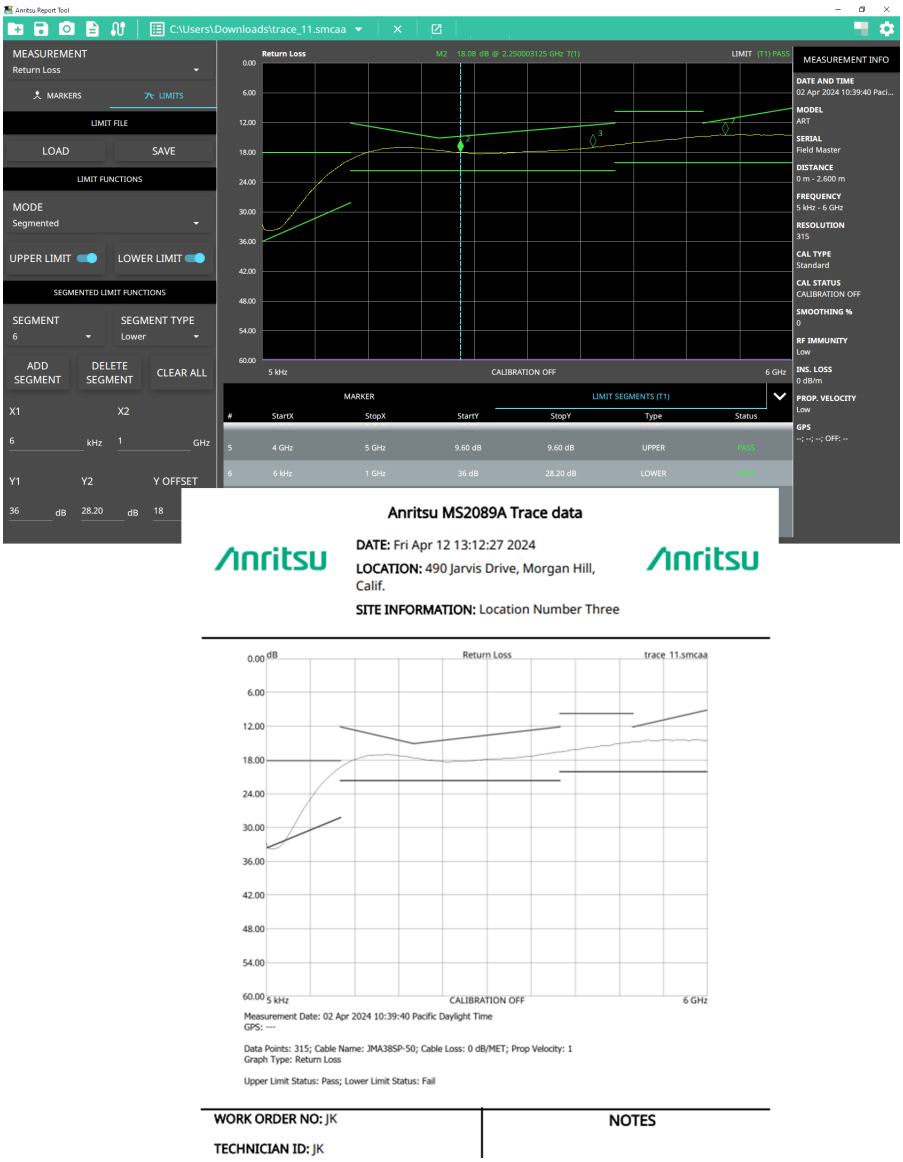
User Guide

Anritsu Report Tool



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Chapter 1 — General Information

1-1 Introduction

The Anritsu Remote and Report Tools (ARRT) application is a part of the Anritsu Remote and Report Tools software package. It provides tools for adjusting measurement plot data taken from an Anritsu instrument. The following operations can be performed:

- Add or adjust markers, set a limit line, and adjust scale
- Open and view multiple measurements
- Set markers and limit lines quickly to preset values
- Distance to Fault analysis
- Generate reports
- Output measurement plots to a printer
- Import plot data (fmcaausb, smcaa)
- Export plot data to text CSV, PNG, CAA
- Edit, import, and export a cable list
- Capture and export data to an instrument

PC Requirements

- Intel Core i5 Processor or higher
- 8 GB RAM
- Windows 10 or higher, 64-bit
- 1 GB Hard Disk
- Open GL (ES) 2.0 support
- 1280 x 800 resolution
- Ethernet or Wi-Fi (for connecting to all CAA instrument)

Instruments Supported by Anritsu Remote and Report Tools (ARRT)

- MS2089A
- MS2085A
- S331P with a MS2080A or MS2090A

Additional Documentation

For information on your Anritsu measuring instrument, search the Anritsu product page at:
https://www.anritsu.com

1-2 Installation

Download Anritsu Remote and Report Tools from the Anritsu product page:

https://www.anritsu.com/en-us/test-measurement/products/ms208xa

1. Press your instruments Downloads button from the Anritsu product page.
2. Click the PC software link for your instrument to start the installation.

The installation screens are shown in Figure 1-1.

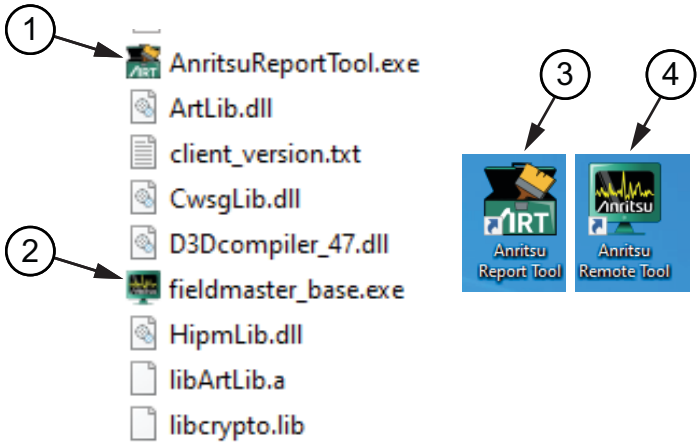
3. Click Next at each screen to continue. Click Cancel to abort the installation. Click Back to review the previous screen.

1. Title screen: AnritsuRemoteAndReprotTools and displays the download version: Click Yes to start the download
2. Installation Welcome screen
3. End-User License (EULA) screen
4. Option screen: Check provides a desktop Shortcut Icon.
5. Choose Install Location screen: Browse to create a Destination Folder.
6. Installing screen: Click Next when complete.
7. Installation Complete screen: See “Installation Complete” on page 1-3. Check the Start Anritsu Remote Tool will start the Anritsu Report Tool program after the installation.

Figure 1-1. Installation Screens.

Installation Complete

Refer to Figure 1-2. When the installation is complete, two icons will be placed on your desktop and two executables files will be downloaded to the folder location set by the user in the "Choose Install Location" screen shown in Figure 1-1 on page 1-2. The programs can be launched using either the executables or by pressing the icon on your desktop. See "ARRT Program Descriptions" below for a description of the two programs.



1. Anritsu Report Tool Executable
2. Anritsu Remote Tool Executable (fieldmaster_base.exe). See Appendix A, "Anritsu Remote Tool Program"
3. Anritsu Report Tool Desktop Icon
4. Anritsu Remote Tool Desktop Icon

Figure 1-2. Program Executables

ARRT Program Descriptions

Anritsu Report Tool: Trace data files are imported to the Report Tool program using the Remote Tool program described below. The imported trace data files are opened with the Report Tool program. The Remote Tool program UI tools include markers, trace limit lines, and cable list. The user can create custom reports and can export converted trace data files to an Anritsu instrument.

Anritsu Remote Tool: The Remote Tool provides the remote communication tools for accessing and downloading trace data files stored in an Anritsu instrument and reports created using the Report Tool program. To set up instrument communication with the Anritsu Remote Tool, refer to Appendix A, "Anritsu Remote Tool Program".

1-3 Contacting Anritsu for Sales and Service

To contact Anritsu, visit the following URL and select the services in your region: http://www.anritsu.com/contact-us.

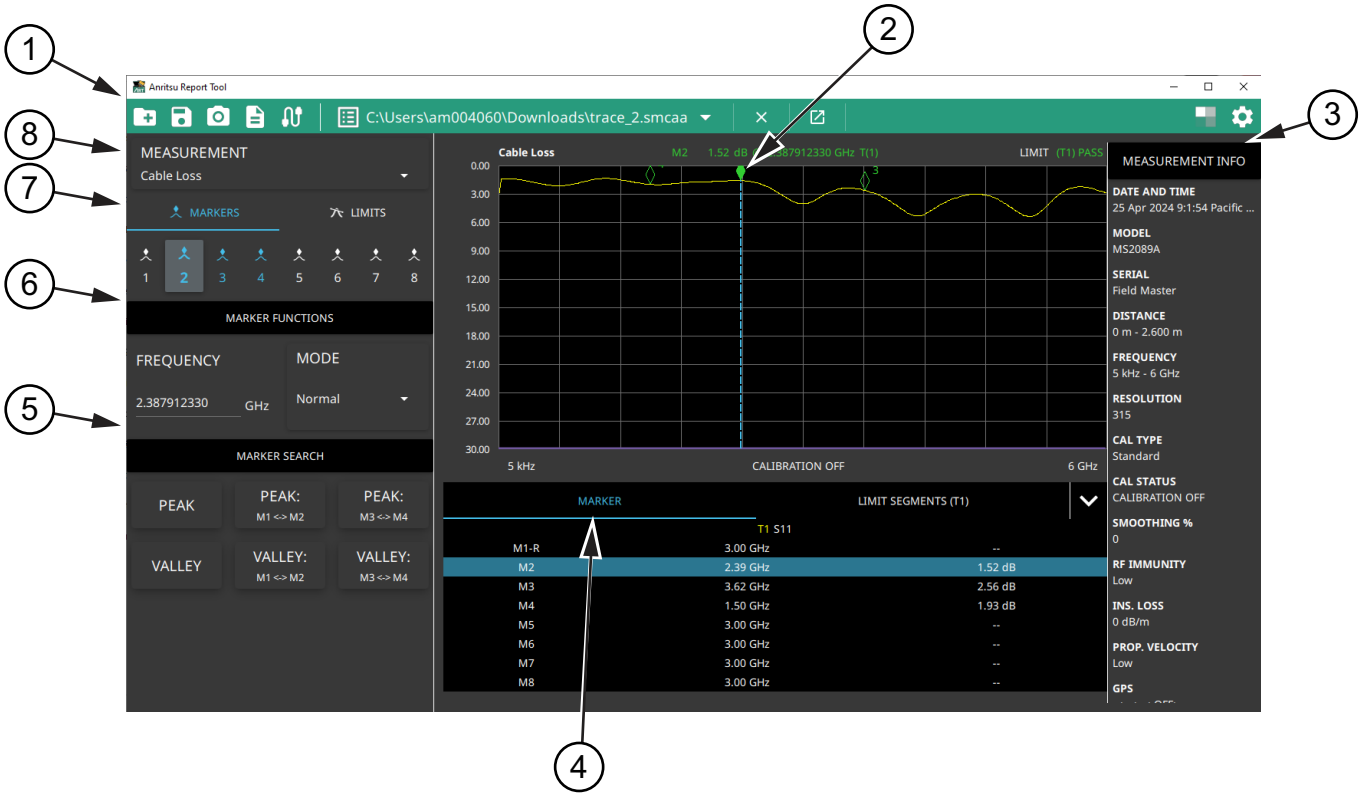
Chapter 2 — User Interface

2-1 Introduction

Anritsu Report Tool graphical user interface (GUI) provides a workspace where a trace data file (.fmcaausb or .smcaa) containing a measurement plot or multiple measurement plots are placed for analysis. The trace data files are downloaded from an instrument using the Anritsu Remote Tool program. For more information on the Anritsu Remote Tool program, see Appendix A, “Anritsu Remote Tool Program”.

2-2 User Interface

Open the Anritsu Report Tool executable from your PC or desktop icon. The Anritsu Report Tool user interface is shown in Figure 2-1.



1. See “Toolbar” on page 2-2.
2. Active Marker
3. Measurement Information: See “Measurement Type” on page 2-10.
4. Marker Details: See “Marker Table” on page 2-15.
5. Marker Search Controls: See “Marker Search” on page 2-13.
6. Marker Functions Settings: See Figure 2-6 on page 2-16.
7. Marker and Limits Settings (Markers Mode Shown)
8. Measurement Type Menu: See “Measurement Type” on page 2-10.

Figure 2-1. Anritsu Report Tools User Interface

Toolbar

The Anritsu Report Tools toolbar is shown in Figure 2-2.

Figure 2-2. Toolbar

The Anritsu Report Tools Toolbar controls are described in Table 2-1.

Table 2-1. Toolbar

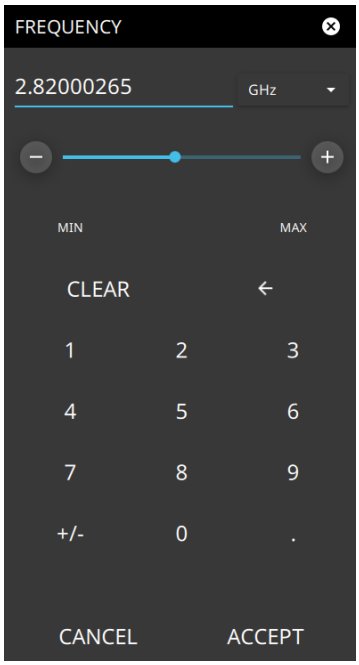
	The camera icon will capture a screen image and save it to a file.
	Open an new measurement.
	Save the trace file display.
	See Chapter 5, “Creating Reports”.
	See “Cable List” on page 4-1.
	Press to display the Trace Data files that are opened and available to view.
	Display available data files.
	Close the trace data file.
	See “Opening Multiple Screens” on page 2-24.
	Set display theme to darker or lighter.
	See “Settings Tab” on page 2-4.
	Enables or disables the feature. When highlighted in blue, the item is enabled.

Data Entry

Editing parameter values for analysis of a trace data file can be performed using the parameter entry keypad shown in Figure 2-3. Press a parameter value to display the keypad. Input can be in the form of numeric values for measurement and analytical settings. To view or change a parameter value, access the appropriate menu or control, then enter data using the data entry control, using the slide-bar, or attached physical keyboard. Some items can be accessed directly on the annotated display by selecting their value.

Enter Numeric Values

To modify a numeric parameter setting that is displayed on a menu or annotated field, select the item to make it active and to display the numeric keypad data entry control. Use the touch screen to enter or change the value.



The keypad typically provides controls to:

- Enter new values directly, such as frequency entries in Hz, kHz, MHz, or GHz. There are two places on the keypad to enter unit terminators when applicable, on left side pop-out that occurs as frequency keypad entries are selected, or on the top right corner drop-down of the entry field.
- Drag a parameter value within its settable range using a sliding control.
- Increment the parameter value up or down. At each end of the slider are plus (+) and minus (–) controls that increment the parameter value. Most parameters have a fixed increment, such as bandwidth that follows a 1:3:10 sequence and span that follows a 1:2:5:10 sequence. In the case of frequency, you can set a custom frequency step increment value. Once the entry is complete, select the desired unit or select ACCEPT to complete the entry.
- Set the parameter to the maximum or minimum possible value.
- CLEAR the entire entry.
- Left arrow to backspace and delete the entry
- CANCEL to terminate any entries made for that particular setting. Note that selecting the "X" to close the keypad is the same as selecting cancel. Selecting CANCEL will restore settings back to the state they were in before the keypad opened, even if changes from the +/- controls are already reflected in the data display.
- ACCEPT to operate with the settings displayed on the keypad.

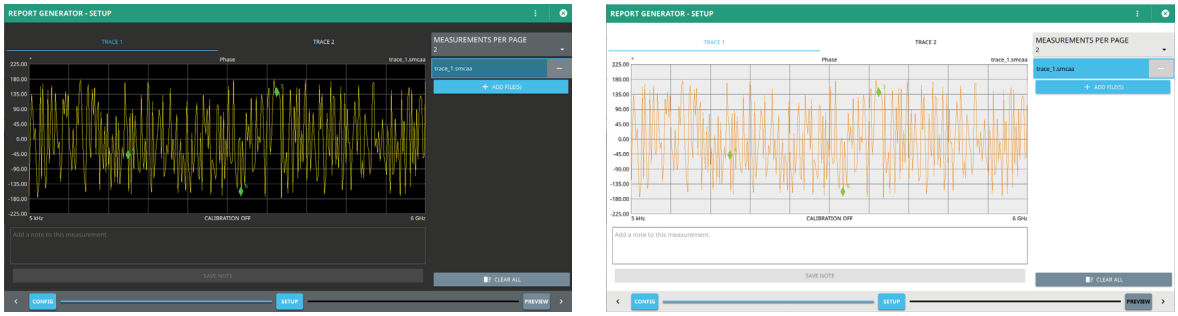
Figure 2-3. Parameter Entry Keypad

A physical keyboard connected via USB can also be used to enter values in a similar manner and the keyboard ENTER key used to accept the new value.

To cancel the selection, touch somewhere else on the display or close the menu.

Theme

Set theme to Light or Dark the display color contrast. Once set, all screens will display the color theme. For example, see Figure 2-4.



Dark Theme Light Theme

Figure 2-4. Theme Display

Settings Tab

The Settings toolbar is shown in Figure 2-5.

Figure 2-5. Settings Toolbar

The Settings Toolbar is described below.

- See “SETTINGS - Report Config Tab” on page 2-5.
- See “SETTINGS - Instrument Tab” on page 2-6.
- See “SETTINGS - Help Tab” on page 2-7.
- See “SETTINGS - About Tab” on page 2-7

Settings - REPORT CONFIG Tab

The Report Configuration tab provides a report template. The report template provides fields the user can use to create a measurement PDF or HTML report that can be stored or printed. For more information on creating reports, see Chapter 5, “Creating Reports”

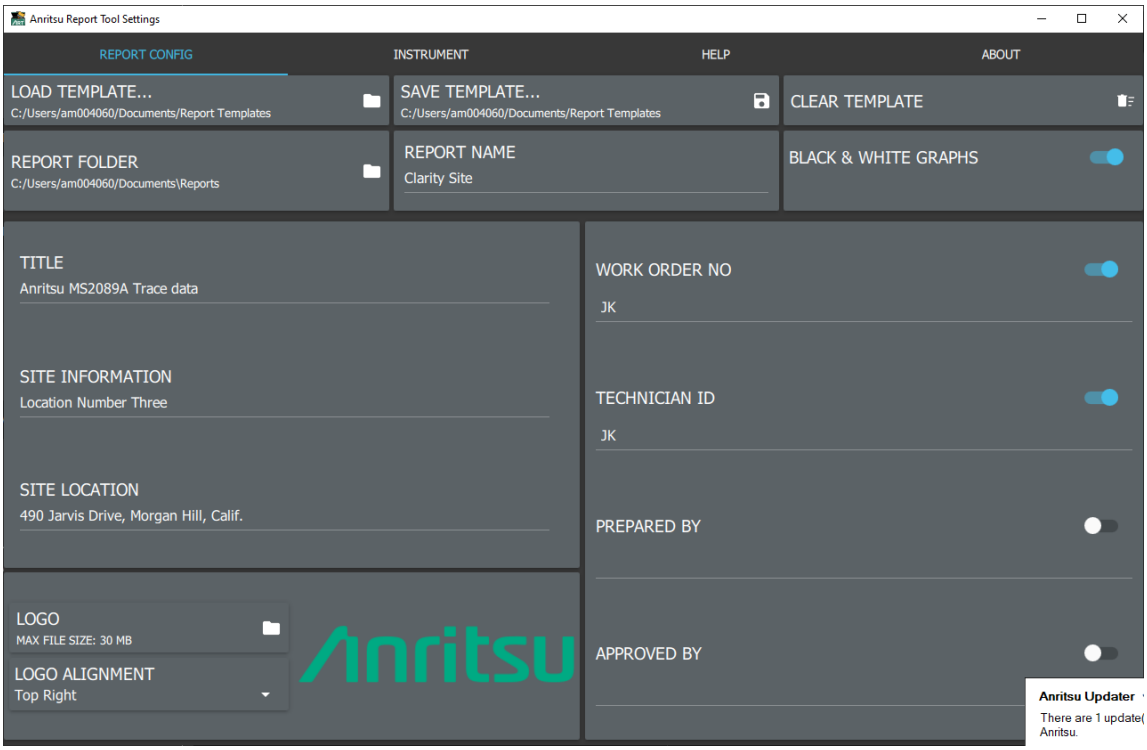


Figure 2-6. Settings - Report Config Tab

Settings - INSTRUMENT Tab

Use the Instrument tab to upload the current trace data file displayed to an Anritsu instrument. One trace data file can be uploaded at a time.

1. Connect an Ethernet cable from the PC to the instrument.
2. Enter the Host name for the instrument and switch Option 0017 if installed in the instrument. Once the Host name is entered, the program will remember the host name and it will not be necessary to enter it again.
3. Use keyboard Control - F3 to send trace data to an instrument, or press the Upload Measurement To Instrument button.

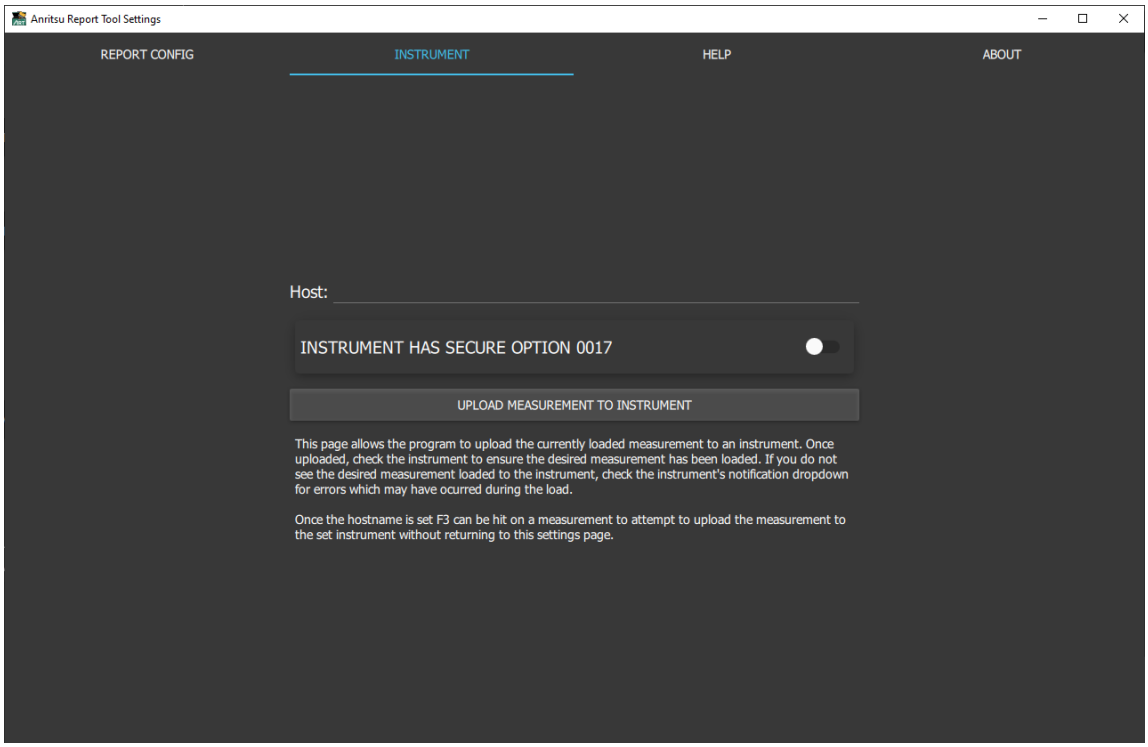


Figure 2-7. Settings - Instrument Tab

Settings - HELP Tab

The HELP tab provides the keyboard HOTKEY GUIDE as shown in Figure 2-8. Use the hotkeys listed to perform the task quickly.

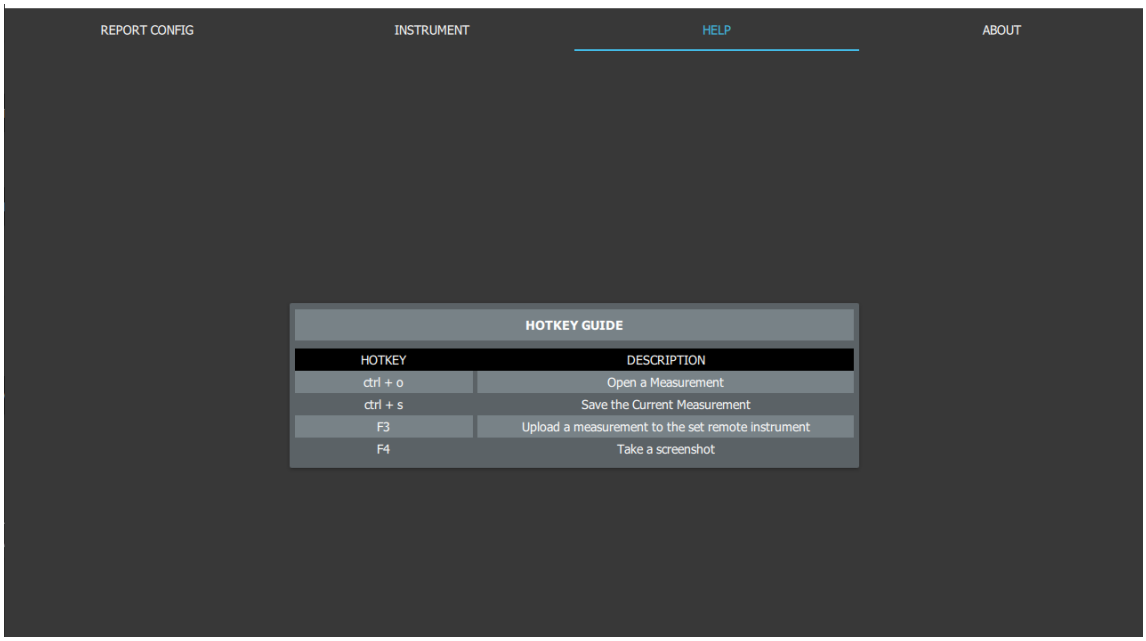


Figure 2-8. Settings - Help Tab

Settings - ABOUT Tab

The ABOUT tab displays the current version of software installed in the Anritsu Report Tool program.

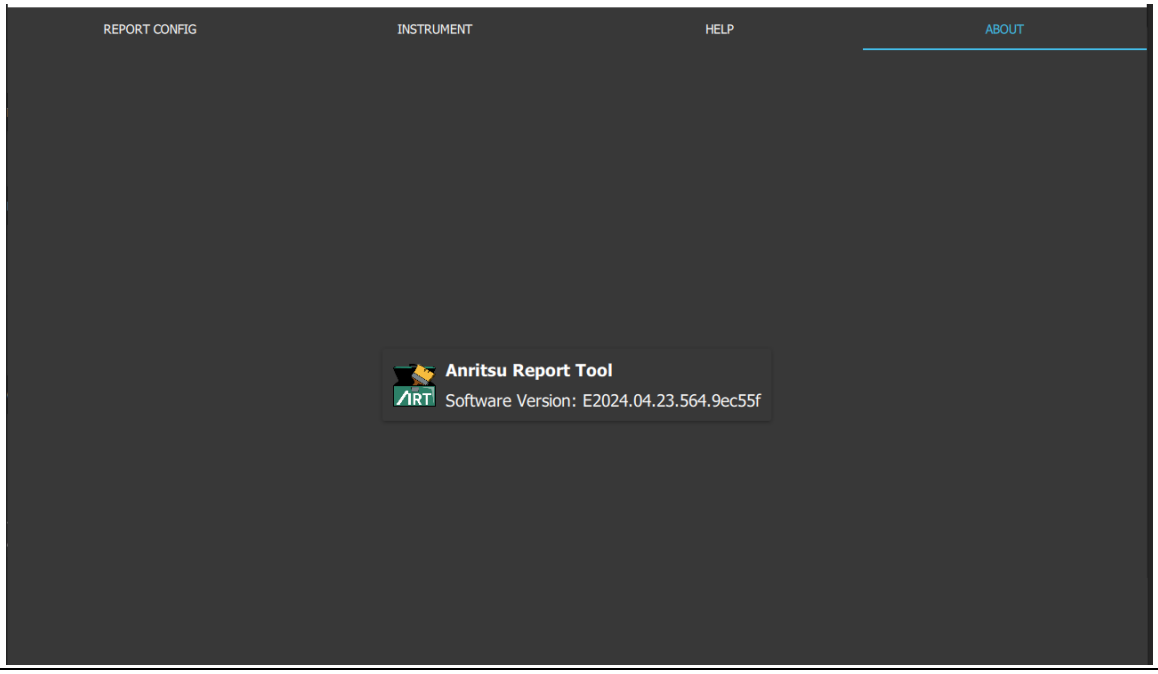


Figure 2-9. Settings - About Tab

Measurement Info

The MEASURING INFO window displays the measuring instrument and trace data information as shown in Figure 2-10.

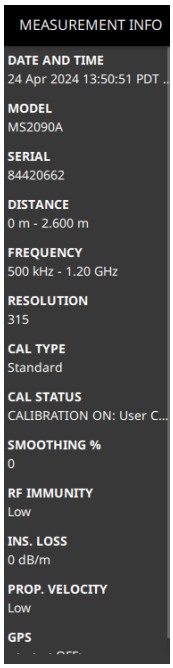


Figure 2-10. MEASUREMENT INFO

2-3 Analyzing Trace Data

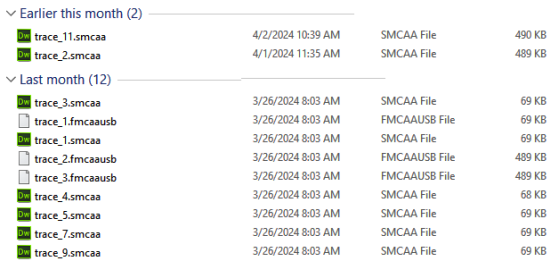
Trace data captured to an Anritsu instrument can be imported into a local PC for signal analysis. Tools for analysis includes:

- "Setting Markers" on page 2-11
- "Setting Limit Lines" on page 2-16

Load Data Files to a Folder

Import trace data files from an instrument using the Anritsu Remote Tools program to analyze using the Anritsu Report Tool program.

1. Create a file folder location to store an instruments trace data files on your PC.
2. Refer to Chapter A, "Anritsu Remote Tool Program".
3. Determine the instruments IP address of the Anritsu instrument by accessing the Anritsu Remote Tool program menu. When in the System menu, the IP address of the instrument is in Connectivity information. Refer to "Remote Instrument System Information" on page A-6.
4. Use an Ethernet cable to download .fmcaausb and .smcaa trace data files from the measuring instrument to the folder created in Step 1 on your PC. An example of a folder with trace data files is shown in Figure 2-11.
5. Press the open measurement icon in the "Toolbar" to download and analyze the stored trace data files using the Anritsu Report Tool program shown in Figure 2-1 on page 2-1.



Earlier this month (2)			
trace_11.smcaa	4/2/2024 10:39 AM	SMCAA File	490 KB
trace_2.smcaa	4/1/2024 11:35 AM	SMCAA File	489 KB
Last month (12)			
trace_3.smcaa	3/26/2024 8:03 AM	SMCAA File	69 KB
trace_1.fmcaausb	3/26/2024 8:03 AM	FMCAAUSB File	69 KB
trace_1.smcaa	3/26/2024 8:03 AM	SMCAA File	69 KB
trace_2.fmcaausb	3/26/2024 8:03 AM	FMCAAUSB File	489 KB
trace_3.fmcaausb	3/26/2024 8:03 AM	FMCAAUSB File	489 KB
trace_4.smcaa	3/26/2024 8:03 AM	SMCAA File	68 KB
trace_5.smcaa	3/26/2024 8:03 AM	SMCAA File	69 KB
trace_7.smcaa	3/26/2024 8:03 AM	SMCAA File	69 KB
trace_9.smcaa	3/26/2024 8:03 AM	SMCAA File	69 KB

Figure 2-11. Trace Data Files Folder

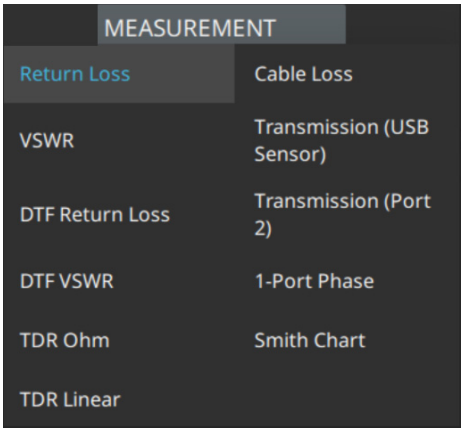
Open Measurement

Open a data file from the trace data file folder.

1. Click the open measurement icon in the "Toolbar".
2. Browse to the trace data files folder created in Step 1 of "Load Data Files to a Folder".
3. Click a file to view on the screen. Several files can be selected to view. The trace data file will display on the screen as shown in "Active Marker Screen" on page 2-11.

2-4 Measurement Type

A signal can be converted to a different measurement type and analyzed. For example, Distance to Fault (DTF) converts a previously saved Cable Loss plot, Return Loss (frequency domain) plot, or a VSWR (frequency domain) plot into a Distance to Fault plot. The trace data file types are recognized by the Anritsu Report Tool when downloaded from the measuring instrument. Use the Measurement menu shown in Figure 2-12 to convert a trace data file measurement method. The measurement types imported depend on the measurement method used in the instrument and/or options included in the instrument.



Return Loss: Shows the data file as a Return Loss display. The Return Loss display can then be analyzed using the available parameters of the Anritsu Report Tool program.

VSWR: Shows the data file as a VSWR display. The VSWR display can then be analyzed using the available parameters of the Anritsu Report Tool program.

Cable Loss: Shows the data file as a cable loss display. The cable loss display can then be analyzed using the available parameters of the Anritsu Report Tool program.

DTF Return Loss: Shows the data file as a Distance to Fault (DTF) display. The DTF display can then be analyzed using the available parameters of the Anritsu Report Tool program.

DTF VSWR: Shows the data file as a Distance to Fault (DTF) Voltage Standing Wave Ratio (VSWR) display. The DTF VSWR display can then be analyzed using the available parameters of the Anritsu Report Tool program.

TDR Ohm: Shows the data file as a Time Domain Reflectometry (TDR) Ohm display. The TDR Ohm display can then be analyzed using the available parameters of the Anritsu Report Tool program.

TDR Linear: Shows the data file as a Time Domain Reflectometry (TDR) Linear display. The TDR Linear display can then be analyzed using the available parameters of the Anritsu Report Tool program.

Transmission (USB Sensor): Shows the data file as a Transmission USB Sensor display. The Transmission USB Sensor display can then be analyzed using the available parameters of the Anritsu Report Tool program.

Transmission (Port 2): Shows the data file as a Transmission (Port 2) display. The Transmission (Port 2) display can then be analyzed using the available parameters of the Anritsu Report Tool program.

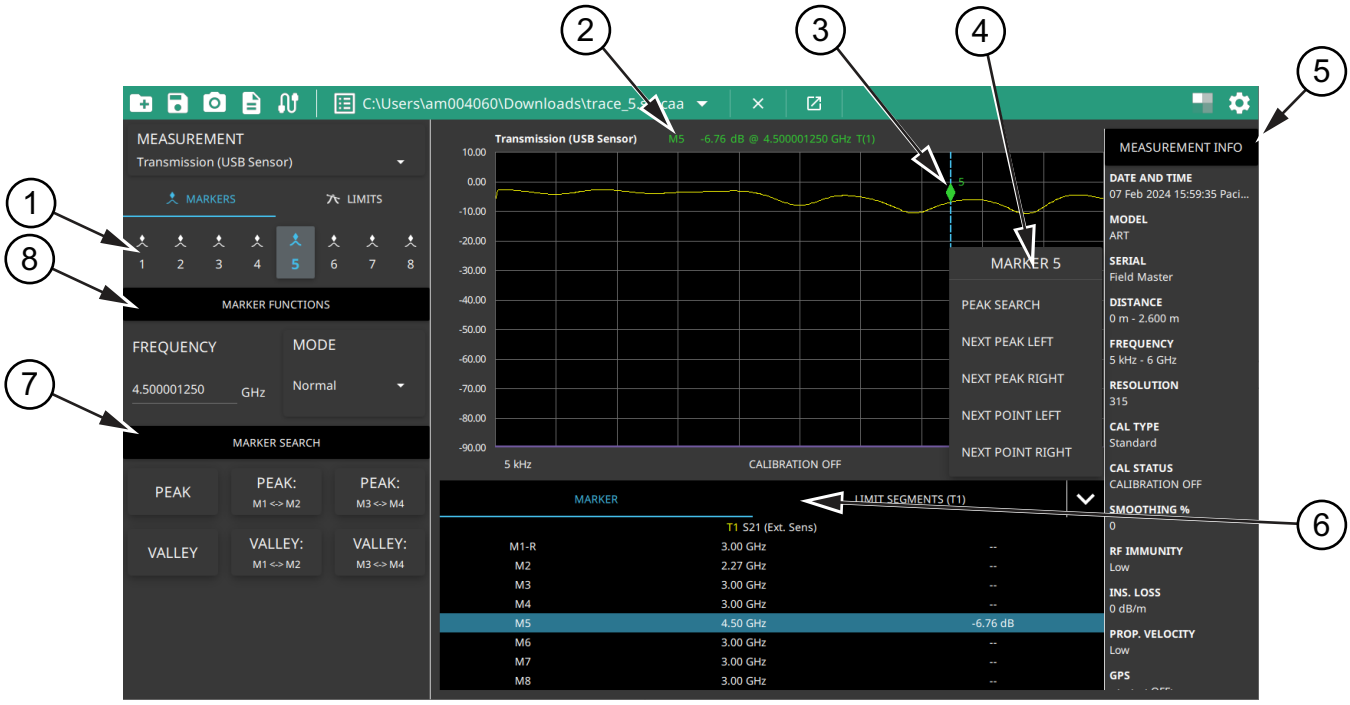
1-Port Phase: Shows the data file as a 1-Port Phase display. The 1-Port Phase display can then be analyzed using the available parameters of the Anritsu Report Tool program.

Smith Chart: Shows the data file as a Smith Chart display. The Smith Chart display can then be analyzed using the available parameters of the Anritsu Report Tool program.

Figure 2-12. MEASUREMENT Type

2-5 Setting Markers

Use the markers window shown in Figure 2-13 to analyze trace data by moving a marker to the highest peak, to the lowest valley, marking trace data irregularities, editing trace data frequency manually, or activate the a delta marker..



1. Marker buttons
2. Selected Marker parameters
3. Selected active marker
4. Right click a marker to display the Peak menu. See Table 2-2 on page 2-12.
5. Measurement Info
6. Marker Table.
7. Marker Search panel
8. Marker Function panel

Figure 2-13. Active Marker Screen

Marker Buttons

The data trace display supports eight markers as shown in Figure 2-14. Press the marker buttons to display the marker lines in the measurement display. The marker is shown as a vertical line with a diamond that marks the frequency location on the trace. Use the MARKER menu as described in Table 2-2 on page 2-12 to set the marker on the trace data display.

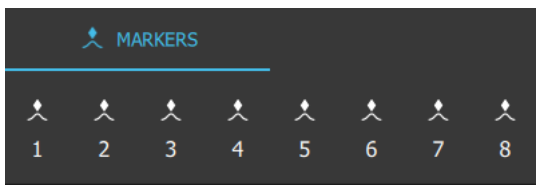


Figure 2-14. MARKER Menu

Marker Functions

The MARKER FUNCTIONS window provides a FREQUENCY entry field and a marker MODE setting as shown in Figure 2-15.

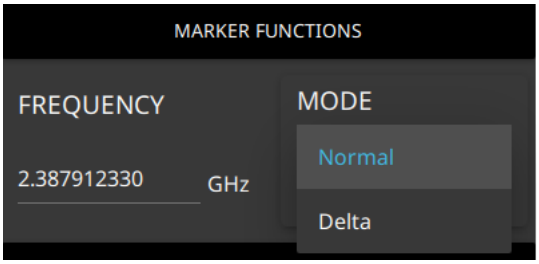


Figure 2-15. Marker Functions

Frequency

Provides a frequency readout value of a marker selected from the Figure 2-14 on page 2-11. Type a new value in the FREQUENCY field to change the frequency value or place the cursor on a marker, press the left mouse button and drag it to the desired frequency location on the trace data display. The frequency readout will track the changing value

Mode

The marker mode types are:

Reference Marker: Marker 1 can be set as a Reference. As a reference marker, set any other marker as a delta marker and will reference Marker 1 as the absolute marker.

Normal: All markers can be set a a Normal markers. Normal markers can be moved within the trace data display when active.

Delta: Marker 2 through Marker 8 can be set as a reference marker or a delta marker. If set as a delta marker, Marker 1 will be the reference marker.Delta Makers are useful in calculating the bandwidth of a signal or finding the dB/VSWR difference between two data points. Delta markers display frequency relative to Marker 1. The difference between the reference marker and delta marker is displayed when the marker table is enabled. Set any marker except Marker 1 as a delta marker. When a Delta marker is set, Marker 1 will become active in the trace data display as the reference marker. Both the delta and reference markers can be moved within the display when active.

Activate a Marker

Press a marker button to activate the marker in the window display. The pressed marker button highlights blue and the MARKER FUNCTION and MARKER SEARCH menus become active. The active marker will display as a green diamond with blue vertical blue line in the trace data window as shown in "Active Marker Screen" on page 2-11.

Marker Peak Search Menu

Right-click an active marker in the trace data display opens a marker peak search menu. The marker peak search menu is described in Table 2-2.

Table 2-2. Marker Menu

MARKER 2	Right-click on MARKER 2 displays the marker's menu. Each marker command in this menu sets Marker 2.

Table 2-2. Marker Menu (Continued)

PEAK SEARCH	Press to set the selected marker to the highest peak in the trace display.
NEXT PEAK LEFT	Press to set the selected marker to the next highest peak to the left of the current marker location.
NEXT PEAK RIGHT	Press to set the selected marker to the next highest peak to the Right of the current marker location.
NEXT POINT LEFT	Press to set the selected marker to the next data point to the left of the current marker location.
NEXT POINT RIGHT	Press to set the selected marker to the next data point to the right of the current marker location.

Marker Search

The Marker Search panel provides the PEAK and VALLEY search tools as shown in Figure 2-16.

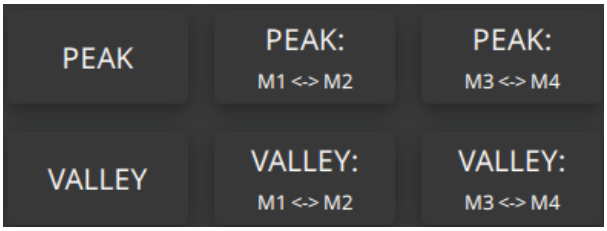


Figure 2-16. Marker Search Menu

The Marker Search is described in Table 2-3.

Table 2-3. Marker Search

PEAK	Press will use the marker selected to auto-search the entire trace data displayed and set the marker to the signal's highest peak.
PEAK: M1 <-> M2	Press to set the selected marker to the highest peak in the trace display between Marker 1 and Marker 2.
PEAK: M3 <-> M4	Press to set the selected marker to the highest peak in the trace display between Marker 3 and Marker 4.
VALLEY	Press will use the marker selected to auto-search the entire trace data displayed and set the marker to the signal's lowest valley.
VALLEY: M1 <-> M2	Press to set the selected marker to the lowest valley in the trace display between Marker 1 and Marker 2.

Table 2-3. Marker Search (Continued)

VALLEY: M3 <-> M4	Press to set the selected marker to the lowest valley in the trace display between Marker 3 and Marker 4.

Positioning Markers

Use the MARKER SEARCH menu to position markers.

Position Marker to Peak

1. Press a marker button as described in "Marker Buttons" on page 2-11.
2. Press the PEAK button. The marker will position to the highest point in the trace data display. The frequency value of the marked highest data point of the trace data will be entered into the FREQUENCY window.

Move Marker to Valley

1. Press a marker button as described in "Marker Buttons" on page 2-11.
2. Press the VALLEY button. The marker will position to the lowest point in the trace data display. The frequency value of the marked lowest data point of the trace data will be entered into the FREQUENCY window.

Set a Marker Using PEAK M1<->M2

1. Press to activate Marker 1 (M1) and Marker 2 (M2).
2. Press the Peak M1<->M2 button. The marker will position to the highest point between Marker 1 and Marker 2. If Marker 1 and Marker 2 have not been preselected, a peak marker will display between a previously set Marker 1 and Marker 2 position on the trace data display.

Set a Marker Using VALLEY M1<->M2

1. Press to activate Marker 1 (M1) and Marker 2 (M2).
2. Press the VALLEY M1<->M2 button. The marker will position to the lowest point between Marker 1 and Marker 2. If Marker 1 and Marker 2 have not been preselected, a valley marker will display between a previously set Marker 1 and Marker 2 position on the trace data display.

Set a Marker Using PEAK M3<->M4

1. Press to activate Marker 3 (M3) and Marker 4 (M4).
2. Press the Peak M3<->M4 button. The marker will position to the highest point between Marker 3 and Marker 4. If Marker 3 and Marker 4 have not been preselected, a peak marker will display between the previously set Marker 3 and Marker 4 position on the trace data display.

Set a Marker Using VALLEY M3<->M4

1. Press to activate Marker 3 (M3) and Marker 4 (M4).
2. Press the VALLEY M3<->M4 button. The marker will position to the lowest point between Marker 3 and Marker 4. If Marker 3 and Marker 4 have not been preselected, a valley marker will display between the previously set Marker 3 and Marker 4 position on the trace data display.

Move a Marker

Move a marker by typing a frequency value

1. Press the desired marker button.
2. Type a value into the Frequency entry window. The marker positions at the frequency on the trace data.

Move a marker manually

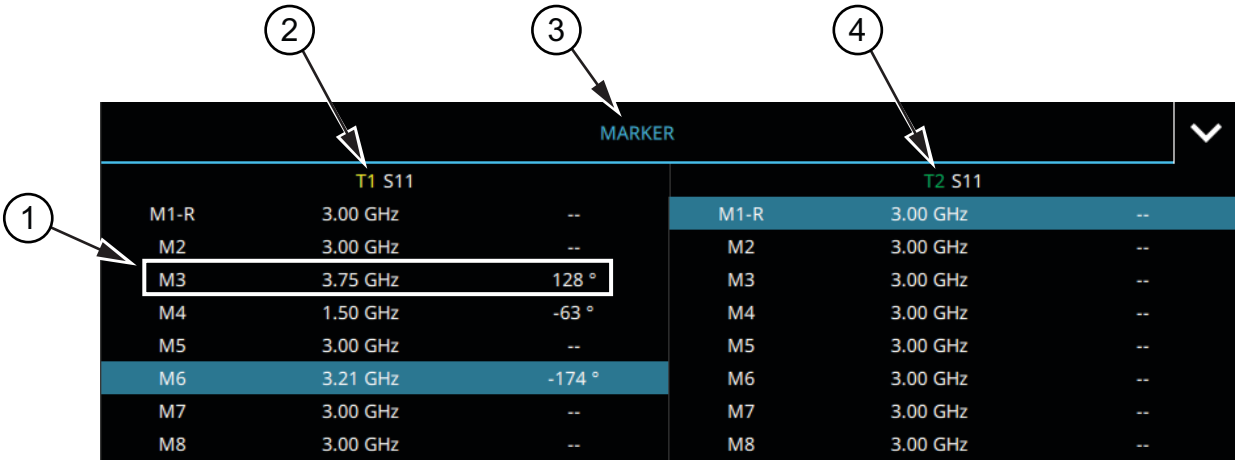
1. Press the desired marker button.
2. Click and drag the marker manually. Read the frequency readout in the FREQUENCY field.

Activate Delta Markers

1. Press the associated delta marker button.
2. Enter a frequency in the delta frequency entry window. The delta marker will move to the delta frequency position.

Marker Table

The Marker table displays the marker parameter details as shown in Figure 2-17



1. Marker 3 (M3) location details on the trace data display.
2. T1 S11 refers to Trace 1 marker parameters column. S11 (input reflection coefficient) refers to the measurement instrument info.
3. Marker Window
4. T2 S11 refers to Trace 2 marker parameters column. S11 (input reflection coefficient) refers to the measurement instrument info.

Figure 2-17. Marker Detail Window

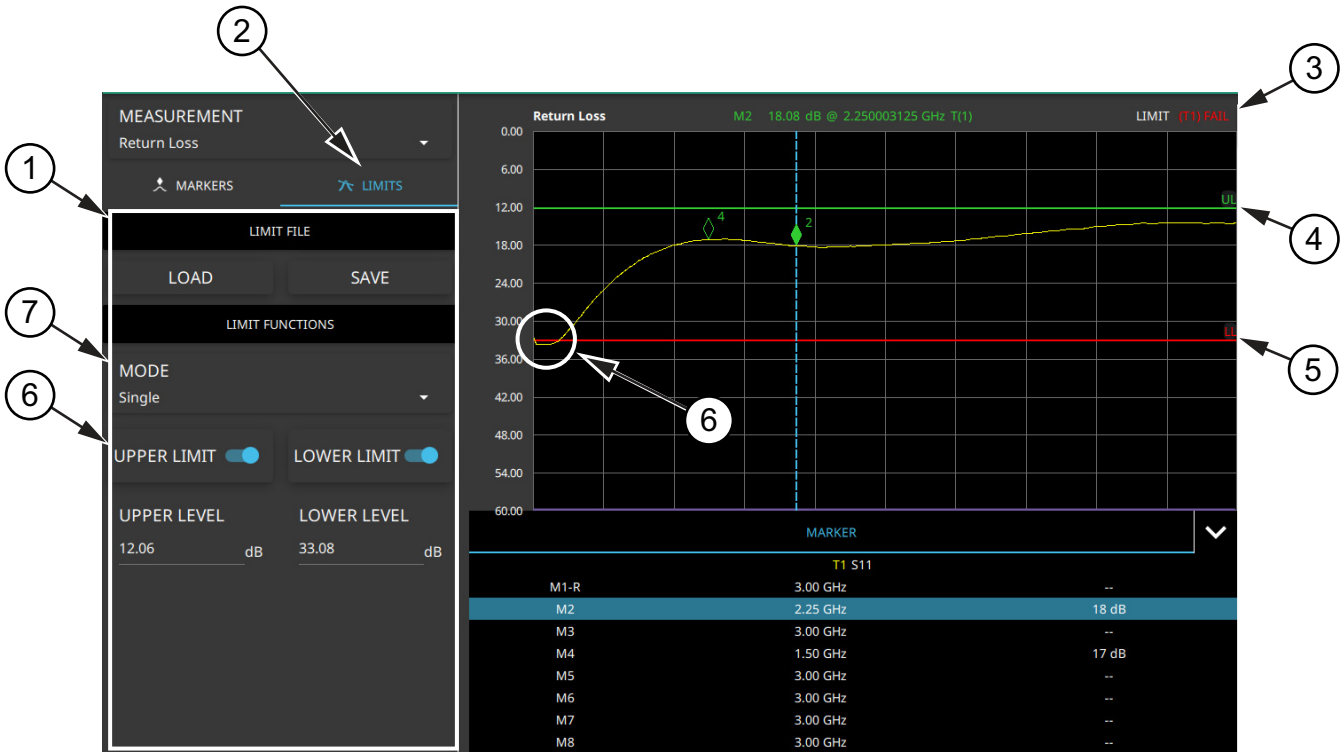
2-6 Setting Limit Lines

Use Limit lines to analyze measured trace data against specifications or expectations. Limit lines can be created to compare trace data to your defined limits and indicate a pass or fail condition. The limit line types Single and Segmented.

Single Limit Line: Use single limit lines to set upper and lower limits of a trace display. Set maximum and minimum indicators for the value of displayed data on a per-trace basis. To set single limit lines, see "Single Limit Line Mode" on page 2-17.

Segmented Limit Line: Use segmented limit lines to analyze trace data split spec considerations. Set maximum and minimum segment lines for the value of displayed data on a per-segment basis. To set segmented limit lines, see "Set as Single or Segmented Limit Line" on page 2-17.

The Single Limit Line screen is shown in Figure 2-18.



1. Limit Line Menu
2. Limits Button
3. Pass/Fail Indicator
4. (UL) Upper Limit Line - Provides a trace data upper threshold limit.
5. (LL) Lower Limit Line - Provides a trace data lower threshold limit.
6. Limit line trace violation shows a red line
7. Upper and Lower Limit Edit Menu
8. Set Limit mode to Single or Segmented

Figure 2-18. Limits Menu

Set as Single or Segmented Limit Line

Press the MODE menu caret to display single or segmented as shown in Figure 2-19. Press Single to set the limit line menu to single mode. Press segmented to set the limit line menu to segmented mode.

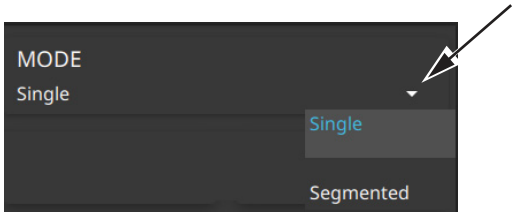


Figure 2-19. Set Single or Segmented Limit Line Menu

Single Limit Line Mode

Set the limit line Mode to single as described in "Set as Single or Segmented Limit Line". The single limit line menu is described in Table 2-4.

Table 2-4. Limit Line Menu

	Description
LOAD	Press to open the user designated trace data folder location.
SAVE	Press to open the save files dialog. Save the file to a user designated folder location.
MODE	Set the limit line as Single or Segmented Mode.
UPPER LIMIT	Slide the button to the on position to activate the Upper Limit line on the display.
LOWER LIMIT	Slide the button to the right for the on position to activate the Lower Limit line on the display.
UPPER LEVEL 1 dB	Click to display the upper level entry field. Type to edit upper level value to position the upper level line. The upper limit line can be also be positioned by using the mouse to point and manually moving the limit line up or down the scale. The amplitude value also changes in the display/entry box.
LOWER LEVEL 12 dB	Click to display the lower level entry field. Type to edit the lower level value to position the lower level line. The lower limit line can be also be positioned by using the mouse to point and manually moving the limit line up or down the scale. The amplitude value also changes in the display/entry box.

Activate the Single Limit Line

1. Press the Limits button as shown in Figure 2-18 on page 2-16 to activate the limit line screen.
2. Set Mode to Single
3. Switch the UPPER LIMIT button line to the on position (if trace analysis for upper tolerance is required)
4. Switch the LOWER LIMIT button to the on position (if trace analysis for upper tolerance is required)

Edit Single Limit Line

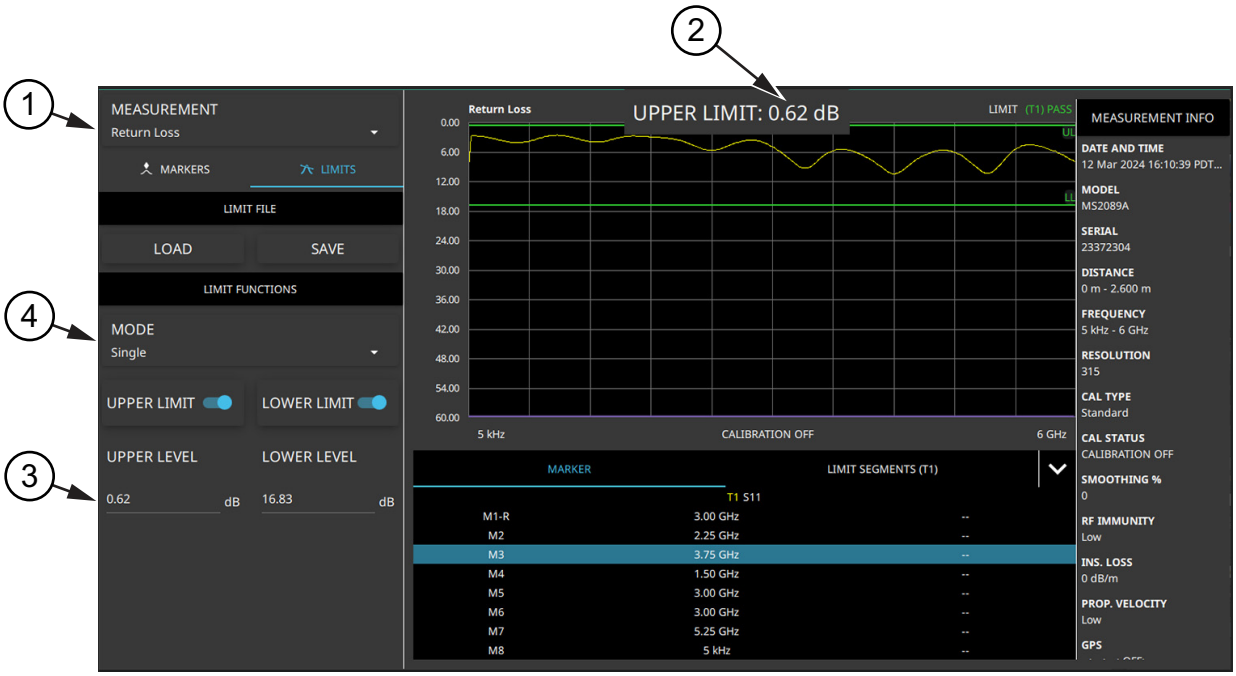
Edit the UPPER LEVEL or LOWER LEVEL line measurement field.

1. Press UPPER LEVEL and edit the value using the "Data Entry" on page 2-3. The upper limit line will be displayed on the screen if the value entered is within the Y value range. A green line will display if all trace points are below the upper limit line. A red line will display if any trace points are above the upper limit line. A PASS indicator will display in the top right of the trace display if all trace points are below the upper limit line or will display a red FAIL if any trace points are above the upper limit line.
2. Press LOWER LEVEL and edit the value using the "Data Entry" on page 2-3. The lower limit line will be displayed on the screen if the value entered is within the Y value range. A green line will display if all trace points are above the lower limit line. A red line will display if any trace points are below the lower limit line. A PASS indicator will display in the top right of the trace display if all trace points are above the upper limit line or will display a red FAIL if any trace points are below the lower limit line.

Manual Editing

Change the limit line value manually using the mouse.

1. Point and drag the limit line up or down to change the power limit value. When moving the line manually, a readout is displayed indicating the limit line measurement location as shown in Figure 2-20
2. Note the limit line readout value is tracked in the upper or lower limit line menu.



1. Measurement set to Return Loss
2. Upper Limit Line measurement readout tracks the moving limit line
3. Upper Level Limit line tracking measurement
4. Mode set to Single limit line

Figure 2-20. Limit Line Measurement Readout

Segmented Limit Line Mode

Use a segmented limit line to make segmented measurements across the trace data. To access the segmented limit line menu:

1. Press LIMITS in the Measurement menu.
2. Set MODE to Segmented as described in "Set as Single or Segmented Limit Line" on page 2-17.

The Segmented limit line menu is shown in Figure 2-21 and is described in "Segmented Limit Line Menu" on page 2-20.

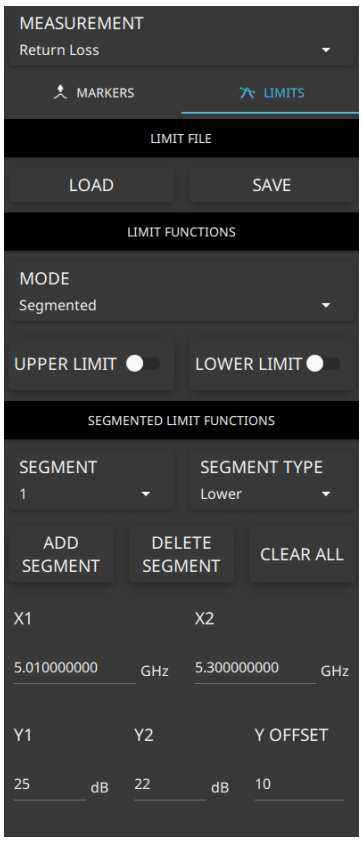


Figure 2-21. Segmented Limit Line Menu

Segmented Limit Line Menu

The Segmented Limit line menu is described in Table 2-5.

Table 2-5. Segmented Limit Line

LOAD	Opens the Load dialog to the user designated .limcaa file folder.
SAVE	Save a trace data file into a user designated trace data folder.
MODE Segmented	Set mode to Single or Segmented Limit Line.
UPPER LIMIT	Switch on to activate Upper limit line parameters. Switch off to hide the entire Limit Line. Switch on again will display the current limit line on the display if it was not Cleared.
LOWER LIMIT	Switch on to activate Lower limit line parameters. Switch off to hide the entire Limit Line. Switch on again will display the current limit line on the display if it was not Cleared.
SEGMENT 1	Tracks the number of segments active on the display. Segment 1 can be tracked in the "#" column as shown in the "LIMITS SEGMENTS Parameters" on page 2-21. Press the caret to set a segment to display.
SEGMENT TYPE Lower	Set as an upper or lower limit segment.
ADD SEGMENT	Add a segment to the trace display. Adding a segment will increase the number shown in the SEGMENT menu.
DELETE SEGMENT	Deletes the segment that is active. The SEGMENT tab will show the segment count reduced when a segment is deleted.
CLEAR ALL	All segments for the trace data displayed are cleared and lost.
X1 5.010000000 GHz	Press to display a numeric keypad. Enter a frequency value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
X2 5.300000000 GHz	Press to display a numeric keypad. Enter a frequency value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
Y1 25 dB	Press to display a numeric keypad. Enter a power level value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
Y2 22 dB	Press to display a numeric keypad. Enter a power level value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
Y OFFSET 10	Press to display a numeric keypad. Enter a power level value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.

Adding Segments

A limit line can be added in segments across a trace for split specification applications when monitoring a display. Forty two limit segments can be added to each limit line. An example of a trace that has passed is shown in Figure 2-22.

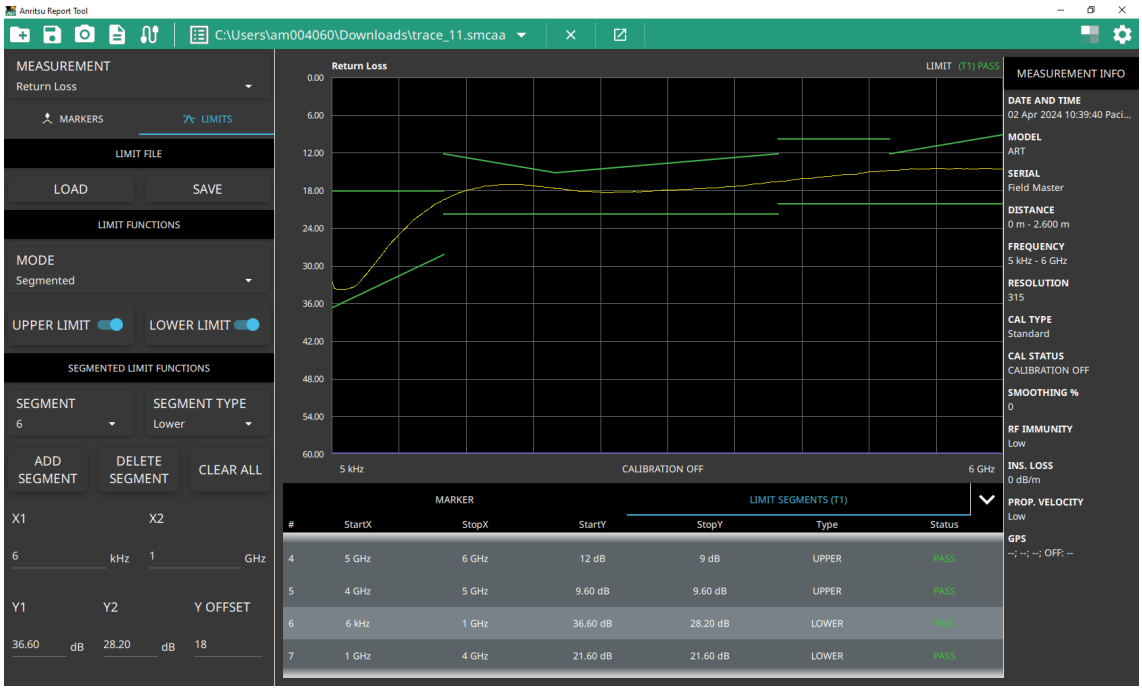


Figure 2-22. Segments - Pass

LIMITS SEGMENTS Parameters

The LIMITS SEGMENTS parameters screen is shown in Figure 2-23. Press a parameter entry to change a value or use the segmented limit line menu.

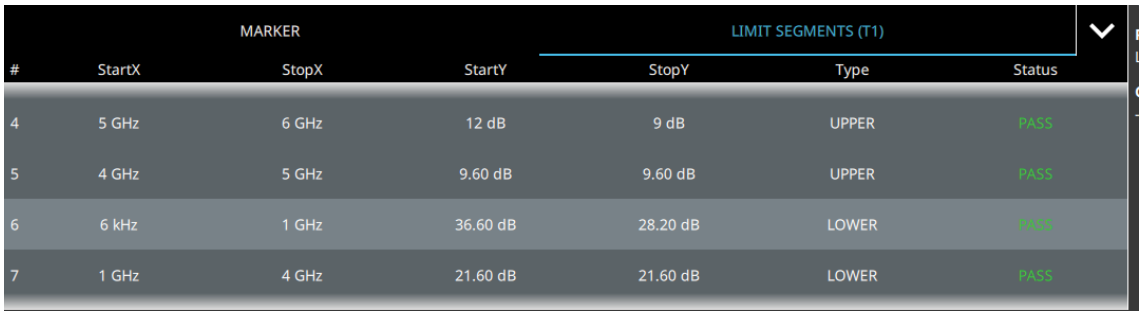


Figure 2-23. Segments Parameter Screen

Setting Limit Segments

Use this procedure to set segmented limit lines. Only one limit line and one segment can be set at a time. Refer to "Enter Numeric Values" on page 2-3 to enter values.

1. Press the Limits tab.
2. Set MODE to Segmented as described in "Set as Single or Segmented Limit Line" on page 2-17.
3. Switch either the UPPER LIMIT or LOWER LIMIT on. The Segment tab will automatically display a 1 indicating that this is segment 1.

Set X1 and X2 Frequency Values

X represents the X axis and frequency on the graph display.

1. Press X1 to enter a Segment 1 frequency value.
2. Press X2 to enter a Segment 1 frequency value. A segment line will display on the trace display.

Set Y1 and Y2 Frequency Values

Y represents the Y axis and power level on the graph display.

If a power segment that has different Y1 and Y2 values, representing a linear type segment, set Y1 and Y2. If a segment that requires the same Y1 and Y2 values over a frequency range, use the Y OFFSET to set the power level value.

1. Press Y1 to enter a Y1 power level value.
2. Press Y2 to enter a Y2 power level value.
3. Press Y OFFSET to enter a Y1 and Y2 power level value.

Add Another Segment

Use this procedure to add another segment top the trace data display.

1. Press ADD SEGMENT. The SEGMENT tab will display an incremented segment number. An additional parameter line is added to the segments parameter screen as shown in Figure 2-23 on page 2-21.
2. Add segment parameters as noted from Step 3 through Step 3 above or press an entry in the segments parameter field and type a new value.

DELETE SEGMENT

Use this procedure to delete a single segment.

1. Press the SEGMENT Tab.
2. Press the segment to be deleted.
3. Press DELETE SEGMENT.

CLEAR ALL

Use this procedure to delete all Segment Entries.

1. Press SAVE to save the trace data display if needed. If not saved, the segment limit lines parameter values will be lost.
2. Pressing CLEAR ALL removes all segments.

Trace Data Segment Failed

When a trace crosses a limit line segment, the entire segment line turns red indicating a failed trace response as shown in Figure 2-24. Here, several data points are below the lower limit line indicating a fail. The circle shows the trace data section that failed the specified power level region. The lower limit line turns red indicating a failure has occurred.

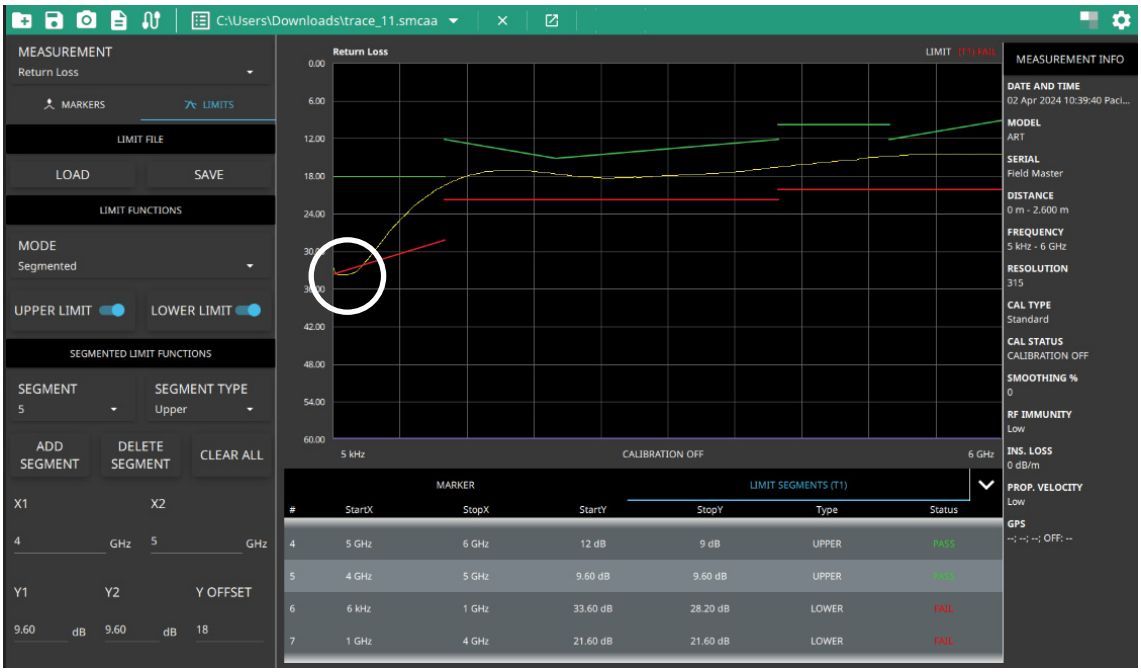


Figure 2-24. Segments - Failed

2-7 Opening Multiple Screens

Multiple Trace Data displays can be opened and viewed as shown in Figure 2-25. Press the toolbar's "See "Opening Multiple Screens" on page 2-24."icon to detach and display the current screen. Multiple trace data displays can be viewed by pressing the open measurement icon from the "Toolbar" and selecting a file to display. Once displayed. press the Open in New Window icon to view the display. This process can be repeated as needed to display several trace data files on the screen.

Figure 2-25. Multiple Screens Opened

Chapter 3 — Markers and Limit Lines

3-1 Introduction

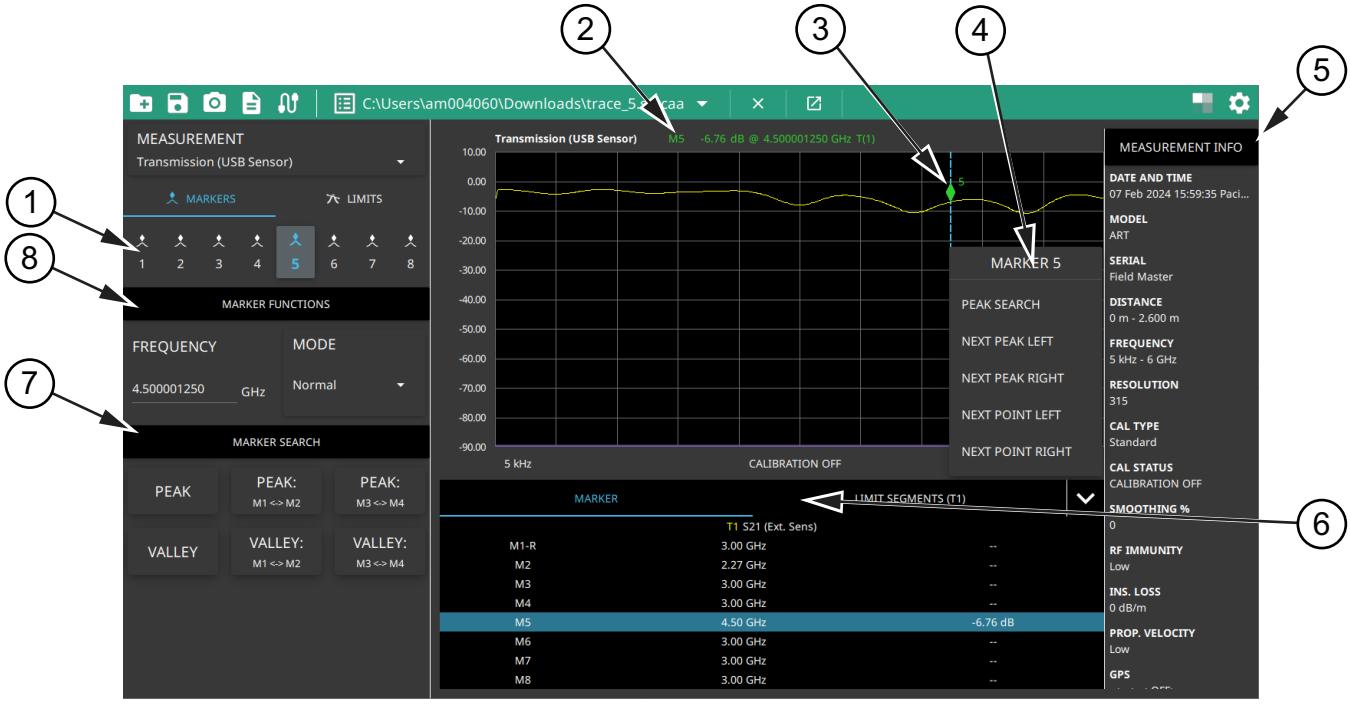
The Anritsu Report Tool program provides markers and limits line tools for analyzing trace data. Use the markers to analyze trace data points of interest. Use limit lines to analyze trace data power level conditions.

See “Setting Markers”.

See “Setting Limit Lines”.

3-2 Setting Markers

Use the markers window shown in Figure 3-1 to analyze trace data by moving a marker to the highest peak, to the lowest valley, marking trace data irregularities, editing trace data frequency manually, or activate the a delta marker..



1. Marker buttons
2. Selected Marker parameters
3. Selected active marker
4. Right click a marker to display the Peak menu. See Table 3-1 on page 3-3.
5. Measurement Info
6. Marker Table.
7. Marker Search panel
8. Marker Function panel

Figure 3-1. Active Marker Screen

Marker Buttons

The data trace display supports eight markers as shown in Figure 3-2. Press the marker buttons to display the marker lines in the measurement display. The marker is shown as a vertical line with a diamond that marks the frequency location on the trace. Use the MARKER menu as described in Table 3-1 on page 3-3 to set the marker on the trace data display.

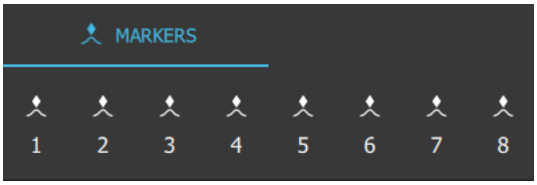


Figure 3-2. MARKER Menu

Marker Functions

The MARKER FUNCTIONS window provides a FREQUENCY entry field and a marker MODE setting as shown in Figure 3-3.

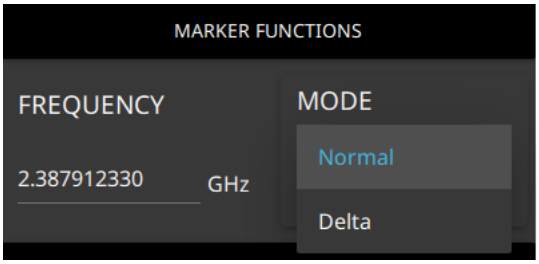


Figure 3-3. Marker Functions

Frequency

Provides a frequency readout value of a marker selected from the Figure 3-2 on page 3-2. Type a new value in the FREQUENCY field to change the frequency value or place the cursor on a marker, press the left mouse button and drag it to the desired frequency location on the trace data display. The frequency readout will track the changing value

Mode

The marker mode types are:

Reference Marker: Marker 1 can be set as a Reference. As a reference marker, set any other marker as a delta marker and will reference Marker 1 as the absolute marker.

Normal: All markers can be set a a Normal markers. Normal markers can be moved within the trace data display when active.

Delta: Marker 2 through Marker 8 can be set as a reference marker or a delta marker. If set as a delta marker, Marker 1 will be the reference marker.Delta Makers are useful in calculating the bandwidth of a signal or finding the dB/VSWR difference between two data points. Delta markers display frequency relative to Marker 1. The difference between the reference marker and delta marker is displayed when the marker table is enabled. Set any marker except Marker 1 as a delta marker. When a Delta marker is set, Marker 1 will become active in the trace data display as the reference marker. Both the delta and reference markers can be moved within the display when active.

Activate a Marker

Press a marker button to activate the marker in the window display. The pressed marker button highlights blue and the MARKER FUNCTION and MARKER SEARCH menus become active. The active marker will display as a green diamond with blue vertical blue line in the trace data window as shown in "Active Marker Screen" on page 3-1.

Marker Peak Search Menu

Right-click an active marker in the trace data display opens a marker peak search menu. The marker peak search menu is described in Table 3-1.

Table 3-1. Marker Menu

MARKER 2	Right-click on MARKER 2 displays the marker's menu. Each marker command in this menu sets Marker 2.
PEAK SEARCH	Press to set the selected marker to the highest peak in the trace display.
NEXT PEAK LEFT	Press to set the selected marker to the next highest peak to the left of the current marker location.
NEXT PEAK RIGHT	Press to set the selected marker to the next highest peak to the Right of the current marker location.
NEXT POINT LEFT	Press to set the selected marker to the next data point to the left of the current marker location.
NEXT POINT RIGHT	Press to set the selected marker to the next data point to the right of the current marker location.

Marker Search

The Marker Search panel provides the PEAK and VALLEY search tools as shown in Figure 3-4.

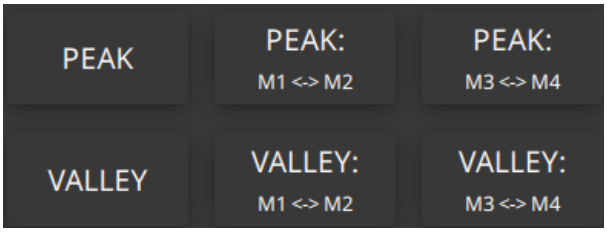


Figure 3-4. Marker Search Menu

The Marker Search is described in Table 3-2.

Table 3-2. Marker Search

PEAK	Press will use the marker selected to auto-search the entire trace data displayed and set the marker to the signal's highest peak.
PEAK: M1 <-> M2	Press to set the selected marker to the highest peak in the trace display between Marker 1 and Marker 2.

Table 3-2. Marker Search (Continued)

PEAK: M3 <-> M4	Press to set the selected marker to the highest peak in the trace display between Marker 3 and Marker 4.
VALLEY	Press will use the marker selected to auto-search the entire trace data displayed and set the marker to the signal's lowest valley.
VALLEY: M1 <-> M2	Press to set the selected marker to the lowest valley in the trace display between Marker 1 and Marker 2.
VALLEY: M3 <-> M4	Press to set the selected marker to the lowest valley in the trace display between Marker 3 and Marker 4.

Positioning Markers

Use the MARKER SEARCH menu to position markers.

Position Marker to Peak

1. Press a marker button as described in "Marker Buttons" on page 3-2.
2. Press the PEAK button. The marker will position to the highest point in the trace data display. The frequency value of the marked highest data point of the trace data will be entered into the FREQUENCY window.

Move Marker to Valley

1. Press a marker button as described in "Marker Buttons" on page 3-2.
2. Press the VALLEY button. The marker will position to the lowest point in the trace data display. The frequency value of the marked lowest data point of the trace data will be entered into the FREQUENCY window.

Set a Marker Using PEAK M1<->M2

1. Press to activate Marker 1 (M1) and Marker 2 (M2).
2. Press the Peak M1<->M2 button. The marker will position to the highest point between Marker 1 and Marker 2. If Marker 1 and Marker 2 have not been preselected, a peak marker will display between a previously set Marker 1 and Marker 2 position on the trace data display.

Set a Marker Using VALLEY M1<->M2

1. Press to activate Marker 1 (M1) and Marker 2 (M2).
2. Press the VALLEY M1<->M2 button. The marker will position to the lowest point between Marker 1 and Marker 2. If Marker 1 and Marker 2 have not been preselected, a valley marker will display between a previously set Marker 1 and Marker 2 position on the trace data display.

Set a Marker Using PEAK M3<->M4

1. Press to activate Marker 3 (M3) and Marker 4 (M4).
2. Press the Peak M3<->M4 button. The marker will position to the highest point between Marker 3 and Marker 4. If Marker 3 and Marker 4 have not been preselected, a peak marker will display between the previously set Marker 3 and Marker 4 position on the trace data display.

Set a Marker Using VALLEY M3<->M4

1. Press to activate Marker 3 (M3) and Marker 4 (M4).
2. Press the VALLEY M3<->M4 button. The marker will position to the lowest point between Marker 3 and Marker 4. If Marker 3 and Marker 4 have not been preselected, a valley marker will display between the previously set Marker 3 and Marker 4 position on the trace data display.

Move a Marker

Move a marker by typing a frequency value

1. Press the desired marker button.
2. Type a value into the Frequency entry window. The marker positions at the frequency on the trace data.

Move a marker manually

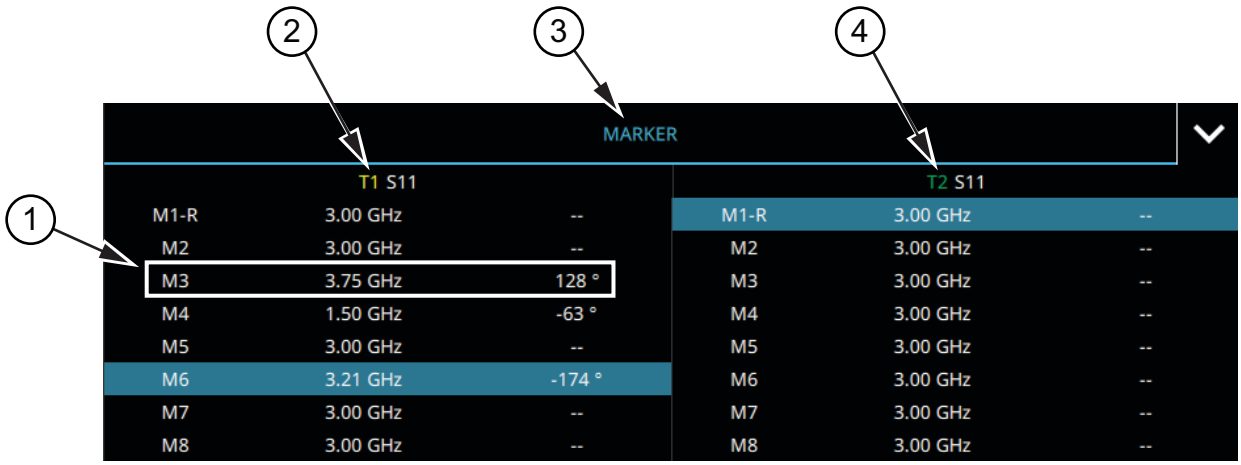
1. Press the desired marker button.
2. Click and drag the marker manually. Read the frequency readout in the FREQUENCY field.

Activate Delta Markers

1. Press the associated delta marker button.
2. Enter a frequency in the delta frequency entry window. The delta marker will move to the delta frequency position.

Marker Table

The Marker table displays the marker parameter details as shown in Figure 3-5



1. Marker 3 (M3) location details on the trace data display.
2. T1 S11 refers to Trace 1 marker parameters column. S11 (input reflection coefficient) refers to the measurement instrument info.
3. Marker Window
4. T2 S11 refers to Trace 2 marker parameters column. S11 (input reflection coefficient) refers to the measurement instrument info.

Figure 3-5. Marker Detail Window

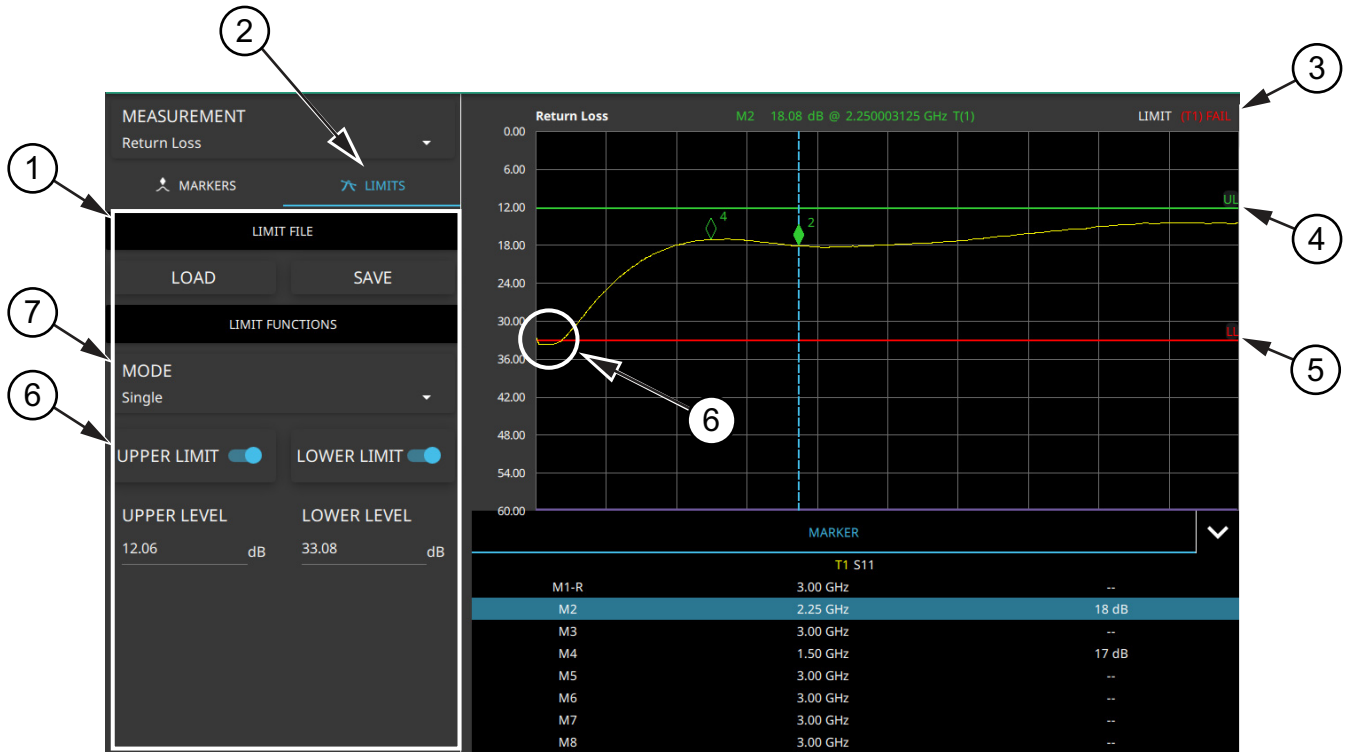
3-3 Setting Limit Lines

Use Limit lines to analyze measured trace data against specifications or expectations. Limit lines can be created to compare trace data to your defined limits and indicate a pass or fail condition. The limit line types Single and Segmented.

Single Limit Line: Use single limit lines to set upper and lower limits of a trace display. Set maximum and minimum indicators for the value of displayed data on a per-trace basis. To set single limit lines, see "Single Limit Line Mode" on page 3-8.

Segmented Limit Line: Use segmented limit lines to analyze trace data split spec considerations. Set maximum and minimum segment lines for the value of displayed data on a per-segment basis. To set segmented limit lines, see "Set as Single or Segmented Limit Line" on page 3-8.

The Single Limit Line screen is shown in Figure 3-6.



1. Limit Line Menu
2. Limits Button
3. Pass/Fail Indicator
4. (UL) Upper Limit Line - Provides a trace data upper threshold limit.
5. (LL) Lower Limit Line - Provides a trace data lower threshold limit.
6. Limit line trace violation shows a red line
7. Upper and Lower Limit Edit Menu
8. Set Limit mode to Single or Segmented

Figure 3-6. Limits Menu

Set as Single or Segmented Limit Line

Press the MODE menu caret to display single or segmented as shown in Figure 3-7. Press Single to set the limit line menu to single mode. Press segmented to set the limit line menu to segmented mode.

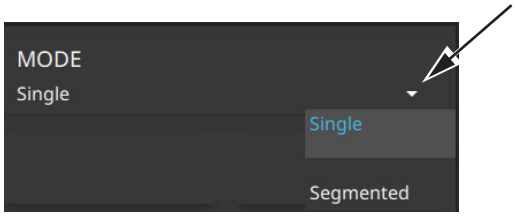


Figure 3-7. Set Single or Segmented Limit Line Menu

Single Limit Line Mode

Set the limit line Mode to single as described in "Set as Single or Segmented Limit Line". The single limit line menu is described in Table 3-3.

Table 3-3. Limit Line Menu

	Description
LOAD	Press to open the user designated trace data folder location.
SAVE	Press to open the save files dialog. Save the file to a user designated folder location.
MODE	Set the limit line as Single or Segmented Mode.
UPPER LIMIT	Slide the button to the on position to activate the Upper Limit line on the display.
LOWER LIMIT	Slide the button to the right for the on position to activate the Lower Limit line on the display.
UPPER LEVEL 1 dB	Click to display the upper level entry field. Type to edit upper level value to position the upper level line. The upper limit line can be also be positioned by using the mouse to point and manually moving the limit line up or down the scale. The amplitude value also changes in the display/entry box.
LOWER LEVEL 12 dB	Click to display the lower level entry field. Type to edit the lower level value to position the lower level line. The lower limit line can be also be positioned by using the mouse to point and manually moving the limit line up or down the scale. The amplitude value also changes in the display/entry box.

Activate the Single Limit Line

1. Press the Limits button as shown in Figure 3-6 on page 3-7 to activate the limit line screen.
2. Set Mode to Single
3. Switch the UPPER LIMIT button line to the on position (if trace analysis for upper tolerance is required)
4. Switch the LOWER LIMIT button to the on position (if trace analysis for upper tolerance is required)

Edit Single Limit Line

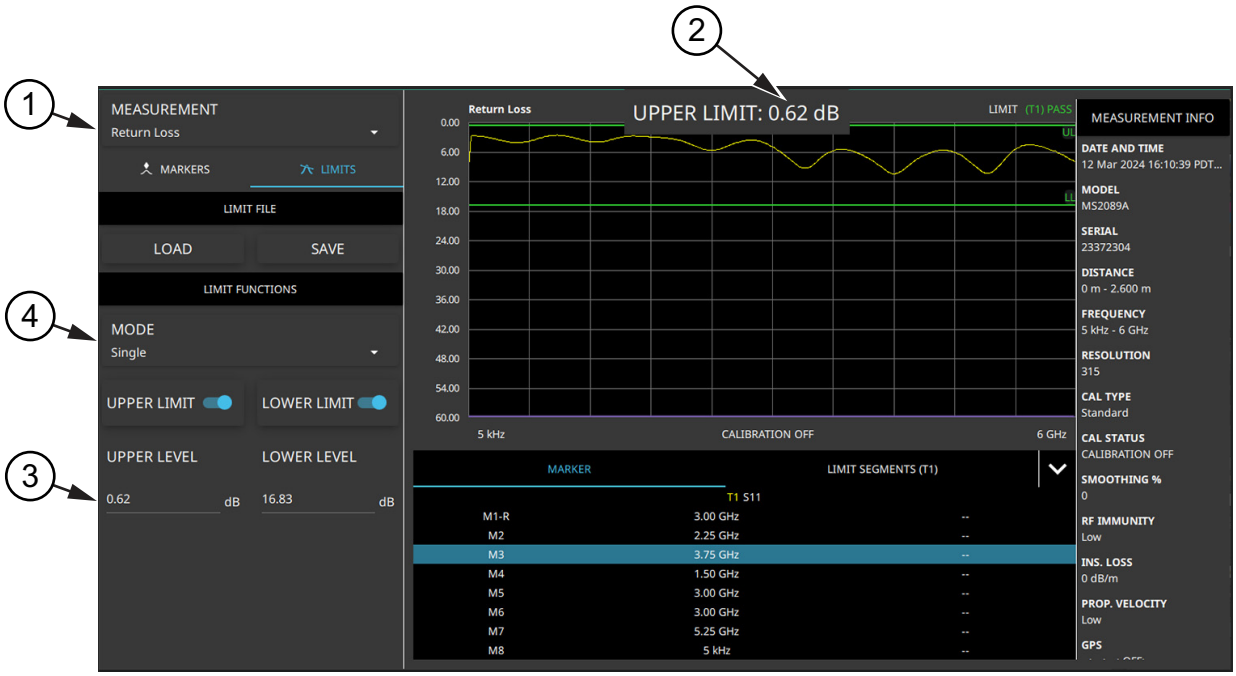
Edit the UPPER LEVEL or LOWER LEVEL line measurement field.

1. Press UPPER LEVEL and edit the value using the "Data Entry" on page 2-3. The upper limit line will be displayed on the screen if the value entered is within the Y value range. A green line will display if all trace points are below the upper limit line. A red line will display if any trace points are above the upper limit line. A PASS indicator will display in the top right of the trace display if all trace points are below the upper limit line or will display a red FAIL if any trace points are above the upper limit line.
2. Press LOWER LEVEL and edit the value using the "Data Entry" on page 2-3. The lower limit line will be displayed on the screen if the value entered is within the Y value range. A green line will display if all trace points are above the lower limit line. A red line will display if any trace points are below the lower limit line. A PASS indicator will display in the top right of the trace display if all trace points are above the upper limit line or will display a red FAIL if any trace points are below the lower limit line.

Manual Editing

Change the limit line value manually using the mouse.

1. Point and drag the limit line up or down to change the power limit value. When moving the line manually, a readout is displayed indicating the limit line measurement location as shown in Figure 3-8
2. Note the limit line readout value is tracked in the upper or lower limit line menu.



1. Measurement set to Return Loss
2. Upper Limit Line measurement readout tracks the moving limit line
3. Upper Level Limit line tracking measurement
4. Mode set to Single limit line

Figure 3-8. Limit Line Measurement Readout

Segmented Limit Line Mode

Use a segmented limit line to make segmented measurements across the trace data. To access the segmented limit line menu:

1. Press LIMITS in the Measurement menu.
2. Set MODE to Segmented as described in "Set as Single or Segmented Limit Line" on page 3-8.

The Segmented limit line menu is shown in Figure 3-9 and is described in "Segmented Limit Line Menu" on page 3-11.

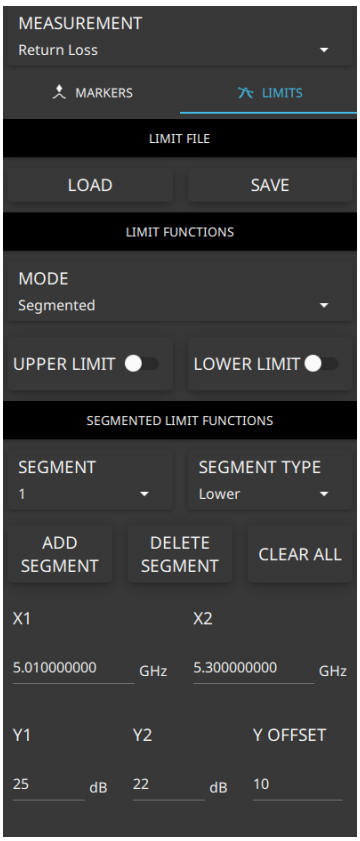


Figure 3-9. Segmented Limit Line Menu

Segmented Limit Line Menu

The Segmented Limit line menu is described in Table 3-4.

Table 3-4. Segmented Limit Line

LOAD	Opens the Load dialog to the user designated .limcaa file folder.
SAVE	Save a trace data file into a user designated trace data folder.
MODE Segmented	Set mode to Single or Segmented Limit Line.
UPPER LIMIT	Switch on to activate Upper limit line parameters. Switch off to hide the entire Limit Line. Switch on again will display the current limit line on the display if it was not Cleared.
LOWER LIMIT	Switch on to activate Lower limit line parameters. Switch off to hide the entire Limit Line. Switch on again will display the current limit line on the display if it was not Cleared.
SEGMENT 1	Tracks the number of segments active on the display. Segment 1 can be tracked in the "#" column as shown in the "LIMITS SEGMENTS Parameters" on page 3-12. Press the caret to set a segment to display.
SEGMENT TYPE Lower	Set as an upper or lower limit segment.
ADD SEGMENT	Add a segment to the trace display. Adding a segment will increase the number shown in the SEGMENT menu.
DELETE SEGMENT	Deletes the segment that is active. The SEGMENT tab will show the segment count reduced when a segment is deleted.
CLEAR ALL	All segments for the trace data displayed are cleared and lost.
X1 5.010000000 GHz	Press to display a numeric keypad. Enter a frequency value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
X2 5.300000000 GHz	Press to display a numeric keypad. Enter a frequency value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
Y1 25 dB	Press to display a numeric keypad. Enter a power level value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
Y2 22 dB	Press to display a numeric keypad. Enter a power level value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.
Y OFFSET 10	Press to display a numeric keypad. Enter a power level value. Refer to "Enter Numeric Values" on page 2-3 to enter a value using the numeric keypad.

Adding Segments

The limit line can be added in segments across a trace for split specification applications when monitoring a display. Forty two limit segments can be added to each limit line. An example of a trace that has passed is shown in Figure 3-10. An example of a trace that has failed is shown in Figure 3-12 on page 3-14.

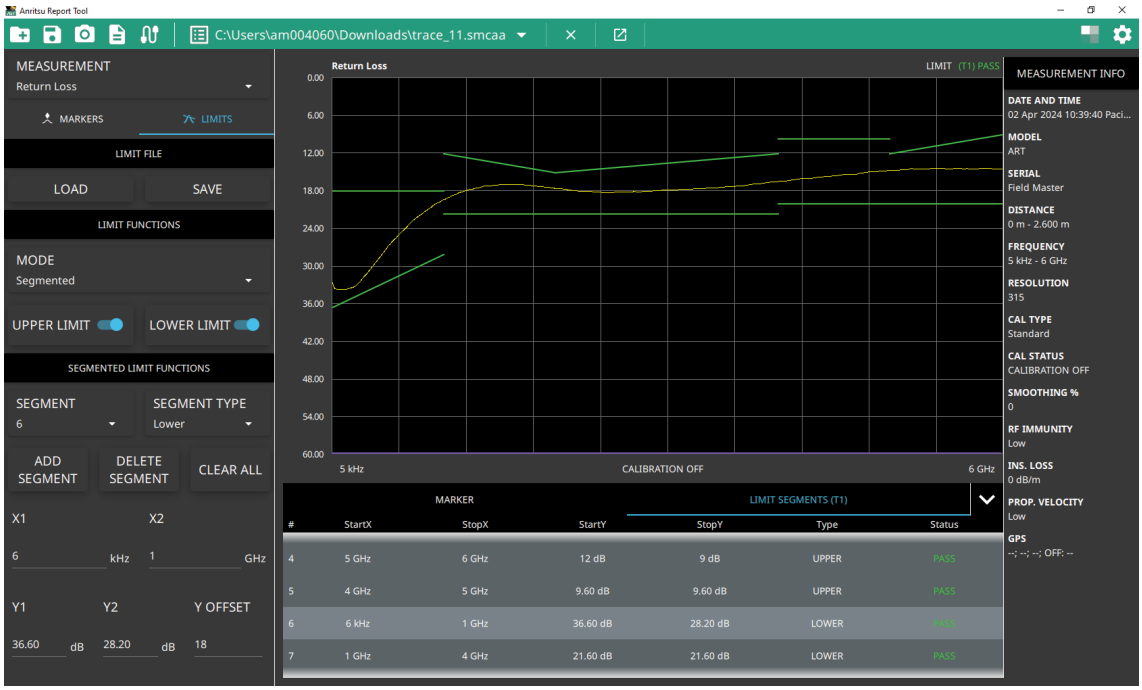


Figure 3-10. Segments - Pass

LIMITS SEGMENTS Parameters

The LIMITS SEGMENTS parameters screen is shown in Figure 3-11. Press a parameter entry to change the value or use the segmented limit line menu.

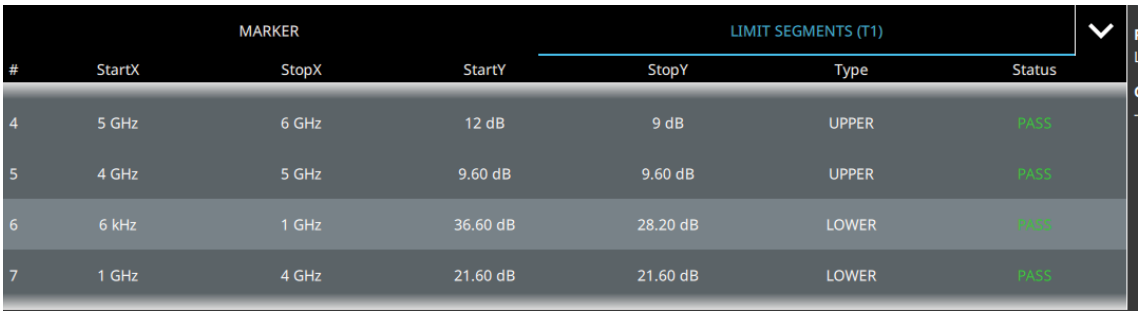


Figure 3-11. Segments Parameter Screen

Setting Limit Segments

Use this procedure to set segmented limit lines. Only one limit line and one segment can be set at a time. Refer to "Enter Numeric Values" on page 2-3 to enter values.

1. Press the Limits tab.
2. See "Set as Single or Segmented Limit Line" on page 3-8 and set MODE to Segmented
3. Switch either the UPPER LIMIT or LOWER LIMIT on. The Segment tab will automatically display a 1 indicating that this is segment 1. Each segment added will increase the segment number.

Set X1 and X2 Frequency Values

X represents the X axis and frequency on the graph display.

1. Press X1 to enter a Segment 1 frequency value.
2. Press X2 to enter a Segment 1 frequency value. A segment line will display on the trace display.

Set Y1 and Y2 Frequency Values

Y represents the Y axis and power level on the graph display.

If a power segment that has different Y1 and Y2 values, representing a linear type segment, set Y1 and Y2. If a segment that requires the same Y1 and Y2 values over a frequency range, use the Y OFFSET to set the power level value.

1. Press Y1 to enter a Y1 power level value.
2. Press Y2 to enter a Y2 power level value.
3. Press Y OFFSET to enter a Y1 and Y2 power level value.

Add Another Segment

Use this procedure to add another segment top the trace data display.

1. Press ADD SEGMENT. The SEGMENT tab will display an incremented segment number. An additional parameter line is added to the segments parameter screen as shown in Figure 3-11 on page 3-12.
2. Add segment parameters as noted from Step 3 through Step 3 above or press an entry in the segments parameter field and type a new value.

DELETE SEGMENT

Use this procedure to delete a single segment.

1. Press the SEGMENT Tab.
2. Press the segment to be deleted.
3. Press DELETE SEGMENT.

CLEAR ALL

Use this procedure to delete all Segment Entries.

1. Press SAVE to save the trace data display if needed. If not saved, the segment limit lines parameter values will be lost.
2. Pressing CLEAR ALL removes all segments.

Trace Data Segment Failed

When a trace crosses a limit line segment, the entire segment line turns red indicating a failed trace response as shown in Figure 3-12. Here, several data points are below the lower limit line indicating a fail. The circle shows the trace data section that failed the specified power level region. The lower limit line turns red indicating a failure has occurred.

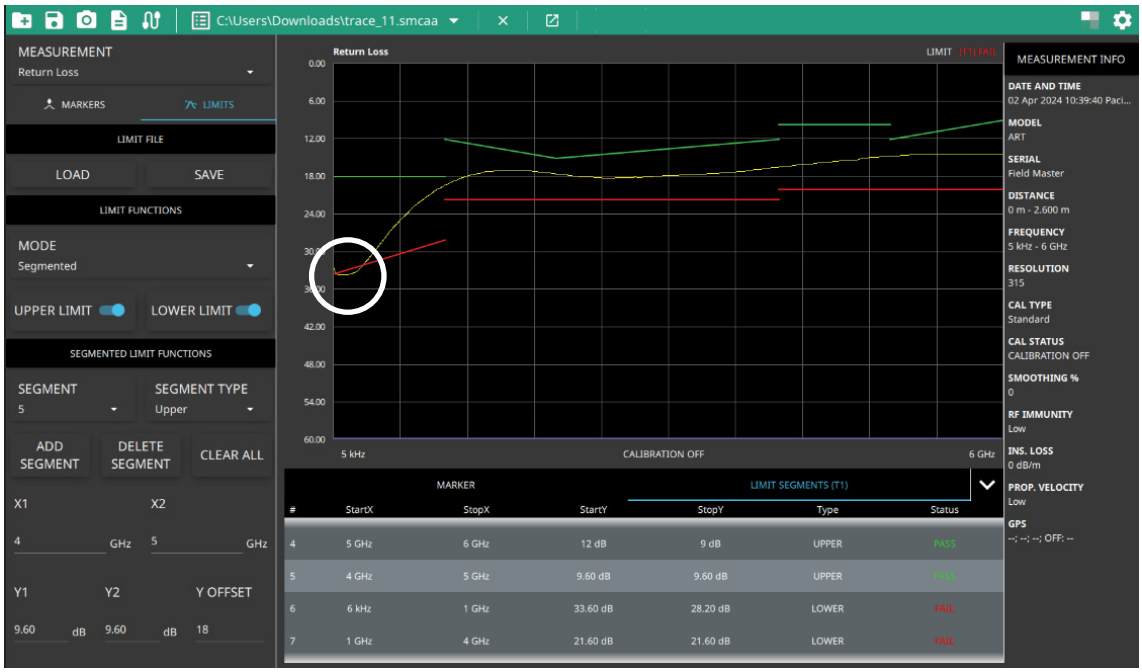


Figure 3-12. Segments - Failed

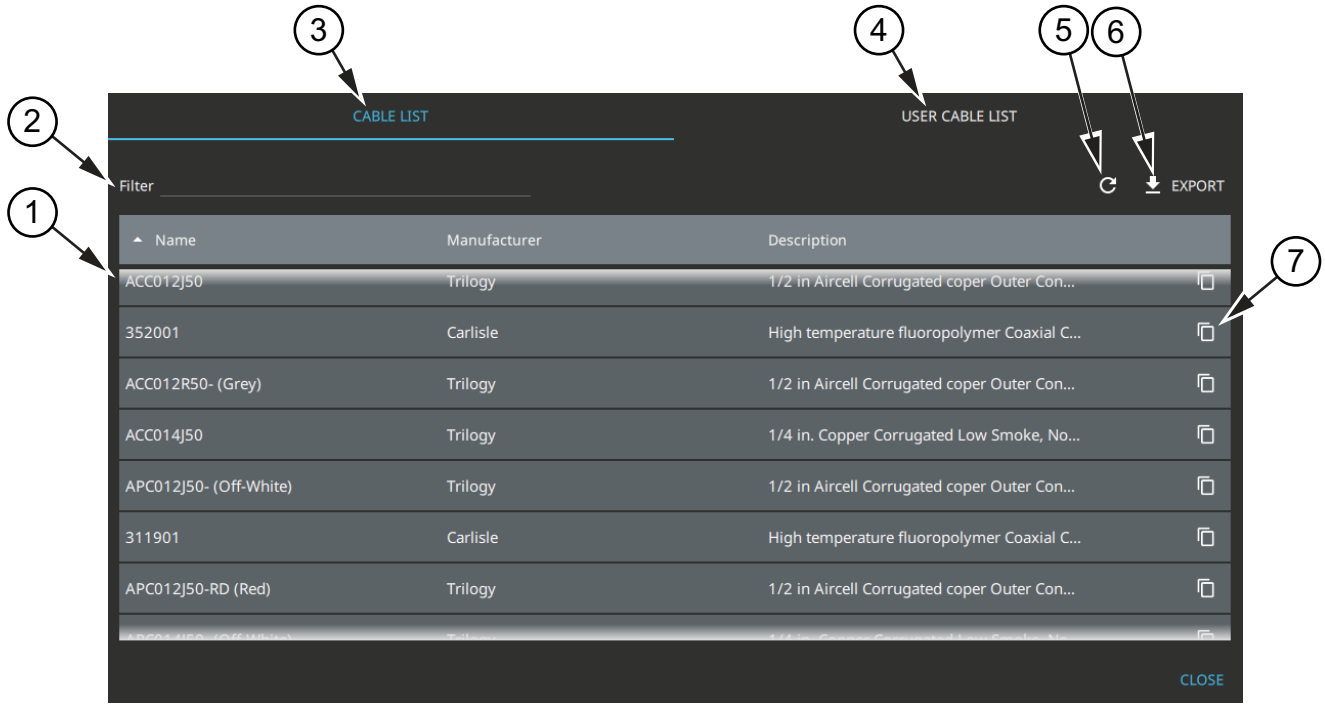
Chapter 4 — Cable List

4-1 Introduction

The Cable List provides an edit or add to a cable file which contains definitions of multiple cables. Upload the new cable definitions into the instrument in use or save them locally on a PC.

4-2 Cable List

Press the CABLE LIST tab to display the cable list as shown in Figure 4-1. The cable list provides a cable file containing definitions of multiple cables. Save them to the desktop and export them into the instrument. For more information on importing files to the Anritsu Report Program, see Appendix A, "Anritsu Remote Tool Program".



1. List of Available Cables
2. Filter Entry Field
3. Cable List Tab
4. User Cable List Tab
5. Refresh Button
6. Export Button
7. Add/Edit Cable Button

Figure 4-1. Cable List

View and Edit a Cable

Press the add/edit cable button shown in Figure 4-1 to display the screen in Figure 4-2. The cable Name, Manufacturer and the Propagation Velocity, Frequency Value, and Cable Loss is displayed. Click a field and type to edit a field.

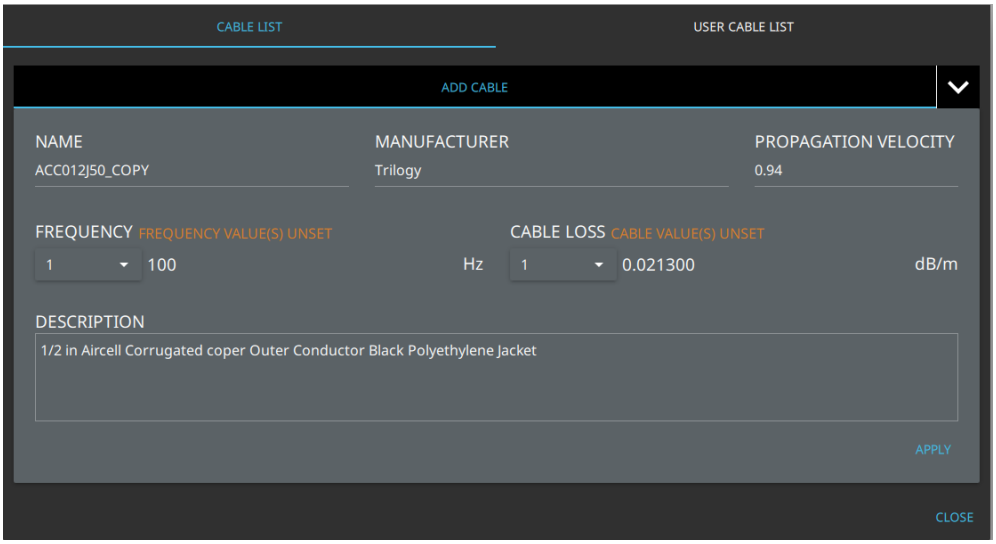


Figure 4-2. Add Cable

View/Edit an Existing Cable's Parameters

Use this procedure to view or edit an existing cable.

1. Click the "Add/Edit Cable Button".
2. Click a field and type the cable details.
3. Use the caret for FREQUENCY and CABLE LOSS to set a value of 1,2 or 3.
4. Use the DESCRIPTION panel to type details of the added cable.
5. Press APPLY.

User Cable List

The User Cable List provides entry fields to add and create a custom a cable list as shown in Figure 4-3.

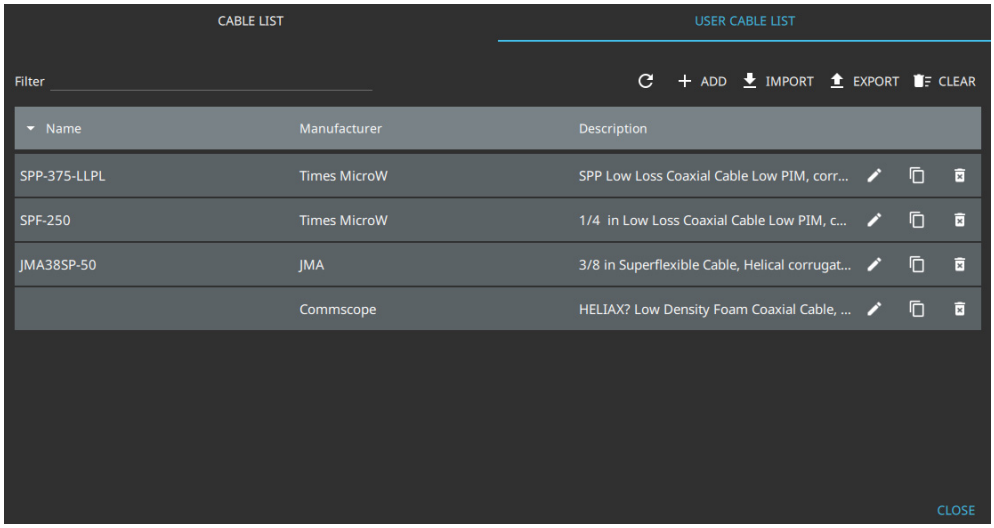


Figure 4-3. User Cable List

The USER CABLE LIST icons are described in Table 4-1.

Table 4-1. User cable List Icons

ICON	Description
	Refresh the cable list.
Filter	Type all or part of a name, manufacturer or description and press FILTER to sort the list.
+ ADD	Press to open the cable edit screen. Type to edit the fields and press APPLY to add the cable parameters to the cable list.
IMPORT	Opens the import dialog to a user designated cable folder.
EXPORT	Opens the save dialog to save in a user designated cable folder.
	Clears ALL cable entries in the User Cable List.
	Press to open the edit cable screen. Point to a field to edit. When finished editing, press RENAME to save the edit. The cable will be added to the list with the edits applied. If the Name was not changed, then the file will be saved as a _Copy.
	Press to open the add cable details screen shown in Figure 4-4. Edit the field and press APPLY to save the changes as a _Copy file in the cable list.
	Remove the cable from the cable list.

Add a Cable

The USER CABLE LIST screen provides a template to add cables and parameters as shown in Figure 4-4.

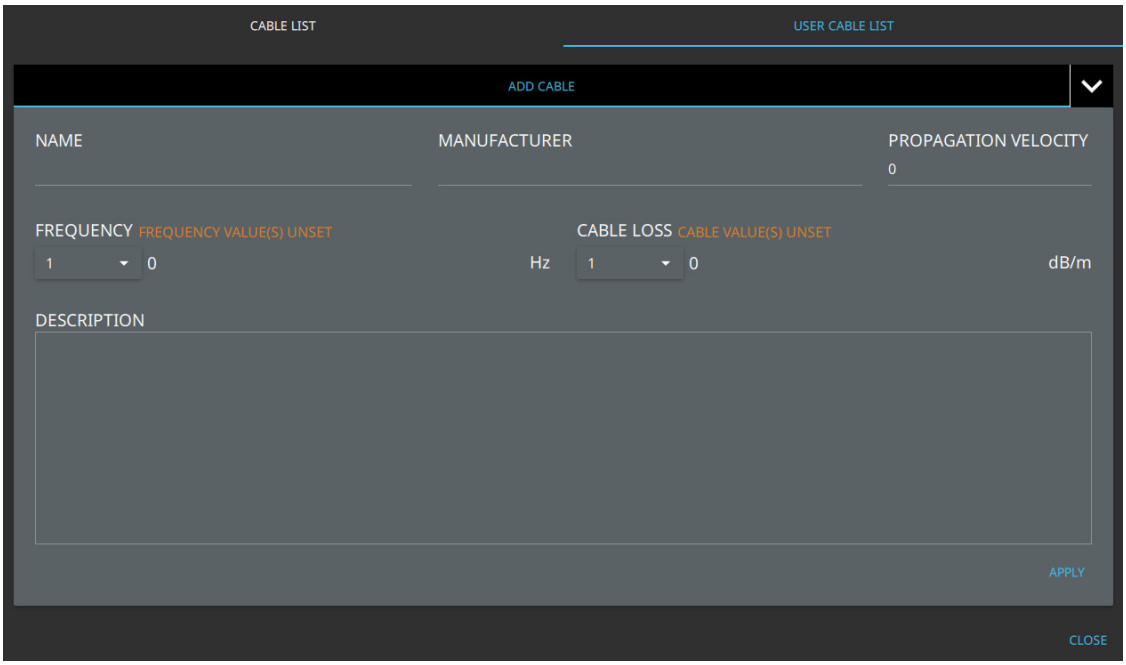


Figure 4-4. Add Cable Template

Add a New Cable List

Use this procedure to add a new cable to the cable list.

1. Click the +ADD button
2. Click the NAME, MANUFACTURER, and PROPAGATION VELOCITY fields.
3. Type an entry.
4. Use the caret for FREQUENCY and CABLE LOSS to set a value of 1,2 or 3.
5. Use the DESCRIPTION panel to type details of the added cable.
6. Press APPLY.

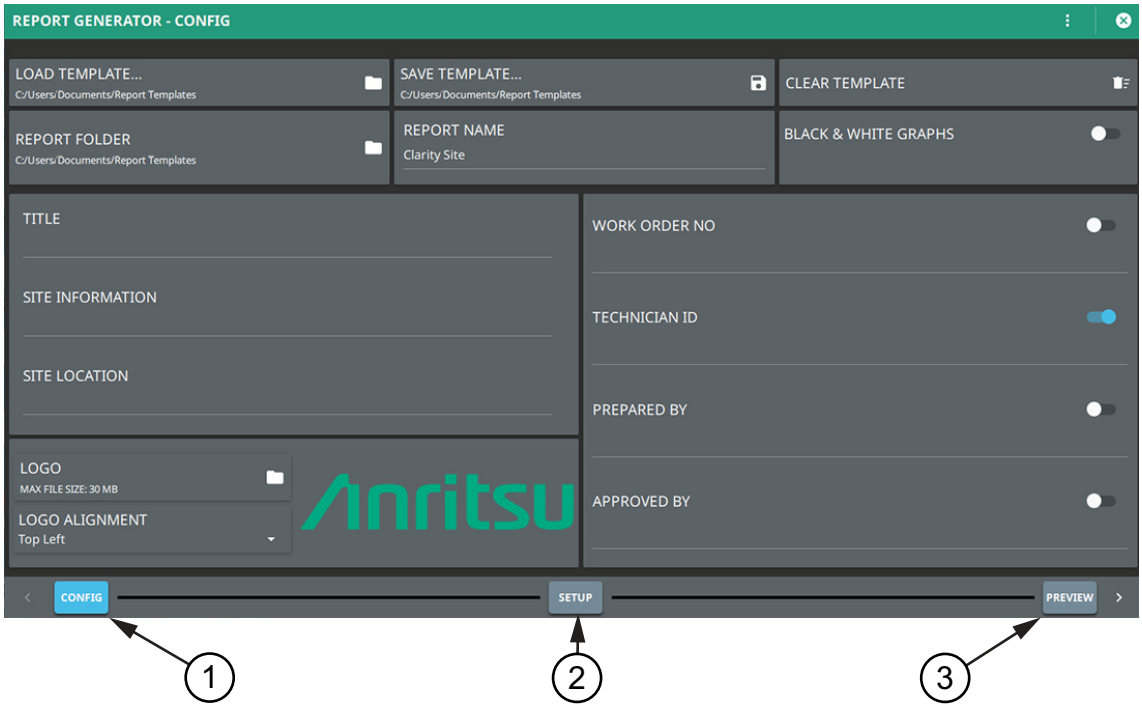
Chapter 5 — Creating Reports

5-1 Introduction

The Anritsu Report Tool provides a custom report template to add site details, trace measurement details, and trace data files. The reports can be viewed in the browser as a PDF, saved, and printed.

5-2 Create Report

Press the create report icon in the "Toolbar" to access the Report Generator. The three stages of creating a report is displayed at the bottom of the Report Generator Window as shown in Figure 5-1.



1. Config Stage: See "Report Generator - Config".
2. Setup Stage: See "Report Generator - Setup" on page 5-4.
3. Preview Stage: See "Preview" on page 5-7.

Figure 5-1. Report Generator Stages

REPORT GENERATOR - CONFIG

The REPORT GENERATOR - CONFIG screen is shown in Figure 5-1. Use this template to create, save, and import from a report folder.

The Report Generator buttons are described in Table 5-1.

Table 5-1. Report Generator

Button	Description
LOAD TEMPLATE... INTERNAL/Report Templates	Open the report template folder location to load a report template file.
SAVE TEMPLATE... INTERNAL/Report Templates	Open the Save dialog to save the template file to a user selected file folder.
CLEAR TEMPLATE	Clear the template typed entries.
REPORT FOLDER INTERNAL/Reports	Open the report folder to select a report file.
REPORT NAME Site 5A Test Report	Type a name for the report. When stored, the file name will be listed by the Report name.
BLACK & WHITE GRAPHS	Alternative to color graphs. Use as a printer preference.
TITLE Site 5A test report	Type the title of the report.
SITE INFORMATION Tower 5 low power fault	Type a name to define the site.
SITE LOCATION Morgan Hill	Type a name to define the site location
LOGO MAX FILE SIZE: 30 MB	Import a logo into the program and set the logo alignment to the left top corner or right top corner of the report. The logo should be 80 pixels wide by 40 pixels high to fit on the report. Image can be saved in the following formats - PNG, BMP, GIF, or JPG.
LOGO ALIGNMENT	Press the caret to set the logo to align on the report as Top Left, Bottom Right, or Bottom Left.
WORK ORDER NO	Type the Work Order Number if applicable. Press the switch on to add the item on the report.
TECHNICIAN ID	Type the Technician Identification if applicable. Press the switch on to add the item on the report.
PREPARED BY	Type the Prepared By if applicable. Press the switch on to add the item on the report.

Table 5-1. Report Generator (Continued)

Button	Description
APPROVED BY	Type in the Approved By if applicable. Press the switch on to add the item on the report.
CONFIG — SETUP — PREVIEW	Displays the generate report progress. Press Config, Setup, and Preview to complete the progress stage of the report. Use the CONFIG window to add and fill in the report template shown in Figure 5-1 on page 5-1. Use the SETUP window to add trace data files that will be available for the generated report.as shown in Figure 5-2 on page 5-4. Use the PREVIEW window to load a report template and view the report as an HTML document.
	Use the switch to add or remove from report category.

Complete the Report Template

Use the Report Generator - Config template to create a custom trace data report. Complete the fields that are required for your report.

Create a new report

Fields left blank will not appear in the report

1. Press the Create Report icon from the Anritsu Report Tool toolbar.
2. Press REPORT NAME.
3. Type the name of the report.
4. Press TITLE, SITE INFORMATION, SITE LOCATION and type an entry if needed.

Report Generator - Setup

The REPORT GENERATOR -SETUP window is shown in Figure 5-2. Use this window to add trace data files, add and save notes that pertain to each trace data display. Press the + ADD FILES button to import files from a trace data folder.

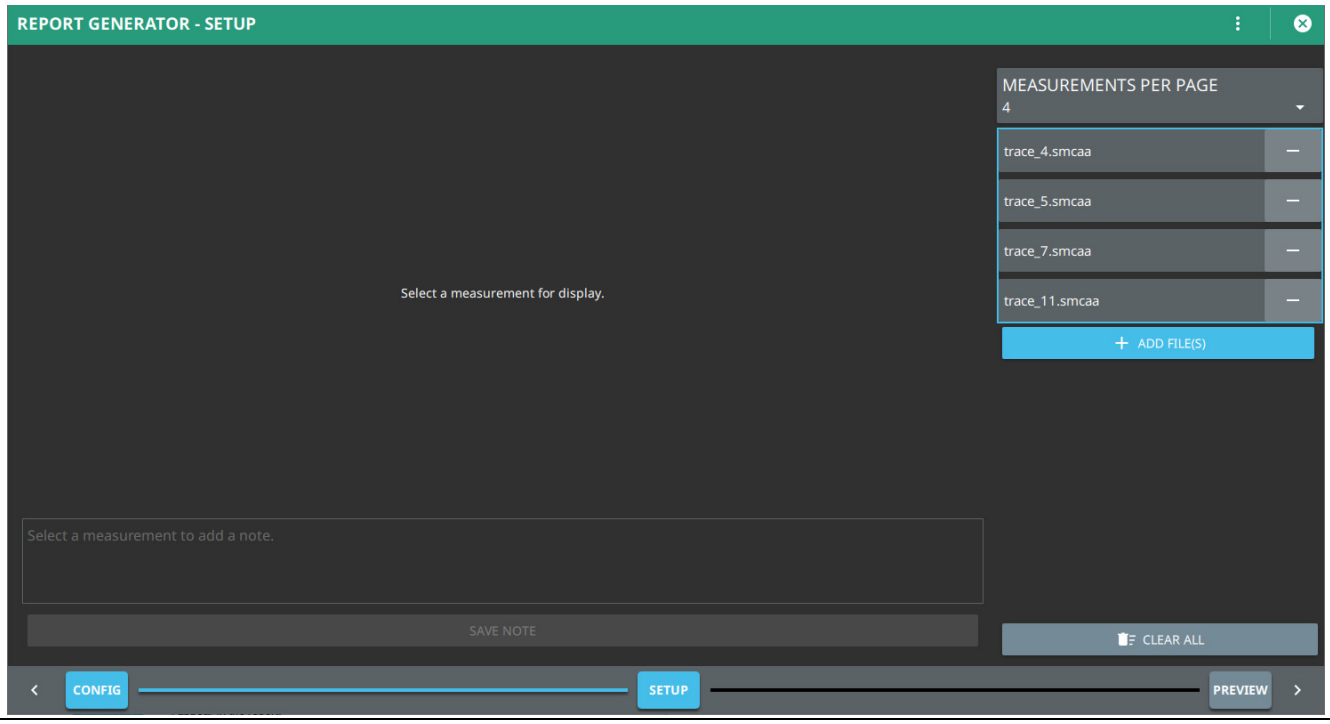


Figure 5-2. REPORT GENERATOR - SETUP

The Report Generator - Setup screen buttons are described in Table 5-2.

Table 5-2. REPORT GENERATOR - SETUP

Button	Description
MEASUREMENTS PER PAGE 1	Provides a list of the measurement trace data files. Use the caret to set the number of trace files per page to display and/or print In PREVIEW.
+ ADD FILE(S)	Press to open the trace data files dialog. Load the trace data file to add in the Measurements Per Page list. The trace data files added to the MEASUREMENTS PER PAGE list will be added to the generated report and available to print and store as described in "Preview" on page 5-7
trace_1.smcaa	Trace data file that is loaded from an instrument and ready to view.
–	Press to remove the trace data file from the list. The file is still stored in the trace file folder.
CLEAR ALL	Press to remove all traces from the SETUP stage. The CLEAR ALL function removes the traces from the display but does not delete them from the folder.
Select a measurement to add a note. Add a note to this measurement.	Use this box to add notes. Press the Save Note button to save the note for the selected file and the note will be printed in the report.
SAVE NOTE	Press to save the note to the trace data file report file. The note will appear in the report.

View Trace Files

Figure 5-3 shows the added trace files. Note the trace_4.smcaa file has two traces saved for this single file. Press TRACE 2 to view the other trace as shown in Figure 5-5 on page 5-7.

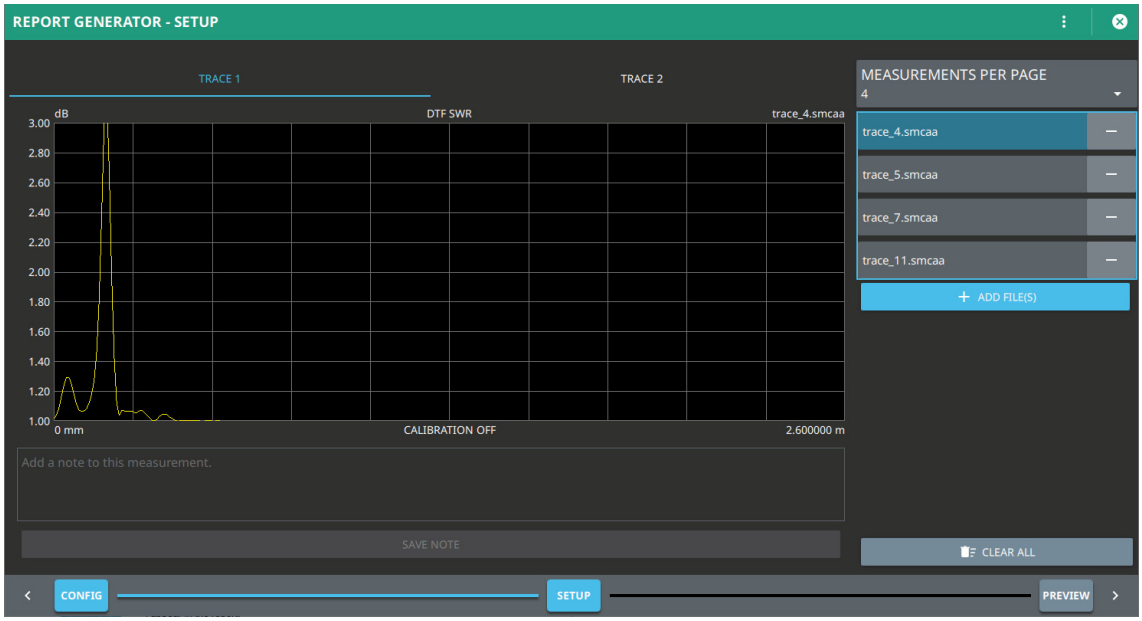
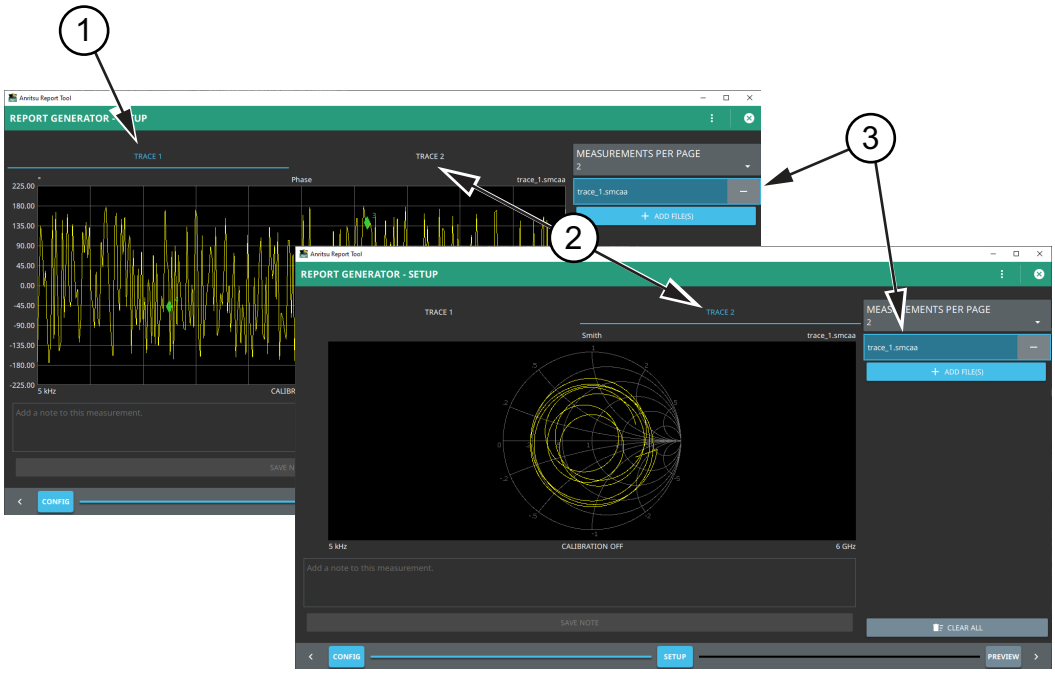


Figure 5-3. Load Trace File - Trace ‘1 Display

Two Trace File

This file contains two trace displays as shown in Figure 5-4. When trace_1.smcaa is printed, both traces will be printed from this trace data file as shown in Figure 5-8 on page 5-9.



1. Trace 1
2. Trace 2
3. trace_4.smcaa File

Figure 5-4. Two Traces - Single Trace Data File

5-3 Generate Report

Use the CONFIG stage to complete the report template and switch on the template features that will show in the report as shown in Figure 5-5. Press the SAVE TEMPLATE button to save the template to a user designated location.

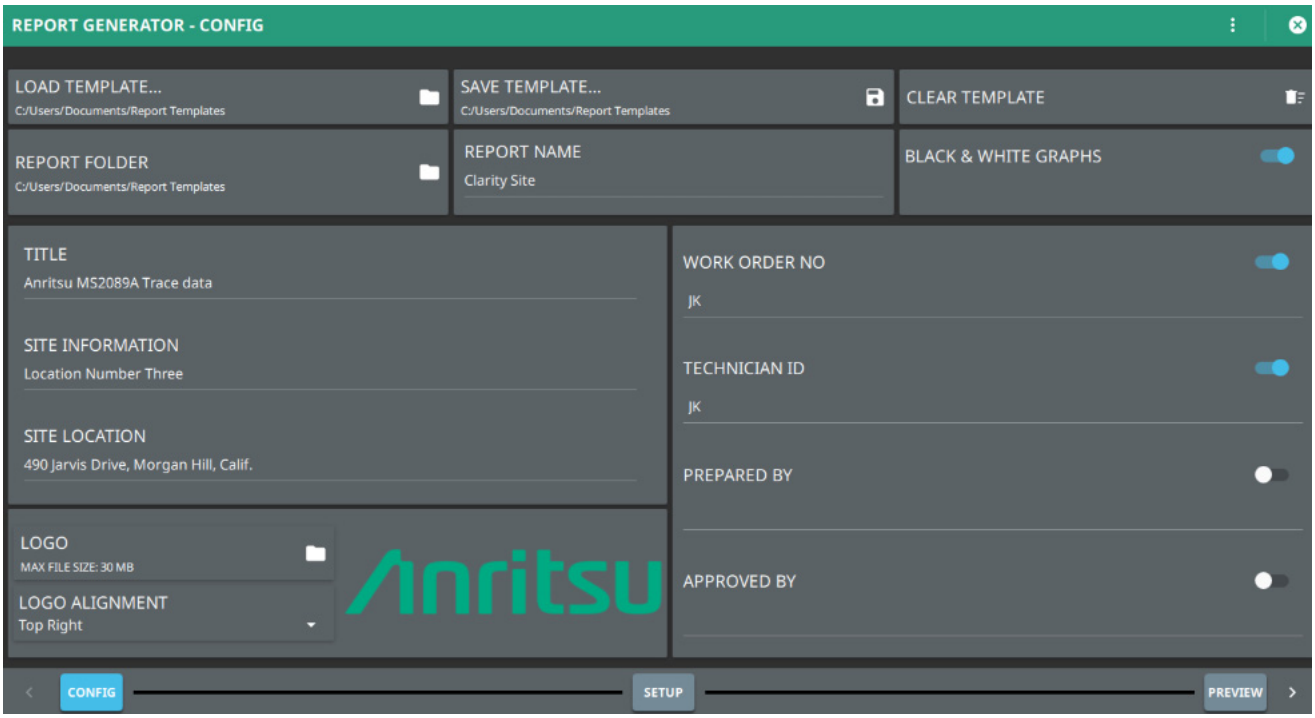


Figure 5-5. Fill Out Template

PREVIEW

Use the PREVIEW window shown in Figure 5-6 on page 5-7 to generate, view, store, and print a report.

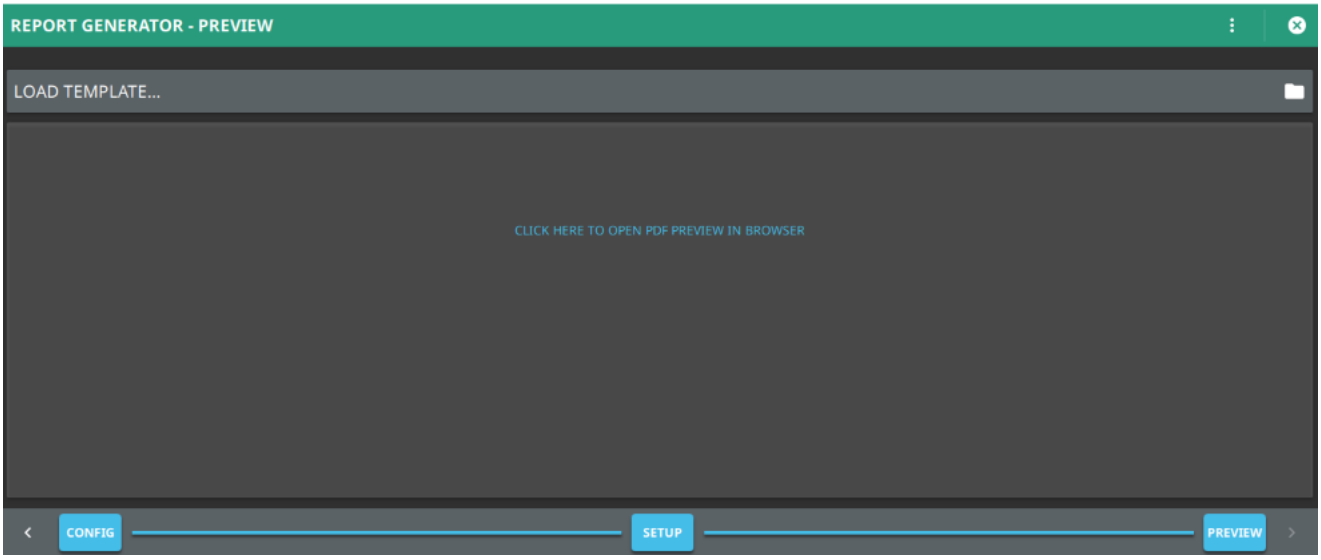


Figure 5-6. Report Generator - Preview Window

1. Use the CONFIG window to complete a report template.
2. Use the SETUP window to add trace data files to be included in the generated report.
3. Set the number of trace data files to print per page using the MEASUREMENTS PER PAGE caret. For example, set 2 to include two trace data files per page, 3 for three trace data files per page, etc.
4. Press the PREVIEW button at the bottom of the Window.
5. Press the LOAD TEMPLATE button to load a template from a template folder location created in the CONFIG window.
6. Press the PREVIEW screen to open the report in a browser as described in "Final Report".
7. Print and/or store the generated report.

Final Report

The final report includes the template and the trace data shown as an HTML document in a browser and can be printed as a PDF or saved to a user designated folder location.

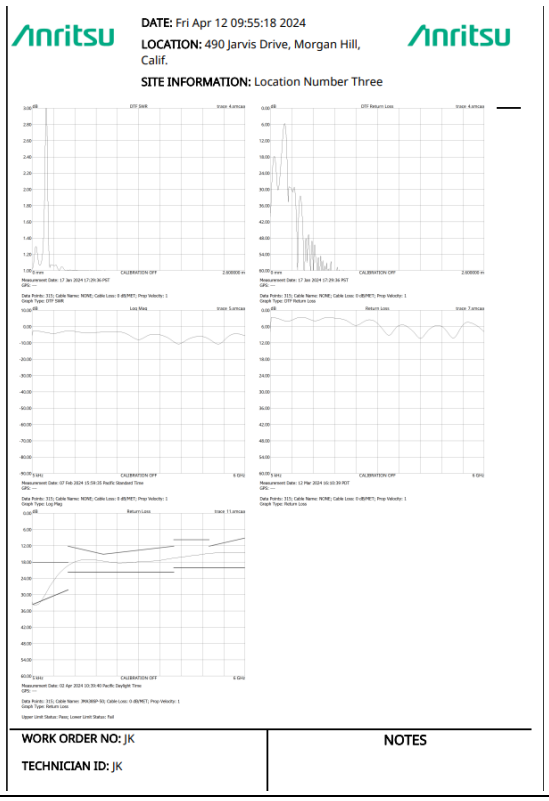


Figure 5-7. Print Report

One File/Two Trace Print

The one file/two trace data file shown in Figure 5-4 on page 5-6 is previewed in Figure 5-8 on page 5-9.

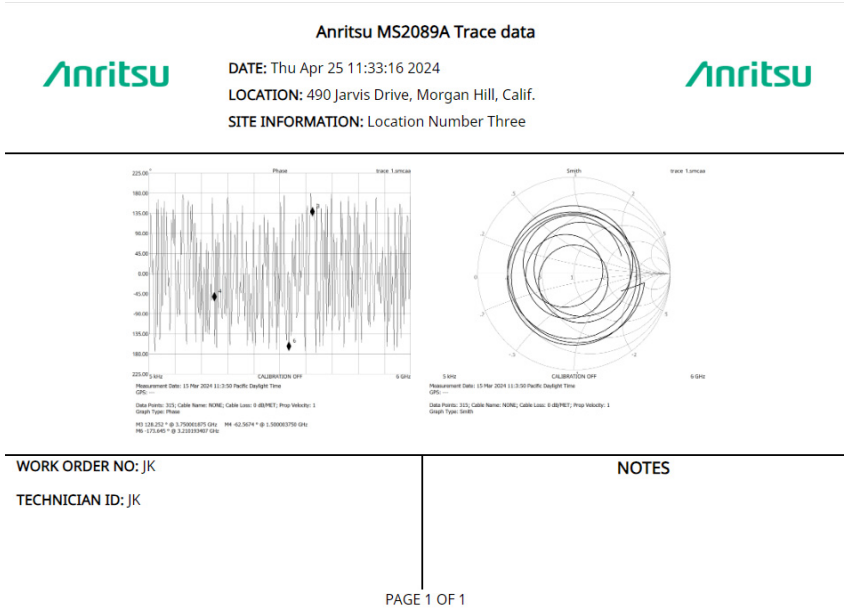


Figure 5-8. One file With Two Traces Preview

Appendix A — Anritsu Remote Tool Program

A-1 Introduction

The Anritsu Remote Tool program user interface software provides remote access to a network connected instrument and displays the same Anritsu instrument user interface, instrument controls, and live measurement data on the computer screen. The software also allows you to load measurement and setup data from saved files and then perform measurement analysis on the recalled traces, even when instrument hardware is not available or is not connected to the computer by using the Simulation Mode (refer to Section A-4 "Connecting to the Instrument or Simulation Mode"). The user interface provides the same functionality when an instrument is connected with a few exceptions:

- File operations will interface with the PC file system rather than on the instrument and save on event operations will be saved to the instrument memory (refer to "Files (File Management)" on page A-7).
- In Real Time Spectrum Analyzer (RTSA) mode, the display density is shown like that of the instrument.

Connecting to the Simulation Mode is like connecting to an instrument so there is no expectation of carrying over settings or trace data from one to the other. The Simulation Mode will include option controlled functionality with most options automatically enabled (refer to Section A-6 "Working in Simulation Mode").

A-2 PC configuration Requirements

The remote user interface application running on a computer as requires the following:

- Intel Core i5 Processor or higher
- 8 GB RAM
- Windows 10 or higher, 64-bit
- 1 GB Hard Disk
- Open GL (ES) 2.0 support
- 1280 x 800 resolution
- Ethernet or Wi-Fi (for connecting to Field Master Pro instrument)

A-3 Installation

1. The Anritsu Remote Tool executable is downloaded with the Anritsu Remote and Report Tools Application Download.
2. Launch the executable file and follow the on-screen instructions after selecting YES to the User Account Control dialog.

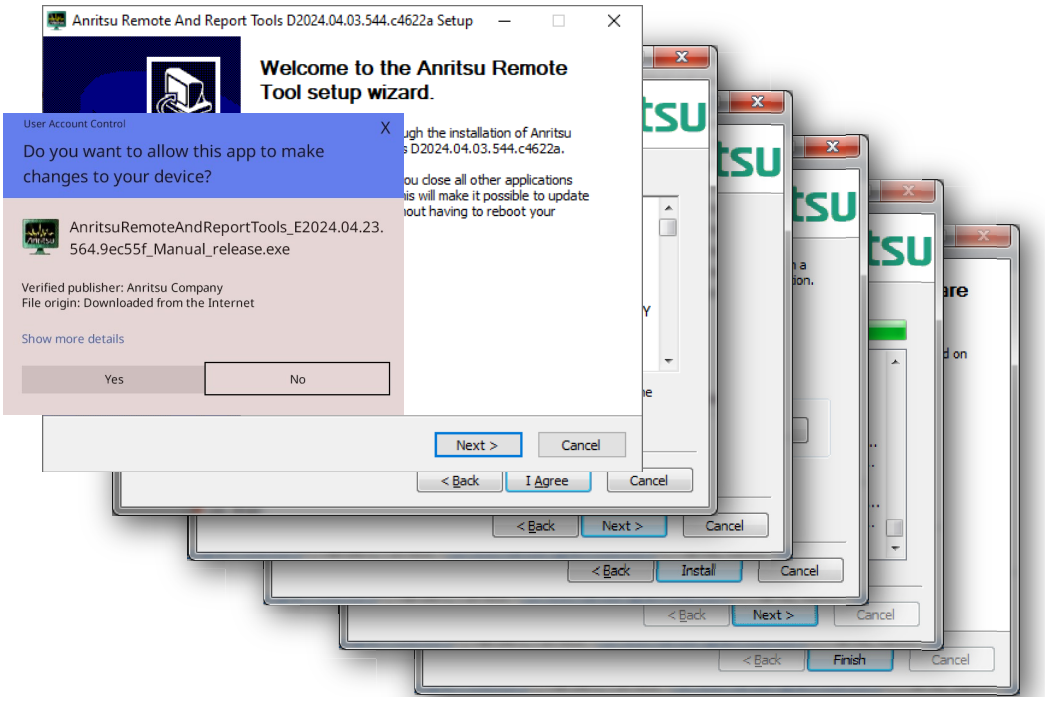


Figure A-1. ARRT Software Installation

A-4 Connecting to the Instrument or Simulation Mode

Connecting to a networked instrument or to the simulation mode is established via the SYSTEM menu. If connecting to an instrument, the instrument must first be connected to the network via Ethernet or Wi-Fi and the hostname/ IP address of the instrument must be known.

To view the instrument's hostname/IP address follow the steps below:

1. Select the System menu > SYSTEM INFORMATION on the instrument.
2. Enter either Hostname/IP address in the field provided under the INSTRUMENT tab. See Figure A-2.
3. Click CONNECT button to connect the PC software to the instrument
4. Alternatively, to get connected to simulation mode click SIMULATION tab. See Figure A-3.
5. Choose your instrument from the Simulation Mode drop-down list and click START button.

Note	Click ETHERNET SETTINGS to change network settings, if needed.

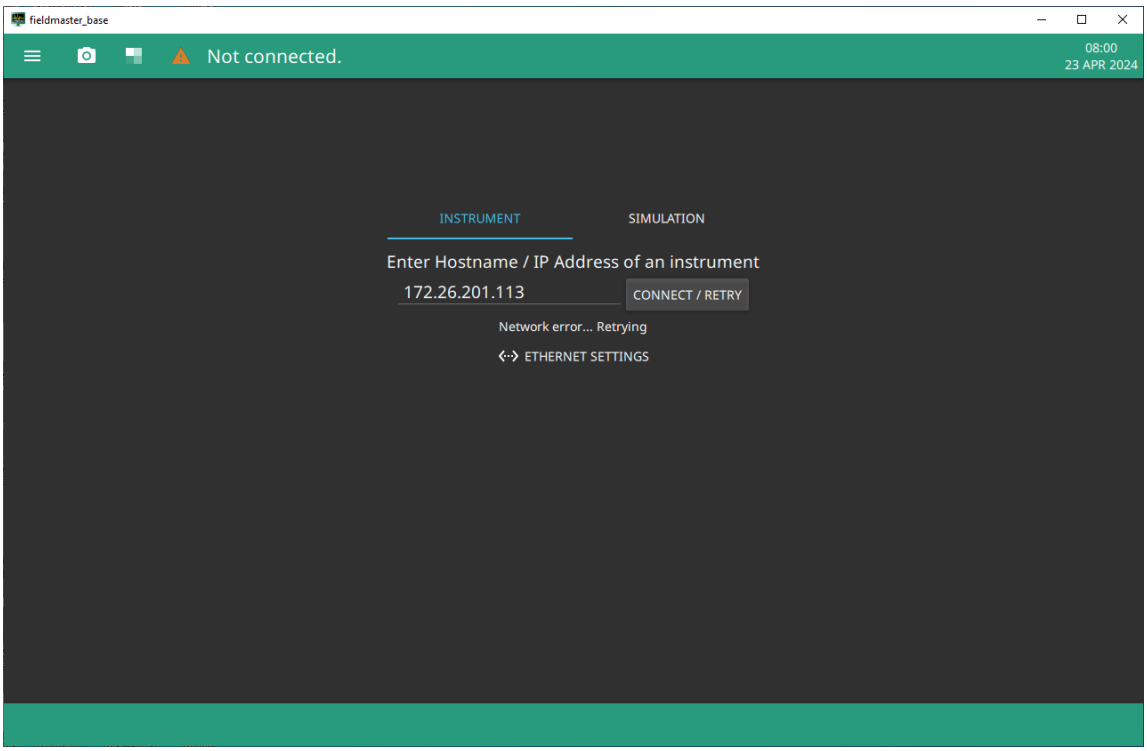


Figure A-2. Connecting to Instrument using Hostname/IP Address

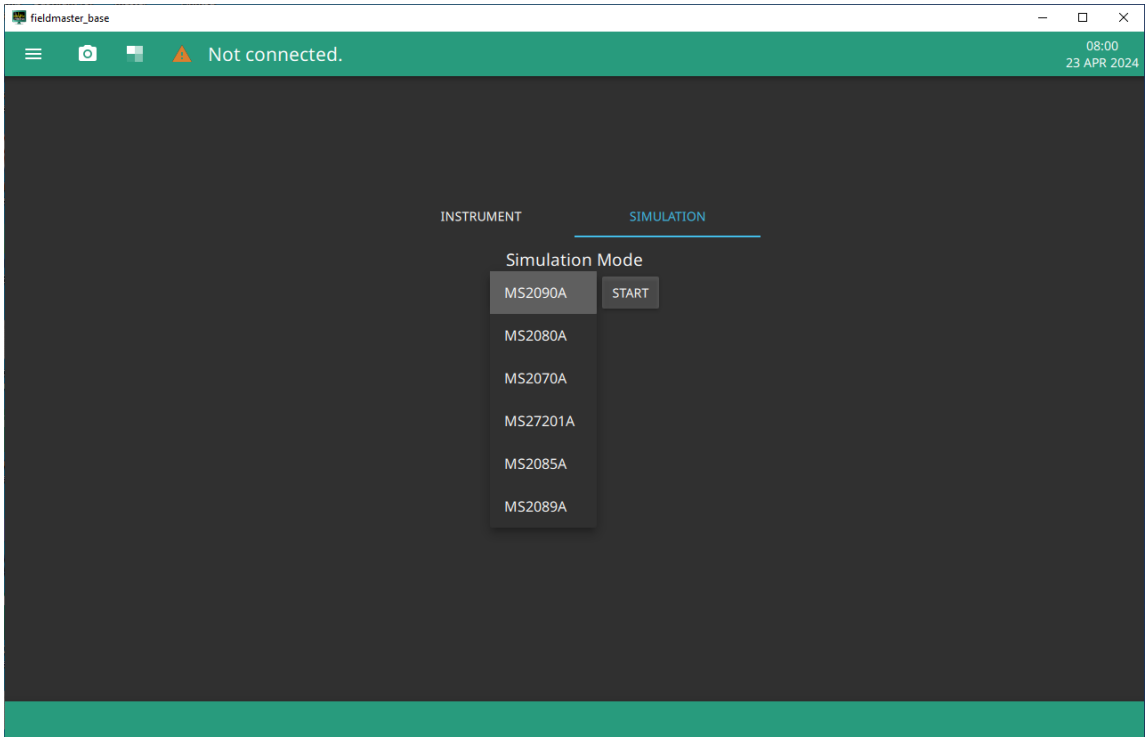
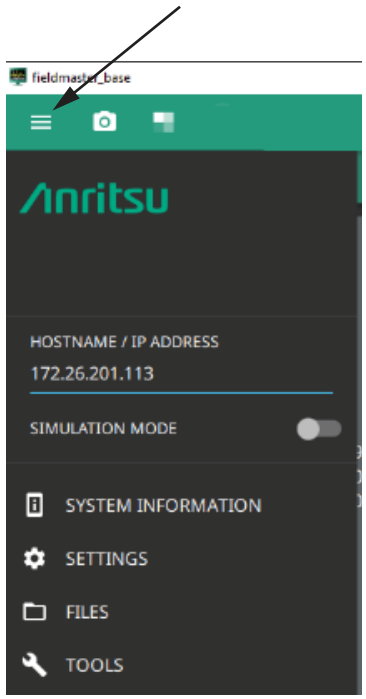


Figure A-3. Connecting to Simulation Mode

A-5 System Menu

Press the 3-line icon in the upper left corner to open the Anritsu Remote Tool System menu. The System menu identifies the remote instrument model and serial number as described in Figure A-4.



Press the 3-line icon to open the Anritsu Remote Tool System Menu. The System menu identifies the remote instrument model and serial number.

HOSTNAME/IP ADDRESS: This field is used to specify the IP address or hostname of an instrument that is connected to the network.

When **SIMULATION MODE** is toggled on, the software will connect locally to provide some UI functionality. Toggle the simulation mode and select the product from the drop-down and click START button to get connected with the local host. Click STOP button to get disconnected.

Note that some of the system menus have limited functionality when the software is connected to the Simulation Mode. Refer to the Anritsu instrument user guide for the System Menu description.

SYSTEM INFORMATION: Displays information about the instrument and software. Refer to "System Information" on page A-6.

SETTINGS: Provides access to setting the display color theme and screenshot capture settings. Refer to the Anritsu instrument user guide for the Settings description.

FILES: Opens the Windows file explorer. Refer to "Files (File Management)" on page A-7.

TOOLS: Opens the "Tools Menu" on page A-9.

SYSTEM POWER: Opens a dialog to RESTART or POWER OFF the instrument.

Figure A-4. System Menu

System Information

1. Press the 3-line icon in the upper left corner to open the Anritsu Remote Tool System menu.
2. Select SYSTEM INFORMATION to view the instrument's options, serial number and software details.
3. Select UPDATE INSTRUMENT REMOTELY and choose the firmware file saved locally on your PC to remotely update the instrument firmware.

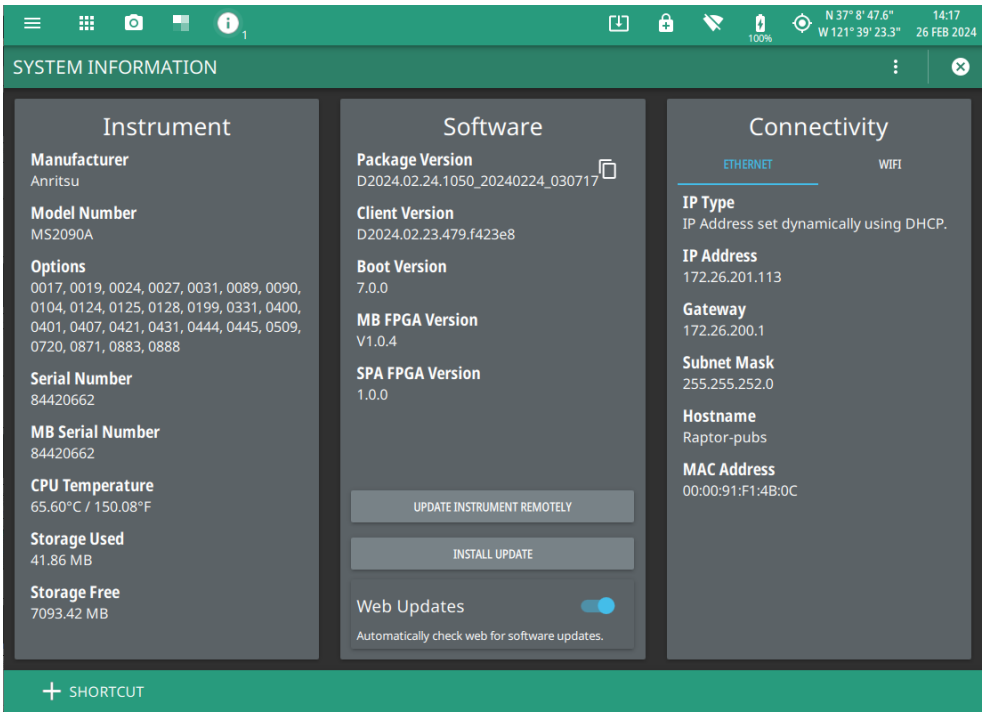


Figure A-5. Remote Instrument System Information

Files (File Management)

The PC file system is used for all file operations when connected to either an instrument or to simulation mode. The FILE menu will display the Windows Save As or Recall File dialogs. The FILES system menu will launch Windows Explorer. Note that files cannot be recalled from nor written to a connected instrument. Also, SAVE ON EVENT files will always be saved to the instrument and not the local PC.

1. Press the 3-line icon in the upper left corner to open the Anritsu Remote Tool System menu.
2. Click FILES to access the FILES menu.

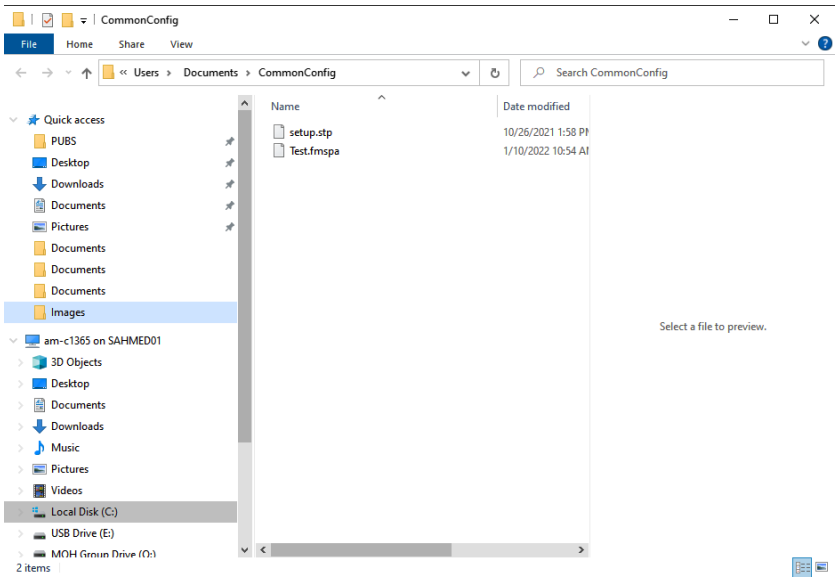


Figure A-6. Files Menu

File Transfer

File transfer menu enables the capability of saving the instrument files to your local PC. Follow the steps below to save the internal files:

1. Press the 3-line icon in the upper left corner to open the Anritsu Remote Tool System menu.
2. Click FILE TRANSFER to view the list of internally saved files for e.g. screenshots. See Figure A-7.
3. Click the desired file from the list to save it locally on to your computer.
4. To save multiple files, click the multi-select icon on the upper right and select the desired files as shown in the figure below.

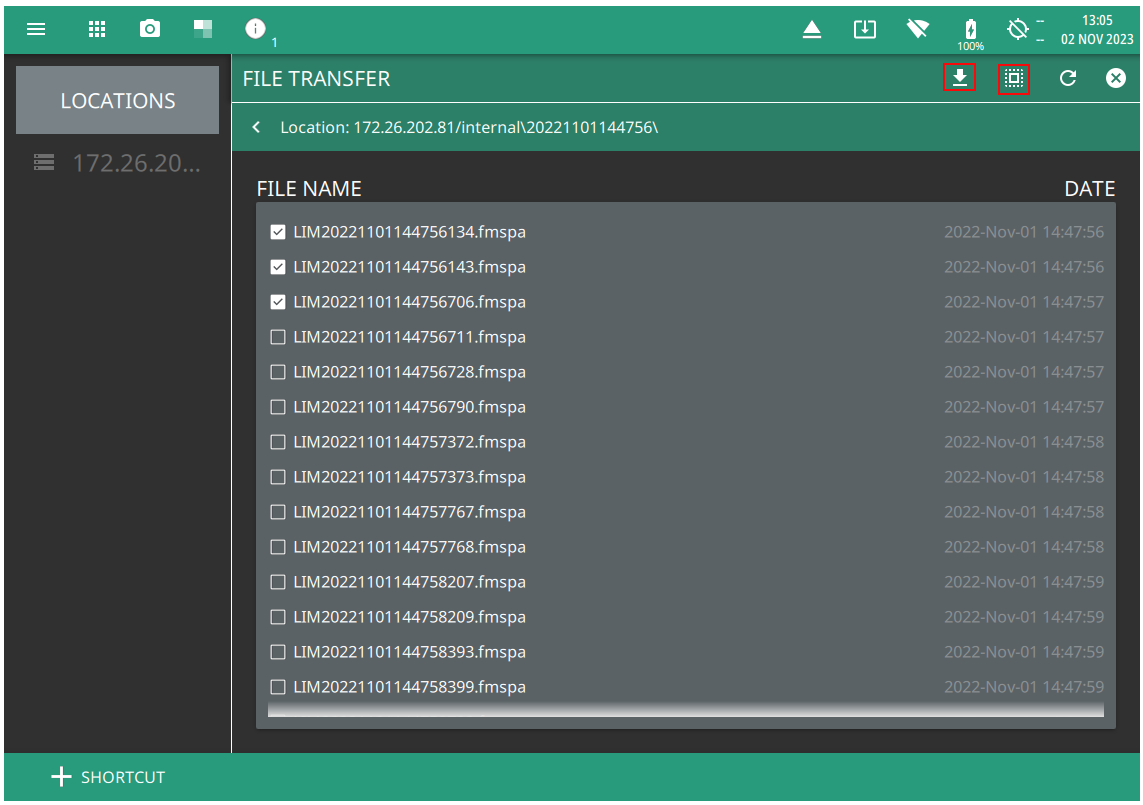
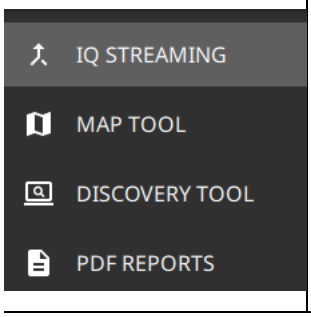


Figure A-7. File Transfer Menu

5. Click Download icon to open the Windows File Explorer and choose the desired location to save the files locally to your PC.

Tools Menu

1. Press the 3-line icon in the upper left corner to open the Anritsu Remote Tool System menu.
2. Click TOOLS to access the tools menu, then select the tool menu that you wish to open.



IQ STREAMING: Opens IQ Streaming Tool. Refer to IQ Streaming Tools section of Spectrum Analyzer Measurement Guide (10580-00447).

MAP TOOL: Opens Map Tool. Refer to Map Tool section of Spectrum Analyzer spectrum analyzer measurement guide (10580-00447).

DISCOVERY TOOL: Opens "DISCOVERY TOOL" on page A-9

PDF REPORTS: Facilitates report generation in a web browser. Click to open REPORT GENERATOR- PREVIEW window in the browser. You can either print or save a copy of the report in the PDF format.

Figure A-8. Tools Menu

DISCOVERY TOOL

The DISCOVERY TOOL displays all of the compatible units found on the local network. Select an instrument and then click CONNECT.

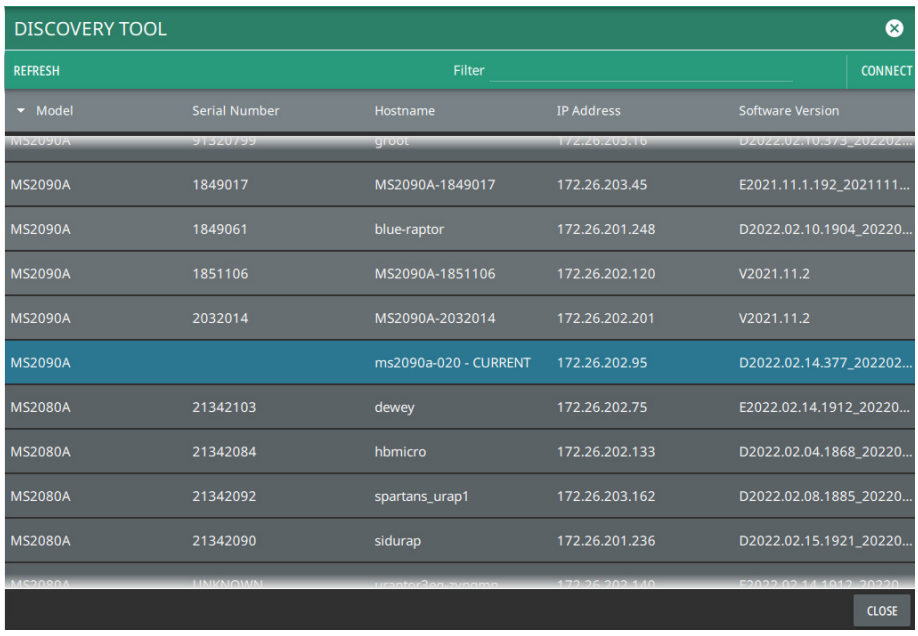


Figure A-9. Discovery Tool

A-6 Working in Simulation Mode

The Simulation Mode setting provides a simulated connection to the instrument hardware, but does not provide simulated data. When an instrument is not connected, most of the menus are available and operate the same as they do on the instrument, but there are some differences as discussed in the following sections. In order to analyze measurement data, this data must first be acquired using instrument hardware and then saved locally to the PC or transferred to the PC from instrument storage at a later time.

Some notes and caveats when connected to the Simulation Mode:

- The PC software supports the following modes:
  - Spectrum analyzer
  - RTSA
  - 5GNR Analyzer
  - LTE
  - WCDMA
  - IA Spectrum
  - IA RTSA
  - Channel Scanner
  - HIPM_USB
- The software must be set to the correct mode to recall a file for that mode. For example, to recall a .fm5gnr file, the 5G mode from the PC software must be selected first.
- Trace files will be recalled into a "HOLD" state, just like they would be on an instrument. This means that if the user changes the span, center frequency, or other settings that invalidate the data, all trace data will be cleared from the screen. The only way to get it back is to recall the trace again.
- Some buttons presented in the interface may not be applicable when connected to the Simulation Mode. Selecting them will have no effect.
- Measurements such as channel power or occupied bandwidth can be performed on recalled trace data, but the sweep must be set to Continuous. The same is true for evaluating the trace on a limit line.
- Measurements that change the span, such as SEM, are not functional unless the original file was saved while making an SEM measurement.

Measurement Setup Parameters

When recalling and analyzing measurement data, changing settings that would affect the data acquisition may cause the recalled data to be removed from the display. For example, you can change amplitude parameters, but you cannot change frequency parameters such as start/stop, span, and bandwidth parameters since there would be no data associated with those changed parameters. You can apply measurement features to the saved measurement data such as markers and limit lines and you can change many measurement and view settings. Opening a .fmxxxx measurement file when connected to the Simulation Mode will work basically the same as recalling a measurement on an instrument.

Below is a summary of menu behaviors when working with recalled measurement data and when connected to the Simulation Mode. Note that when connected to an instrument, the menus behave the same as on the instrument.

FREQ SPAN

Changes here suppress recalled data.

AMPLITUDE

Changes to REF LEVEL, SCALE/DIV, Y AXIS UNIT will change the graticule. PRE AMP and ATTEN LEVEL have no affect. All other changes will suppress recalled data.

BANDWIDTH

Changes here suppress recalled data.

TRACE

You can select different Traces or add Cursors if spectrogram data was captured. Most other trace settings have no affect.

SWEEP

You can recall GATED SWEEP and PWR VS TIME data, and you can change the GATE DELAY. Most other sweep settings have no affect.

MARKER

All marker measurements are available.

LIMIT

All limit line functions are available.

TRIGGER

Trigger functions have no affect.

MEASURE

Some measurements can be selected when the appropriate data is recalled. For example, a an Channel Power, OBW, and ACP measurements can be applied to a normal spectrum trace.

SETUP

Setup parameters for Channel Power, OBW, and ACP can be adjusted.

PRESET

Preset functions will preset the selected items and suppress recalled measurement data.

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