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1. Purpose:

To find the pulse width of a train of pulses. Example Figure 1 below is a train of pulses coming from a PWM output.

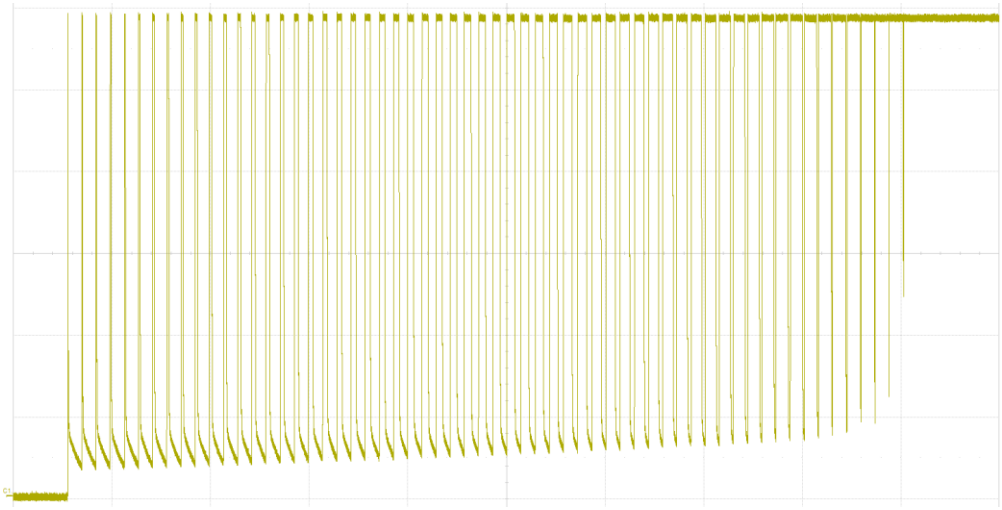


Figure 1. Train of pulses measured from PWM output

- The goal of the measurement was to check the duty cycle of the output at every step but manual checking of each pulse is very tedious and time consuming.
- Also not possible to check with excel if you take a large number of samples. (In my example, my .txt file had >2million lines. This cannot be copied directly into excel and excel becomes very slow after)

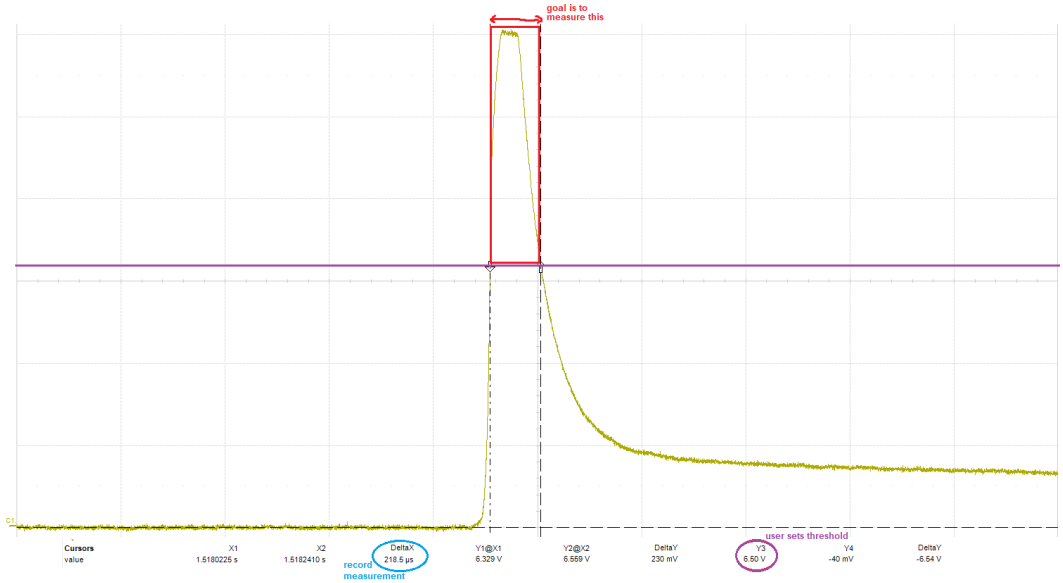


Figure 2. Manual measurement

2. How it works:

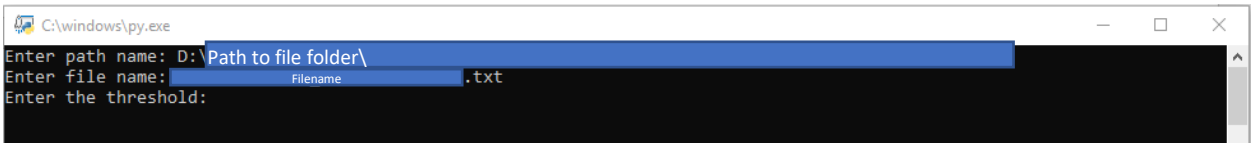
The waveform filter tool does the measurement just like how the user would normally do it in the manual way.

Quality of life:

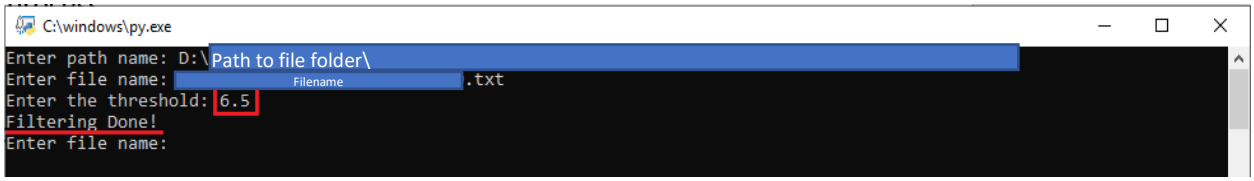
- User can define the folder where the file is stored. Therefore, the tool can be placed anywhere in the PC.
- User can provide the filename to process.

Basic function:

The tool allows you to set a threshold and then checks the pulse width of the pulse above that threshold.



After setting threshold (in this case 6.5) , the tool automatically does the processing. Processing is completed when “Filtering Done!” appears



After processing for first file is done, user can continue with the 2nd file by entering the file name of 2nd file.

To quit the tool. Just do CTRL+C.

TL:DR steps:

1. Define folder where files are stored.
2. Define the name of file to process.
3. Define threshold (only the value is needed – units are not needed).
4. Processing done when “Filtering Done!” appears.
5. Proceed with next file or stop by CTRL+C.

Depending on size of length of pulse, measurement time can be drastically reduced by at least 80%.

Example, for this example use case, manual measurements took ~2hours. Tool took ~1-2minutes

3. Input & Output

Input file:
At the moment (31-Oct-2019), the tool only supports the .txt file which are captured from the oscilloscopes.

Output file:

At the moment (31-Oct-2010), the tool can only generate .csv files. The user can use excel file to read the information.

Example:

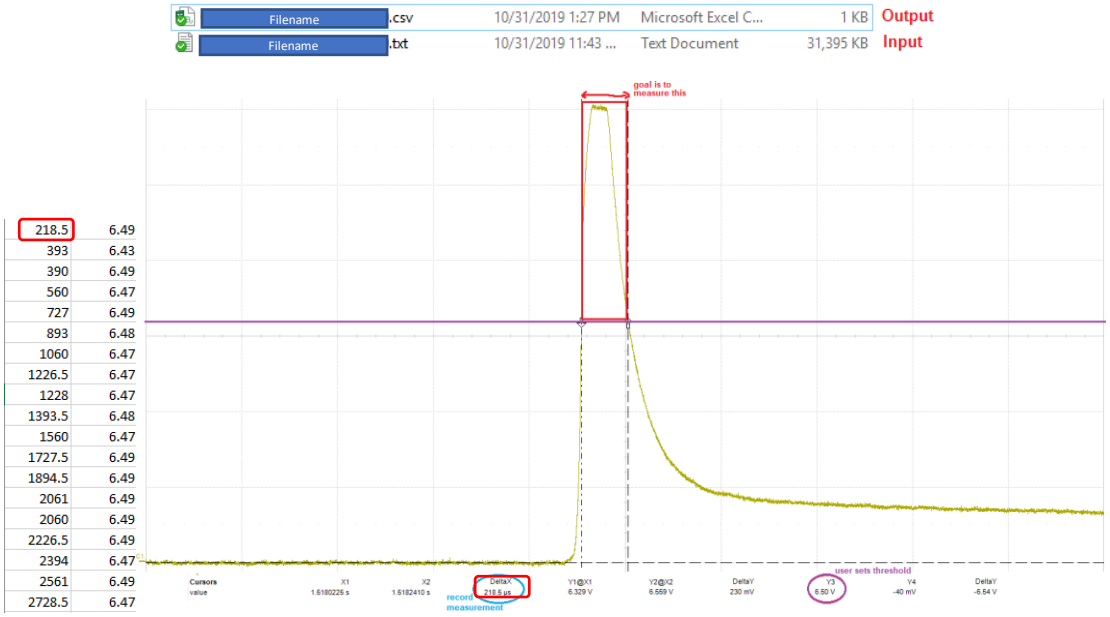


Figure 3. (Top) Example input & output file. (Bot) Generated output – tool calculation is similar to manual measurement