

STC Networks

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Low-Pass RC Circuit

f (Hz)	V_i (V)	V_o (V)	f (Hz)	V_i (V)	V_o (V)
200	21.2	21.2	2500	20.4	11.6
400	21.2	20.4	3000	20.4	10.4
600	21.2	19.6	3500	20.4	9.2
800	21.2	18.8	4000	20.4	8.4
1000	21.2	18.4	5000	20.4	7.2
1100	21.2	17.0	6000	20.4	6.0
1200	21.2	16.6	7000	20.4	5.6
1300	21.2	16.2	10000	20	4.4
1400	21.2	16.0	20000	20	2.8
1500	21.2	15.2	30000	20	2.4
1600	21.2	14.8			
2000	20.4	13.2			

Table 1: low-pass RC raw experimental data

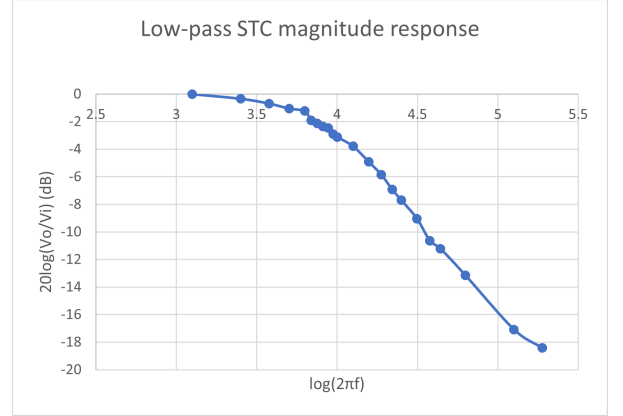


Figure 1: Low-Pass RC Circuit magnitude response

$$f_{3dB,calculated} = 1591 \text{ Hz}, f_{3dB,measured} = 1600 \text{ Hz}$$

High-Pass RC Circuit

f (Hz)	V_i (V)	V_o (V)	f (Hz)	V_i (V)	V_o (V)
100	11.2	1.6	1800	11.0	8.0
1000	11.0	6.2	1900	10.8	8.2
1300	11.0	7	2000	10.8	8.4
1400	11.0	7.2	3000	10.8	9.2
1500	11.0	7.6	5000	10.6	9.6
1600	11.0	7.6	7000	10.6	10.0
1700	11.0	7.8	10000	10.6	10.2

Table 2: high-pass RC raw experimental data

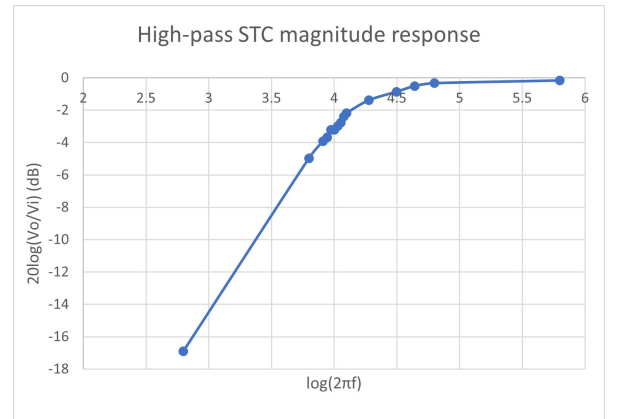


Figure 2: High-Pass RC circuit magnitude response

$$f_{3dB,calculated} = 1591 \text{ Hz}, f_{3dB,measured} = 1700 \text{ Hz}$$

Reflection

我們覺得今天的實驗做得還算順利，振幅在上學期的電路學實驗中做過了，因此在量取數據上沒有遇到困難，然而我們本來還想嘗試做相位變化的實驗，但是做這個實驗時示波器的數值變化太大難以讀取，最後只好作罷，讓我覺得很可惜。