

Replay Mode in the WaveJet Touch Oscilloscopes

TECHNICAL BRIEF

August 26, 2014

Summary

Replay Mode gives the WaveJet Touch oscilloscopes a powerful debug tool, providing waveform playback that takes users back in time to effectively isolate anomalies in signals.

Introduction

Today's oscilloscopes are extremely powerful tools with the ability to unearth minutely fine signal details. To that end, the WaveJet Touch oscilloscopes come with a number of standard debug and analysis tools such as Replay Mode, which allows users to scroll back in time to isolate anomalies or other waveform events, measure them with parameters or cursors, and quickly find the sources of problems.

Often, when viewing waveforms on an oscilloscope display, unexpected events may occur and there is no way for the user to stop the trigger and view anomalies. Replay Mode shortens the amount of time it takes to identify problems by allowing the user to scroll through previously captured waveforms. In this way, unexpected anomalies can be viewed, quantified, and analyzed.

Using Replay Mode

For this demonstration, Channel 1 of a WaveJet Touch is fed with a simple square wave plagued by an intermittent runt pulse. Such pulses can be difficult to capture. The initial oscilloscope setup is shown in Figure 1.

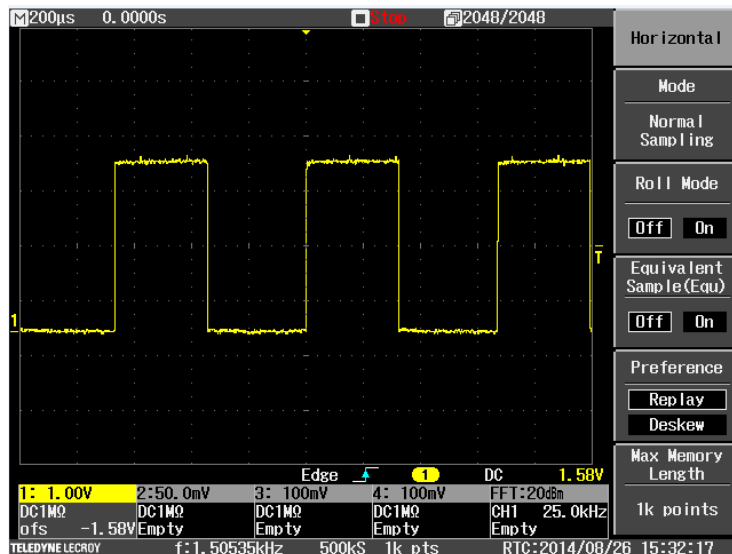


Figure 1: This is the initial setup with a square wave with a runt pulse on Channel 1 of the WaveJet Touch oscilloscope

Replay Mode is always running in the WaveJet Touch oscilloscopes. It will capture as many waveforms as possible depending on the maximum memory length setting up to a maximum of 2048 waveforms. Waveform captures begin when the instrument starts triggering and stop when the trigger is turned off.

Once a sufficient number of acquisitions have been stored, the user simply stops the trigger and uses the front-panel Replay knob to scroll through the records. Scrolling will start from the last record and moves backward by rotating the knob counter-clockwise. Pushing the knob returns the display to the most recent acquisition. The total number of captures and the current capture is shown at the top right of the display. Figure 2 shows that an irregular pulse was found at record 1986 of a total of 2048 captures.

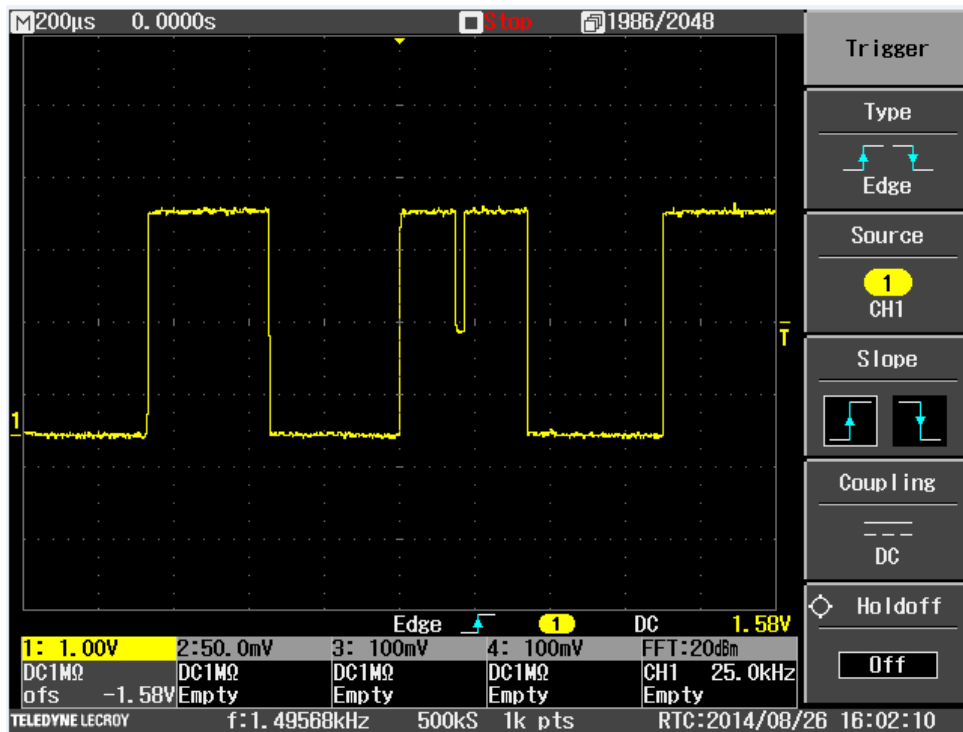


Figure 2: The front-panel Replay knob allows users to scroll backward and forward through a maximum of 2048 acquisitions until anomalies are found

Further Investigation of Anomalies

After arriving at a waveform with an event of interest, the WaveJet Touch's broad array of standard measurement functions and horizontal and vertical cursors may be brought to bear (Figure 3).

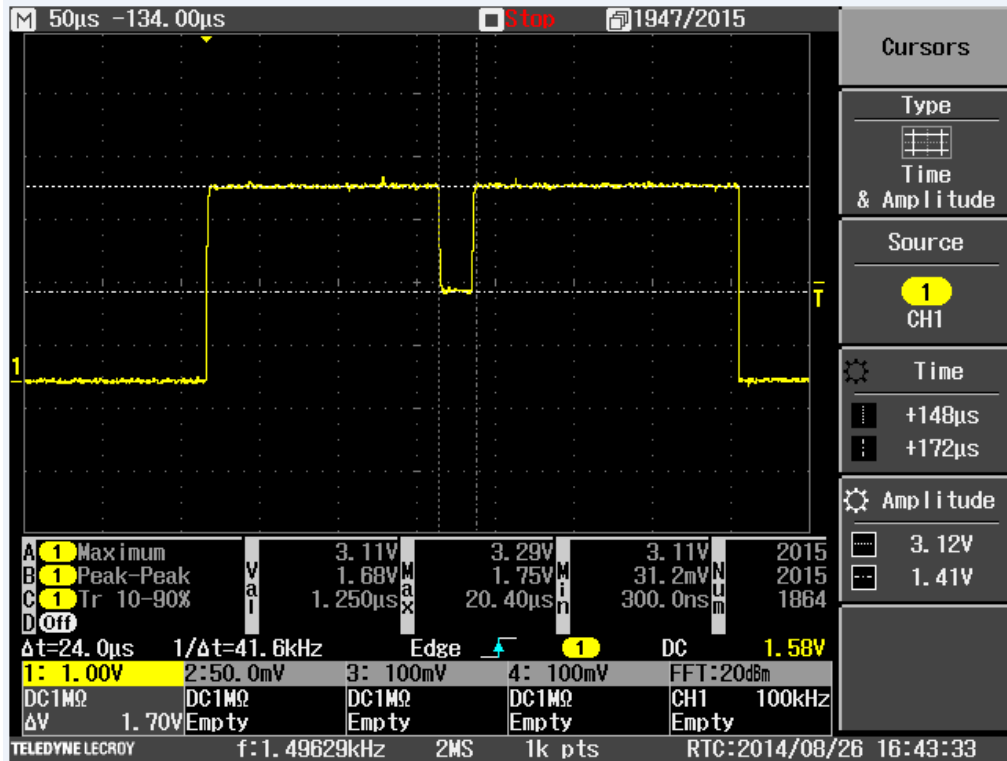


Figure 3: Record 1947 of 2048 shows a glitch, to which cursors and measurements may be applied to determine the values of a number of parameters of interest

Conclusion

The Replay Mode function in the WaveJet Touch oscilloscope provides a means of scrolling backward and forward through as many as 2048 acquisitions. Upon isolating a waveform anomaly, applying cursors and measurements reveals details about the event of interest.