

Figure 1- Inverting amplifier used with R1 being 56 k $\Omega$  and R2 being 110 k $\Omega$ . Uncertainty for the input and output voltage was  $\pm 0.01\text{V}$  for measurements greater than 1 V and  $\pm 0.001\text{ V}$  for measurements less than 1 V. Expected gain is 1.96.

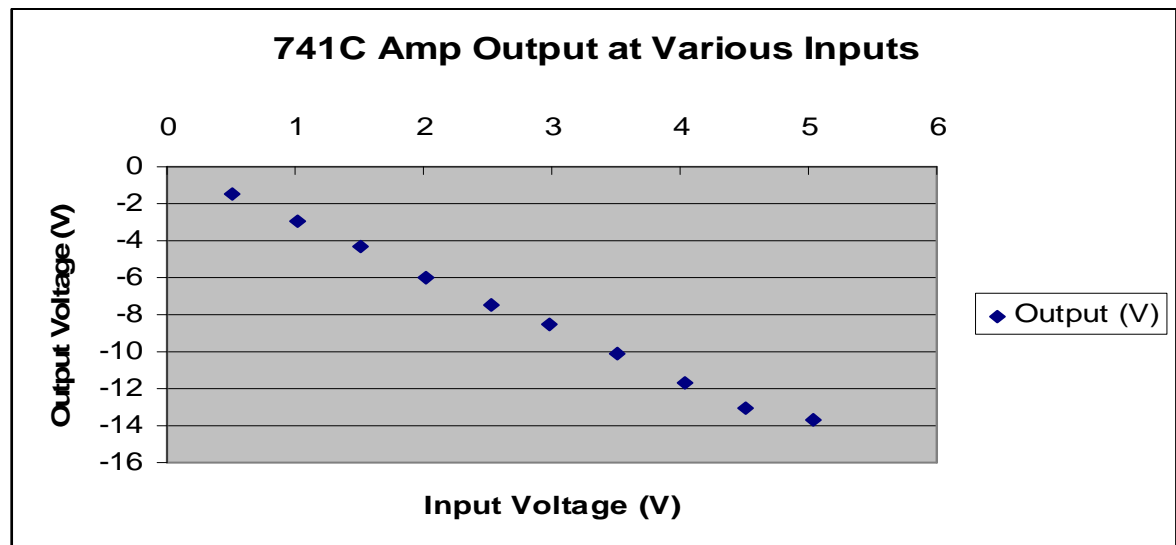


Figure 2 - Inverting amplifier used with R1 being 56 k $\Omega$  and R2 being 160 k $\Omega$ . Uncertainty for the input and output voltage was  $\pm 0.01\text{V}$  for measurements greater than 1 V and  $\pm 0.001\text{ V}$  for measurements less than 1 V. Expected gain is 2.86.

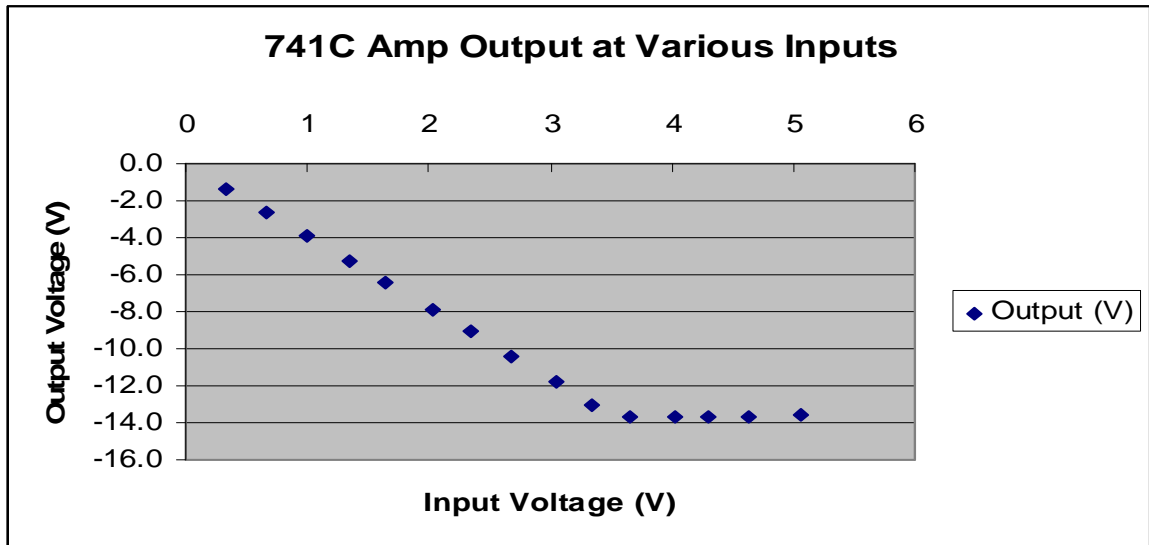


Figure 3 - Inverting amplifier used with R1 being 56 k $\Omega$  and R2 being 220 k $\Omega$ . Uncertainty for the input and output voltage was  $\pm 0.01V$  for measurements greater than 1 V and  $\pm 0.001 V$  for measurements less than 1 V. Expected gain is 3.93.

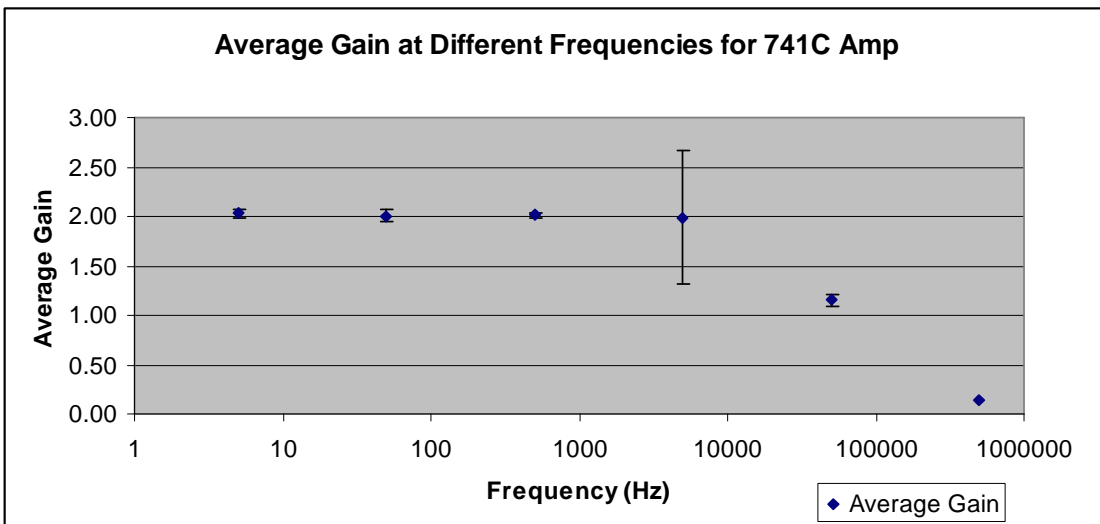
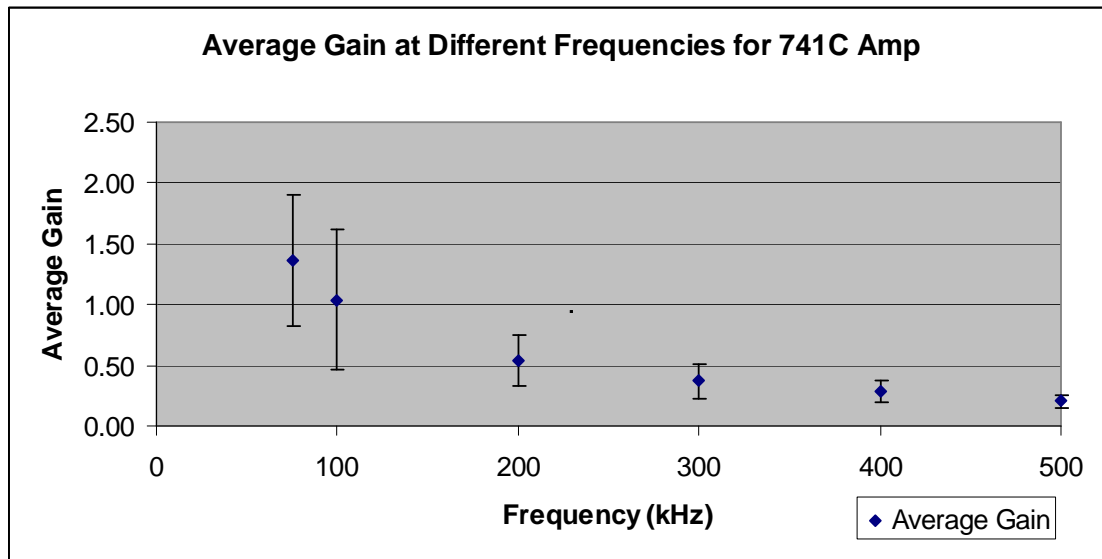


Figure 4 – Non-inverting amplifier used with R1=R2=56 k $\Omega$ . Uncertainty for the average gain was the standard deviation of the different gain values for different input voltages. The uncertainty in the frequency was around 1% of the value. Expected gain is 2.00. BK Precision 4011A Function Generator used to create pulse.



**Figure 5 - Non-inverting amplifier used with  $R1=R2=56\text{ k}\Omega$ . Uncertainty for the average gain was the standard deviation of the different gain values for different input voltages. The uncertainty in the frequency was around 1% of the value. Expected gain is 2.00. BK Precision 4011A Function Generator used to create pulse.**