MP-6158 Técnicas de Adquisición y Procesamiento de Datos
Professor: Eduardo Interiano
Exercise 3
Student: Ronny Jiménez Araya

On this experiment, the PSoC was used on the project CE95277 with some modifications to perform 2000 samples and the proper capture of those on the PC using PuTTY, a general purpose serial console installed for this type of work. A specific signal from a csv file is loaded onto the schematic, as shown on the next image:

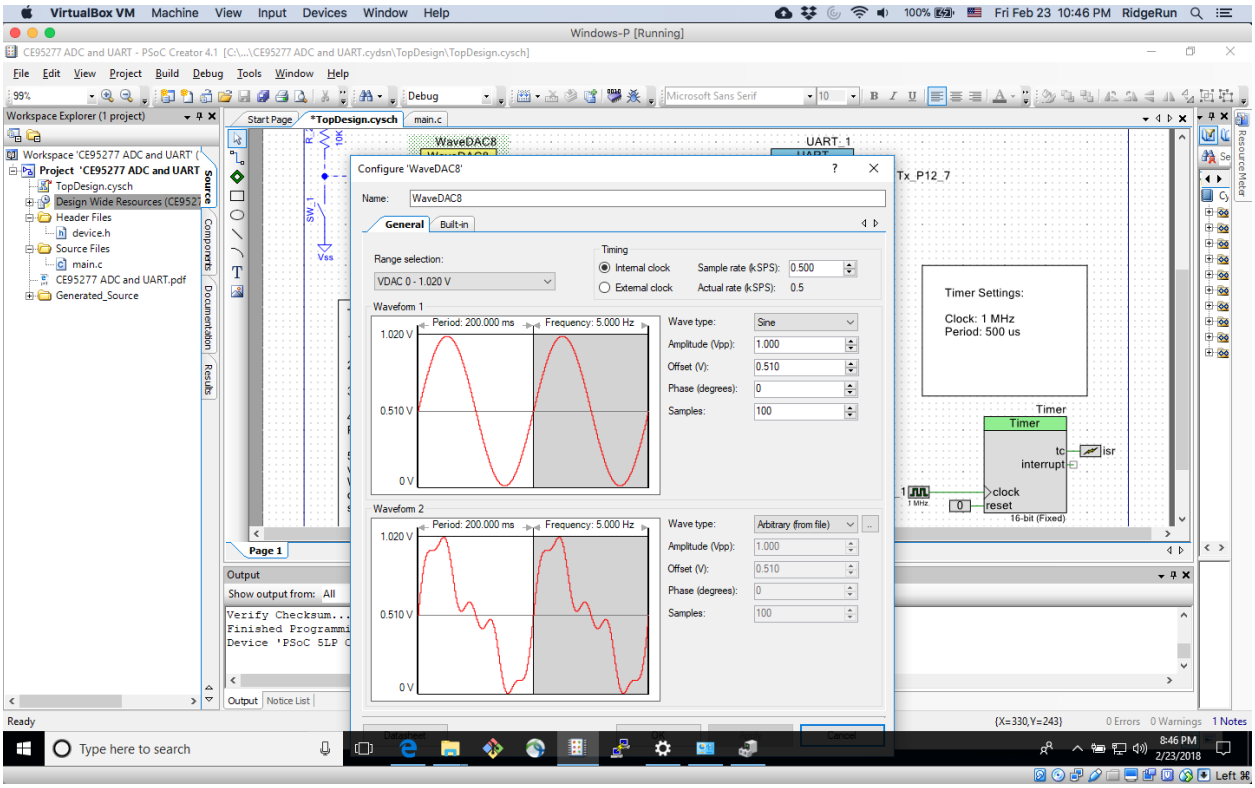

Figure 1. Waveform2 to be injected on the WaveDAC

With the signal shown on the Waveform 2, I proceed to modify the main.c file to capture the 2000 samples. The modification was small and it consisted of creating a counter, initialized in 0, and increment this variable on 1 everytime a new DAC value is ready to be read.

The image that shows this small modifications is the following:

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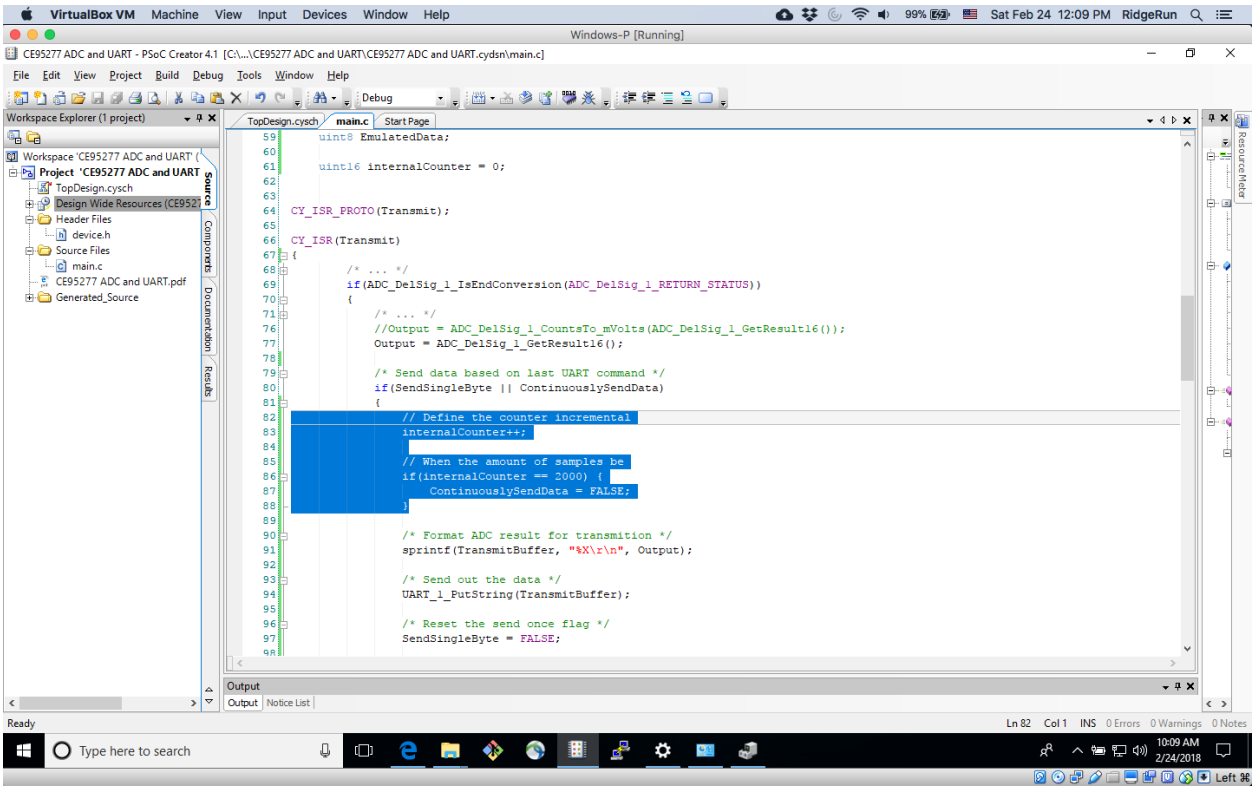

Figure 2. Waveform2 to be injected on the WaveDAC

With the above **Figure 2**, the PSoC is programmed. On the runtime, the PuTTY terminal is launched and the key S or s is pressed. When this happens, the PSoC sends out to the PC, the values gotten on each iteration after the process. With those, I imported them on MatLab and created a plot. In theory, the output should be the very similar (exactly the same on a perfect world) to the input. This can be seen on the **Figure 3**, where the output of 2000 samples is plotted against time.

Afterwards, the Power Spectral Density, using the Fast Fourier Transform is performed to obtain the graphic shown on **Figure 4**.

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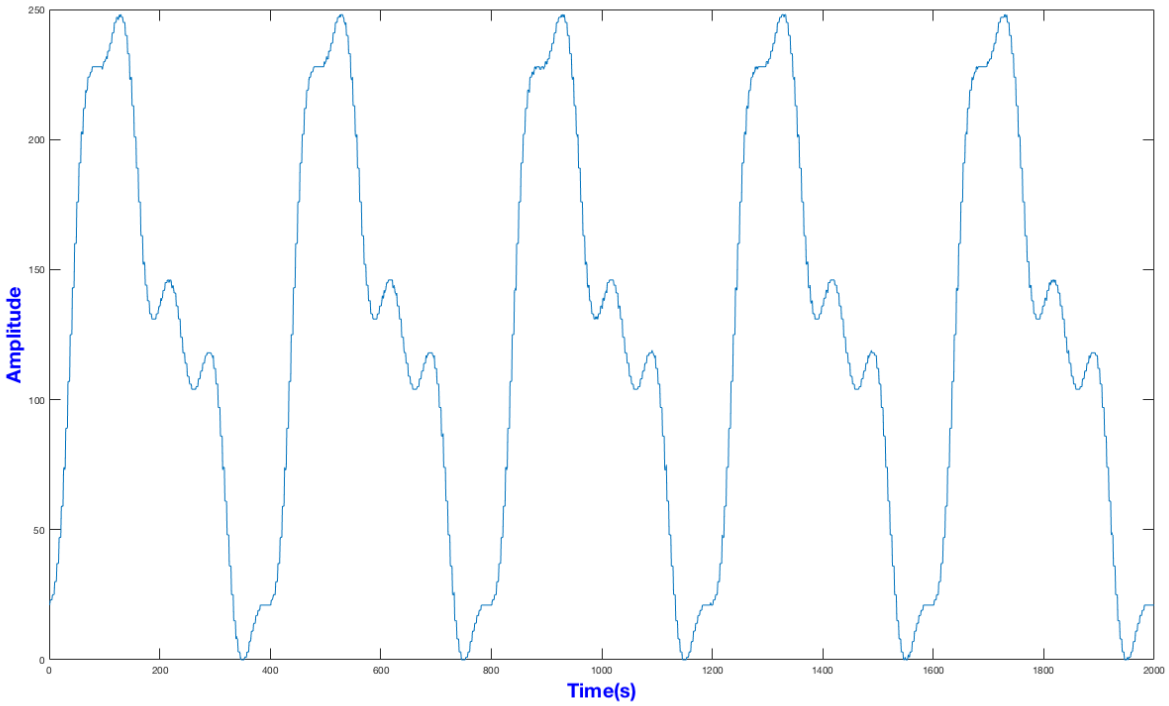

Figure 3. Output of the system

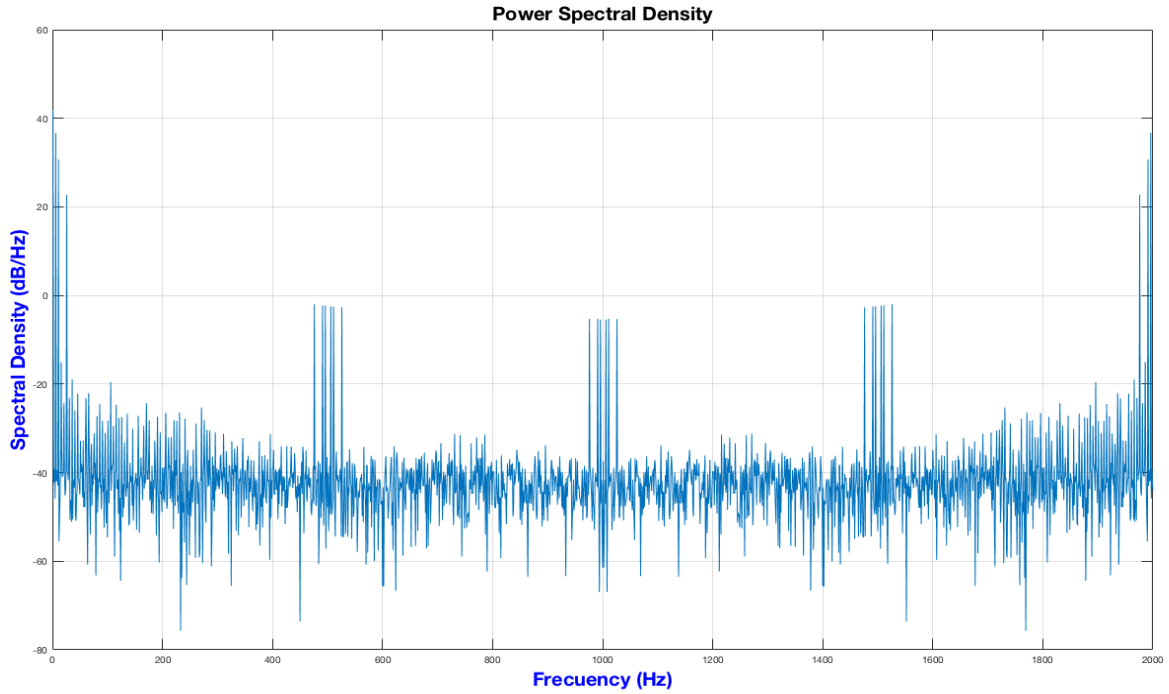

Figure 4. Power Spectral Density of the output signal on Figure 3