TDECQ/TECQ/SECQ Coefficients

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TDECQ/TECQ/SECQ Reference Receiver – FFE Coefficients

- In 802.3dj Draft 1.1 FFE coefficients were updated for 500m PMD types, except for the first pre-cursor and post-cursor min
  - Values were proposed (-0.4) but rejected

- Here new/reduced values are proposed (-0.5) and compared against an expanded data set.

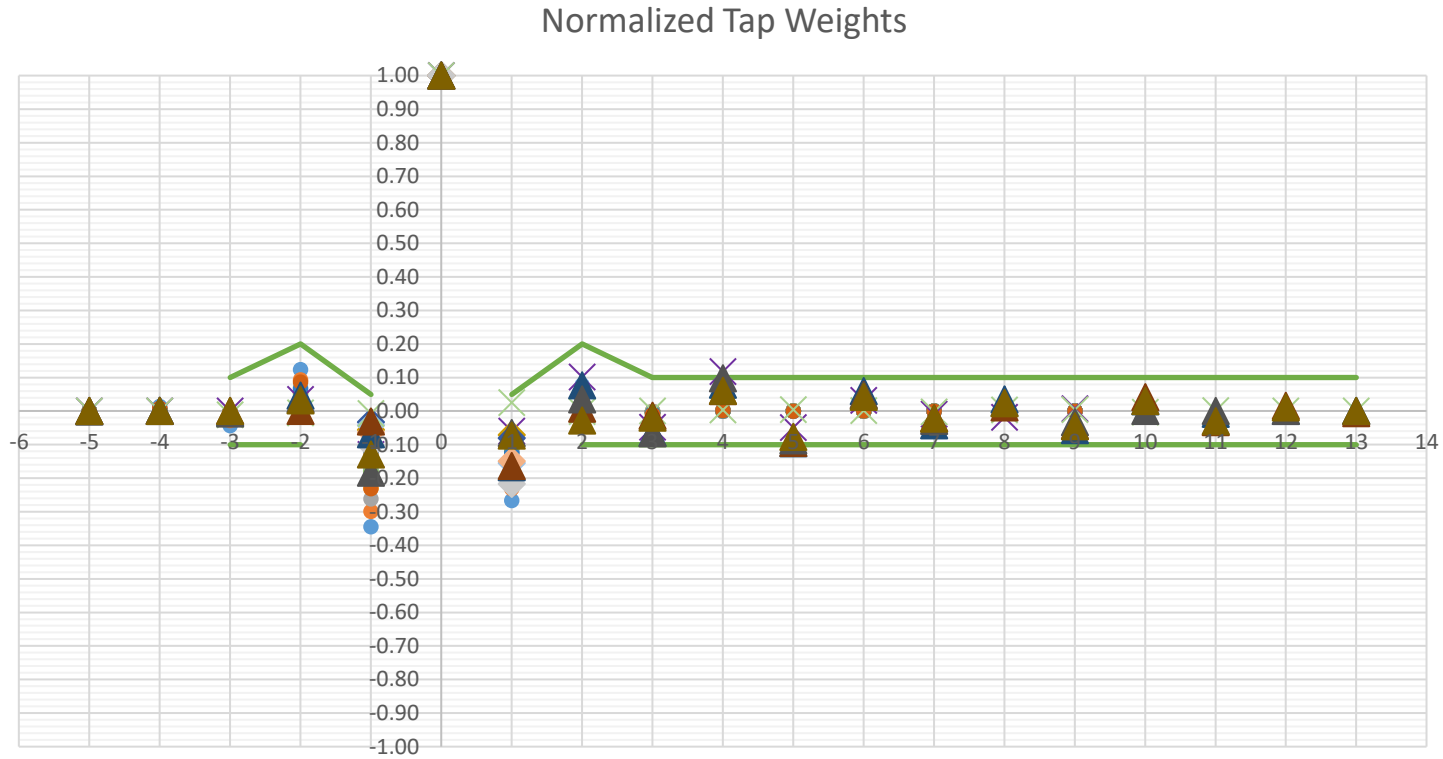
- It is also proposed that these coefficient specs be applied to the 2km standards

TDECQ/TECQ/SECQ Reference Receiver – FFE Coefficients - Current

	Symbol	Min	Max	Units
Feedforward equalizer (FFE) length	N_b		15	UI
Maximum FFE pre-cursors			3	UI
Maximum FFE post-cursors			13	UI
FFE main tap coefficient limit		0.9	2.5	-
Normalized FFE coefficient limits[a] *n* = -3 *n* = -2 *n* = -1 *n* = 1 *n* = 2 *n* ≥ 3	bb(n)	 -0.1 -0.1 TBD TBD -0.1 -0.1	 0.1 0.2 0.05 0.05 0.2 0.1	-
Equalizer Gain[b]		1	1	-

a Measured relative to the main tap

b The sum of FFE Coefficients must equal one

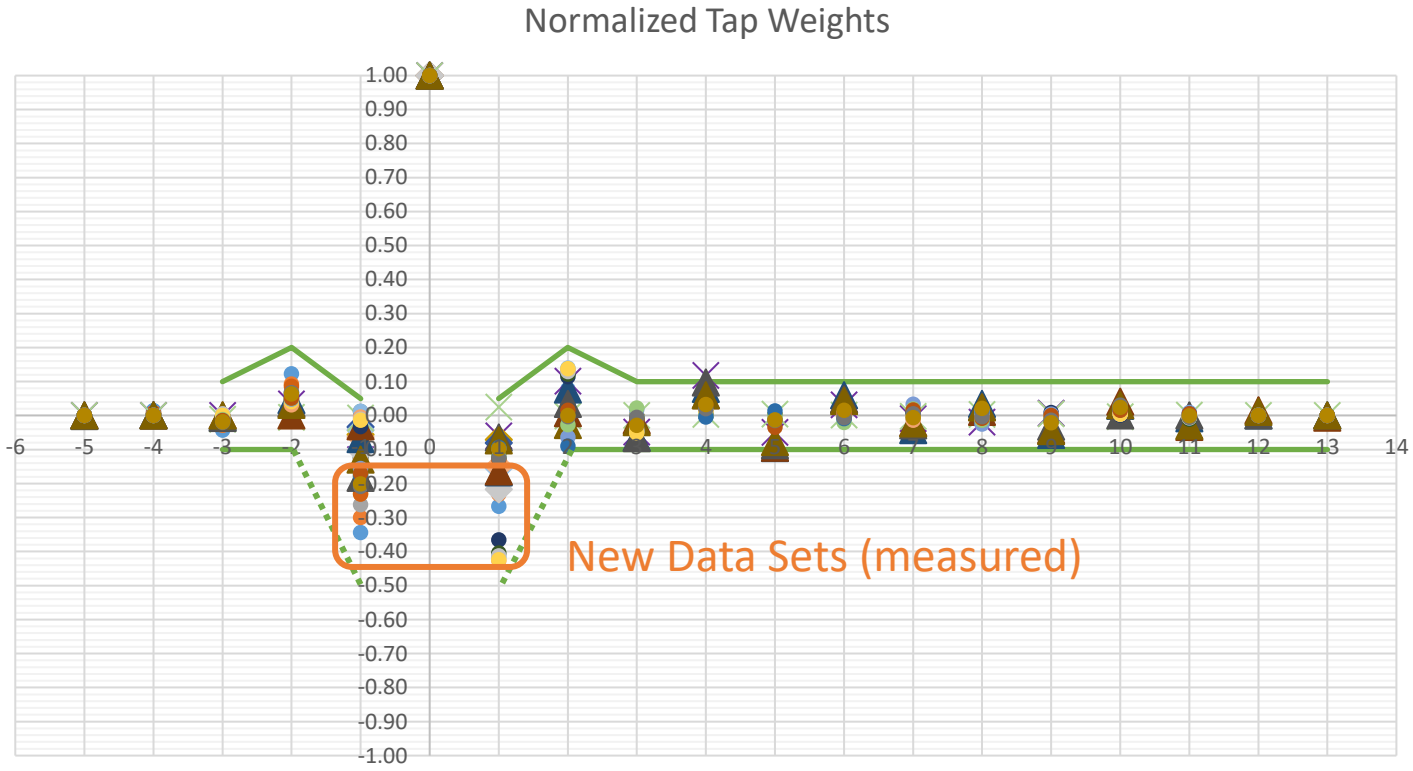


TDECQ/TECQ/SECQ Reference Receiver – FFE Coefficients - Proposed

	Symbol	Min	Max	Units
Feedforward equalizer (FFE) length	N_b		15	UI
Maximum FFE pre-cursors			3	UI
Maximum FFE post-cursors			13	UI
FFE main tap coefficient limit		0.9	2.5	-
Normalized FFE coefficient limits[a] *n* = -3 *n* = -2 *n* = -1 *n* = 1 *n* = 2 *n* ≥ 3	bb(n)	 -0.1 -0.1 **-0.5** **-0.5** -0.1 -0.1	 0.1 0.2 0.05 0.05 0.2 0.1	-
Equalizer Gain[b]		1	1	-

a Measured relative to the main tap

b The sum of FFE Coefficients must equal one



Note: Wavelength and dispersion characteristics unknown for measured results

Discussion

- Reminder: Equalizer limits will not disqualify transmitters that exceed them, it simply sets the limit of the equalizer used in TDECQ testing.
  - Unless a transmitter is at/near the max TDECQ limit, minor excursions beyond a limit unlikely to be noticed.

- It is recognized that ghiasi_3dj_02a_2407.pdf was suggesting a pre/post-cursor min limit of -0.6, however that was measured without normalization to the main cursor
  - The minimum main cursor value for that data set (page 11) was > 1.2, suggesting a normalized pre/post-cursor min limit of -0.5 is appropriate.

- It has also been proposed in mi_3dj_01b_2407.pdf and ghiasi_3dj_02a_2407.pdf to have the same specs for 500m and 2km standards, a proposal which is repeated here.

End