

## WAVEPRO 7 ZI SERIES SPECTRUM ANALYZER OPTION

**TECHNICAL BRIEF** 

LAB 774 June 2008 The Spectrum Analyzer and Advanced FFT option in the LeCroy WavePro 7 Zi series scopes is a new and unique approach to helping users employ the Fast Fourier Transform (FFT) in their measurements. It allows users who are familiar with RF spectrum analyzers to start using the FFT with little or no concern about the details of setting up an FFT. As you can see in Figure 1, the spectrum analyzer option controls are the same as you would find on an RF spectrum analyzer. The user set the span, center frequency and resolution bandwidth and the scope automatically configures the ac-question and FFT controls to ob-tain the desired spectrum view.

The option, WPZi-Spectrum, is activated by selecting Spectrum Analyzer from the Analysis pull down menu. The Spectrum Analyzer dialog box will appear as shown in Figure 1. Set up the controls from left to right, selecting a source, Center Frequency, Frequency Span, and Resolution Bandwidth. The Reference Level sets the amplitude of the top of the screen just as in an RF spectrum analyzer.

The Spectrum Analyzer option reports back adapted values for the resolution bandwidth if the value entered is not achievable. It also reports the maximum frequency that can be observed.



Figure 1 The dialog box and display for the Spectrum Analyzer and Advanced FFT option The option has other features familiar to users of RF spectrum analyzers. In addition to normal mode it also allows averaging and peak or max hold. In Averaging mode the user can enter the number of spectra to be averaged. Figure 2 shows the averaging controls and the effect of averaging on the displayed spectrum.

Max (peak) hold is the third operating mode. It is useful for swept frequency measurements where is shows the history of peak values across the frequency axis. Figure 3 shows the measurement of a frequency hopping source using Max Hold.

The Show Peaks check box controls the ability to label and tabulate peaks. As can be seen in Figure 4 the Show Peaks function marks the significant peaks and builds a table listing the peaks ordered by amplitude from highest to lowest.

The Spectrum Analyzer and Advanced FFT option is a major improvement in oscilloscope functionality that is extremely helpful in RF and high speed communications applications.



Figure 2 The spectrum average setup



Figure 3 The Max Hold setup showing a frequency hopping source



Figure 4 The Show Peaks Function labels and tabulates peak values