

3db D3.1 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force 1st Sponsor recirculation ballc

Cl 167 SC 167.8.6 P60 L33 # R1-11

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Comment Type TR Comment Status R

Unsatisfied D3.0 comment I-36 points out that the draft spec does not adequately screen for bad transmitters.

The high TDECQ limit and lack of a protective K limit allows a transmitter with a BER error floor in the T(D)ECQ receiver as bad as $1e-4$ (before the small additional penalties that aren't included in TDECQ). This is inadequate for a robust link. While a real receiver could improve on this, it is not required to, and even if it does, an error floor problem remains.

In the proposed remedy, a follow-up calculation from the T(D)ECQ measurement checks that a reference receiver with 1 dB better sensitivity than nominal will have a BER better than $1.5e-4$, and the error floor is below $5.6e-5$. These are still very weak numbers, and the additional penalties will make things a little worse when they occur. For reference, the target BER is $2.4e-4$, the target SER of $4.8e-4$, and $-4.4 \text{ dBm} -1 \text{ dB} /6 /Qt = 0.0141 \text{ mW}$

It is very easy to pass this spec by avoiding the combination of minimum OMA-T(D)ECQ and very high K. SR TECQ is expected to do this automatically.

SuggestedRemedy

Require that for the optimized T(D)ECQ tap weights, with R (the noise that could be added by a receiver) set at 0.0141 mW RMS, the larger of SER_L and SER_R is lower than $3e-4$. Apply to both TDECQ and TECQ, to both VR and SR.

Response Response Status U

REJECT.

50G and 100G PAM4 optical links have defined a link penalty, TDECQ, to measure the ability to make an error free link (pre-FEC BER < $2.4E-4$). This comment requests adding another link test (OMA - TDECQ) for the situation where receiver sensitivity is better than worst case.

The problem addressed by the comment has not been demonstrated. There was no support for the proposed remedy.

Adding an additional link test requires (a) supporting experimental measurements, and (b) a more extensive investigation.