7



Windows Drop Down Menu
✘ **Cascade –** Cascade active traces ✘ **Tile –** Tile active traces ✘ **Arrange Icons –** Manually arranges all minimized windows
✘ **Window List –** Lists all open traces
✘ **Displays Active List**

Help Menu

Table 2.8



Help Drop Down Menu
✘ **Help –** Reference Manual
✘ **About –** Software Information

Markers Icon

Table 2.9

Markers Icon (Shortcut)		
Markers Icon 		✘ Moves active Marker **Left**
		✘ Selects **all Markers**
		✘ Moves active Marker **Right**
		✘ Selects **Left Marker** as active Marker
		✘ Selects **Right Marker** as active Marker

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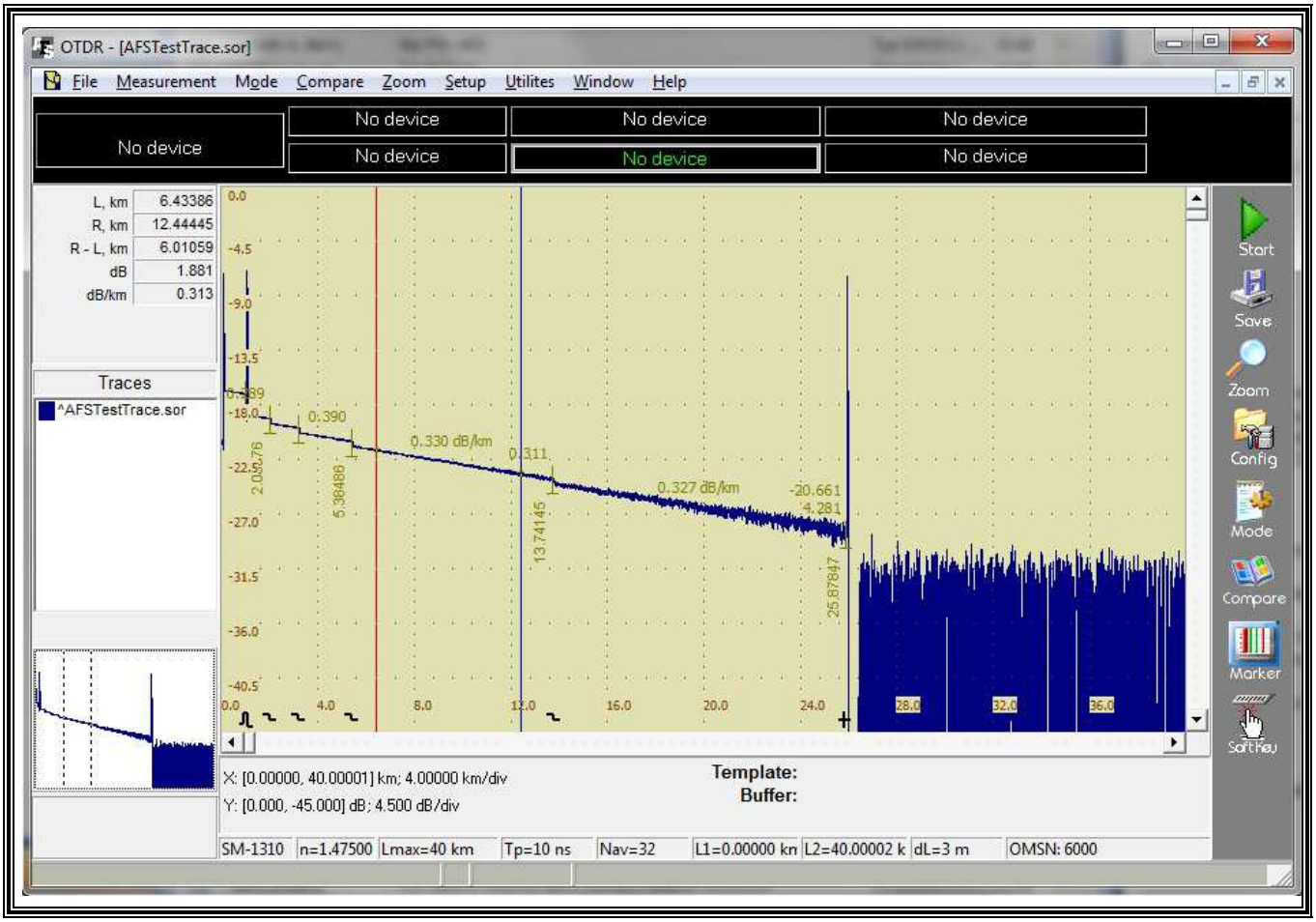
Trace

Table 3.0



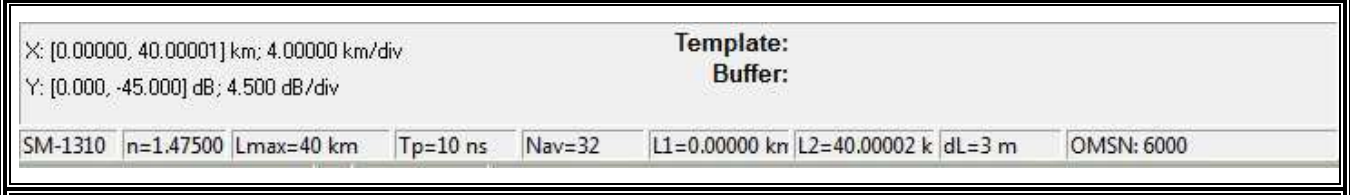
A Trace is a visual representation of a fiber optic link. The beginning of the fiber optic link is located on the left side of the trace. The slope or attenuation of the fiber link can be seen as the trace moves to the right. There are two "active" markers, the information containing the location of the markers is located on the left side of the screen at shown above in Table 3.0

The screen also displays several numbers that correspond to measurement values (attenuation, attenuation loss at an event, distance to an event and Optical Return Loss (ORL), These values are the measurements from the Automatic Trace Analysis that the OTDR performs. Automatic Trace Analysis will be covered in a later section.

The testing parameters for the active trace are located below the trace window (in the gray area). All parameters are preset (by operator) prior to running a test. See the measurement parameters section for more information.

Parameters Panel

Table 3.1



X - Shows the location of section begin and section end and the scale of the distance on the horizontal axis
Y - Shows the top end and low end value of the dB loss for entire trace window and the scale of the loss per division on the vertical axis
1st box - Identifies the fiber type (multimode or single mode) and the wavelength
N - The Refractive Index of the fiber
Lmax - Distance Range
Tp - Duration of the Pulse Width
Nav - Number of Averages
L1 - Distance from the beginning of the fiber to the beginning of the measured section
L2 - Distance from the beginning of the fiber to the end of the measured section

The parameters properties window is accessed by selecting the **Config icon** or **Config** option under the measurement drop down menu. A dialog box will appear as shown in table 3.2 allowing the technician to modify or change the specific testing parameters in the appropriate box.

For more accurate measurements, it may be necessary for the Technician to adjust certain testing parameters for the specific fiber under test.

The operating parameters should be set according to the fibers being measured. For short fiber runs, shorter pulse widths and fewer averages are optimum. With longer fiber runs, longer pulse widths and more averages are best.

The values chosen by the user are dependent upon the testing requirements and there are tradeoffs that are sometimes necessary.

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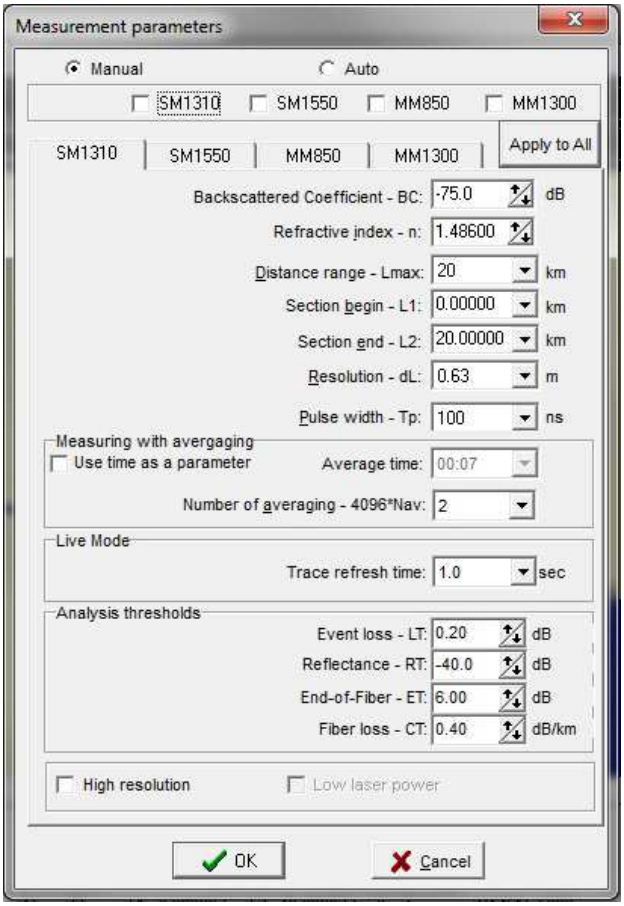
Measurement Parameter Properties Window

Table 3.2



- **Manual** – Enables manual Parameter setup
- **Auto** – The unit perform an Auto test to determine the appropriate parameters for cable under test
- **Wavelength** – Select at which wavelengths to test *1
- **Apply to All -** Apply active table parameter to all wavelengths
- **Backscattering Coefficient – (BC)** Values of the optical pulses in dB that are scattered back to the OTDR from the optical fiber being tested *2
- **Refractive index (n) -** The optical fiber's refractive index can be adjusted in increments of 0.00001 *3
- **Distance range (Lmax) –** Distance setting for test fiber *4
- **Section Begin (L1**) - Defines the location of the left marker *5
- **Section End (L2**) - Defines the location of the right marker *6
- **Resolution (dL) -** Selects the measurement sampling distance
- **Pulsewidth (TP**) - Selects width of output pulse *7
- **Measuring with Averaging –** Average using time parameter *8
- **Measuring with Averaging –** Average using 4096*Nav parameter *8
- **Live Mode** - Defines the screen refresh rate
- **Analysis Thresholds –** *9
  1 Event loss – LT **2** Reflectance - RT
  3 End-of-Fiber – ET **4** Fiber loss – CT
- **High resolution** – Increases measurement bandwidth
- **Low Laser Power -** Decreases pulse power

Individual parameters for each wavelength maybe selected within the appropriate wavelength tab.

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*1 If two (or more) Single Mode or both Multimode wavelengths are selected then Lmax, L1, L2 and dL become common parameters for the selected wavelengths.

*2 **Default BC values**
-82 dB for SM at 1550 nm
-77 dB for SM at 1310 nm
-76 dB for MM at 1300 nm
-68 dB for MM at 850 nm

*3 For an exact index of refraction value of the cable, contact the fiber optic cable manufacturer.
Default RI values

1.4682	for SM at 1550nm
1.4675	for SM at 1310nm
1.4860	for MM at 1300nm
1.4900	for MM at 850nm

*4 Available values in km:
2, 5, 10, 20, 40, 80, 120, 160 and 240

*5 L1 marker can be placed anywhere from 0 to L2 in the trace window.

*6 L2 marker can be placed anywhere from the L1 to the Lmax in the trace window.

*7 Shorter pulses are generally used for shorter distances and higher resolution. Longer pulse widths are required for longer fiber runs. The allowable pulse width is determined by the distance range- **Lmax.**

*8 **Number of Averages** (4096*Nav) This defines the number of allowable trace averages when the OTDR in the "RUN" mode. **Nav** may be set to any of the following values → 1, 2, 4, 8, 16, 32, 64, 128, 256
Averaging Time (min: sec) The user also has the option to set the time range that they would like for a particular measurement.

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*9 Threshold values for Automatic Trace Analysis

The parameter menu contains the threshold values that the OTDR compares with the actual trace values when operating in the Automatic Trace Analysis mode. These values are inputted by the OTDR operator and are used to compare expected measurement values to actual measurement values. The measurement values are displayed on the events table and if the expected parameters are not met – the results will be indicated by an asterisks "*" in the events table.

Event Loss (LT) - Threshold of the event attenuation value in dB. Events with attenuation value that exceeds the threshold value will be shown in the **Events Table.**

Reflectance (**RT)** - Threshold of the event reflectance value in dB. The reflected event having a reflectance higher than the threshold value are shown in the **Events Table.**

End of Fiber (**ET**) - Threshold of the event attenuation value in dB for defining the fiber end. The first event with an attenuation exceeding the threshold value is defined during the automatic trace analysis as an optical fiber end. All subsequent events will be ignored.

Fiber Loss (CT) – Attenuation coefficient threshold value of the section in dB/km. Exceeding the attenuation coefficient threshold value will mark the section with an * in the **Events Table.**

If the threshold are exceeded, the coefficient value will be marked by an asterisk "*" in the marks table. This cannot be construed as certification – as true attenuation loss, according to the standards (EIA/TIA) are only determined by a power meter and a source.

Default values of Fiber Loss
0.25 dB/km for Single Mode at 1550nm
0.4 dB/km for Single Mode at 1310nm
1.0 dB/km for Multimode at 1300nm
2.0 dB/km for Multimode at 850nm

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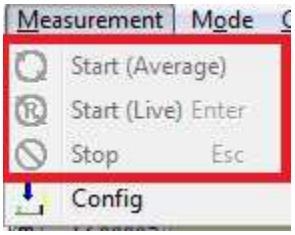
Taking a Measurement

Table 4.0



Measurement Options
Start (Averages) – Start a measurement with averaging *10
Start (Live) – Real Time Mode *11
Stop – Stops the measurement process *12

*10 **Start (Averages)** - The measurement mode with averaging is designed for measuring and analyzing all of the parameters of the fiber optic cable. When using this feature, the measurement average counter is displayed on the bottom of the main screen. The OTDR displays a progress bar (**Nav=Number of Averages)** at the bottom of the screen. This indicates time elapsed verses total measurement time. The software will beep when the total measurement is completed.

*11 **Start (Live)** – In the Real Time mode the OTDR will continue to run measurements according to the preset parameters.

*12 **Stop** – Both an Average reading or a Live reading maybe stopped by this function at any time in the measurement process.

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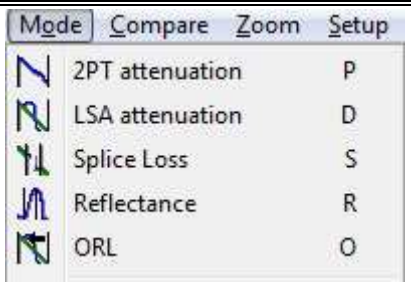
Measurement Modes

Table 5.0

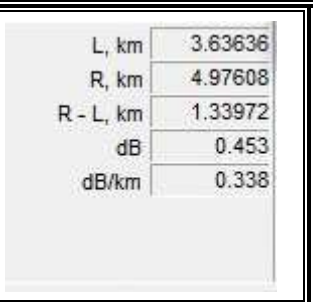


Measurement Modes
2PT Attenuation *13
LSA Attenuation *14
Splice Loss *15
Reflectance *16
ORL – Optical Return Loss *17

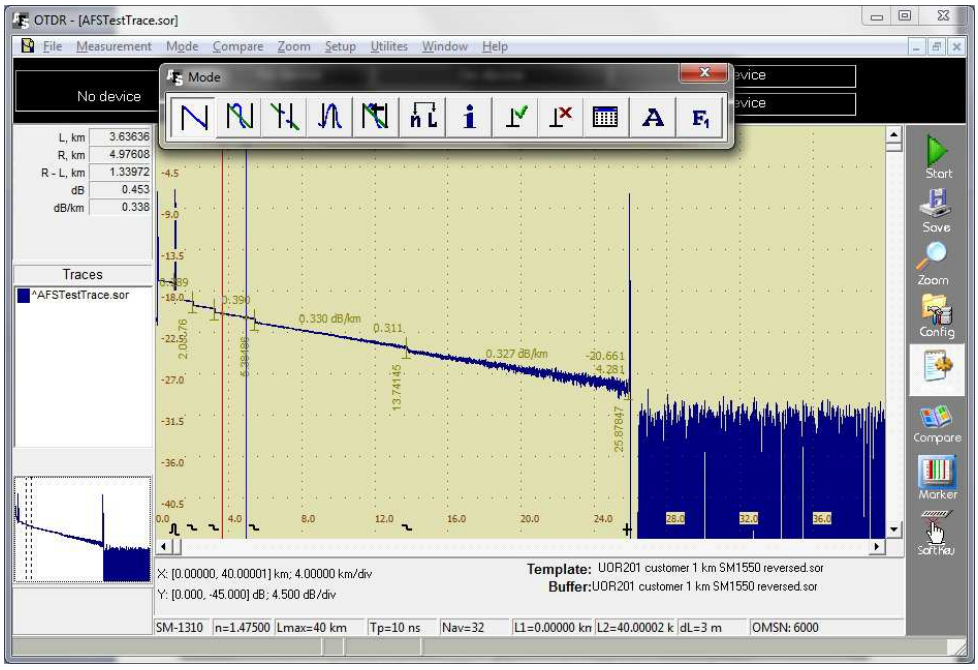
*13 **Measuring Attenuation between two marker points - (2 PT)**
In this markers mode values are shown at the left side of the screen in the information panel. The measurement values are based upon where the left hand marker (**L)** and right hand marker **(R)** are positioned on the trace screen. The **(L,km)** field indicates the distance of the L marker while **(R,km)** field indicated the distance of the right hand marker on the trace. **(R-L,km)** indicates the distance between the left and right markers. The **dB** field in the information panel displays the attenuation between the left and right hand markers, while the **dB/km** field displays the attenuation co-eff.

2PT Attenuation

Table 5.1



- **L,km -** Left marker location
- **R,km –**Right marker location
- **R-L, km** – Distance between R & L
- **dB –** Loss between R & L
- **dB/km** – attenuation co-efficient



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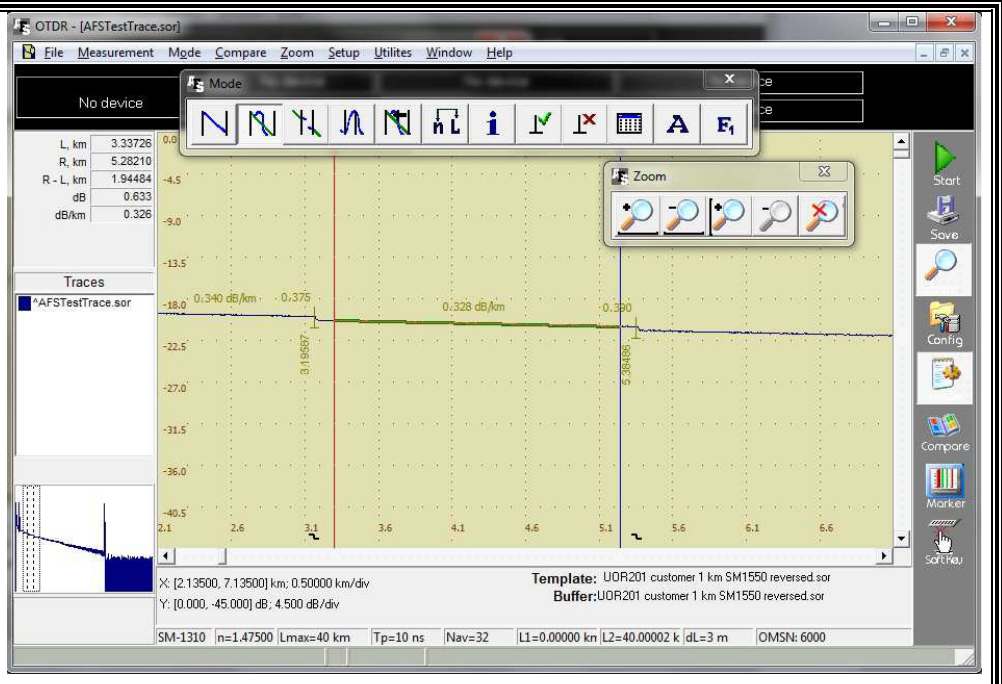
*14 Measuring the Attenuation by Approximation - (LSA)

The attenuation measurement by approximation mode is used to measure "non-event" sections of the fiber optic link. This mode increases the accuracy of the attenuation measurement between the two markers by using a straight line to approximate the measurement. The approximation straight-line measurement values are shown on the left side of the screen in the information panel. The measurement values are based upon where the left hand marker (**L)** and right hand marker **(R)** are positioned on the trace screen. The **(L,km)** field indicates the distance of the L marker while **(R,km)** field indicated the distance of the right hand marker on the trace. **(R-L,km)** indicates the distance between the left and right markers. The **dB** field in the information panel displays the attenuation between the left and right hand markers, while the **dB/km** field displays the attenuation coefficient.

LSA Attenuation

Table 5.2

L, km 3.33726 R, km 5.28210 R - L, km 1.94484 dB 0.633 dB/km 0.326	
• **L,km -** Left marker location • **R,km –**Right marker location • **R-L, km** – Distance between R & L • **dB –** Loss between R & L • **dB/km** – attenuation co-efficient	

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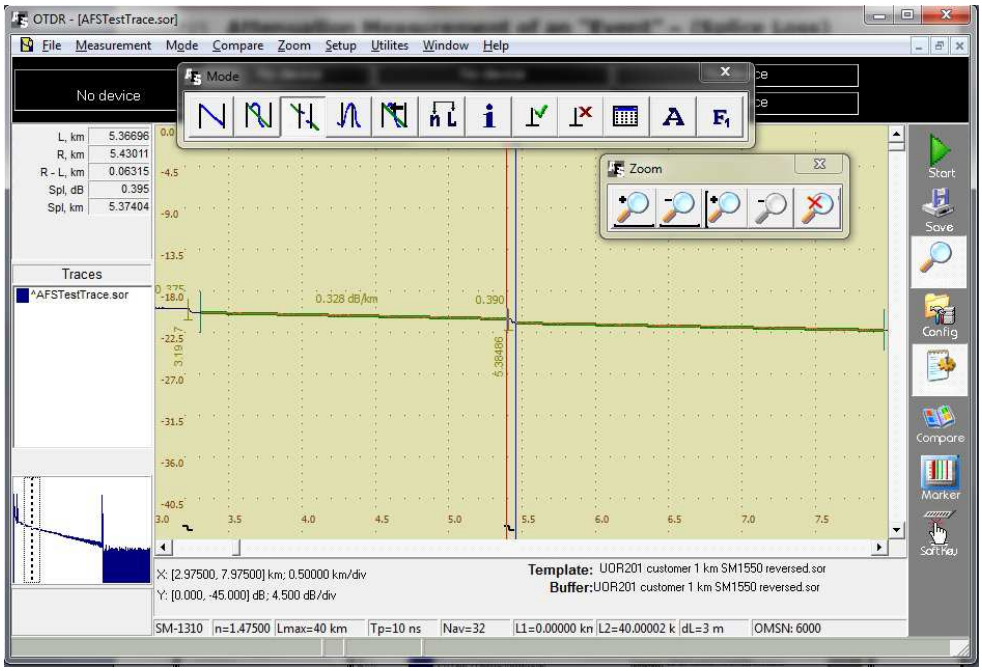
*15 Attenuation Measurement of an "Event" – (Splice Loss)

Using the "Five Markers" method the OTDR measures the attenuation of a specific event. The "five marker" method works as follows:

The left marker (**L**) and right marker (**R**) are placed on either side of the event, as close as possible to the edges of the event, without touching the event itself. The two outermost markers (**Lx** and **Rx**) are used to calculate the straight line approximation of the fibers on both sides of the event and the fifth marker (**C**) is used to locate the begining of the event. The measurement results are displayed in the information panel. The **(L,km)** field indicates the distance of the L marker while **(R,km)** field indicated the distance of the right hand marker on the trace. **(R-L,km)** indicates the distance between the left and right markers. The **Spl, dB** field in the information panel displays the attenuation of the event while the **Spl, km** field displays the distance to the event being tested (middle marker **C**).

Splice Loss

Table 5.3

L, km 5.36696 R, km 5.43011 R - L, km 0.06315 Spl, dB 0.395 Spl, km 5.37404	

- **L,km -** Left marker location
- **R,km –**Right marker location
- **R-L, km** – Distance between R & L
- **Spl,dB –** Splice loss
- **Spl/km** – Distance to splice event location

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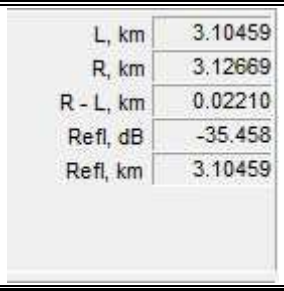
*16 Reflective Coefficient Measurement - (Reflection)

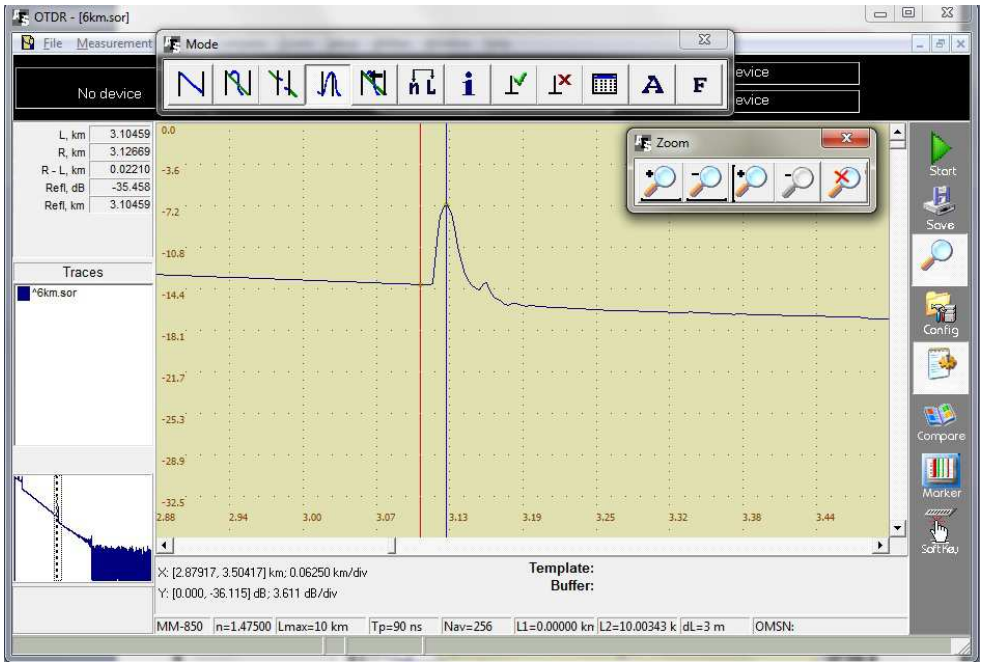
This marker method is used to measure the reflection coefficient of a specific connector event. Place the right marker (**R**) on the peak of the reflected event. Place the left marker (**L**) on the base line of the trace directly before the event. The measurement results are displayed in the information panel. The **(L,km)** field indicates the distance of the L marker while **(R,km)** field indicated the distance of the right hand marker on the trace. **(R-L,km)** indicates the distance between the left and right markers. The **Refl, dB** field displays the reflective coefficient between markers **L** and **R** while the **Refl, km** field displays the left (**L**) marker and location of the base of the connector.

Reflective Coefficient

Table 5.4



- **L,km -** Left marker location
- **R,km –**Right marker location
- **R-L, km** – Distance between R & L
- **Refl,dB –** Reflective value
- **Refl/km** – Distance to reflective event location



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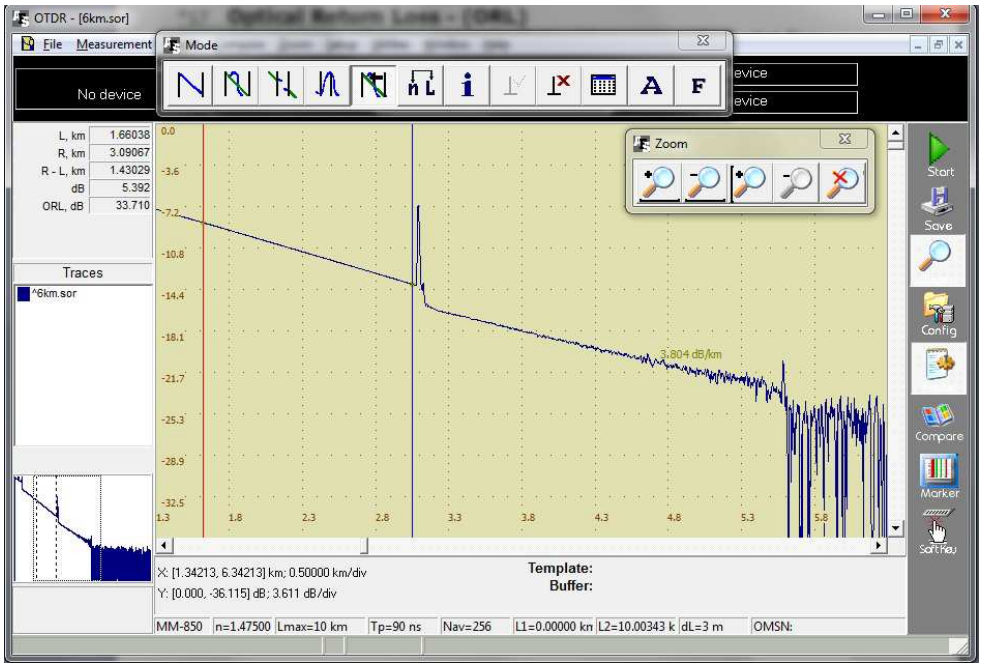
*17 Optical Return Loss - (ORL)

This marker method measures the Optical Return Loss of a partial fiber section or the whole fiber link.

Place the left (**L**) and right (**R**) markers on the fiber link that is being tested. The measurement results are displayed in the information panel. The **(L,km)** field indicates the distance of the L marker while **(R,km)** field indicated the distance of the right hand marker on the trace. **(R-L,km)** indicates the distance between the left and right markers. The **dB** field in the information panel displays the attenuation between the left (**L**) and right (**R**) hand markers while the **ORL, dB** field displays the ratio (in dB) of the optical power entered into the fiber link verses the power which is returned to the beginning of the fiber for the marked section.

ORL **Table 5.5**

L, km 1.66038 R, km 3.09067 R - L, km 1.43029 dB 5.392 ORL, dB 33.710	
✖ **L,km -** Left marker location ✖ **R,km –**Right marker location ✖ **R-L, km** – Distance between R & L ✖ **dB** – dB loss between R & L ✖ **ORL/dB** – Ratio in dB between inputted optical power and returned optical power	

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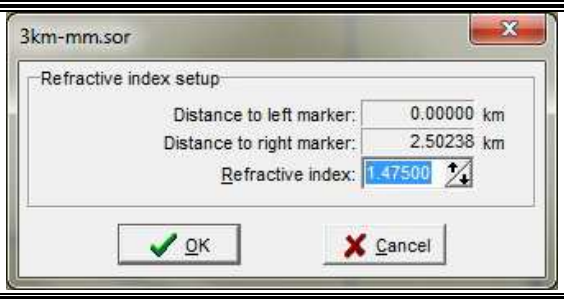
Refractive Index

Table 6.0



Refractive Index
✘ **Distance to left marker**
✘ **Distance to right marker**
✘ **Refractive Index** *18

*18 The **Refractive Index** box enables the user to adjust the refractive index setting according to the specific fiber under test.
If the refractive index value is unknown but the fiber length is known, then the refractive index can be estimated by comparing the index of refraction with a known value from a previous trace.

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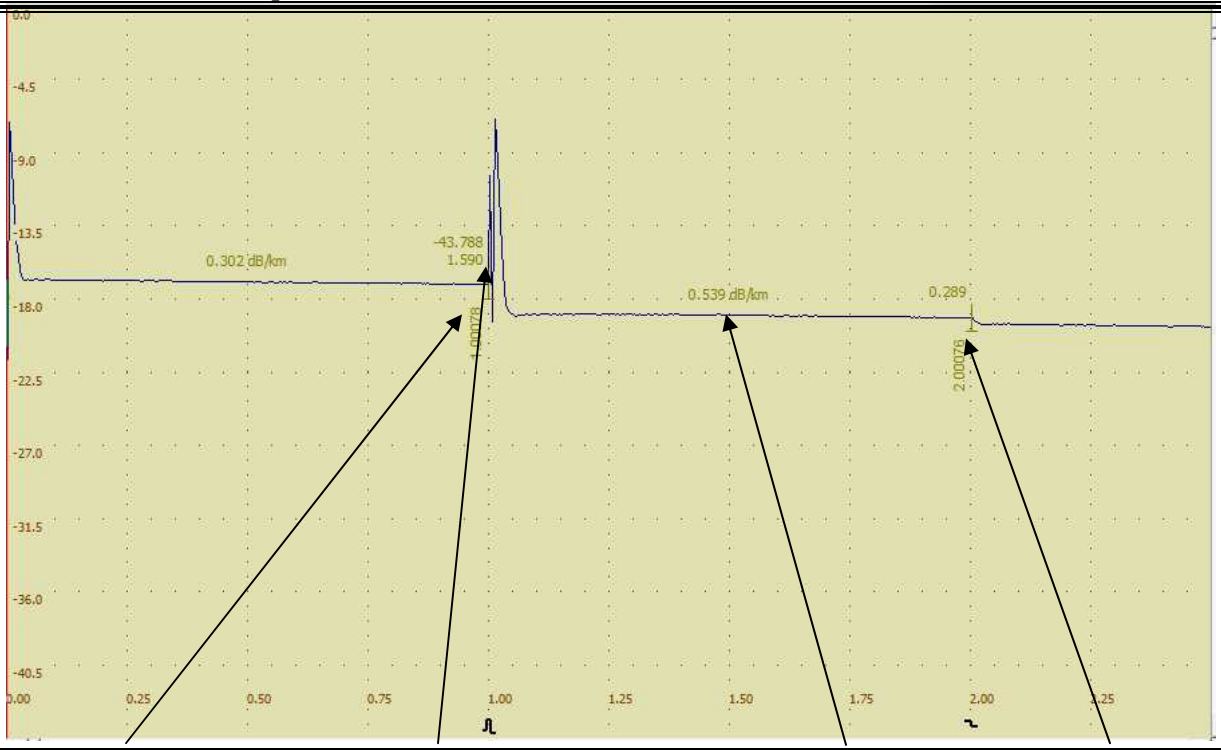
Auto Trace Analysis

Table 7.0



Distance to Events	Connector Losses	Attention of fiber link and fiber sections	Splice Losses

When the OTDR takes a measurement it also performs an automatic trace analysis (if preset). Once the trace analysis is completed, the OTDR will determine the following, the **distance** of the fiber link and **distance to events**, the **attenuation** of the fiber link and of fiber sections, the **ORL**, the **splice losses** and the **connector losses.**

Once the OTDR completes the test, the OTDR displays the results on the trace screen, as shown in **table 7.0**. The results are also displayed in the **Events Table.**

The OTDR will establish "marks" with the "⊥" symbol. From these marks, the OTDR determines the appropriate values.

- The event distance(s) is represented vertically on the trace.
- Fiber attenuation values are displayed as dB/distance (unit measurements).
- Optical return loss is displayed as a single value (no unit measurements).

In the auto mode, the OTDR compensates for the "Dead Zone" of the fiber link and calculates the attenuation from the end of the dead zone.

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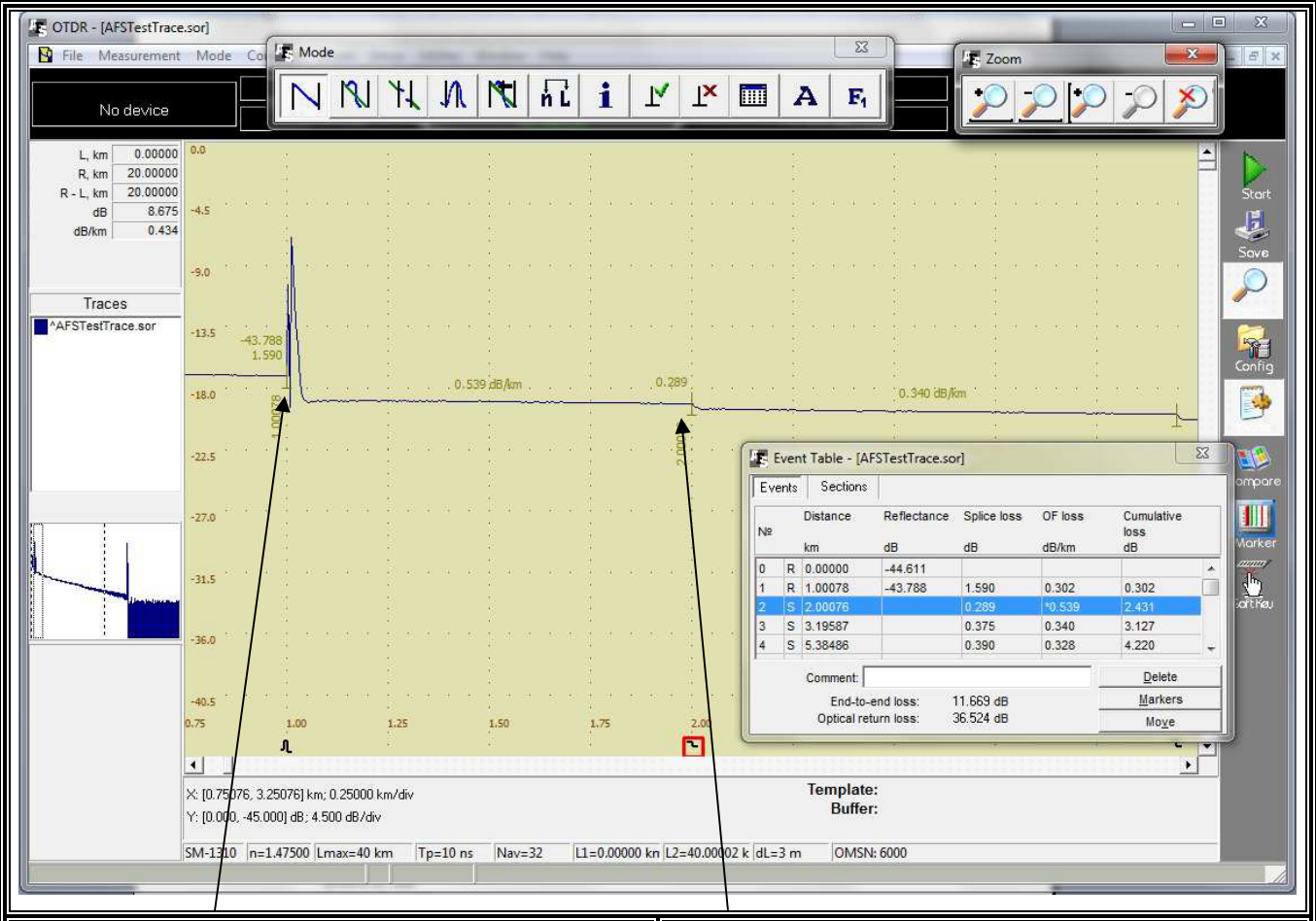
Events Table

Table 8.0



R = Event with reflection	**S** = Event without reflection

The **Events Table** lists the measurement values of the data points (marks, ⊥) on the particular fiber under test. The Events Table **(table 8.0)** has two fields, the "Events" field and the "Sections" field.

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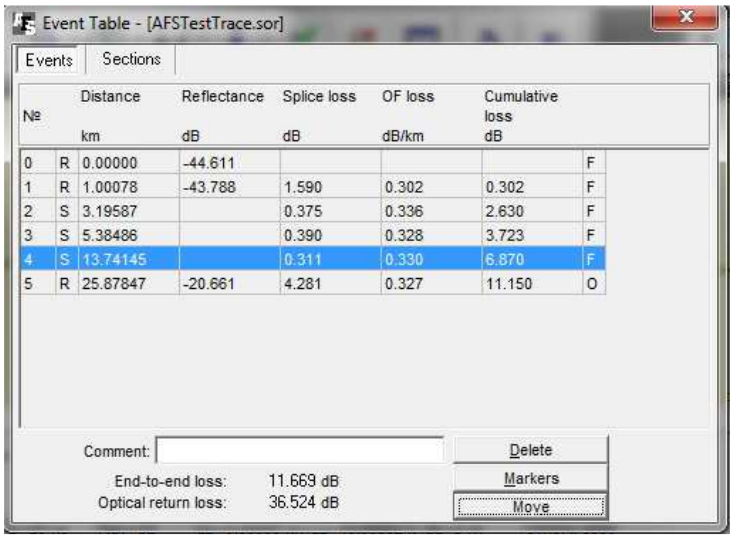
Events Tab

Table 8.1



- Event Codes
  - **A** = Added by the user
  - **M** = Relocated by the user
  - **E** = End of fiber
  - **F** = Found by software
  - **O** = Out of range without finding the E-O-F
  - **D** = Modified end of fiber

Event Tab Columns
No. – Events in numeric order
Event Type – R = reflective S = non-reflective
Distance – From beginning of fiber to the event
Reflectance - Reflective co-eff in an event (if any) in dB
Splice loss– Attenuation of an event (if any) in dB
OF loss - Attenuation coefficient of a non-event in dB/km
Cumulative loss - Total attenuation from the beginning of the fiber under test to the next event in dB

The "**Delete**" Button will delete the highlighted marks from the trace window and the corresponding data from the Events table**.** (**Note*** it is impossible to remove the pre-established markers from the beginning and the end of the fiber trace.)

When in the events table, the "**Markers**" button, when pressed, will jump to the appropriate marks on the trace window related to the highlighted data.

The "**Move**" button allows the user to adjust the markers position incrementally back and forth around the highlighted event in the trace window, allowing the user to adjust any measurements made by the automatic trace analysis. Please see Table 8.3 below.

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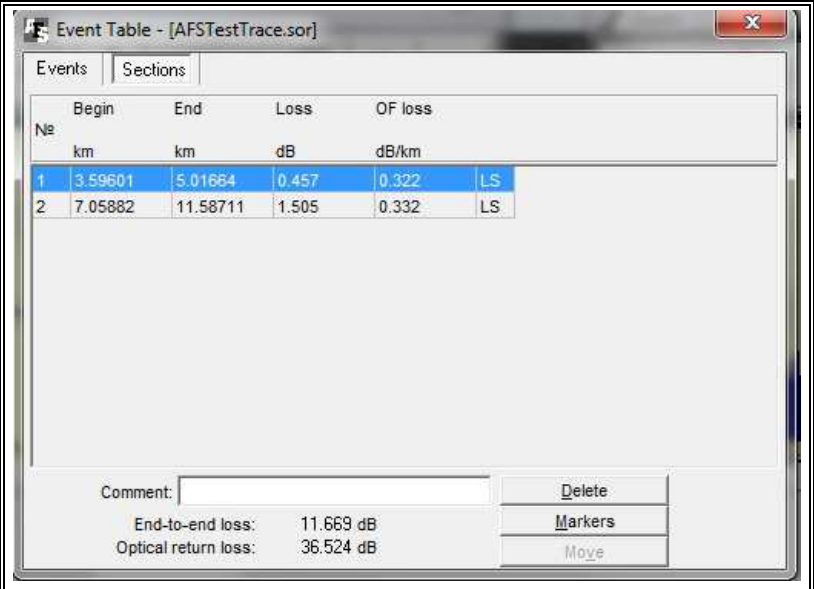
Section Tab

Table 8.2



Section Tab Columns
No. - Events in numeric order
Begin - Distance to the left red box on the trace screen
End - Distance to the right red box on the trace screen
Loss - Complete attenuation between the marked sections
OF Loss - Attenuation coefficient of the marked sections

Chosen sections will be highlighted on the events table. Pressing the "Markers" button will move the vertical markers in the trace window to the location indicated by the highlighted section in the events table.

To delete a section simply highlight that particular section and press the delete button.

The Reflect PC software allows the user to measure a specific section of the fiber under test by inserting marks ⊥ on the trace. To insert a set of markers, place the left vertical marker and the right vertical marker at each side of a section to be measured and press the "insert marks" button.

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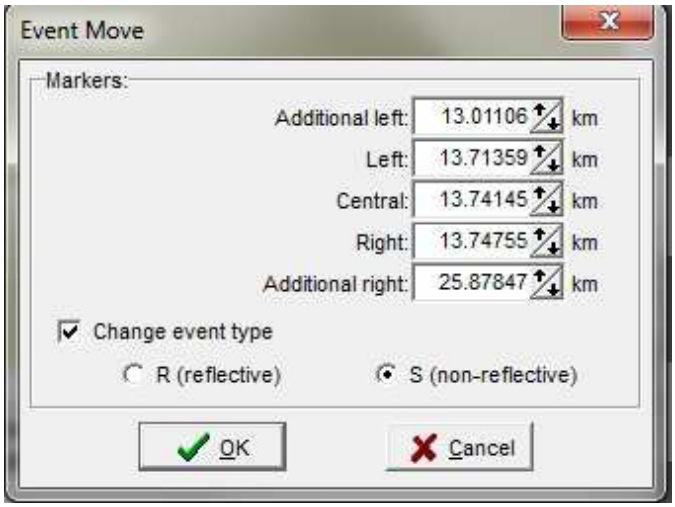
Event Move (Manually adjust an Event)

Table 8.3



- **Additional left –** adjust LSA left most marker
- **Left –** adjust left (main) marker
- **Central** – Adjust center marker
- **Right -** adjust right (main) marker
- **Additional right –** adjust LSA right most marker
- **Change event type –** enable the user to change event type between R(reflective) and S(non-reflective)

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Compare and Trace Function *(Please refer to Table 2.3)*

For a fast analysis of a multi-fiber optic cable with many events, the **Compare and Trace** function becomes a very useful tool. With the **Compare and Trace** option, the user can transfer marks and parameters on one fiber to another by simply pressing one key.

Selecting the **create template** allows the user to save data points of the marks on a trace to a buffer allowing the user to transfer those points on to a different trace for evaluation.

The **Compare** drop down menu will now activate the functions **Apply Template** and **Delete Template**.

The template is the analysis calculations related to a particular trace.

The data stored in the template buffer can be erased and written over by repeating the above procedure.

Each trace is displayed in its own separate window. However, if desired the user may insert several traces in one window for data comparison.

To insert a trace from one window into another window simply follow the below procedure

- Open the trace window to be copied
- Select Compare→Copy

By selecting **Compare→Copy**, the trace will be saved in the buffer displayed in the information panel. The **Compare** and **Paste** functions will now become active. ***Note: They may have already been activated from a previously saved trace.***

- Open host trace window
- Select **Compare→Paste**

The names of the inserted traces will appear in the information panel under **Traces** (The host trace name will appear at the top of the list.)

It is possible to insert up to seven traces at the same time.

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Only one trace at a time is active in the host window. This is indicated by the symbol "**^**" beside the file name in the **traces** window of the information panel. Using the vertical markers it is possible to measure the length and attenuation of each active trace. To make a trace active simply double click on its name in the information panel. Pressing keys **CTRL+SPACE** when it is highlighted will also activate the trace. **CTRL+PAGE UP** and **CTRL+PAGE DOWN** will allow the user to scroll up and down through traces in the information panel.

To remove an inserted trace from the host window, select and highlight the trace then press the icon or press the **CTRL+DEL** keys.

Shift Trace **Table 9.0**

Shift trace vertically
✘ **Shift up –** move trace up vertically
✘ **Shift down –** move trace down vertically
✘ **Restore Position –** restore to original position

It is also possible to shift the inserted trace vertically in the host window. Highlight the desired trace to shift and select the **menu** item ***Compare → Shift Trace***.

On the inserted trace it is possible to place vertical markers for specific measurements or enter explanatory information and apply it to the function "model."

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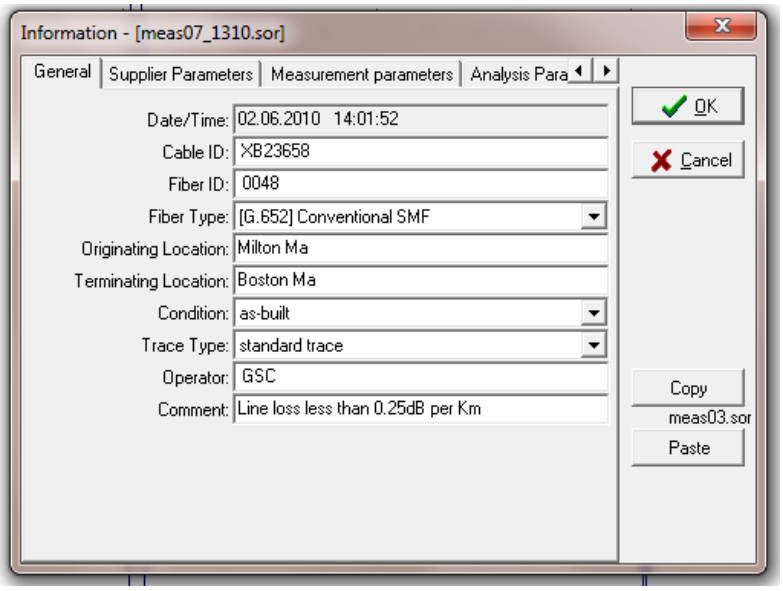
Trace Information – General Tab

Table 10.0



General Tab
Date/Time – displays time and date of recorded trace
Cable ID – enables the user to enter a cable ID
Fiber ID – enables the user to enter a fiber ID
Fiber Type – enables the user to select a fiber type
Originating Location – enables the user to enter a originating location
Terminating Location – enables the user to enter a terminating location
Condition – enables the user to select the fiber condition
Trace Type – enables the user to select the fiber trace type
Operator – enables the user to enter the operators information
Comment – enables the user to enter the additional comments

The Technician can input specific information about each fiber link that is being tested. This includes cable/fiber ID, fiber type, fiber location, termination location, fiber condition, the fiber optic test technician and any applicable comments.

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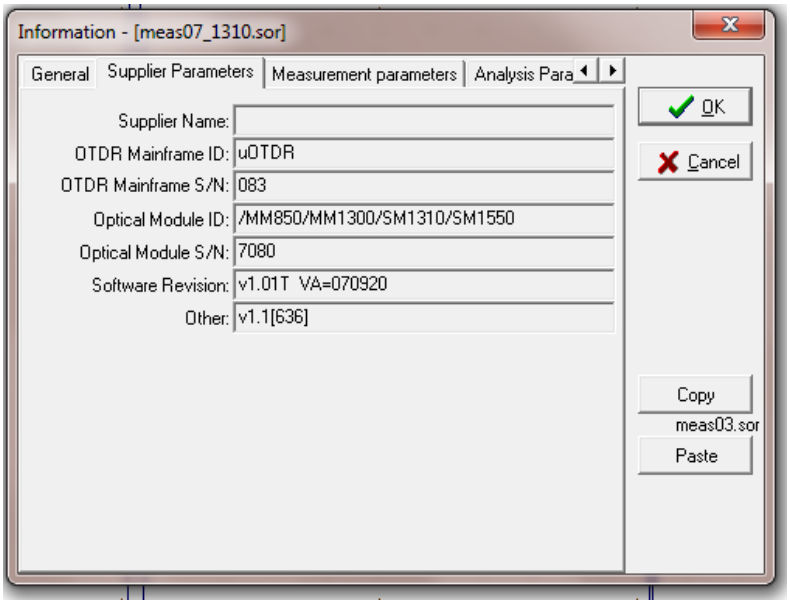
Trace Information – Supplier Parameter Tab

Table 10.1



Supplier Parameter Tab
Supplier Name – OTDR's suppliers name
OTDR Mainframe ID – OTDR's mainframe ID
OTDR Mainframe S/N – OTDR's mainframe serial number
Optical Module ID – OTDR's modules ID
Optical Module S/N – OTDR's module serial number
Software Revision – Software revision number
Other – other module numbers

This information tab shows the OTDR's mainframe characteristics.

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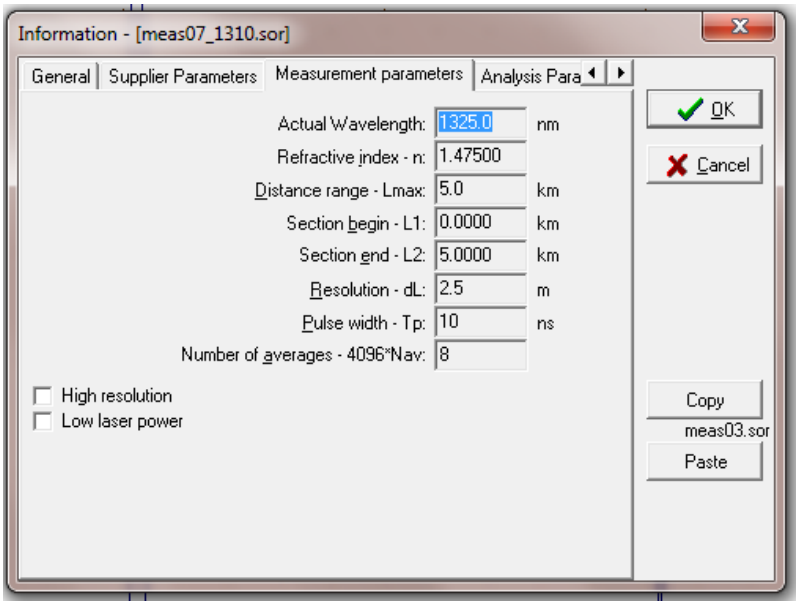
Trace Information – Measurement Parameters

Table 10.2



Measurement Parameters Tab
Actual Wavelength – Precise value of wavelength used for this trace
Refractive Index – Refractive index set for this trace
Distance Range (Lmax) – Distance set for this trace
Section begin (L1) - Defines the location of the left marker for this trace
Section end (L2) - Defines the location of the right marker for this trace
Resolution (dL) – Measurement sampling distance for this trace
Pulse-width (Tp) – Pulse width for this trace
# of Averages (4095*nav) – Number of average set for this trace
High resolution – Indicates if high resolution was set for this trace
Low laser power – Indicates if low laser power was used for this trace

This Information Window shows the initial measurement parameters tab that the user sets to take the OTDR measurements. These values are inputted during the initial measurement parameters setup.

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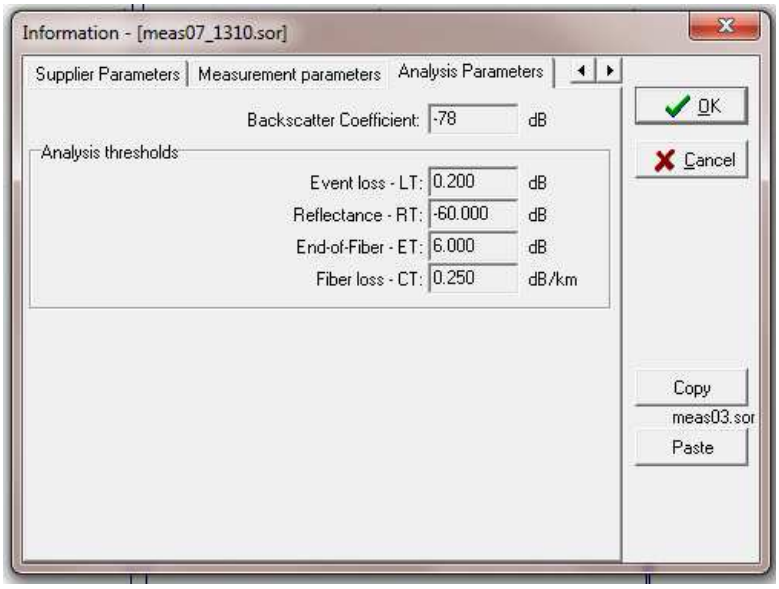
Trace Information – Analysis Parameters

Table 10.3



Analysis Parameter Tab
Backscattering Coefficient – BC value for this trace
Event Loss (LT) - Threshold of the event attenuation value in dB for this trace
Reflectance (RT) - Threshold of the event reflectance value in dB for this trace
End-Of Fiber (ET) - Threshold of the event attenuation value in dB for defining the fiber end for this trace
Fiber Loss (CT) - Attenuation coefficient threshold value of the section in dB/km for this trace

This information tab shows the threshold values selected by the Technician for the automatic trace analysis.

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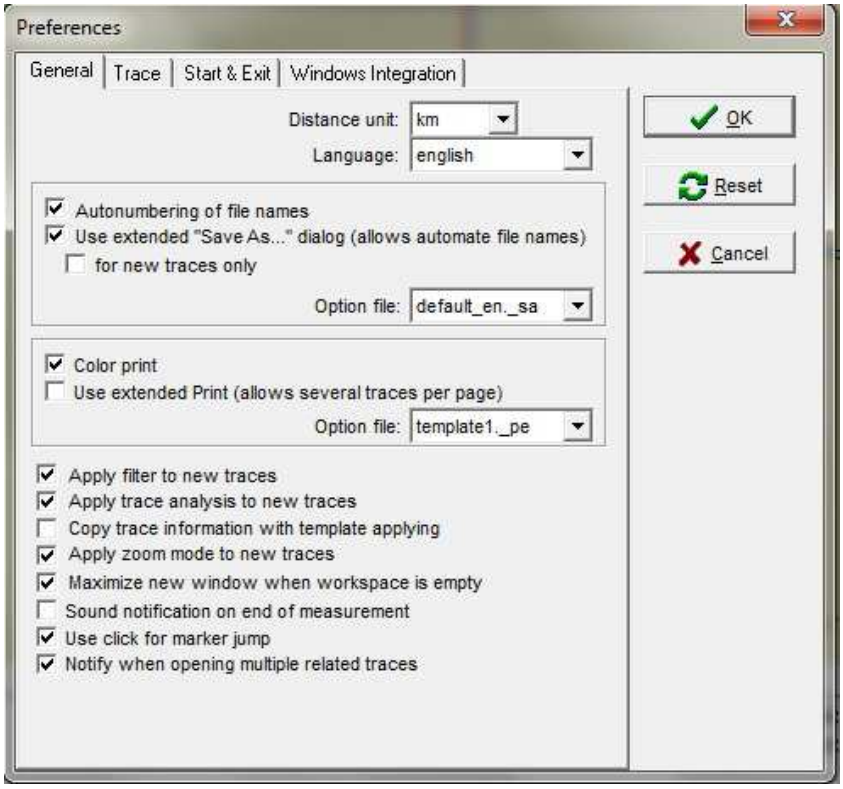
Preference – General Tab

Table 11.0



Note:
The user can modify or change the appearance of the OTDR software depending upon operation, measurement, or operator preferences. Some of the items the user can modify are as follows:
The trace screen, measurement parameters, (i.e. km to ft) or change the language.

General Tab
Distance unit - Change the measurement value. Km, m, Ft, Kf and Mi are the available options
Language - Change the language options. English, Spanish or Korean
Autonumbering of file names - Auto number the traces in the order the measurements are taken
Extended Save As - Provides the user the option of changing the file root
Color print - Printing with or without color
Use extended Print - Enables the user to use the extended Print option
Apply a Filter on all new traces
Apply the "Automatic" Analysis mode on all traces
Copy the trace information with template
Apply "Zoom" option on new traces
Maximize the trace window
Sound at end of measurement
Use Click for Marker Jump
Notify when opening multiple related traces

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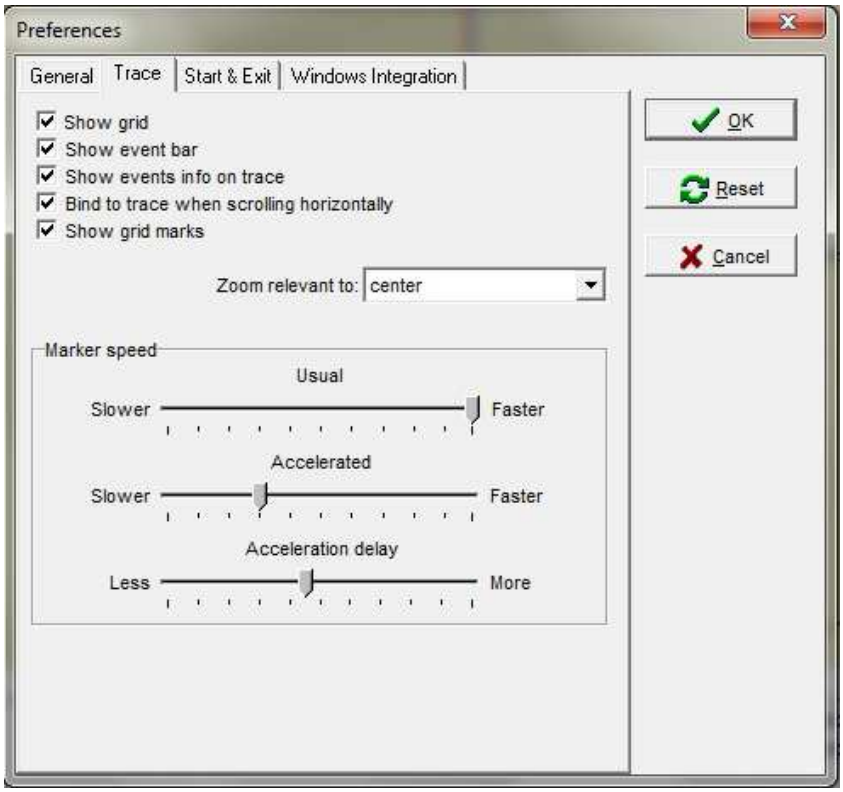
Preference – Trace Tab

Table 11.1



Trace Tab
Show grid - Turn on or Turn off the background grid
Show event bar - Show the bottom marker bar, highlighted in Red
Show events info on trace - Turn-on or turn-off the automatic analysis measurement
Bind to trace when scrolling horizontally - Change the starting point of horizontal scrolling
Show grid marks – show position marks on the grid
Zoom relevant to Left corner Center Right corner Scrollbar
Marker speed Usual Accelerated Acceleration delay **The marker speed can be changed to varying degrees**

The Trace tab in the preferences window allows the user to setup different parameters related to the trace grid, event bar, events information on trace, scrolling, zooming and markers speed.

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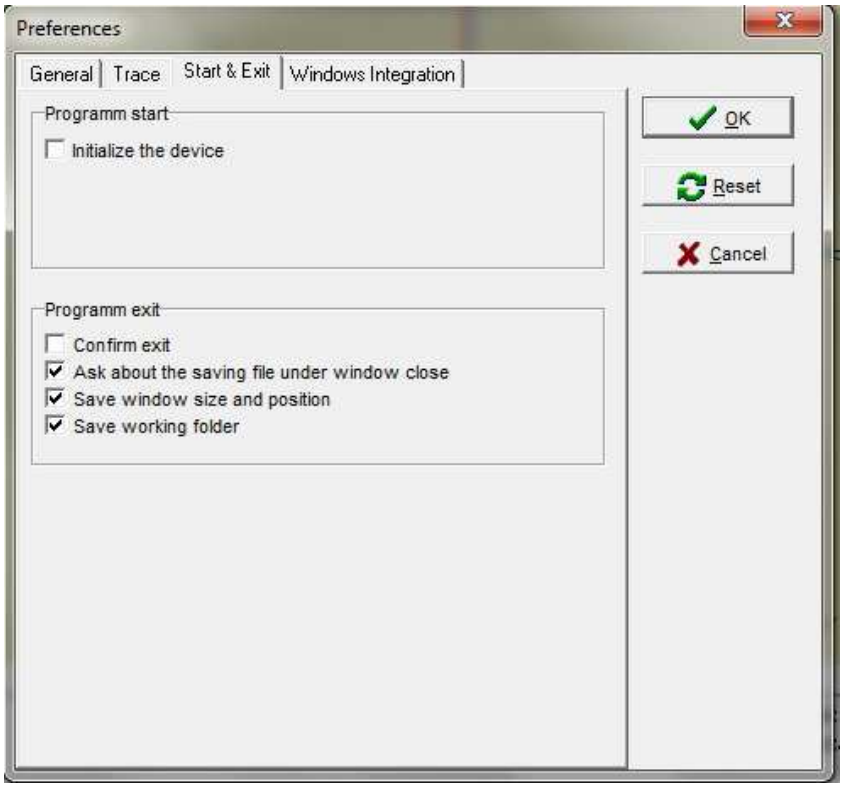
Preference – Start & Exit Tab

Table 11.2



Start & Exit Tab
Initialize the Device - Automatically check the device connection when software is launched
Confirm Exit - Confirm exit when closing program
Ask about saving file - Ask if the operator would like to save the trace upon closing
Save - Window size and position
Save working folder – Save in last working directory

The Start & Exit tab in the preferences window allows the user to setup different parameters related opening the program and exiting the porgram

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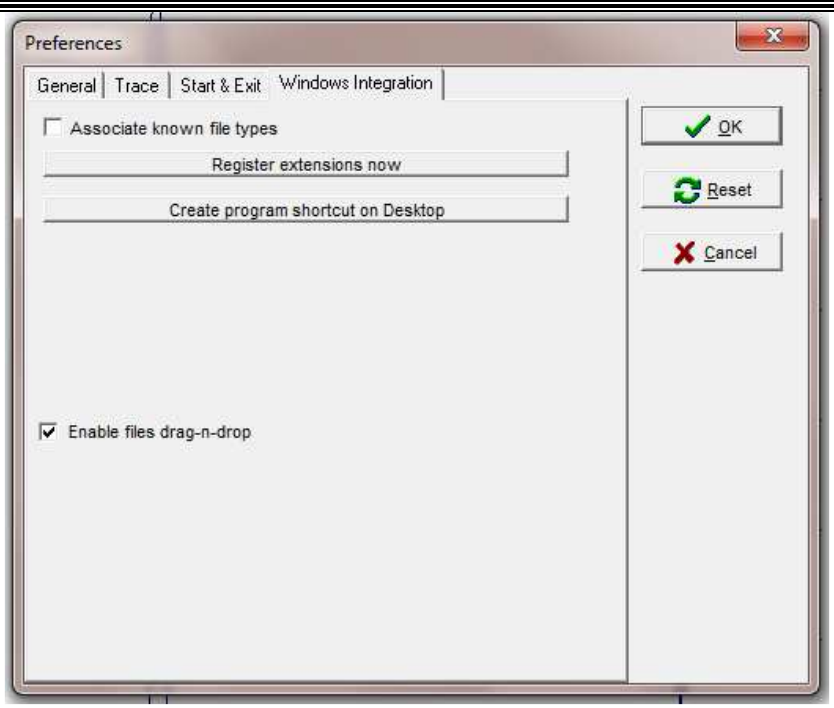
Preference – Windows Integration Tab

Table 11.3



Windows Integration Tab
▪ **Register extensions now**– enable the user to click on a *.sor file which will then open the OTDR software (if not already opened) and load the associated trace when the - Associate known file types is checked
▪ **Create a shortcut to** the PC or Laptops desktop
▪ **Enables the user to drag** a file onto the trace window where the software will then open

General Preferences Window Options

- The "**OK"** button accepts any changes.
- The **"Reset"** button resets default values.
- The "**Cancel"** button cancels all the changes.

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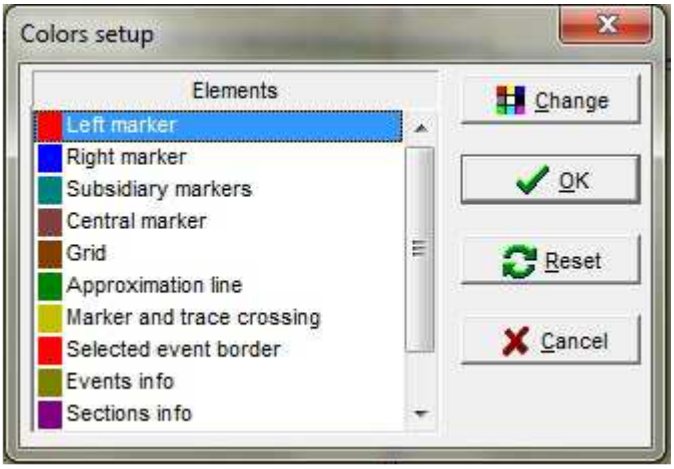
Colors Setup – Elements

Table 12.0



Element Colors
Elements – Selectable Elements Left marker Right marker Subsidiary markers Central marker Grid Approximation line Selected event boarder Events info Sections info Trace Background Grid Marks
Change – Change highlighted element

This option enables the user to change the color scheme of the Reflect software elements by changing the color palette.

- Highlight the specific **"element"**
- Select **Change.** A standard windows™ "Color" window will appear
- Select the colors you wish and press ***OK***

Do this as necessary. To store changes and return to software press ***OK*** or press ***Cancel*** to quit without changing any colors.

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Connecting DR500 Series unit to Reflect.exe via *Windows Mobile Device Center*

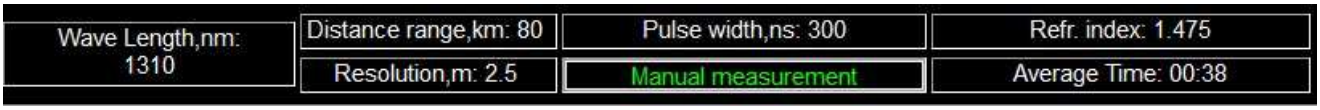
Table 13.0

Windows Mobile Device Center	
	✘ Download Windows Mobile Device Center to PC ✘ Open Mobile Device Center Application ✘ Turn off OTDR – make sure all data is saved before power down. ✘ Connect the supplied USB cable between the OTDR and the PC **Note:***The Mini USB connector attaches to OTDR and the USB connector attaches to the PC* ✘ Turn on OTDR – The PC will load the drivers for the OTDR and connect through the Mobile Device Center application

Connection to Reflect Software

Table 13.1

Connection and Parameters Panel	
	✘ Once a connection has been established between the PC and OTDR the Reflect.exe application has the ability to setup parameters and activity OTDR measurements



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Troubleshooting

Software does not load correctly
System needs to be Win 98 or more recent, at least 16MB of RAM and a processor that is 75Mhz or better

PC or Laptop does not recognize OTDR
The PC and the OTDR communicate via **Window Mobile Device Center** please verify that this program is correctly installed on Laptop or PC

For further assistance contact AFS

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Advanced Fiber Solutions, Inc.

19 Norfolk Ave,
Easton, Ma, 02375, USA

508-238-7100
800-556-9313
Fax:617-507-0784