

Prelab 5

6/25/22

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For both High and Low Pass cutoff frequency was about 160, is marked by the red x on the plots.

Both cutoff frequency plots show the correct characteristics for the given type of filter.

Part 1: Low Pass

Theoretical

	Theoretical	
F(HZ)	Gain(db)	Phase Angle
25	0.988	-0.15708
50	0.954	-0.31416
75	0.905	-0.47124
100	0.847	-0.62832
150	0.728	-0.94248
200	0.623	-1.25664
300	0.469	-1.88496
500	0.303	-3.1416
600	0.256	-3.76992
700	0.222	-4.39824
800	0.195	-5.02656
900	0.174	-5.65488
1000	0.157	-6.2832

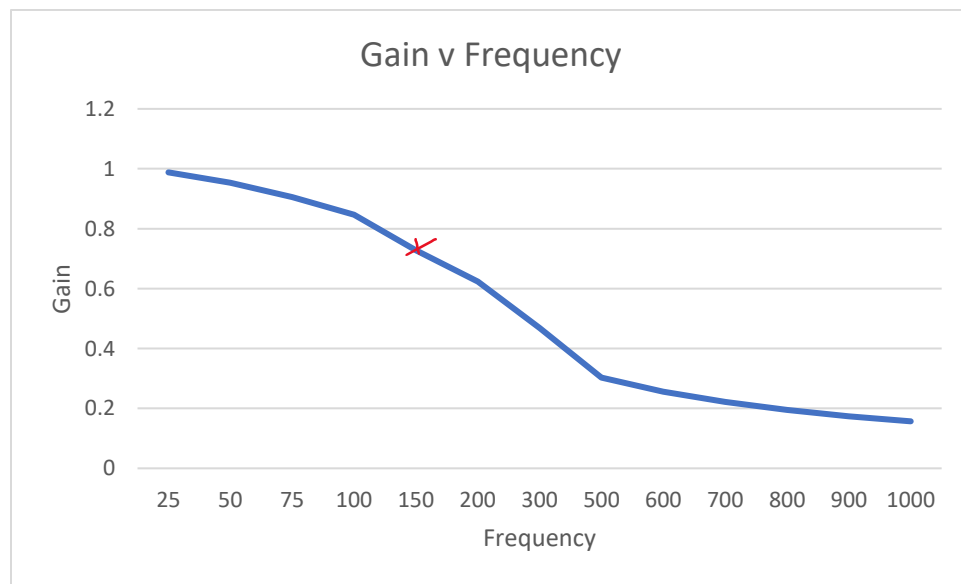


Figure 1. Gain vs Frequency Plot

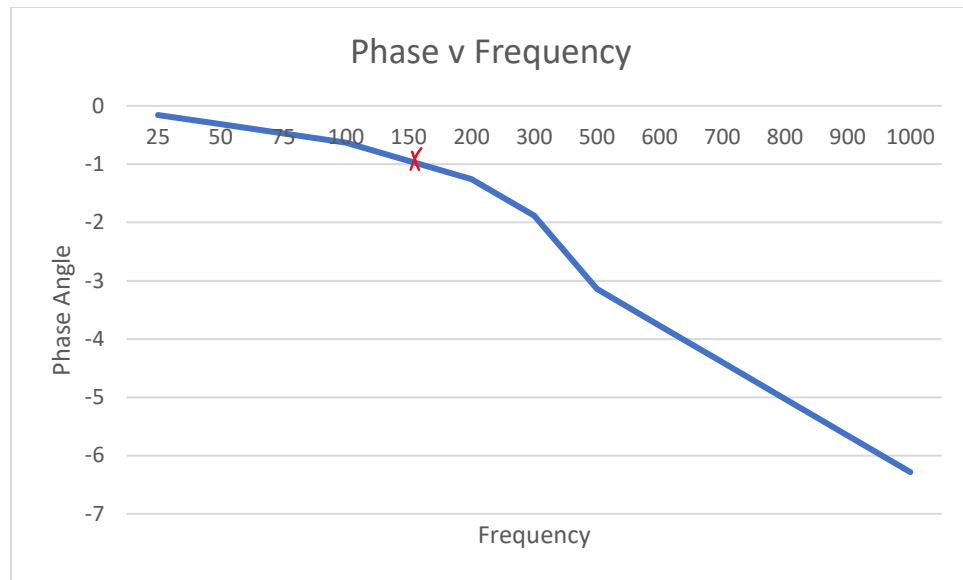


Figure 2. Phase Angle vs Frequency Plot

Simulation

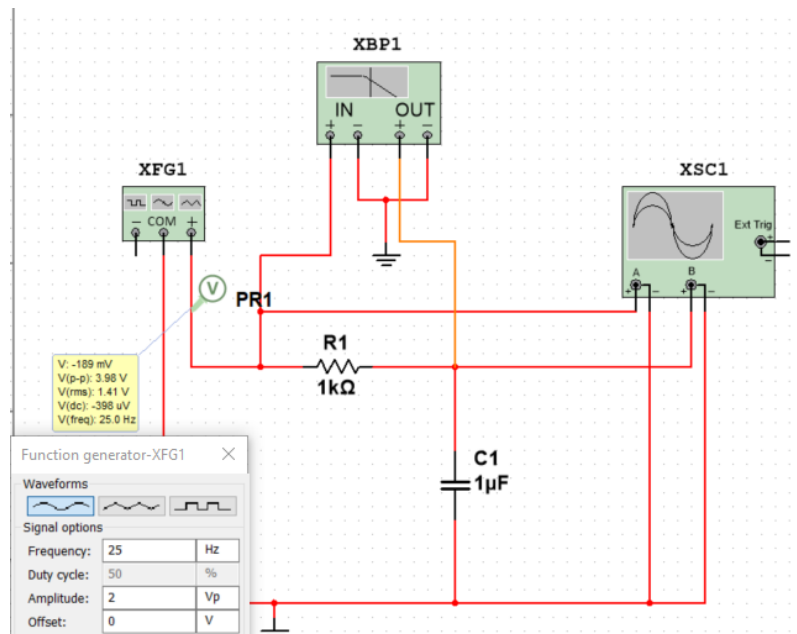


Figure 3. Low Pass Circuit

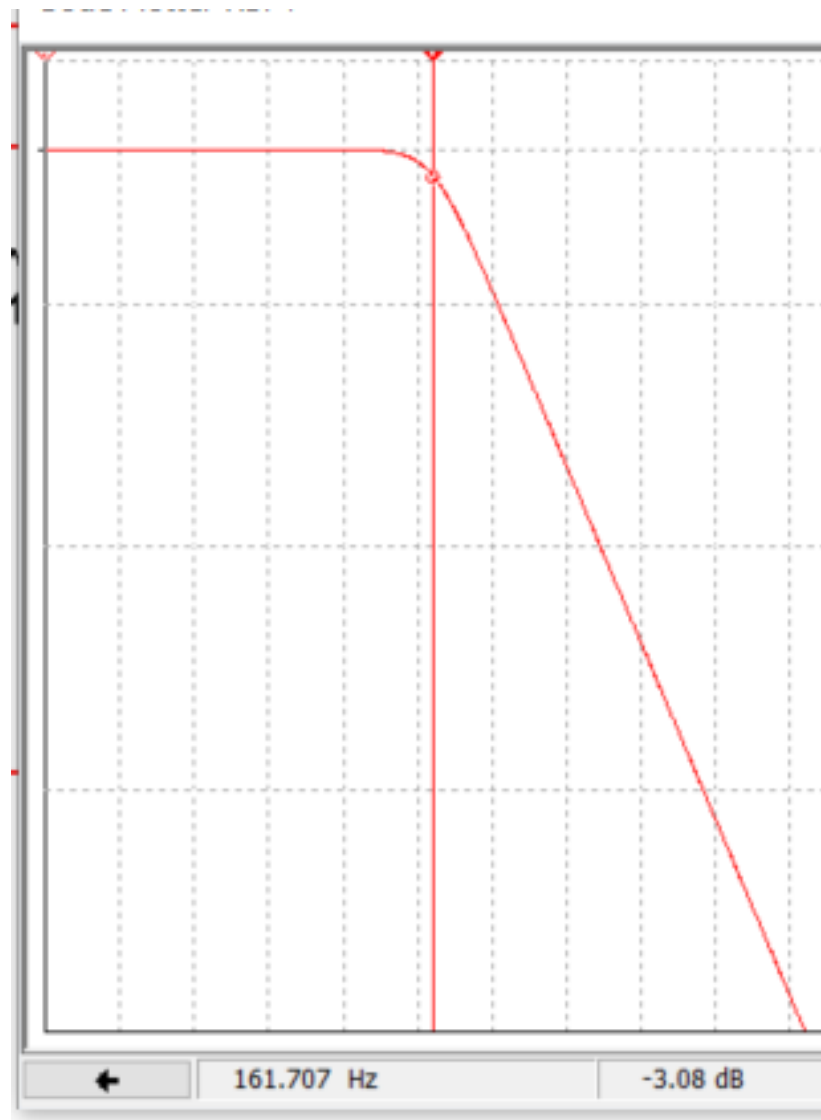


Figure 4. Cutoff Frequency

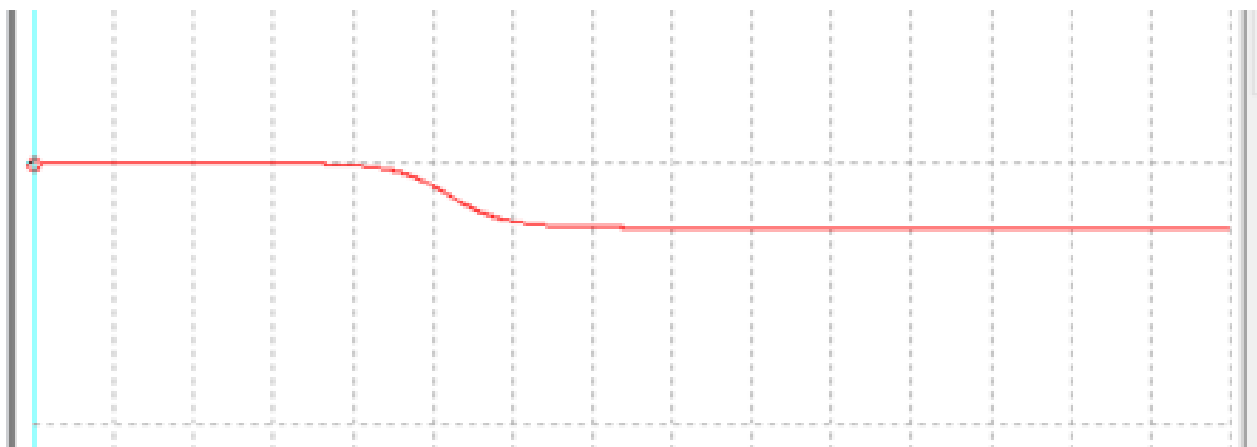


Figure 5. Phase angle

Part 2: High Pass

Theoretical Table

F(HZ)	Theoretical	
	Gain(db)	Phase Angle
25	0.1551	6.369427
50	0.299578	3.184713
75	0.426102	2.123142
100	0.531825	1.592357
150	0.685683	1.061571
200	0.782325	0.796178
300	0.883286	0.530786
500	0.952846	0.318471
600	0.966541	0.265393
700	0.975089	0.22748
800	0.98076	0.199045
900	0.984706	0.176929
1000	0.987558	0.159236

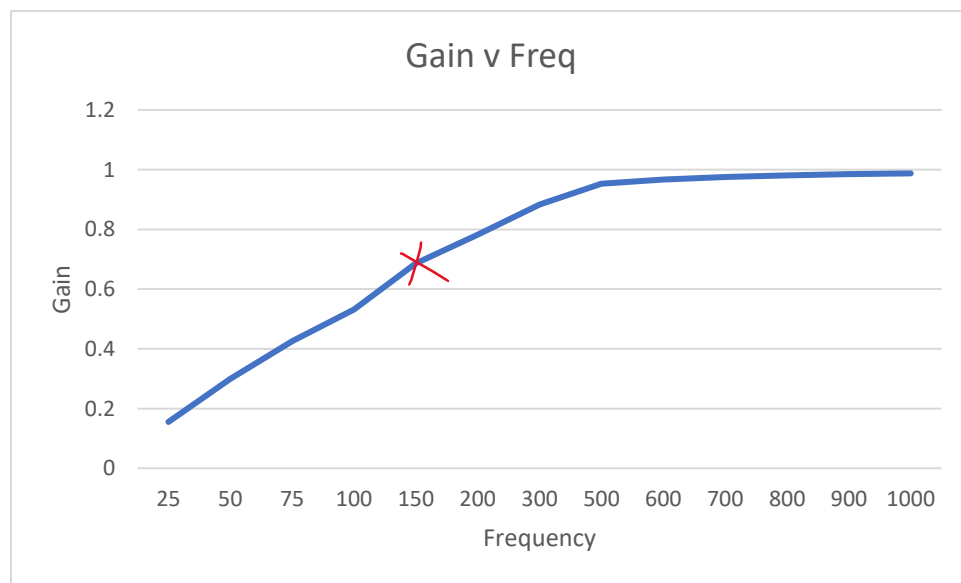


Figure 6. Gain vs Frequency Plot

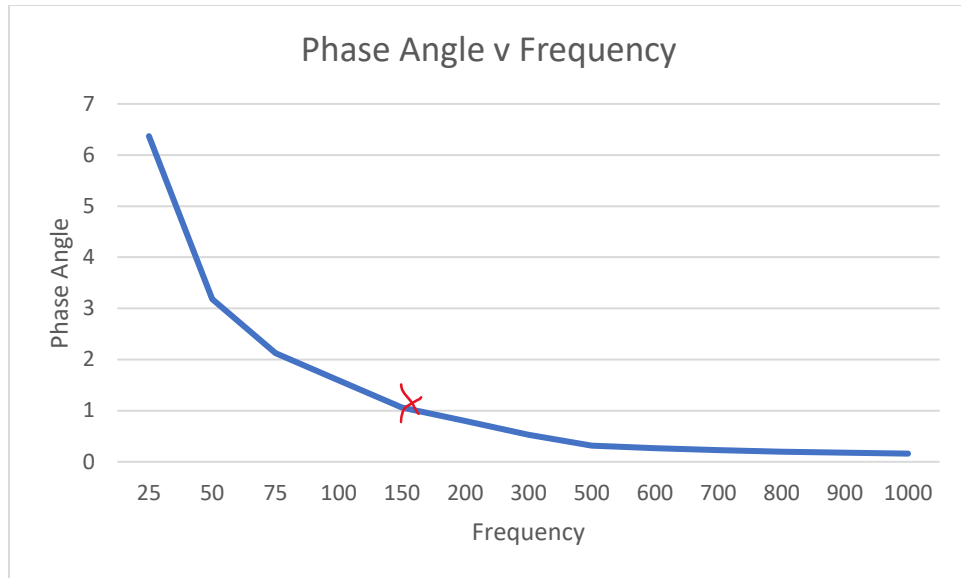


Figure 7. Phase Angle vs Frequency Plot

Simulation

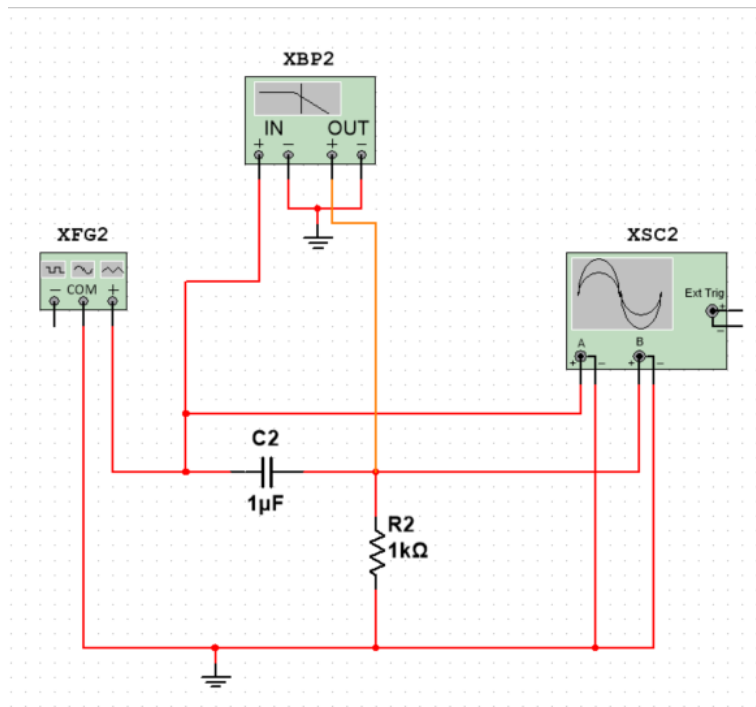


Figure 8. High Pass Filter Circuit

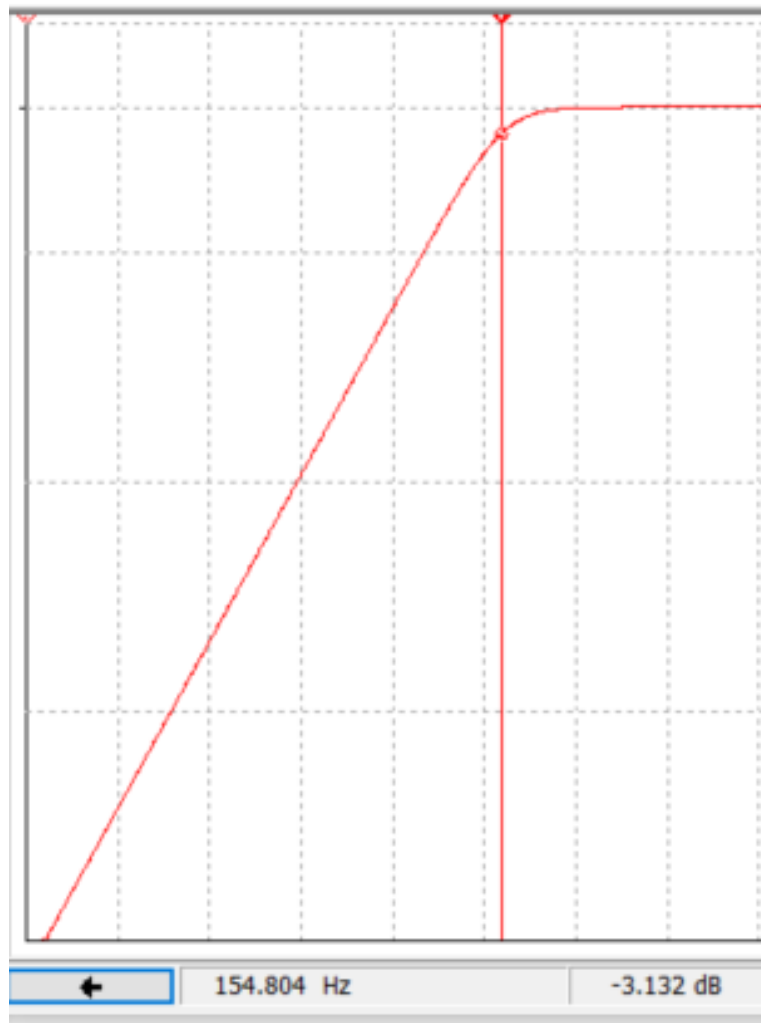


Figure 9. Cutoff Frequency

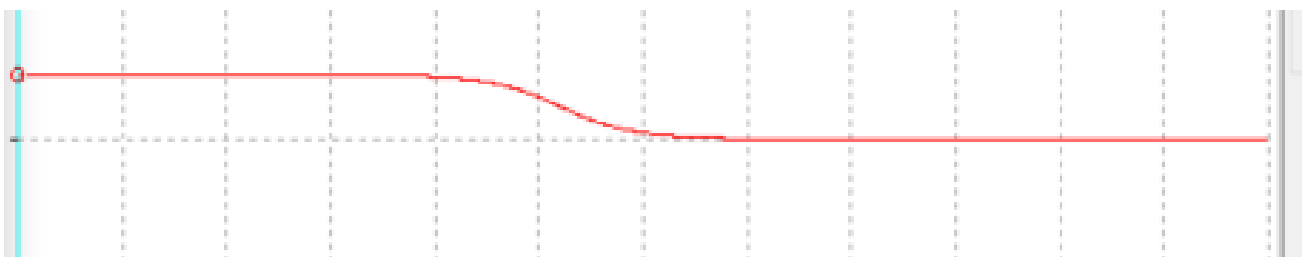


Figure 10. Phase Angle