

COM CTLE MODEL UPDATE PROPOSAL

(in support of Comment #45)

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CDAUI-8 COM CTLE

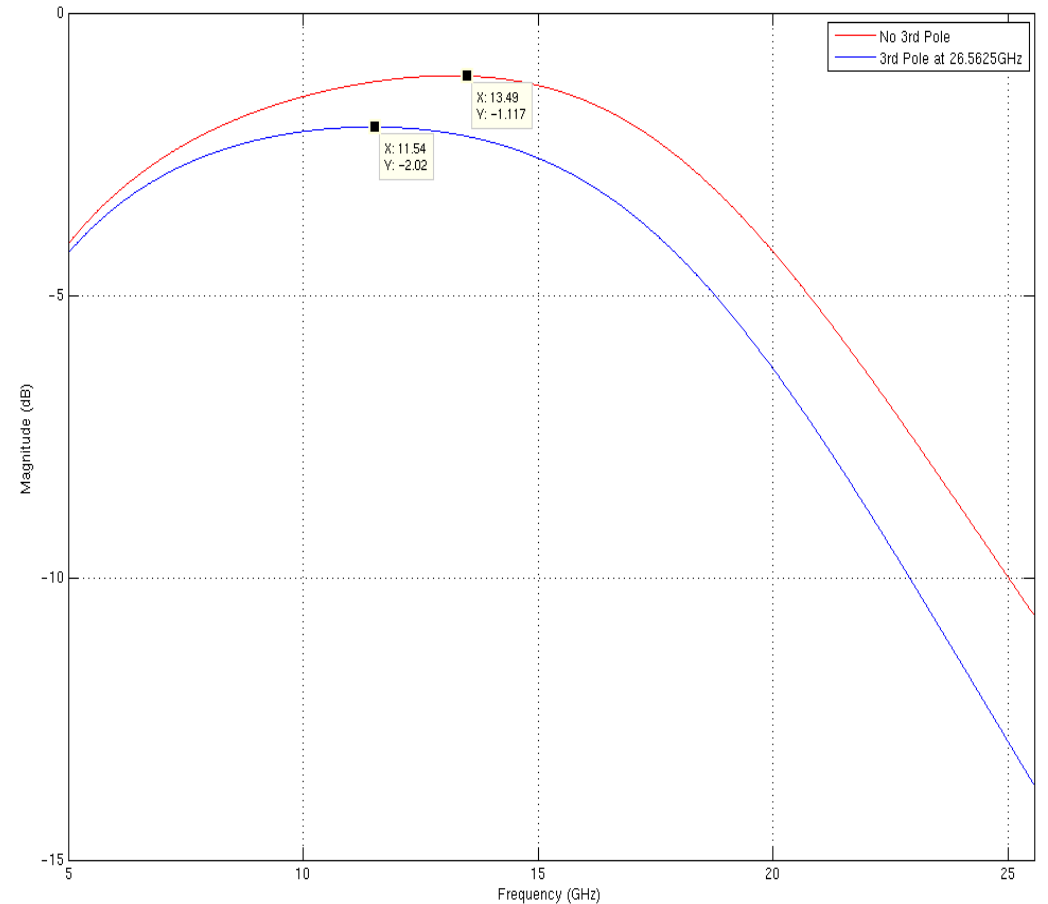
- COM RX Filter:

- The CTLE is given by $H_{ctf}(f) = \frac{10^{g_{DC}/20} + jf/fz}{(1 + \frac{jf}{f_{p1}})(1 + \frac{jf}{f_{p2}})}$
- $H_r(f)$, receive noise filter with bandwidth @ $f_r = 0.75 \times f_b = 19.172\text{GHz}$.

- Current draft version:

- $H_{ctf}(f) = \frac{(10^{g_{DC_LOW}/20} + jf/fz_{low})}{(1 + jf/f_{p_low})} \cdot \frac{(10^{g_{DC}/20} + jf/fz)}{(1 + \frac{jf}{f_p})}$
- No b/w pole in the main section of the CTLE.

- Comment #45: Re-introduce 2nd pole at f_b .



Performance Comparison

Test Case	1	2	3	4	5	6	7	8	9	10
Insertion Loss (dB)	19.2	14.34	7.22	18.93	17.24	11.14	9.24	18.75	18.75	17.52
D1.3 COM	3.074	3.667	3.633	2.851	2.617	3.730	3.553	4.757	1.665	3.164
With pole at f_b	2.975	3.570	3.583	2.874	2.484	3.627	3.451	4.602	1.667	3.008
Difference	0.099	0.097	0.05	-0.024	0.133	0.103	0.102	0.155	-0.001	0.156

- Test Cases:
 - Cases 1 through 7 are from [mellitz_3bs_01_0714.pdf](#)
 - Case 8 is from [shanbhag_02_0914.pdf](#)
 - Cases 9 and 10 are from [mellitz_3bs_01_0315.pdf](#)