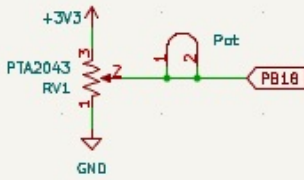


# Lab 7 Deliverables:

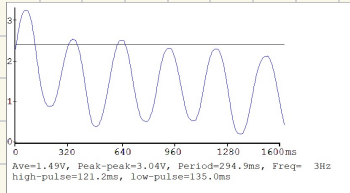
Travis Beach tmb356  
Sonoma Esqueda je28736

Dr. Y

1.



2.



3.

$$\text{ADC time} = 89 \text{ bus cycles} = 1.1125 \mu\text{s}$$

$$\text{Convert time} = 43 \text{ bus cycles} = 0.5375 \mu\text{s}$$

$$\text{Out Fix time} = 150268 \text{ bus cycles} = 1.87835 \text{ ms}$$

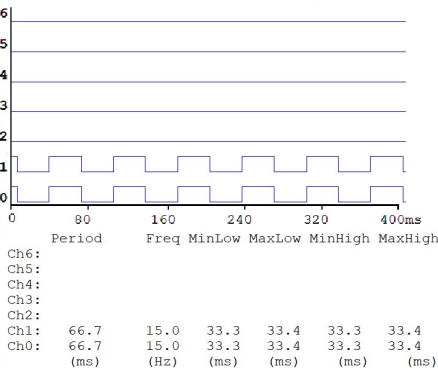
4.

$$\text{Out Fix time} / \text{total time} \times 100 = 99.91\%$$

5.

Measured (0.001cm)	ADC data
300	78
500	534
1000	2043
1500	3235
1700	3702

6.



## 7. Lab 7 Measurement accuracy

Collect two to five measurements with your Lab least two sets of data, click the "Calculate" button

True values	Measured values	Errors
0.5	0.494	0.006
1	0.975	0.025
1.5	1.478	0.022
1.7	1.696	0.004
3	0.281	0.019

Calculate

The number of data sets is 5  
The maximum error is 0.025  
The average error is 0.015

Reset

8. Fixed Point appeared more accurate than Floating point.

Fixed Point is better than Floating point because it is faster.

9. Since the Nyquist Theorem says  $f_s \geq 2f_m$  since we output to the graph at 2 Hz we must move the slide pot at 1Hz or slower

10. Accuracy is limited by the ability to precisely align the ruler + slide pot affecting calibration as well as the lower quality slide pot's tolerances.

11. The accuracy table (07) shows the calibration worked as Ave error is only 1.5%

12. Based on CLT, the data plotted/displayed would be more accurate if we took the average of multiple consecutive samples.