

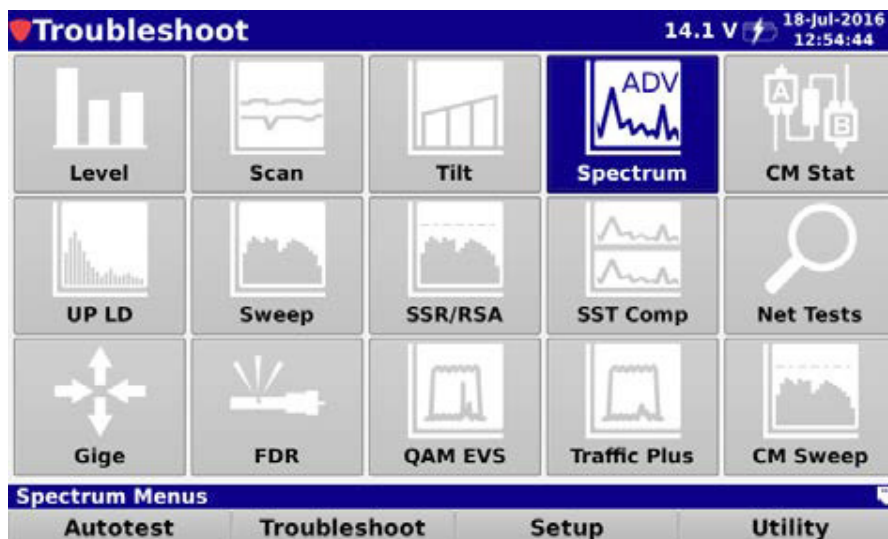
Return Spectrum Analysis Feature

Introduction

The New DSP family of meters Advanced Spectrum Analysis feature allows the user to see frequencies from 4 MHz to 1250 MHz. This application note will explore the operation of the return spectrum mode. The primary purpose of the return spectrum is to check a coax cable for unwanted ingress.

This is the standard test where you would disconnect the drop from the tap, connect the drop to the meter and check for signal coming from the home. There should be no energy on the cable. If any is detected, it could indicate an impairment that needs to be tracked down.

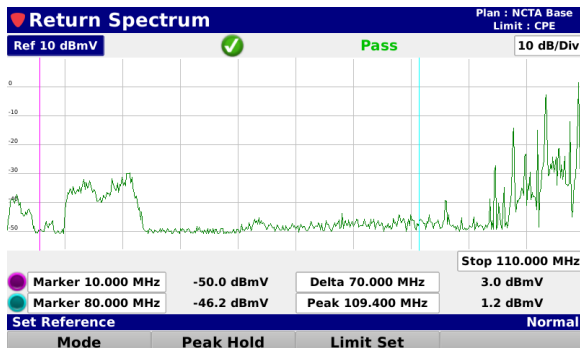
To access this feature, select the **Spectrum** icon from the **Troubleshoot** menu, as shown below.



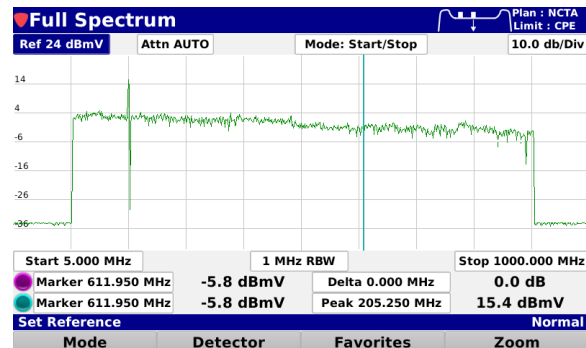
innovative technology to keep you a *step ahead*

Either the **Return Spectrum** or **Full Spectrum** screen will be displayed as shown in the images below.

These screens provide users with the ability to view raw spectrum traces for the return (4 to 205 MHz) and forward (5 to 1250 MHz) paths with DSP spectrum snapshots to give the user a view of any upstream or downstream channels.

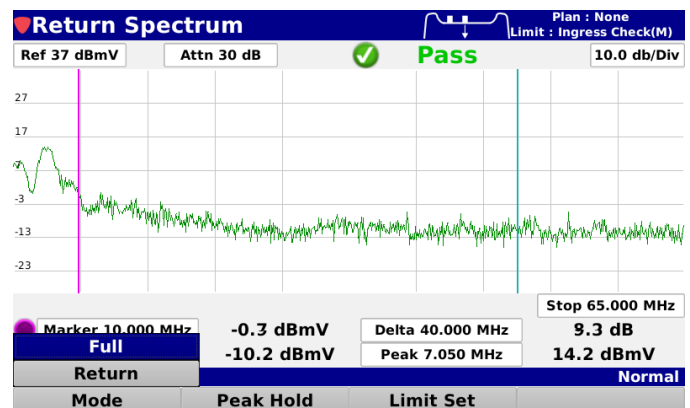


Return Spectrum

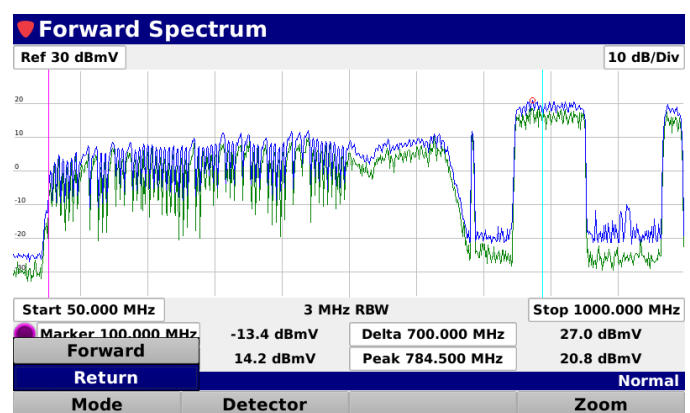


Full Spectrum

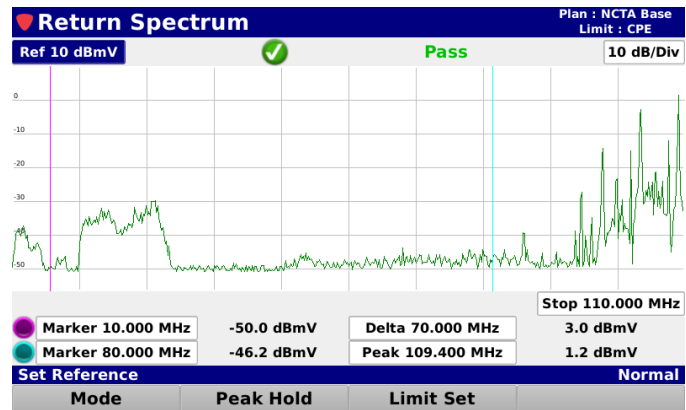
Select the **Mode** softkey as shown here to alternate between the **Full** and **Return** spectrum displays.



Select the **Return** button as shown in the image to the right.

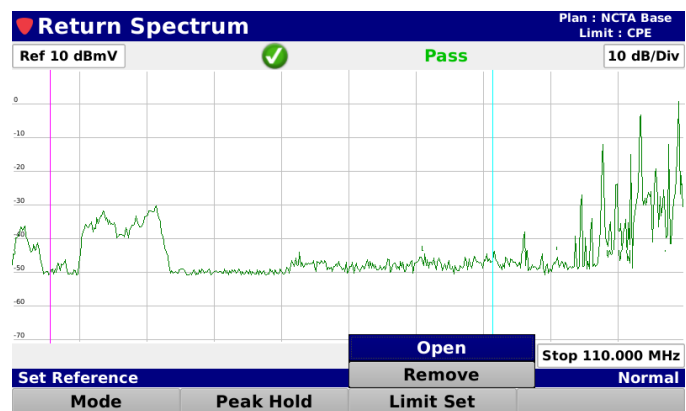


The **Return Spectrum** screen provide users with the ability to view raw spectrum traces for the forward path from 4 to 205 MHz with DSP spectrum snapshots to give the user a view of any upstream channels.



Opening a Limit Set

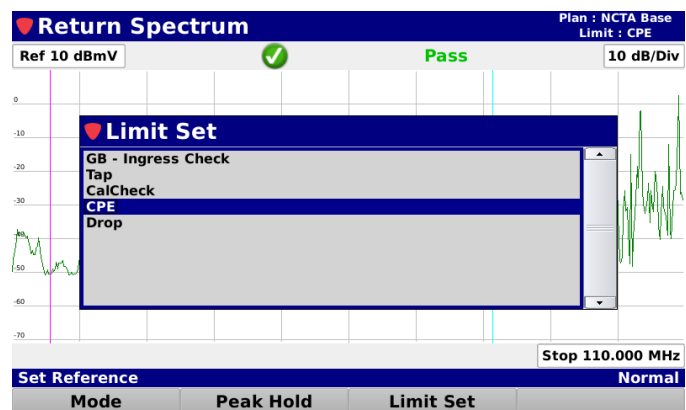
Select the **Limit Set** softkey as shown in the image to the right to select the limit set to use for the return spectrum measurement.



Select the **Open** button from the **Limit Set** pop-up menu and the **Limit Set** window will be displayed as shown here.

From the **Limit Set** window, select the name of the limit set to use for the return spectrum measurement.

After selecting the limit set, the **Return Spectrum** screen will be displayed again.

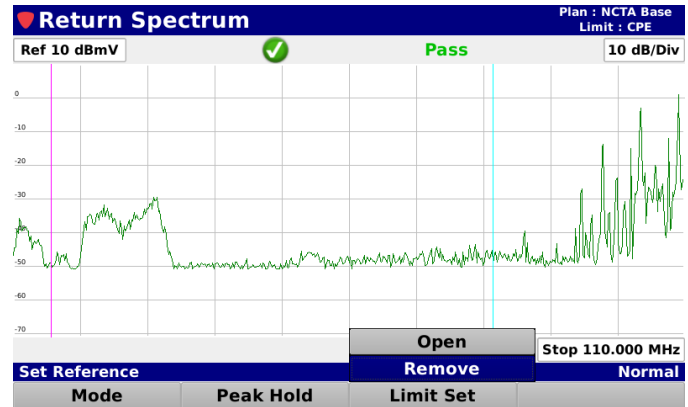


The Limit Set window will be bypassed if there is only one limit set to choose from.

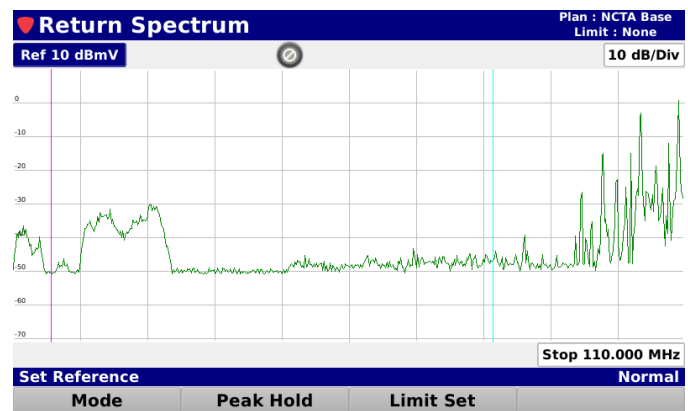
NOTE

Removing a Limit Set

Select the **Limit Set** softkey as shown in the image to the right to remove limits sets for the return spectrum measurement.




Select the **Remove** button from the **Limit Set** pop-up menu and the pass/fail results will no longer be displayed as shown in the image to the right.





Pass/Fail Measurement Indicators

When a limit set has been opened, the return spectrum will be tested against the high limit measurement threshold for the return spectrum ingress.

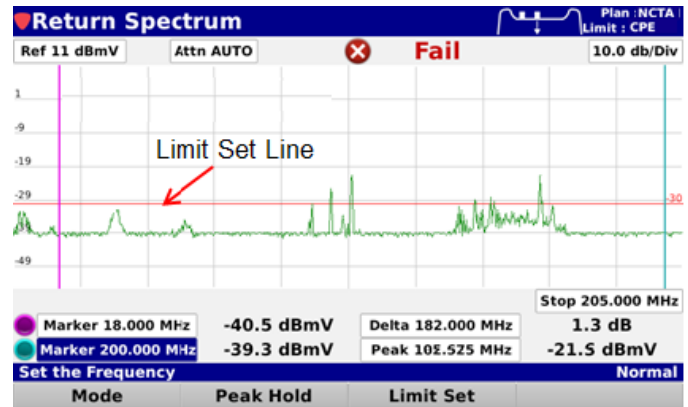
A Pass/Fail status will be displayed at the top of the screen. The pass/fail status of the return spectrum ingress will be indicated using the following icons:

- 

This icon indicates that this measurement was skipped. This only applies to measurements that have been removed from the currently selected limit set.
- 

This icon indicates that this measurement is within the high limit measurement thresholds for the return spectrum **Ingress** measurement.
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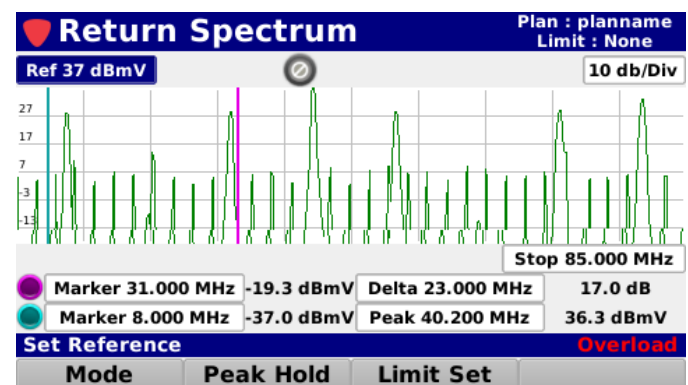
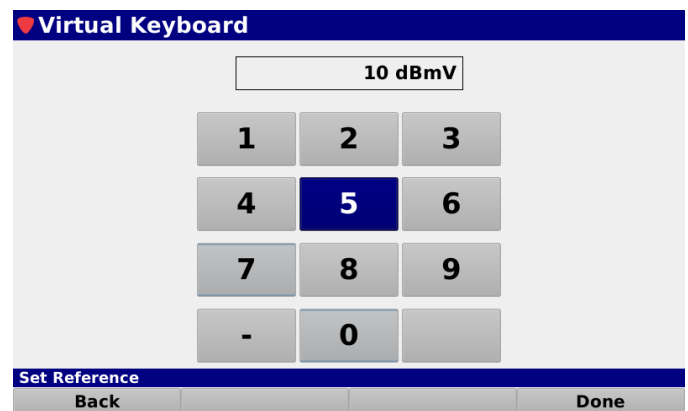
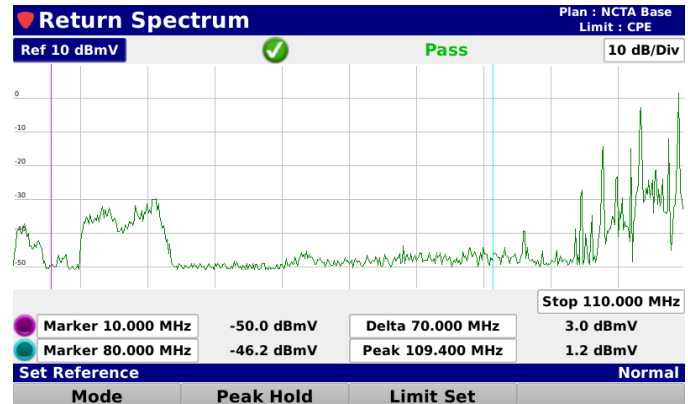
This icon indicates that the measurement has failed the high limit measurement threshold for the return spectrum ingress measurement.



Reference Level Adjustment

The reference level can be adjusted from -40 to 60 dBmV and is the highest value displayed on the spectrum display. Highlight the reference level field as shown in the image to the right and then use either of the following methods to change the reference level:

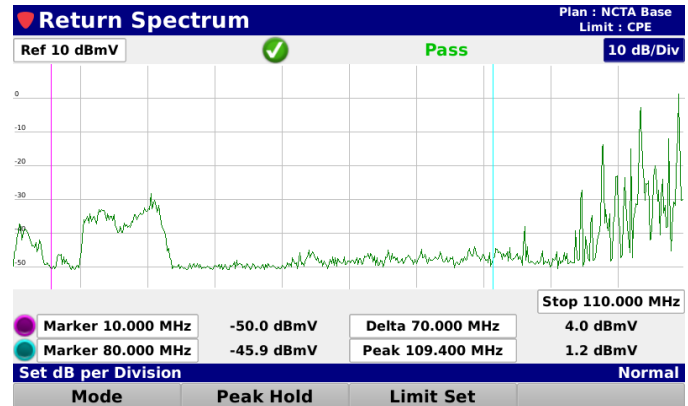
- Use the up/down arrow buttons to change the reference level in 1 dBmV increments.
- Press the **Enter** button and use the **Virtual Keyboard** to directly enter the reference level as shown here.



If the red "Overload" message appears as shown in the image above, set your reference level higher. It's too low.

Vertical Scale Adjustment

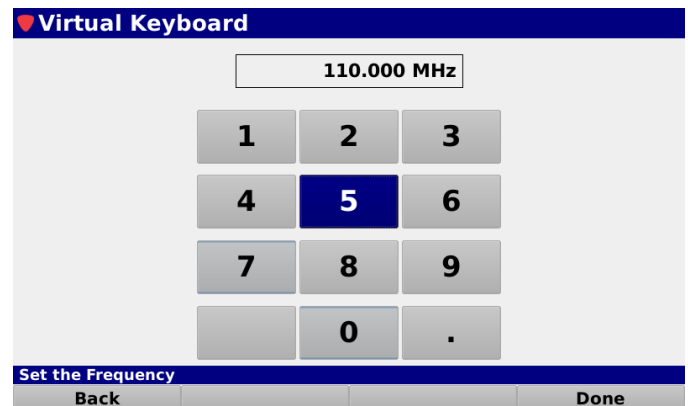
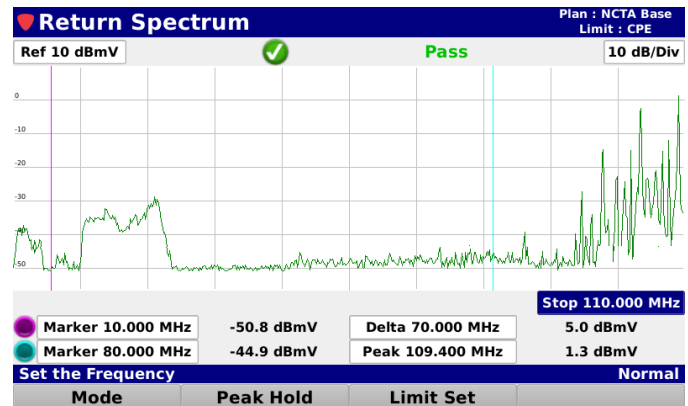
Highlight the vertical scale field as shown in the image to the right. Then, use the up/down arrow buttons to select from a vertical scale of **1, 2, 5, or 10 dB/div.**



Stop Frequency Adjustment

Highlight the stop frequency field as shown in the image to the right and then use either of the following methods to change the stop frequency:

- Use the up/down arrow buttons to select from a stop frequency of **42, 65, 85, 110, or 205 MHz.**
- Press the **Enter** button and use the **Virtual Keyboard** to directly enter the stop frequency as shown here.



Marker Adjustment

The Return Spectrum measurement includes two on-screen markers that are used for measurement of specific frequencies within the return spectrum.

The markers are represented by the following color bullets and vertical lines:

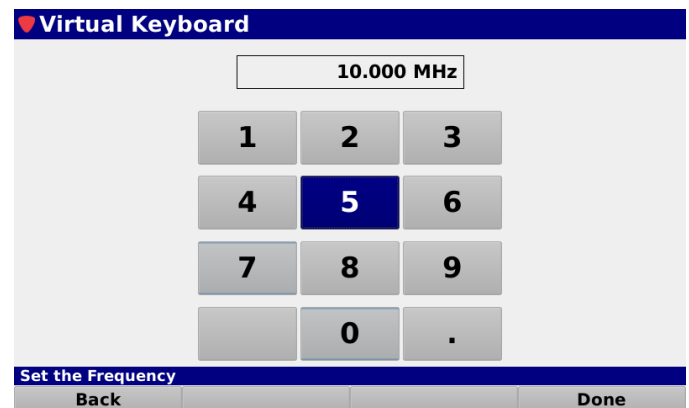
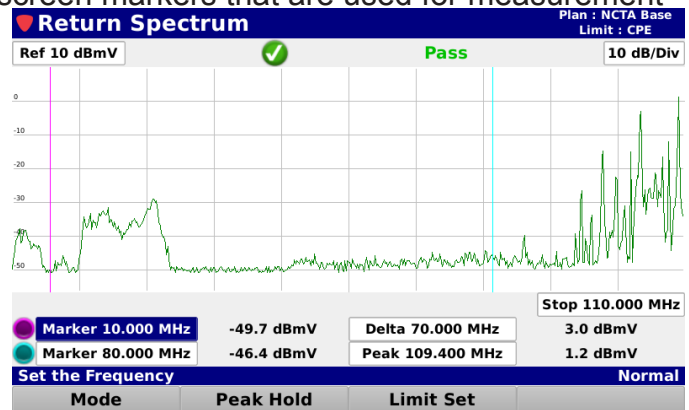
- **Marker 1** – Purple
- **Marker 2** – Light Blue

Highlight the desired marker and use either of the following methods to change the marker location:

- Use the up/down arrow buttons to change the marker in 0.200 MHz increments.
- Press the **Enter** button and use the **Virtual Keyboard** to directly enter the frequency as shown here.

The following information is displayed for the markers:

- **Level** – Displays the signal level at the specified frequency for each marker.
- **Frequency Delta** – Displays the frequency delta between the two markers.
- **Frequency Peak** – Displays the frequency of the peak signal level in the return spectrum.
- **Level Peak** – Displays the peak signal level in the return spectrum.
- **Level Delta** – Displays the signal level difference between the minimum and maximum level values in the return spectrum.



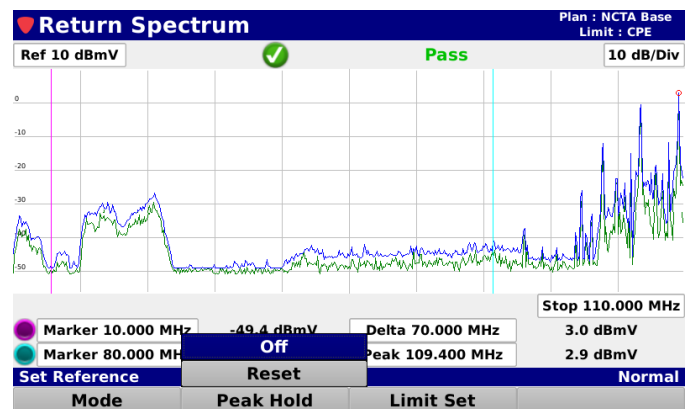
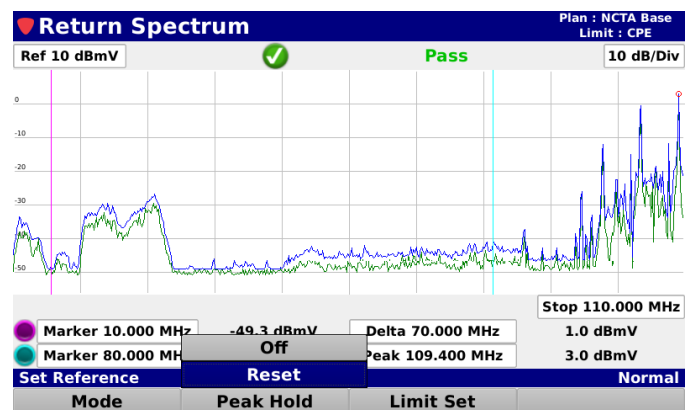
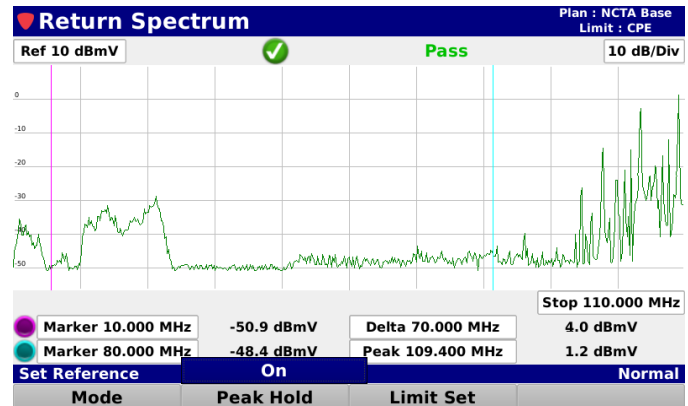
Peak Hold

Select the **Peak Hold** softkey as shown in the image to the right to enable peak hold for the return spectrum measurement.

Select the **On** button from the **Peak Hold** pop-up menu and the blue peak hold trace will start to appear on the screen over the green live trace.

To reset the peak hold trace, select the **Peak Hold** softkey again and then select the **Reset** button from the **Peak Hold** pop-up menu. The blue peak hold trace will momentarily disappear and then start again.

To turn off the peak hold trace, select the **Peak Hold** softkey again and then select the **Off** button from the **Peak Hold** pop-up menu. The blue peak hold trace will no longer be displayed.



NOTE

For Additional Help, Contact Trilithic Applications Engineering
1-800-344-2412 or 317-895-3600
support@trilithic.com or www.trilithic.com