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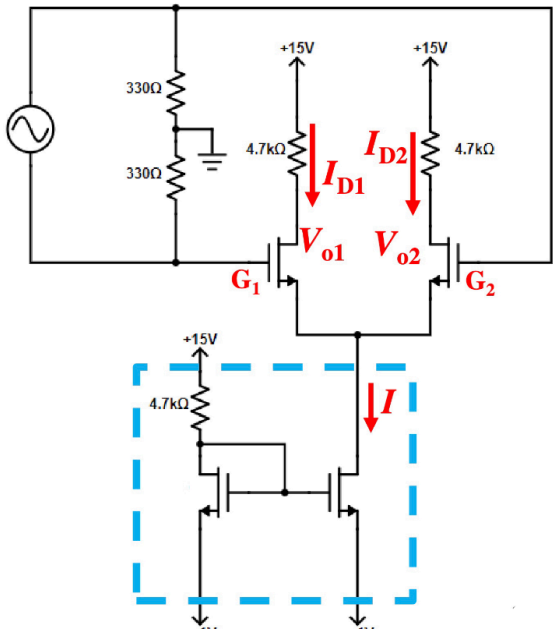
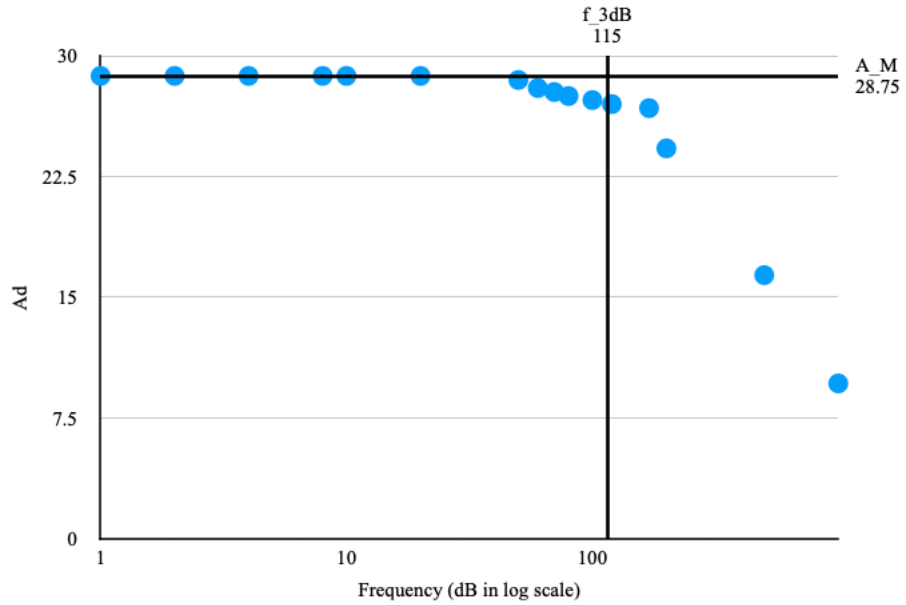
電子學實驗#2 - 結報

The Differential Amplifier with Current Source Loads



I. $V_i = 0.4sin2\pi ft$

Frequency(kHz)	V1pk-pk	V2pk-pk	Ad
1	11.6	11.4	28.75
2	11.6	11.4	28.75
4	11.6	11.4	28.75
8	11.6	11.4	28.75
10	11.6	11.4	28.75
20	11.6	11.4	28.75
50	11.4	11.4	28.5
60	11.2	11.2	28
70	11.2	11	27.75
80	11	11	27.5
100	11.0	10.8	27.25
120	11	10.6	27
170	10.8	10.6	26.75
200	9.6	9.8	24.25
500	6.5	6.6	16.375
1000	3.82	3.9	9.65



Conclusion:

In this experiment, I originally thought that when measuring $V_{o2} - V_{o1}$, I could directly connect the red end of channel 1 of the oscilloscope to one end, and the black end to the other, thinking that this way I could directly measure the voltage difference. Later, when I had the assistant check it, I learned that this approach would cause a common ground problem, resulting in incorrect measurements. So later on, I connected both channels, and only then did I measure the correct values.