Text for comment responses:
Corrected link to VCSEL results
Additional PAM4 transmitter constraints
SRS test source rise time and RIN

IEEE P802.3cd interim, Pittsburgh

Optics break out sub-group, 23rd May 2018

VCSEL results

- Link to VCSEL results should be:
http://www.ieee802.org/3/cd/public/adhoc/archive/chang_011018_3cd_01_adhoc-v2.pdf

Changes needed to introduce transition time spec

For 138, 139, 140

- Add sub-clause for definition of transmitter transition time (text next slide)
- Add rows:
  - transition time max 34 ps to transmit characteristics table 138-8
  - transition time max 34 ps to table 139-6
  - transition time max 17 ps to table 140-6
- Add row for PAM4 square wave test pattern in table 138-11
- Add PAM4 square wave test pattern for transmitter transition time in table 138-12, 139-10, 140-10

transition time definition for 802.3cd

- New sub-clause in 138, 139 140; example for 138.8.6:

138.8.7 Transmitter transition time

The transmitter transition time of each lane shall be within the limits given in Table 138–8 if measured using the test pattern specified for transmitter transition time in Table 138–12.

Transmitter transition time is defined as the slower of the time interval of the transition from 20% of OMA<s>outer</s> to 80% of OMA<s>outer</s>, or from 80% of OMA<s>outer</s> to 20% of OMA<s>outer</s>, for the rising and falling edges respectively, as measured through an optical to electrical converter (O/E) and oscilloscope with a combined frequency response of a fourth-order Bessel-Thomson filter response with a bandwidth of approximately 13.28125 GHz. Compensation may be made for any deviation from an ideal fourth-order Bessel-Thomson response.

The 0% level and the 100% level are P<s>0</s> and P<s>3</s> as defined by the OMA<s>outer</s> measurement procedure (138.8.4), with the exception that the square wave test pattern is used.

Changes needed to introduce noise limit for SRS test source (1)

- In Table 138-8, add row: RIN12OMA max   -128 dB/Hz

- Add subclause to 138 to define RIN12OMA

- Add test pattern for RIN12OMA to clause 138, Table 138-12

- Add an exception to Stressed Receiver Sensitivity sub-clause 138.8.8
  - With the Gaussian noise generator on and the sinusoidal jitter and sinusoidal interferer turned off, the RIN12OMA max of the SRS test source should be no greater than the RIN12OMA specified for the transmit characteristics in Table 138-8.

- Modify existing exception to read
  - The SECQ of the stressed receiver conformance test signal is measured according to 138.8.5, except that the combination of the O/E and the oscilloscope has a fourth-order Bessel-Thomson filter response with a bandwidth of approximately 13.28125 GHz, the optical splitter and variable reflector shown in Figure 121–4 are not used, and the transition time is no greater than the value specified in Table 138-8.

Changes needed to introduce noise limit for SRS test source (2)

- Modify the existing exception in Stressed Receiver Sensitivity sub-clause 139.7.9.2 to read:
  - The SECQ of the stressed receiver conformance test signal is measured according to 139.7.5, except that the test fiber is not used, and the transition time is no greater than the value specified in Table 139-6.

- Add an exception to Stressed Receiver Sensitivity sub-clause 139.7.9.2
  - With the Gaussian noise generator on and the sinusoidal jitter and sinusoidal interferer turned off, the RIN17.1OMA and RIN15.6OMA of the SRS test source for 50GBASE-FR and 50GBASE-LR, respectively, should be no greater than the values specified in Table 139-6.

Changes needed to introduce noise limit for SRS test source (3)

- Modify the existing exception in Stressed Receiver Sensitivity sub-clause 140.7.9 to read:
  - The SECQ of the stressed receiver conformance test signal is measured according to 140.7.5, except that the test fiber is not used, and the transition time is no greater than the value specified in Table 140-6.

- Add an exception to Stressed Receiver Sensitivity sub-clause 140.7.9
  - With the Gaussian noise generator on and the sinusoidal jitter and sinusoidal interferer turned off, the RIN15.5OMA of the SRS test source should be no greater than the value specified in Table 140-6.