Your Name
Introduction to Arbitrary/Function Generator
Date Completed

PRELAB

1. **Using Ohm's Law, determine the value of the resistor used in the plot in Figure 2.**

2. **The current in every household in The United States has a frequency of 60 Hz. What is the period of this current?**

3. **If the common wall sockets in the United States supply 120 V (rms), what is the voltage amplitude? What is the peak-to-peak voltage?**

MATLAB

4. **Use MATLAB to plot a sinusoidal voltage source with amplitude of 2 V and frequency of 3 Hz from 0 to 2 seconds. On the same graph plot the rms value. Also, on the same graph, plot the sinusoidal with an offset of 1.5 V. Add text to each plot, labeling what it is. For assistance, use the MATLAB help command. Your plot should look like the plot in Figure 3.**

AFG3000 SERIES ARBITRARY/FUNCTION GENERATOR

5. **Recall from the prelab exercise that the V_{RMS} value of a sine wave is $V_{P-P}/2\sqrt{2}$. Calculate the V_{RMS} value of the default sine wave supplied by the arbitrary/function generator.**

6. **Change the frequency on Channel 1 of the arbitrary/function generator to 10 kHz. Measure the voltage output and record it in your lab worksheet. Does the value match what you expected?**

7. **Using the formulas from the prelab exercise, calculate the period waveform with a frequency of 10 kHz.**

8. **If you needed a signal with a period of 250 µs, at what frequency would you set the function generator?**

9. **Calculate the V_{RMS} for a 1 V, 2 V and 5 V amplitude and record them in Table 3 of the lab worksheet.**

10. **Change the amplitude on channel 1 to 2 V_{P-P}. Measure the voltage from this signal and record it in Table 3 in the lab worksheet. Change the amplitude to 5 V_{P-P} and record the measured value in Table 3.**

Amplitude (V)	Calculated V_{RMS} (V)	Measure V_{RMS} (V)
1		
2		
5		

Table 3. Calculated Vs Measured V_{RMS}.

11. Channel 1 of the arbitrary/function generator should have a sine waveform with a frequency of 10 kHz and an amplitude of 5 V. Add a 1V DC offset and measure the AC voltage. How does adding a DC offset affect the V_{RMS} value of the waveform?