

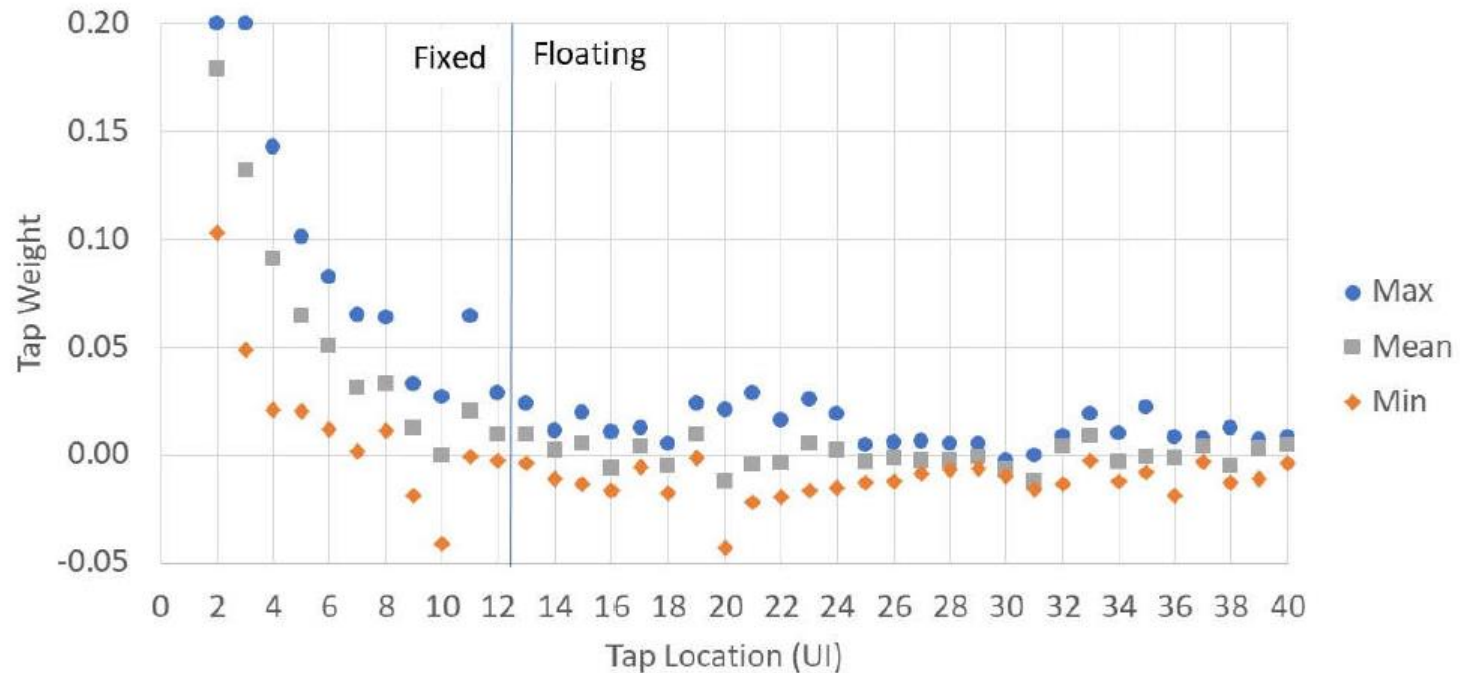
Tighter tail tap limit and backplane channel Bch2_b2p5_7

Piers Dawe, Nvidia

Survey of tap weights in heck_3ck_01_0919

Tap Weights for $b_{\max}(2..n)=0.2$

Note: 1st postcursor tap is not shown.



IEEE P802.3ck

September 2019

6

- Only one channel has a strongly -ve tap above 12 UI
- No channels have taps $> \sim 0.03$ above 12 UI

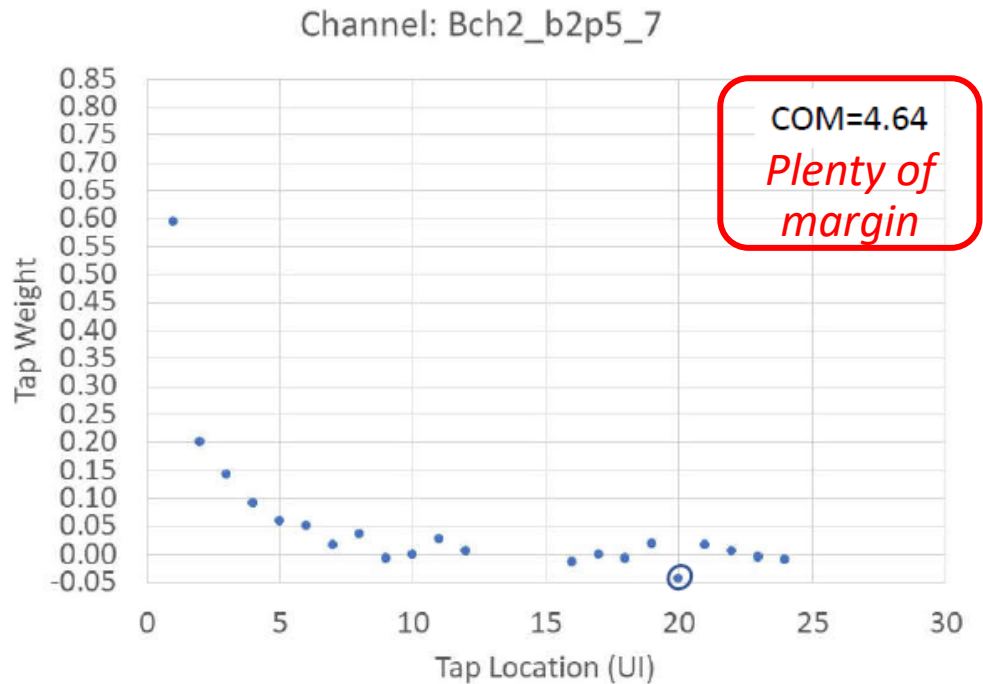
Bch2_b2p5_7 from heck_3ck_01_0919

Tap Weights: Bch2_b2p5_7 with 31mm package

This channel has the WC minimum tap weight (-0.043 @ UI=20).

UI	D2.2		
1	0.7462		
2	0.2557		
3	0.1741		
4	0.1163		
5	0.0815		
6	0.0659		
7	0.0386		
8	0.0288		
9	0.0214		
10	0.0155		
11	0.0117		
12	0.0065		
13	0		
14	0		
15	0.0132		
16	-0.009		
17	0.0024		
18	0		
19	0.0216		
20	-0.0405		
21	0.0082		
22	0.0054		
23	0.0099		
24	-0.0039		

UI	b(n)
1	0.594
2	0.200
3	0.144
4	0.092
5	0.060
6	0.051
7	0.017
8	0.036
9	-0.006
10	-0.001
11	0.028
12	0.005
16	-0.013
17	-0.001
18	-0.007
19	0.018
20	-0.043
21	0.017
22	0.006
23	-0.005
24	-0.010



Results are a little different with today's COM: stronger 2nd tap is allowed

IEEE P802.3ck

September 2019

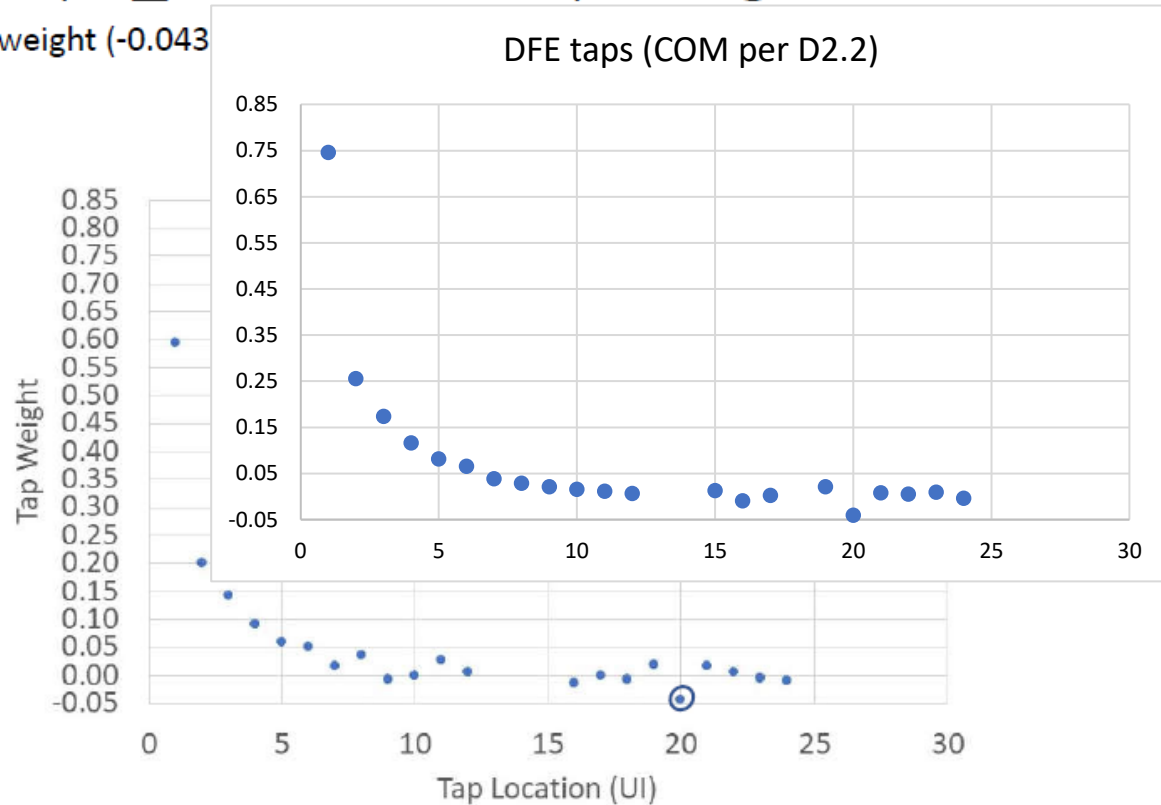
10

Bch2_b2p5_7 from heck 01 0919

Tap Weights: Bch2_b2p5_7 with 31mm package

This channel has the WC minimum tap weight (-0.043)

		UI	b(n)
1	0.7462	1	0.594
2	0.2557	2	0.200
3	0.1741	3	0.144
4	0.1163	4	0.092
5	0.0815	5	0.060
6	0.0659	6	0.051
7	0.0386	7	0.017
8	0.0288	8	0.036
9	0.0214	9	-0.006
10	0.0155	10	-0.001
11	0.0117	11	0.028
12	0.0065	12	0.005
13	0	16	-0.013
14	0	17	-0.001
15	0.0132	18	-0.007
16	-0.009	19	0.018
17	0.0024	20	-0.043
18	0	21	0.017
19	0.0216	22	0.006
20	-0.0405	23	-0.005
21	0.0082	24	-0.010
22	0.0054		
23	0.0099		
24	-0.0039		



Results are a little different with today's COM: stronger 2nd tap is allowed

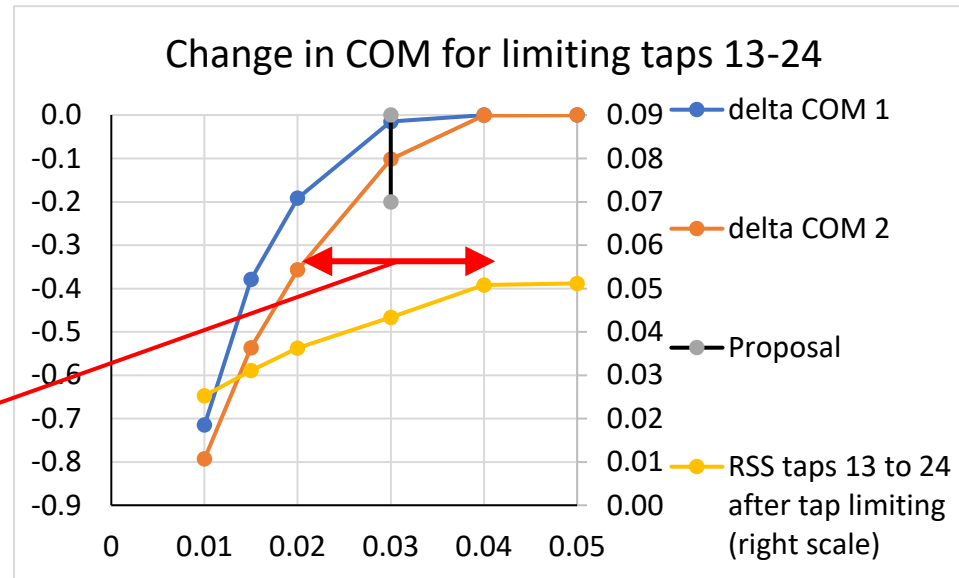
IEEE P802.3ck

September 2019

10

Tap limit should be tighter than unconstrained taps observed

•



Spec allows *channel* to have one tap more than 0.02 beyond reference Rx tap limit

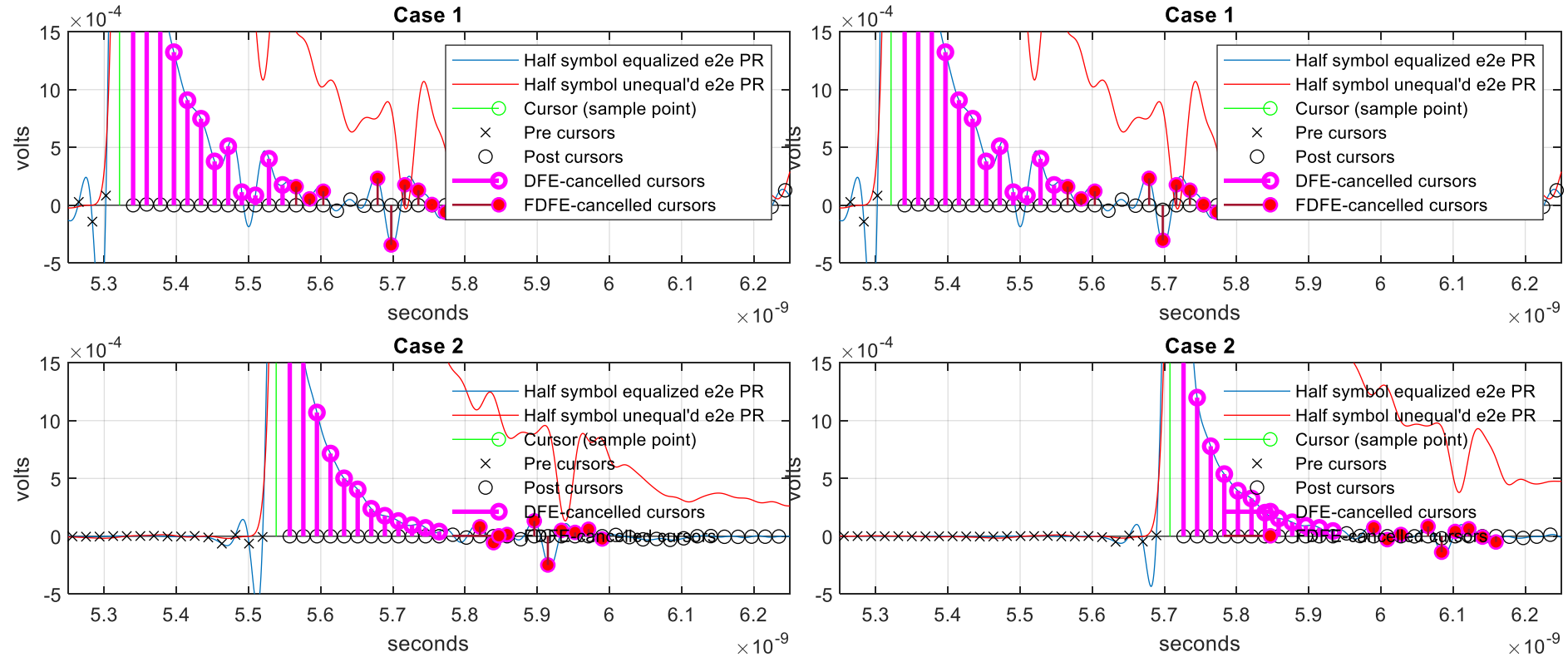
This channel -0.0405, could pass easily with -0.06

For limits of 0.02 to 0.01, one then two +ve taps respectively were truncated too, so the roll-off for -ve tap limit as proposed would be a little less than shown

- We should: tighten bbmin(13-24) to reduce COM slightly, at -0.03
- Or: set it tighter to reduce COM for worst reference channel to 3 dB
- Or: align -ve limit for taps 13 to 40 to limit for taps 3 to 12, at -0.03

COM diagnostic plots

Case 1: 12mm, 12 mm



Case 2: 29 mm, 31 mm

Case 2: 43 mm, 45 mm
for information

COM was a healthy 3.73
dB with tap limit -0.03