How to Generate Custom Waveforms Using WaveStation

TECHNICAL BRIEF

November 12, 2012

Summary

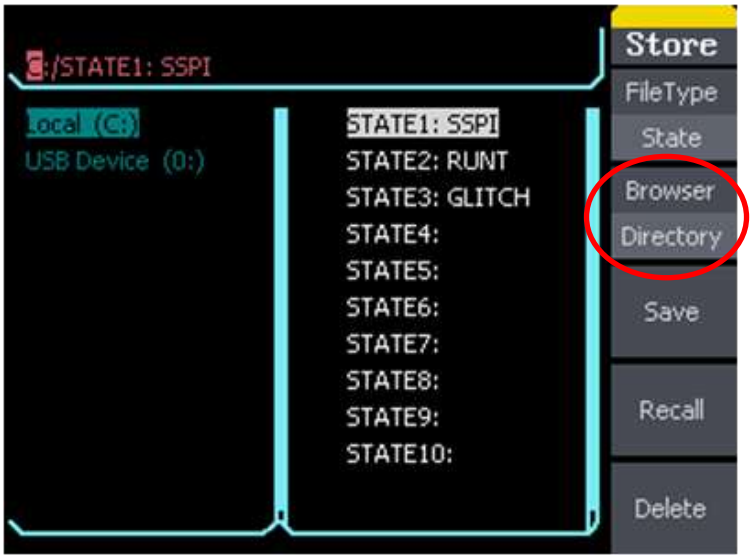
Oscilloscopes are great at capturing rare events, and identifying causes of anomalies in one's design. However, once the issue is identified and a potential fix is designed, one needs to verify the fixes by recreating the same signals.

Introduction

Teledyne LeCroy's WaveStation function/arbitrary waveform generators may be used to regenerate captured signals or serial data patterns. With those reproduced signals, users can stress designs by continuously repeating the same signal. This technical brief will demonstrate how to generate a serial data pattern using WaveStation. However, the same general approach applies to reproduction of many signal types.

Step 1: First, save a UART file onto a USB memory stick. Plug the USB memory stick into the WaveStation's front-panel USB port.

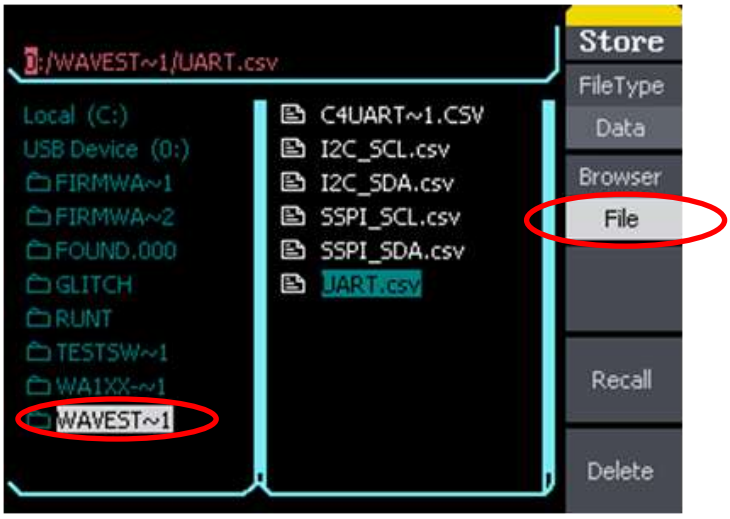
Step 2: Press the front-panel Store/Recall button. It will appear on the screen as the image below.



Step 3: Change **Browse** to **Directory** and select the USB device.

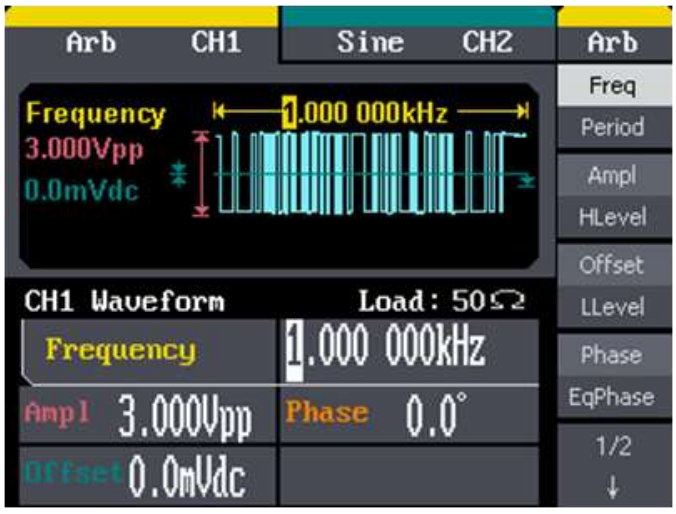
If your file is inside a sub-folder, press the **right** ▶ button to open it.

Step 4: Once you choose the folder, Change **Browser** to **File.**

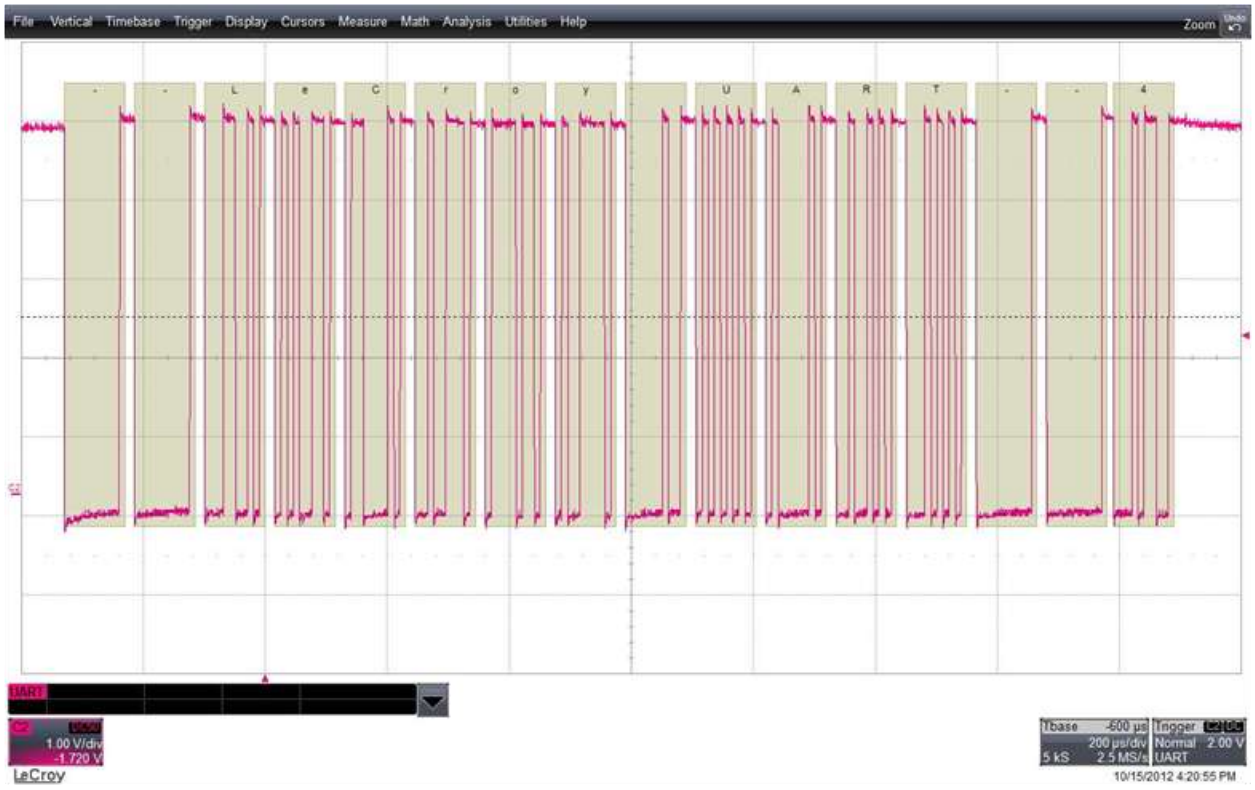


Step 5: Select your ***.cvs** file. Press save and select a location to save your *.csv file.

Step 6: Once the file is saved, the screen changes to Arb Mode and shows the general waveform shape.



Step 7: Turn on the output for the selected channel. The UART signal will be displayed on the oscilloscope screen.



** Notes:*

1. For UART waveform, please set bit rate on the oscilloscope to 200 Kbits/s. You should be able to demo different UART bit rates by varying the frequency of the WaveStation. For example:
WaveStation Mode: Arbitrary

WaveStation Arbitrary Mode Frequency	***Oscilloscope UART Decode Bitrate Setting***
500 Hz	*100 kBits/S*
1 kHz	*200 kBits/S*
2 kHz	*400 kBits/S*

2. For SPI & I^2C waveform .cvs files, no special decoder settings are required. However, make sure to use both Clock and Data files for SPI and I^2C.
3. For glitch and runt waveforms, one may change the rate at which trigger events occur by varying the frequency on WaveStation.