PAM4 overshoot mask - Limiting TX's overstress of RX dynamic range

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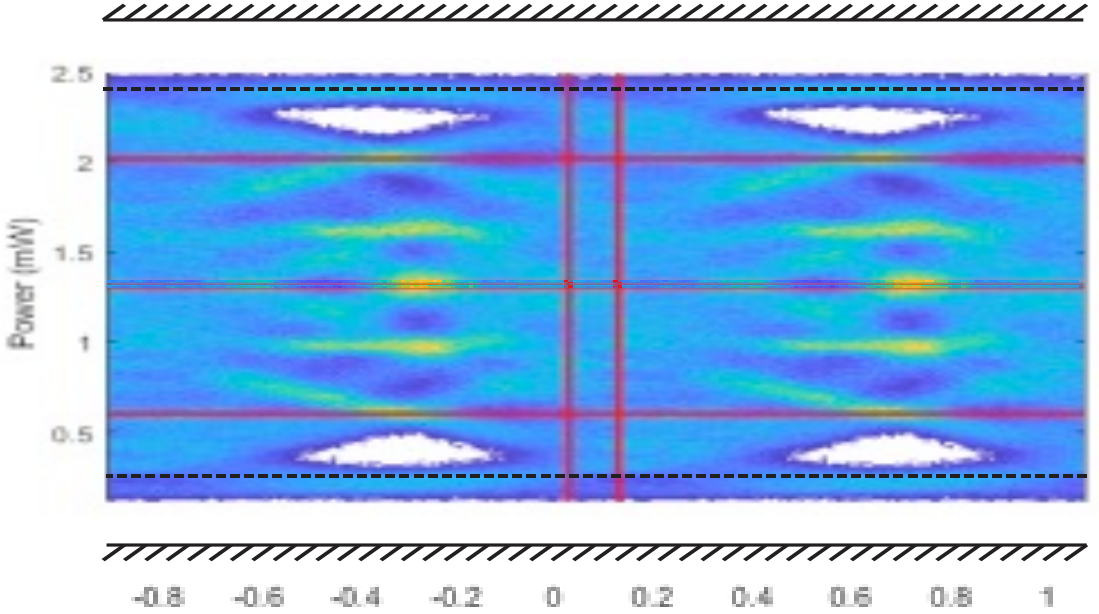
2018/07, 802.3cd Draft 3.4 TDECQ-Ceq limit

- D3.4 includes an addition of a limit to (TDECQ – 10log10(Ceq)) (e.g. to 4.5 dB). This in effect limits the over peaking of the transmitter.
- There's a discussion if this limit could be expressed in another way, for example as a mask (see on the right):
- Here's are some points with regards to this proposal



Overshoot / Undershoot limits on TX

HERE ARE THE PROPOSED FEATURES OF A LIMIT MASK OR MEASUREMENT

- The limits should be prior to TDECQ / SECQ equalizer
- The limit should be relative to OMA_{outer}
- There is no need for a mask; simple scalar for over / under is sufficitent (since the mask has no shape other than a line parallel to time axis)
- The oscilloscope noise should be excluded from the measurement, for example by allowing a measurement of an averaged pattern.
- It is less obvious that the DUT noise should also be excluded; TBD
- The measurement should be done with positive dispersion, negative dispersion, and back to back

Summary

- A limit on the TX overshoot / undershoot was discussed
- Some amount of due diligence is still needed for a workable proposal