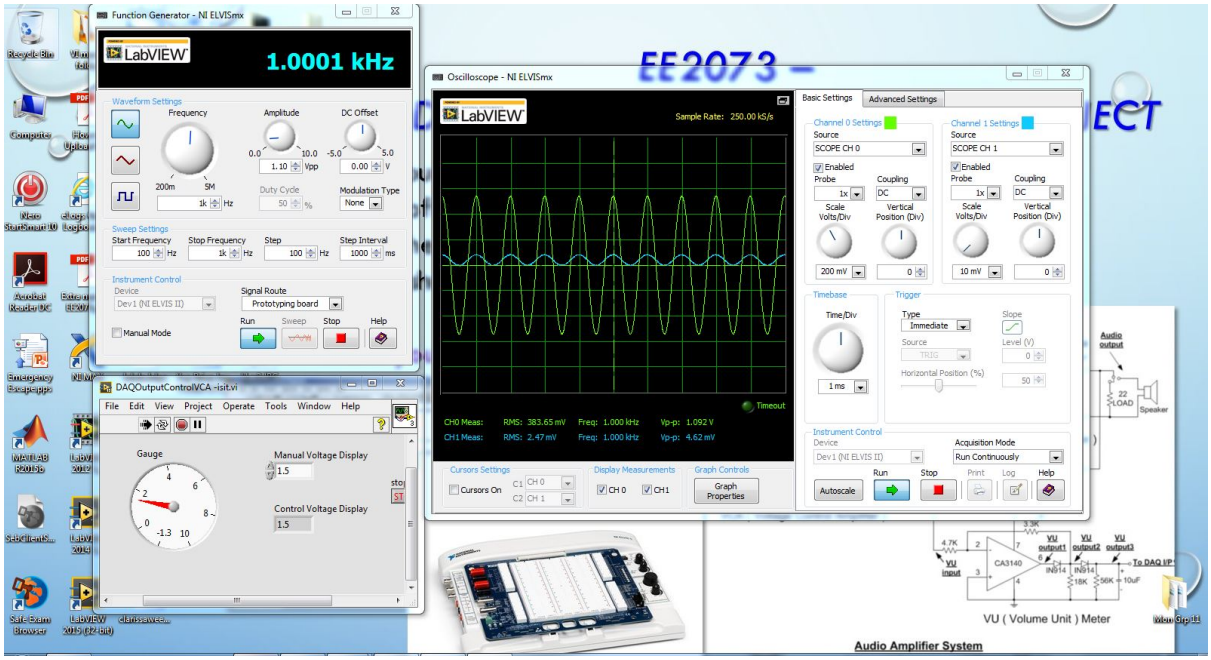
EE2073 Weekly Report (Week 6)

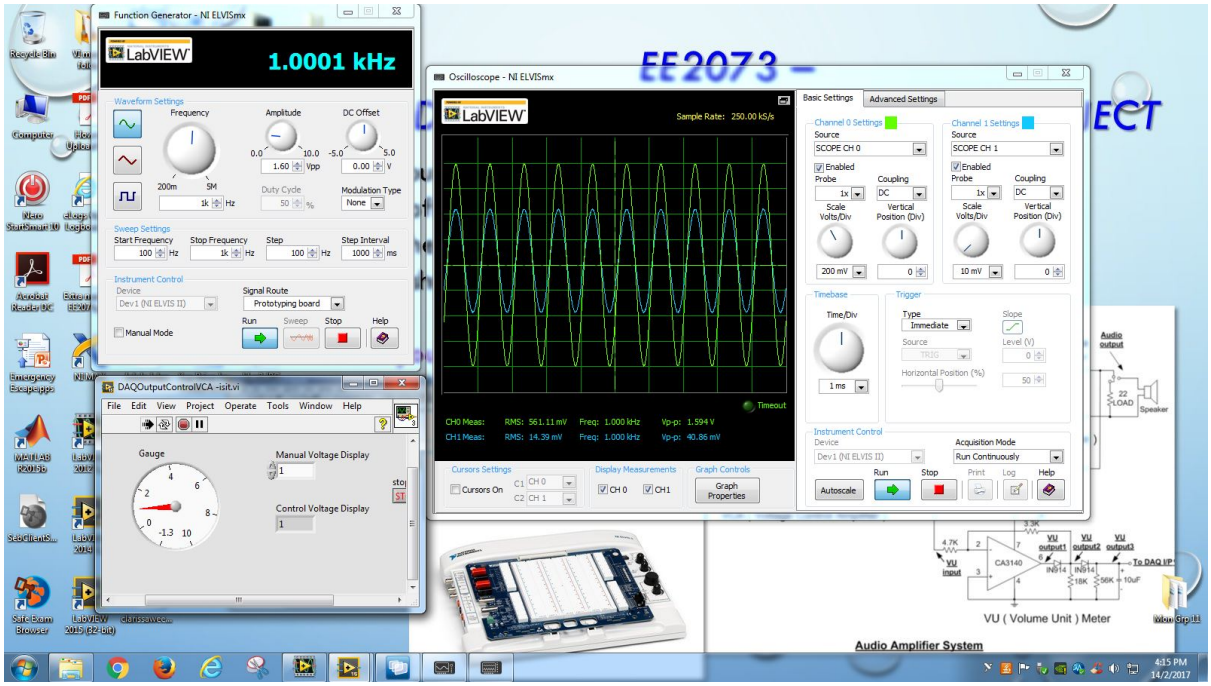
Ong Chun Siang Group 9

For this experiment, with the various values we input for Vin and Vc, we will be able to obtain the Vout from the oscilloscope. From there on, we find the Measured Gain = Vout / Vin and the Gain (dB) = 20 log10 (Vout / Vin).



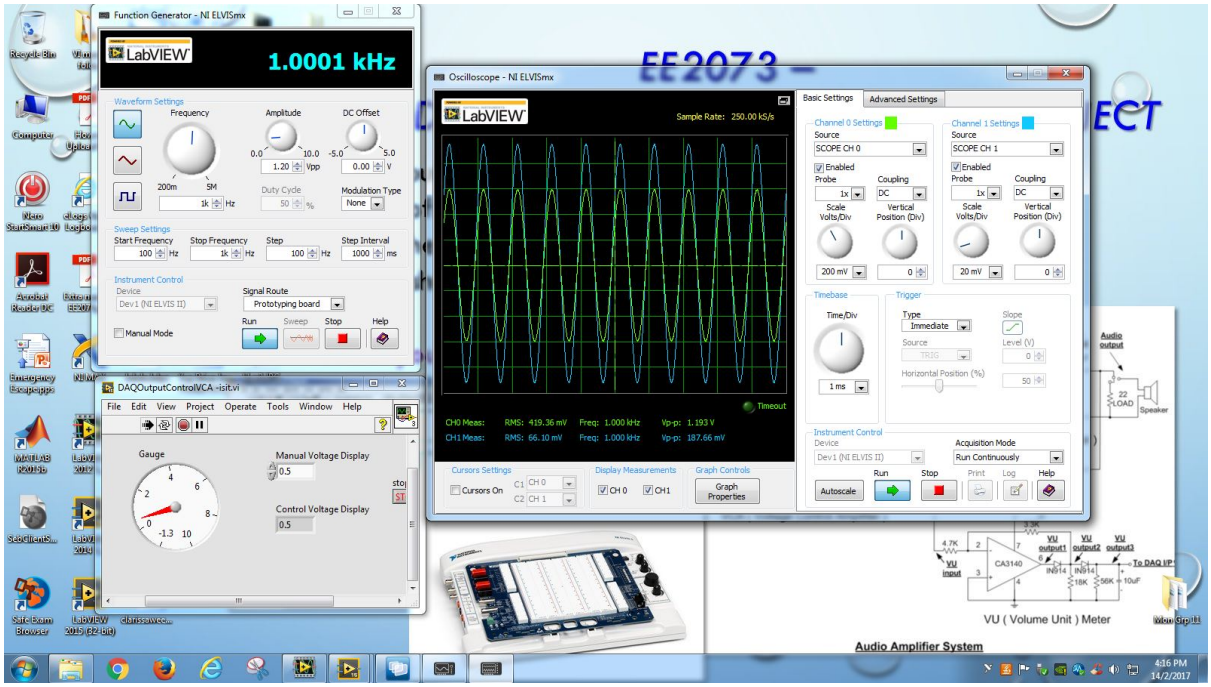
The result shown above is when Vin = 1.1 and Vc = 1.50, the Vout = 4.89 mV.

Measured Gain = 0.0045 and the Gain (dB) = -46.9357.



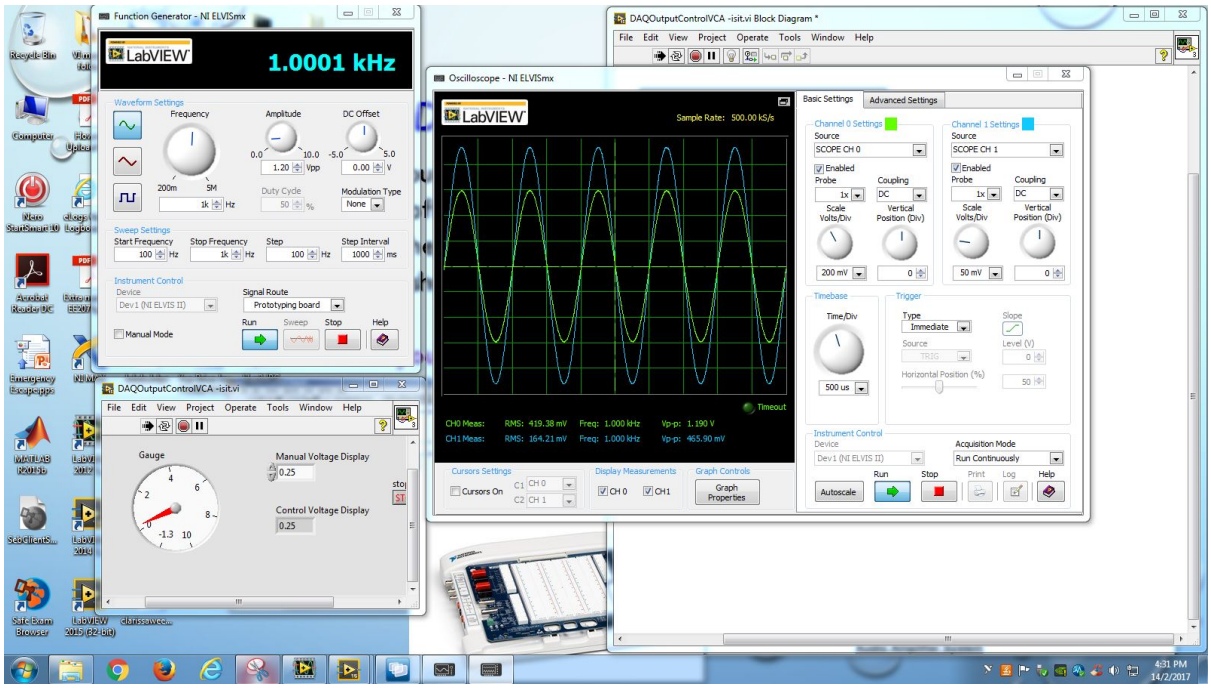
The result shown above is when Vin = 1.6 and Vc = 1.00, the Vout = 41.22 mV.

Measured Gain = 0.0258 and the Gain (dB) = -31.7676.



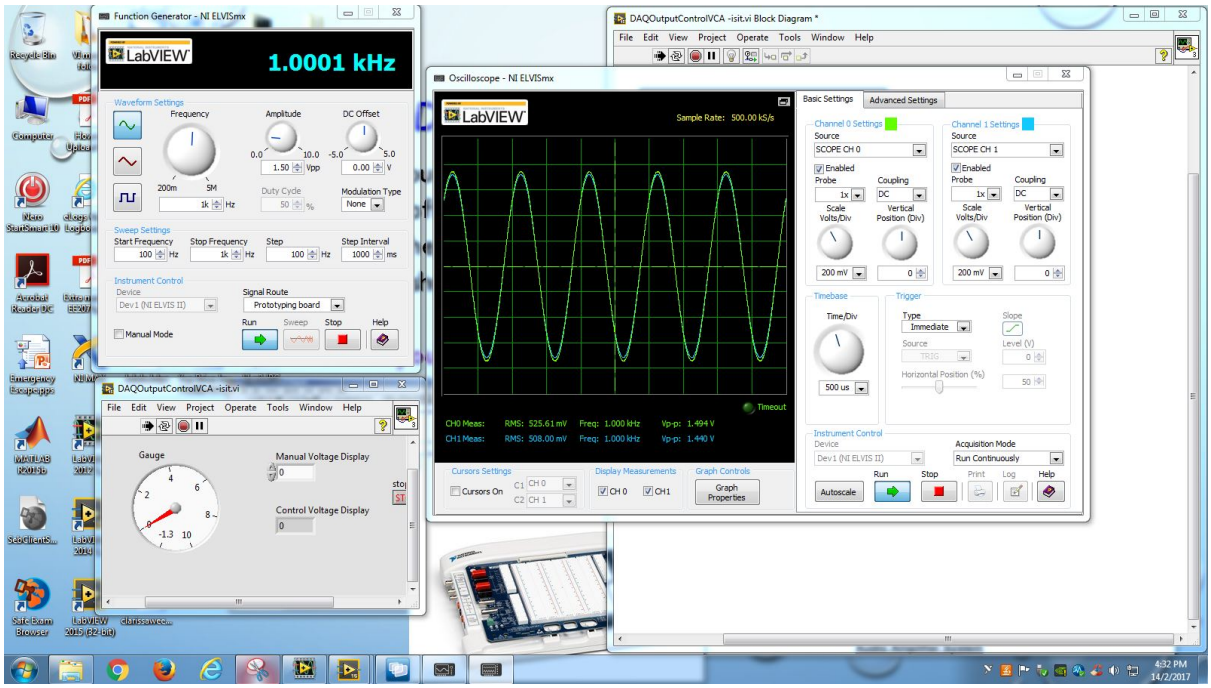
The result shown above is when Vin = 1.2 and Vc = 0.50, the Vout = 188.58 mV.

Measured Gain = 0.1572 and the Gain (dB) = -16.0709.



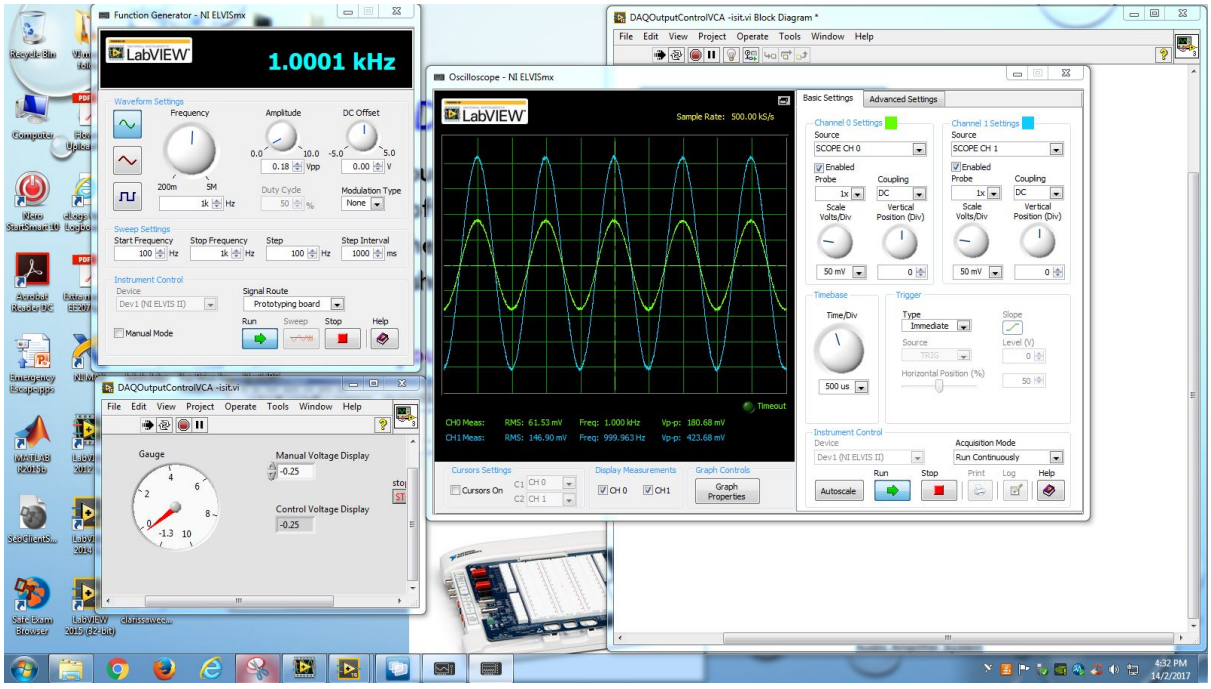
The result shown above is when Vin = 1.2 and Vc = 0.25, the Vout = 465.90 mV.

Measured Gain = 0.3883 and the Gain (dB) = -8.2167.



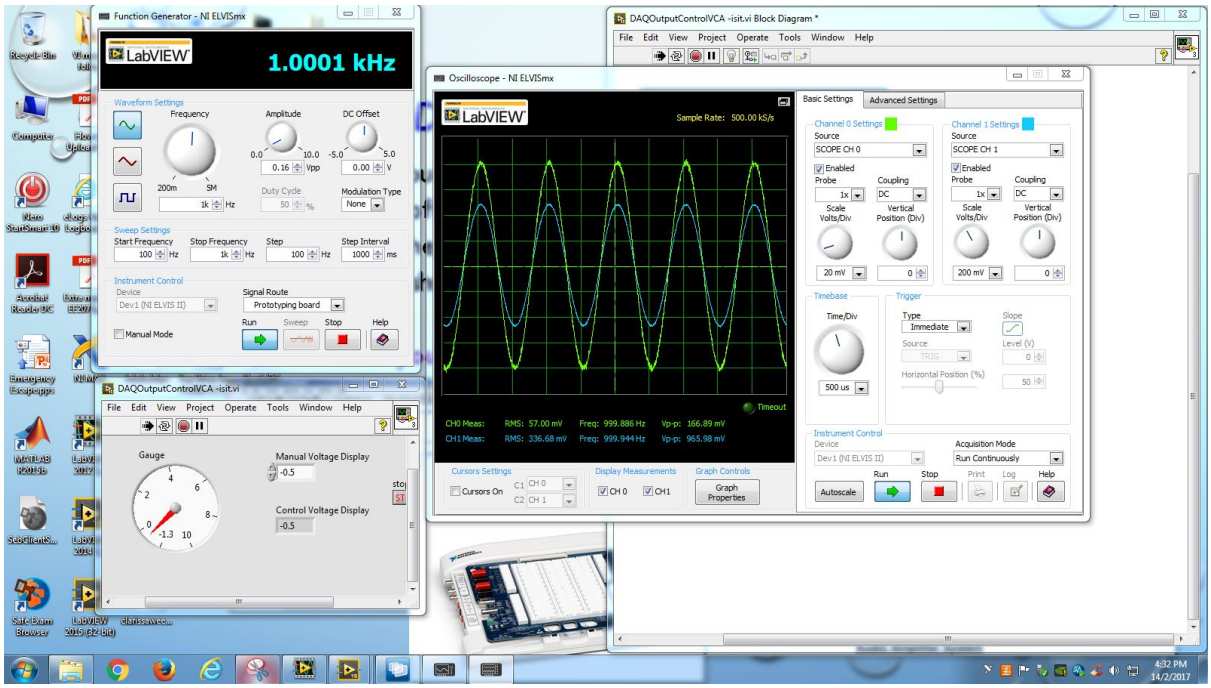
The result shown above is when Vin = 1.5 and Vc = 0.00, the Vout = 1.44 mV.

Measured Gain = 0.9600 and the Gain (dB) = -0.3546.



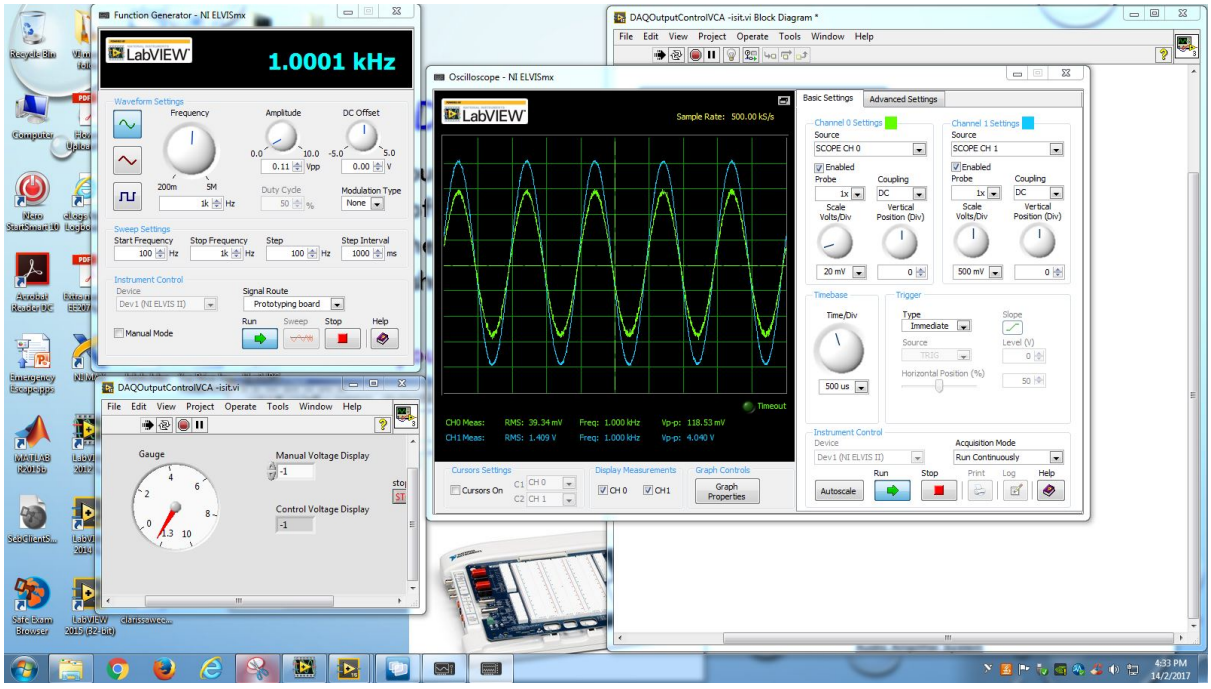
The result shown above is when Vin = 0.18 and Vc = -0.25, the Vout = 423.68 mV.

Measured Gain = 2.3538 and the Gain (dB) = 7.4354.



The result shown above is when Vin = 0.16 and Vc = -0.50, the Vout = 965.98 mV.

Measured Gain = 6.0374 and the Gain (dB) = 15.6170.

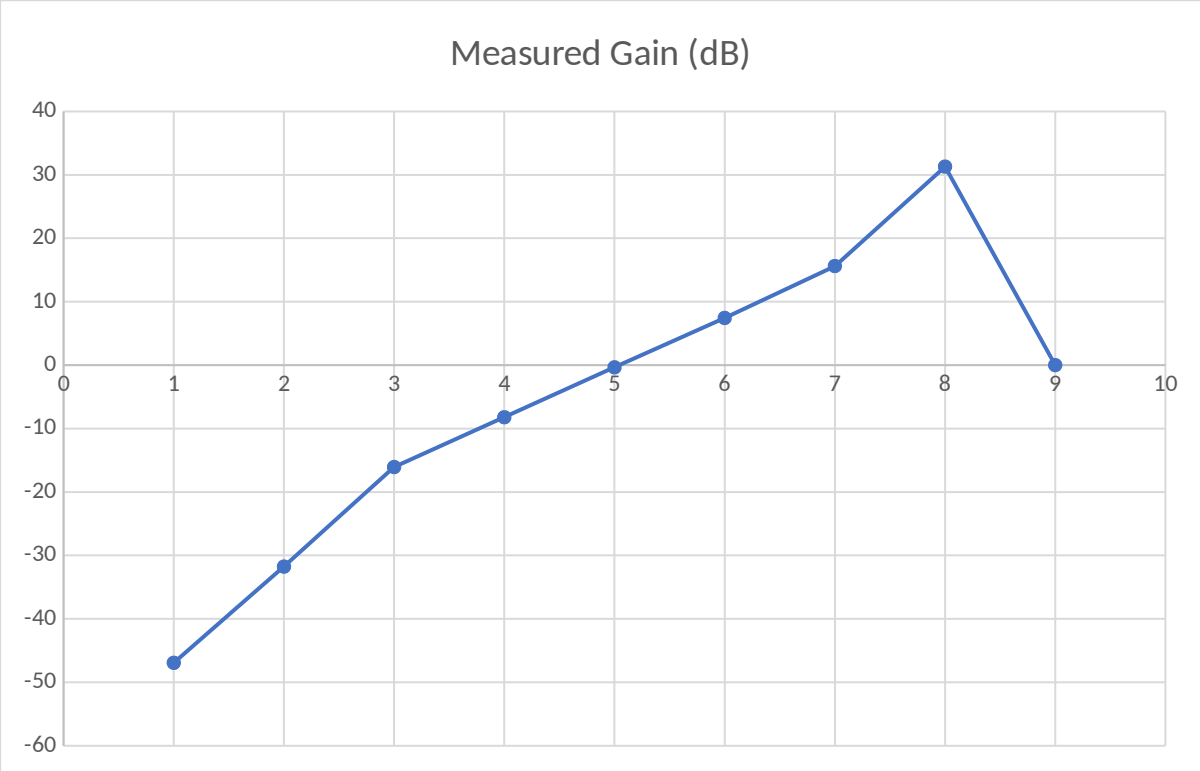


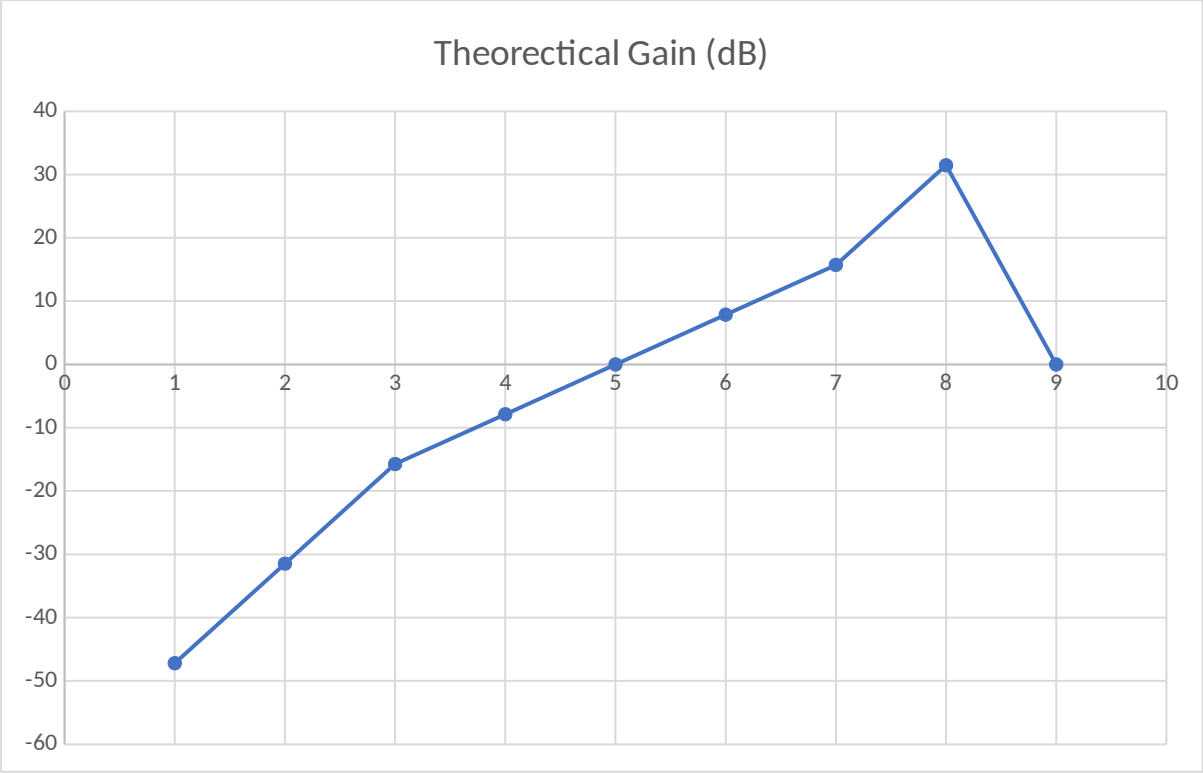
The result shown above is when Vin = 0.11 and Vc = -1.00, the Vout = 4.04 mV.

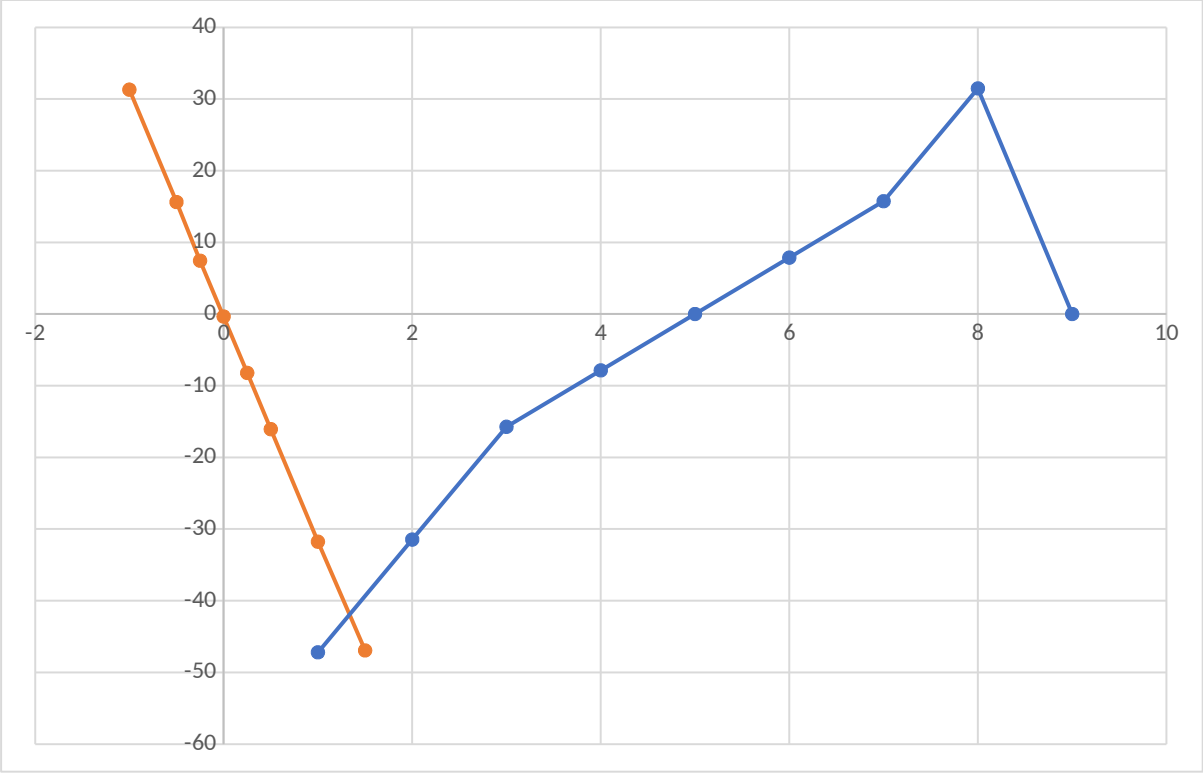
Measured Gain = 36.7273 and the Gain (dB) = 31.2998.

The table shown below is the compilation of the results that were obtained using the 8 pictures that were shown above. The theoretical gain is derived using the formula which was given.

Vin (Vpp)	Vc (V)	Vout (Vpp)	Measured Gain = Vout/Vin	Measured Gain (dB)	Theoretical Gain (dB)
1.1	1.5	4.89 mV	0.0045	-46.9357	-47.2035
1.6	1	41.22 mV	0.0258	-31.7676	-31.469
1.2	0.5	188.58 mV	0.1572	-16.0709	-15.7345
1.2	0.25	465.90 mV	0.3883	-8.2167	-7.8672
1.5	0	1.44 V	0.96	-0.3546	0
0.18	-0.25	423.68 mV	2.3538	7.4354	7.8672
0.16	-0.5	965.98 mV	6.0374	15.617	15.7345
0.11	-1	4.04 V	36.7273	31.2998	31.469







The graph shown above is the combination of the theoretical graph and the measured graph. As shown above, both the graphs are approximately the same. Therefore the circuit board is working fine.