# Experiment 2

Oscilloscope and Function Generator

Date: 2022/09/21

Class：電機二全英班

Group：Group 4

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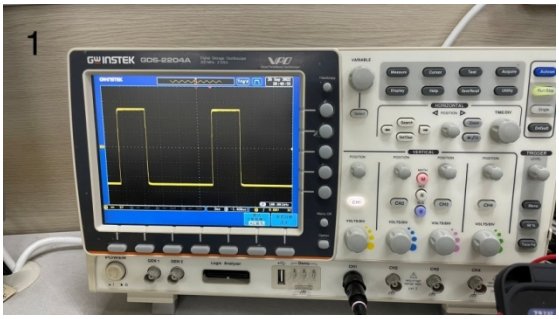
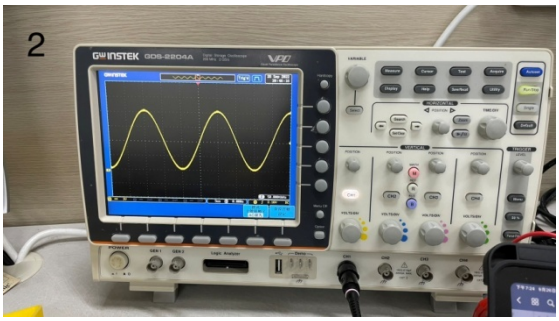
Photos of question (3):

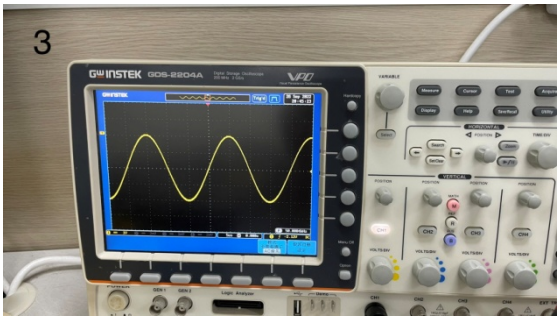
1. Square wave: with frequency of 100 kHz, Vp-p: 5 V, Duty: 30%, OFFSET: 0 V
Vertical axis scale 1 V/DIV, Horizontal axis scale 5 µs/ DIV.



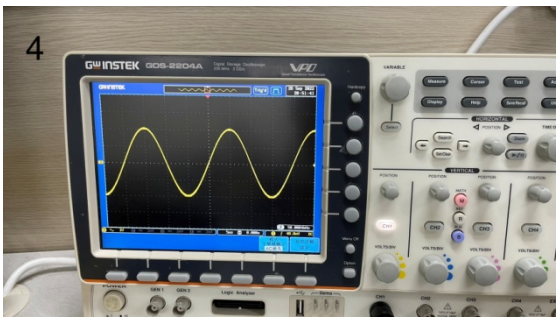

2. Sine wave with frequency of 50 kHz, Vp-p: 4 V, OFFSET: 2 V
Vertical axis scale 1 V/DIV, Horizontal axis scale 5 µs/ DIV.



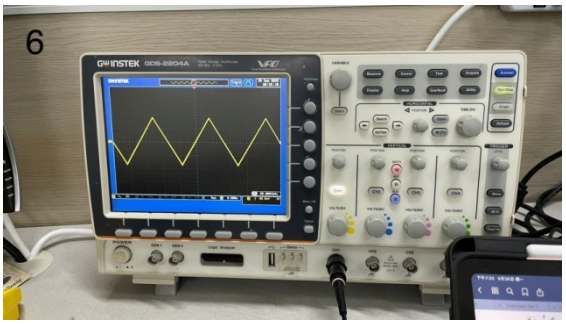

3. As follows, set OFFSET to: - 2 V. What about the waveform?
Vertical axis scale 1 V/DIV, Timebase scale 5µs/ DIV.




4. Set the oscilloscope to AC coupling.
Vertical axis scale 1 V/DIV, Horizontal axis scale 5 µs/ DIV.

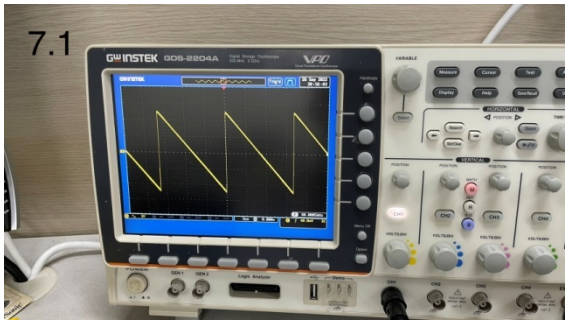


6. Triangular wave with frequency of 60 kHz, Vrms: 1 V, Duty: 50%
Vertical axis scale 1 V/DIV, Horizontal axis scale 5 μs/ DIV.

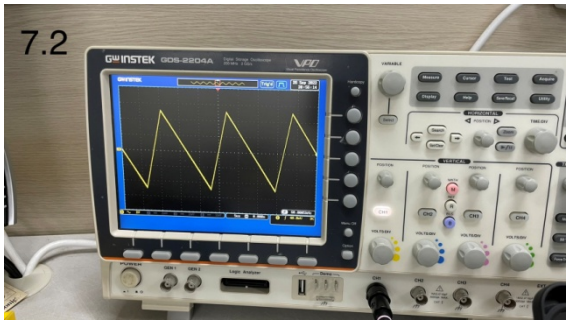



7. Triangle wave with frequency of 60 kHz,Vp-p: 5 V

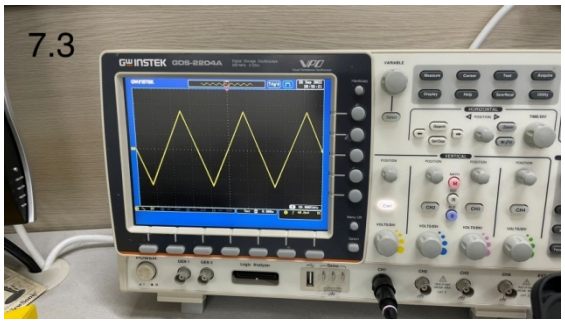
Regulate Duty: 0%,



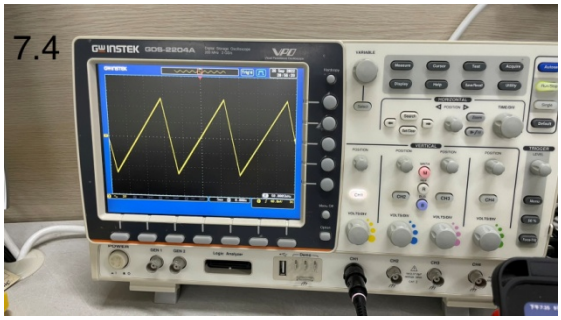

Regulate Duty: 25%,



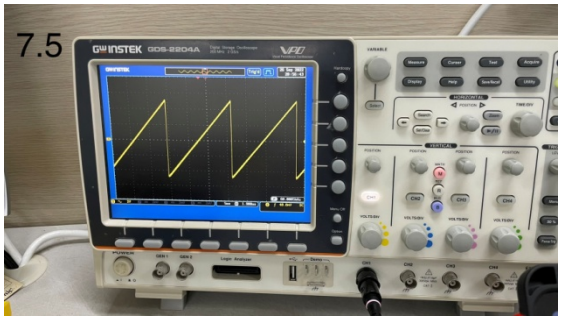

Regulate Duty: 50%,



Regulate Duty: 75%,




Regulate Duty: 100%.



THOUGHTS&OPINIONS

B103015006 胡庭翊：

The second experiment in this course is to use the oscilloscope and function generator to observe the waveform and measure the Wheatstone bridge to see the phenomenon.
In the beginning, since we are both starters with the oscilloscope and function generator, we had a hard time getting familiar with these machines. We checked the instructions steps by steps but unfortunately got confused with the mountainous usages and bottoms. To me, by practically using it, I'm more familiar with the function generator, however, the oscilloscope was so complicated that even now I can't say that I know how it works or how to use it.
Furthermore, we found out mistakes after we finished and left our lab, that is, the vertical scale of our output waveform is exactly 10 times smaller than other groups. We guessed we might accidentally adjusted the probe to 10X hence let the signal of the oscilloscope become 10 times smaller than what we expected.
Through this experiment, we found the importance of checking the data during the experiment, not to check it after we left the lab. If we checked out our data before we left the lab, we would no longer have to regret and redo our experiment again.

B103015018 劉姵妤：

In this experiment, we learned the basic usages of the function generator and the oscilloscope. That was really a hard time for us because it’s so many functions on the devices for us to memorize. We spend much time figuring out each function which is controlled by what is at the bottom. No need to say, we went through a hardship to get started. Hence, we made several mistakes on the setting period, leading to the wrong result that exhausted us.
Besides, the input as a couple of figures on the function generator display and the output as a varying waveform presented on the oscilloscope are totally virtual for us, making us slightly confused about the process of the experiment.
Furthermore, the probe on the wire connected to the oscilloscope had a bottom on the side, which we didn’t notice. The bottom is for adjusting the magnitude of input waveform, the magnitude is 90% off with the bottom pressed. Without noticing, the bottom is originally pressed, which resulted in the incorrect output of the waveform with 1/10 times of the waveform should be. As a result, we have to re-do the experiment. Through this experience, we would focus on the measured result whether it’s corresponding to the formulas we’ve learned, not just keep operating the measurements. Maybe the mistake could be cut down.