Experiment 1 Report

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Abstract

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Task 1

Objective

This section will demonstrate basic measurement techniques and functions learned in ECE 20007, using the lab instruments provided, including an oscilloscope, waveform generator, digital multimeter (DMM), and variable DC power supply.

Procedure

For testing purposes, the function:

$$2\sin(2\pi 750t) \tag{1}$$

was generated with the waveform generator.

The waveform generator was connected to one channel of an oscilloscope, and adjusted so that the signal was stable and reasonably sized within the window.

On the oscilloscope,

- The window was resized horizontally such that more periods of the wave were visible.
- The trigger level was modified between -4V and 4V.
- The horizontal and vertical offsets of the signal were modified.

After recording findings, the DC power supply was set to 3.3V. The AC and DC RMS values were measured through the DMM.

Results / Calculations

Each control serves a different function for manipulating the signal viewed on the oscilloscope.

The horizontal scale adjustment knob determines the scale of time on the oscilloscope's horizontal axis. This can vary widely, depending on what signal is being passed to the oscilloscope's input channel. An analogy for what this control does is that it "squishes" or "stretches" the view of the signal being measured.

The offsets control the position of the signal in the viewing window.

Conclusions