$$r_{out} = g_{m1} r_{01} r_{00} \parallel r_{02}$$

$$g_{m1} r_{01} r_{00} = \frac{g_{m1}}{g_{ds01} * g_{ds00}} = \frac{8.19182\,m}{83.9381\mu * 76.459\mu}$$

$$= \frac{1}{783.4428964n} = 1.276417M\Omega$$

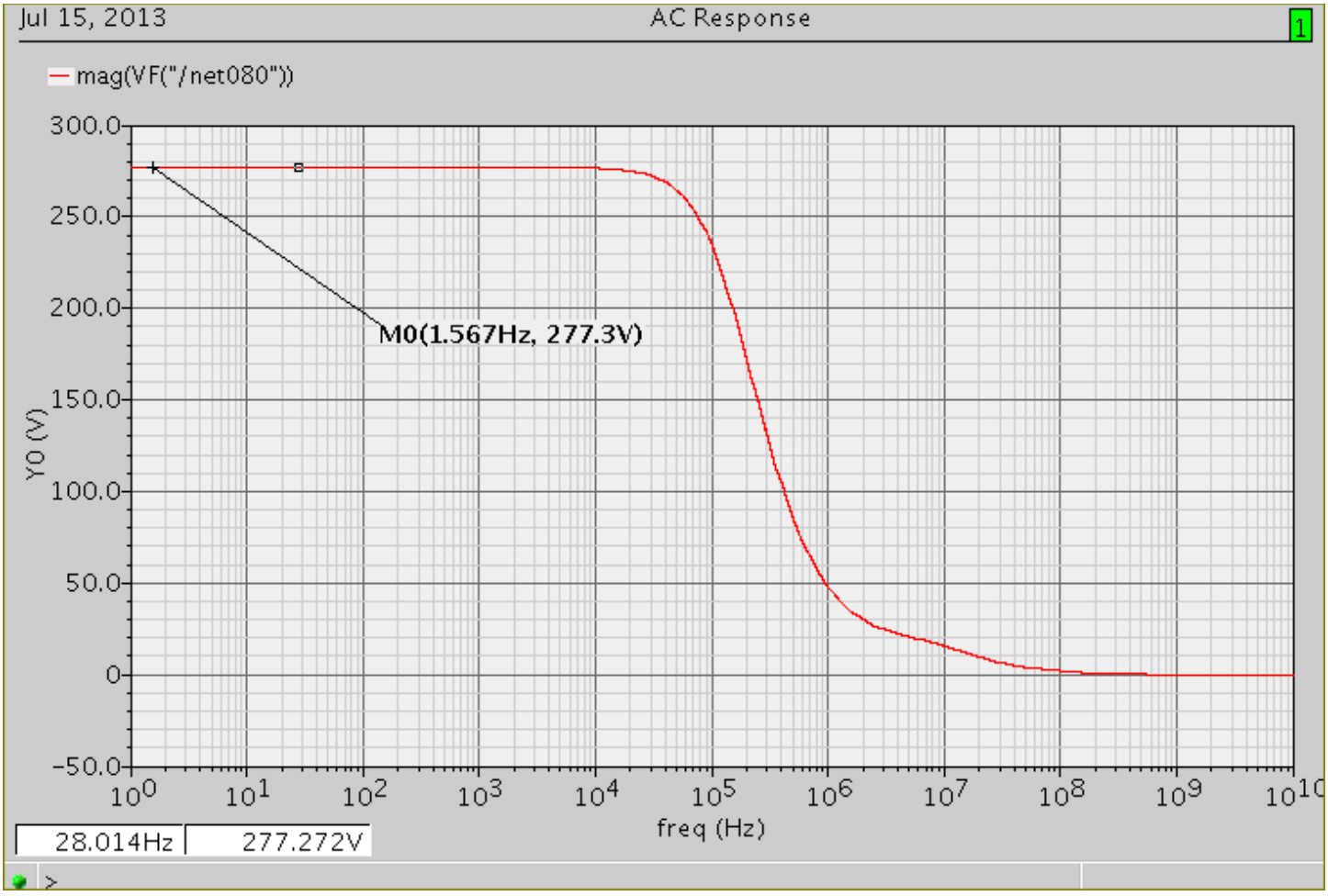
$$r_{02} = \frac{1}{g_{ds02}} = \frac{1}{28.7665\mu} = 34.762k\Omega$$

$$A_v = g_{m0} r_{out} = g_{m0}\left[g_{m1} r_{01} r_{00} \parallel r_{02}\right]$$

$$= \frac{8.21376\,m}{783.4428964n + 28.7665\mu}$$

$$= 277.961958\,Volts/volts$$

$$|A_v| = 277.961\,V/V$$



Calculated AC-Magnitude |Av| results are meet the simulated AC-magnitude results. I'm hoping whatever using gds02=28.7665u is correct

	Pmos 2V – M2	nmos 2V – M1	nmos 2V – M0
W	5.97µ*106 = 631.76µm	120µm	124.3µm
L	1µm	400nm	400n m
	Pmos 2V – M3		
W	5.97µm		
L	1µm		

Process: 180nm Technology

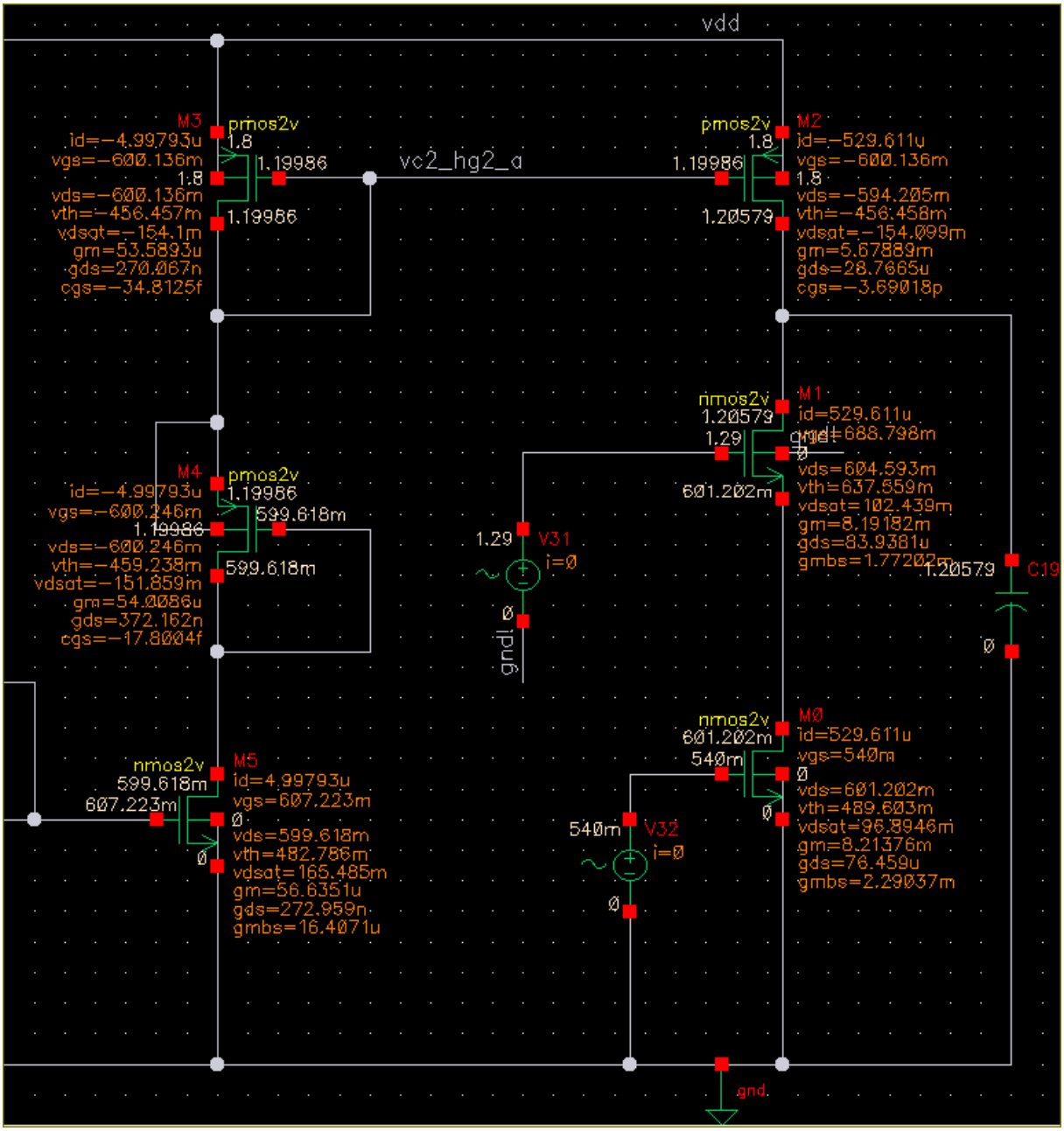
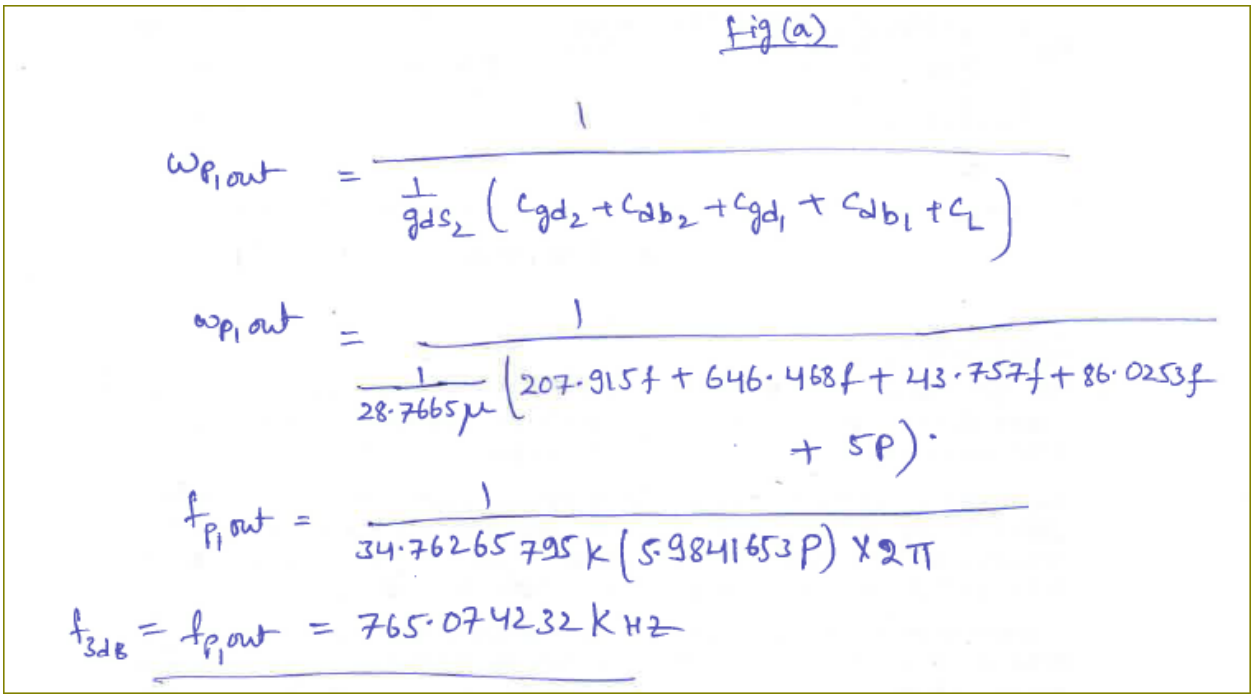
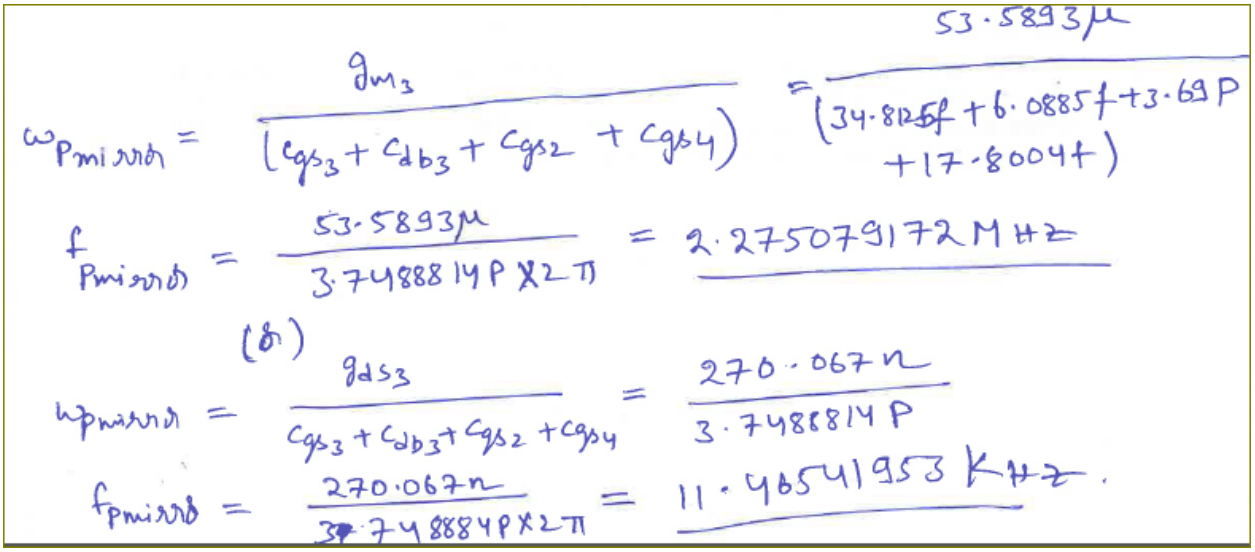


Fig (a)

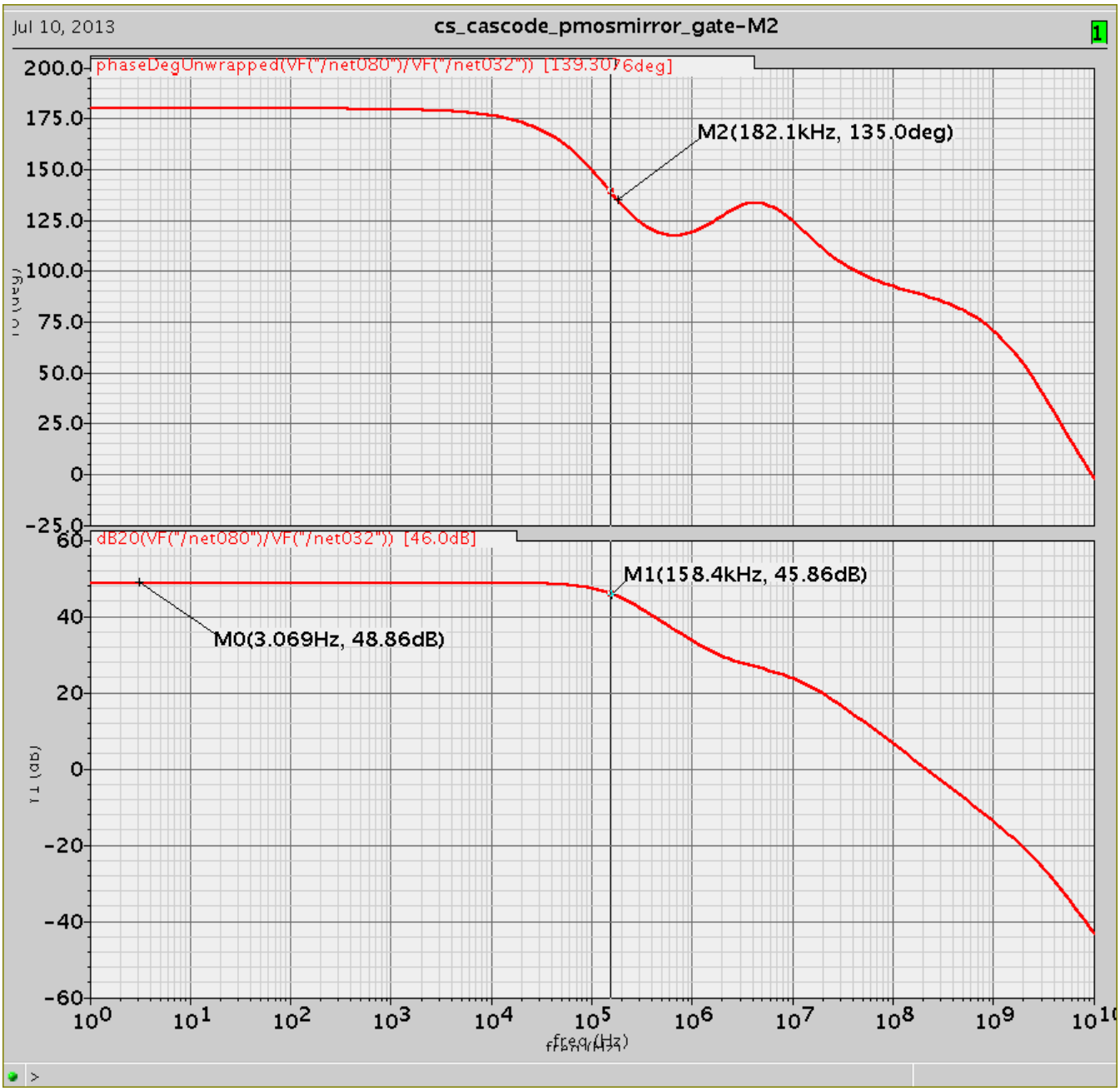
f3db, Mirror pole calculations for fig (a) is given below which is differ from simulation results



Simulation f3db = 158.4 kHz which is differ from calculated. Mirror pole calculations are given below which I'm not observed in simulation results



Frequency response of Fig (a) simulation plots are given next page



Freq Response of Fig (a)

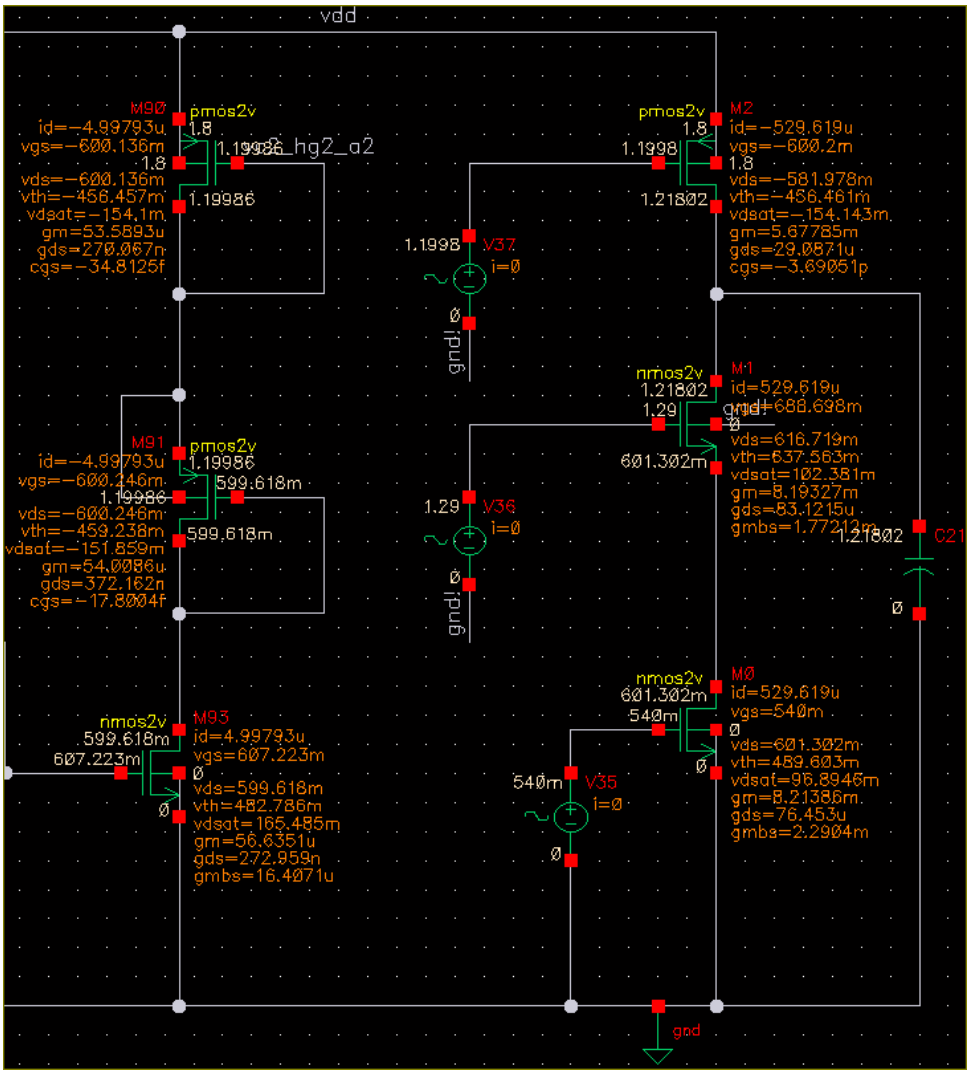
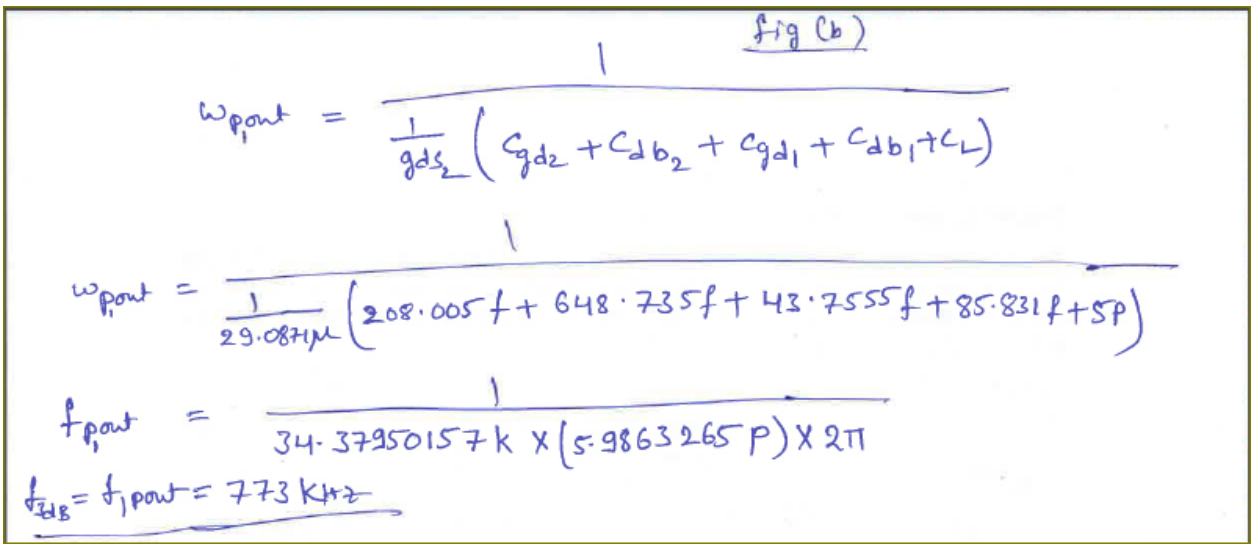
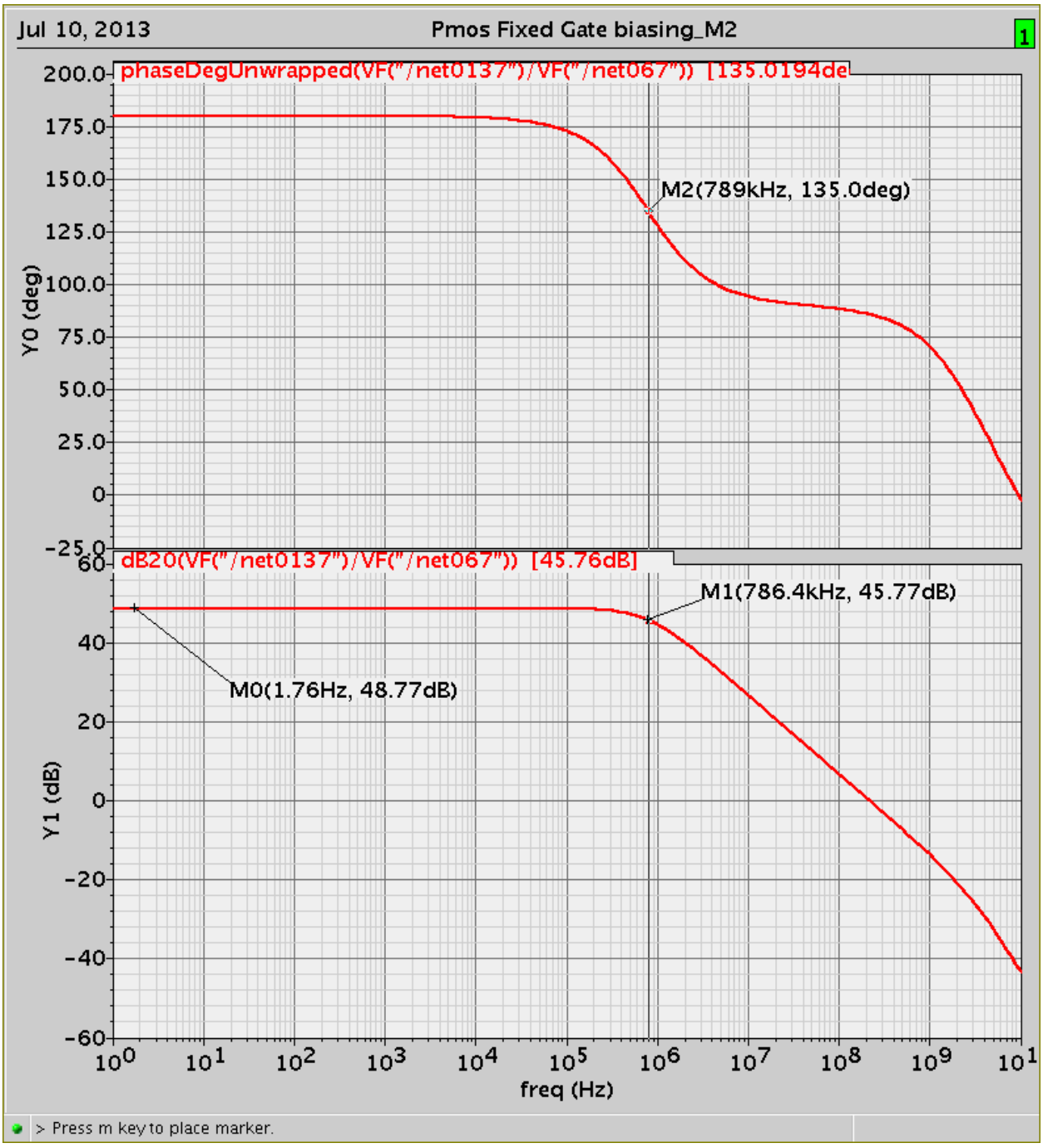


Fig (b)

f3db calculations for fig (b) is given below which is meets the simulation results



Simulation f3db = 786.4 kHz frequency response of above calculation plots are on next page



Freq Response of Fig (b)