6G SAS
RX Tolerance, Reference RX & Reference TX

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Modify note k to something like:

“For 6 Gbps, TJ is measured at the reference RX output, then disconnected and connected to the RX under test”
Open Issues

• Add CDR function to Reference RX?
• Which impairments (and how much) to include in jitter tolerance?
  - Bounded uncorrelated jitter (BUJ)
    • DJ = BUJ + ISI from ref. channel
  - NEXT & FEXT
  - Sinusoidal jitter (SJ)
  - Req’d RX (post-EQ) eye opening vs. TX amplitude
Jitter Taxonomy

- Unbounded Jitter (identical to RJ)
- Bounded Jitter
  - Bounded Uncorrelated Jitter (BUJ) (this by definition includes periodic jitter (PJ))
  - Bounded Correlated Jitter (this includes ISI (=DDJ) and DCD)
Req’d RX (post-EQ) Eye Opening

• Eye virtually closed by present impairments (but see following slide)
  - With RJ=DJ=0.10 UI, eye opens as shown →
    - Note vertical opening ~1/3rd of typical spec
• Need for voltage amplitude to provide RX noise margin
Eye Penalty: 8B10B vs. Random

For 10m cable, skin effect causes rapid change in attenuation at low frequencies. This causes significant eye closure for data with long run lengths.
Proposals & Interpretations

- DJ (including SJ) added at TX is BUJ
- Effect of NEXT & FEXT included in BUJ
- TJ at ref RX output is “noncompensable jitter”
- Increase VMA of ref TX to 800 mVppd to provide more than trivial vertical eye opening at ref RX output
- Need to wait for rev 5 Stateye (with 8B10B) to close budget on Reference TX & RX parameters