CAUI-4 Ad hoc

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Agenda

- Patent Policy: This meeting is an official IEEE ad hoc. Please review the patent policy at the following site prior to the meeting. http://www.ieee802.org/3/patent.html
- Review proposed responses to D3.1
- Next meeting: TBD

TRs & ERs

- r01-24: Dudek, Michael Subclause: 83D.3.1
- Comment:
  - The linear fit method described in 93.8.1.5.1 and 93.8.1.6 uses a transversal equalizer equivalent with Np =14 and Dp=2. This will enable equalization (eg removal from Tx SNDR) of Transmitter distortions that can't be removed by the reference equalizer assumed in the COM code.
- Suggested remedy:
  - Add a footnote to the references 93.8.1.5.2 and 93.8.1.6 in table 83D-1. "The values of the parameters are measured as defined in the referenced subclause except that the values of Np and Nw are 5."
- Proposed response:
  - PROPOSED ACCEPT.
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot. However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance. Make the changes as per the Suggested Remedy.

TRs & ERs

- r01-23: Dudek, Michael Subclause: 83D.3.1.1
- Comment:
  - The requirements in Tables 83D-2 and 83D-3 do not result in a monotonic change in transmitter equalization and it isn't obvious from the wording here that monotonicity is an additional requirement on the transmitter.
- Suggested remedy:
  - Change "Each successive step in Local_eq_cm1 and Local_eq_c1 value results in a monotonic change in transmitter equalization." to "Each successive step in Local_eq_cm1 and Local_eq_c1 value shall result in a monotonic change in transmitter equalization." Add a PICS based on the shall statement.
- Proposed response:
  - PROPOSED ACCEPT.

TRs & ERs

- r01-16: Dudek, Michael Subclause: 83D.3.3.1
- Comment:
  - In Table 83D-5 the maximum Applied sinusoidal jitter is unconstrained. Large amplitude Sinusoidal jitter is generally more stressful than random jitter and having the maximum amount of this type of jitter unconstrained will enable the stressed generator to have significantly more sinusoidal jitter than a compliant transmitter can have. It will also lead to less consistent results from the test
- Suggested remedy:
  - Move the table 88-13 reference from the Min column to the Target column for both Test's 1 and 2.
- Proposed response:
  - PROPOSED ACCEPT. See also comment r01-12

TRs & ERs

- r01-25: Dudek, Michael

Subclause: 83E.3.1.4

- Comment:
  - The draft says the transition times are defined in 86A.5.3.3. However 86A.5.3.3 says that the waveform is observed through a 12GHz low pass filter response, which would negate the intent of the earlier statement "A test system with a fourth-order Bessel-Thomson low-pass response with 33 GHz 3 dB bandwidth is to be used for all output signal measurements, unless otherwise specified." as this does specify a lower bandwidth.
- Suggested remedy:
  - Add to the end of the sentence "with the exception that the observation is though a 33 GHz low pass filter response".
- Proposed response:
  - PROPOSED ACCEPT.
  - (applies to 83E.3.1.5 Transition time)
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
  - However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
  - Make the changes as per the Suggested Remedy.

TRs & ERs

- r01-18: Dudek, Michael — Subclause 83E.3.3.2.1
- Comment:
  - The reference describing pattern 4 has been removed. It is not friendly to the reader to have to search in other sub-clauses to find what this is. There is a convenient sentence close by in the same paragraph where it can be added very easily.
- Suggested remedy:
  - Change "Patterns 3 and 5 are described in Table 86-11." to "Patterns 3,4 and 5 are described in Table 86-11." Make the same change on page 187 line 24.
- Proposed response:
  - PROPOSED ACCEPT.
  - Change
  - Patterns 3 and 5 are described in Table 86-11
  - to
  - Patterns 3, 4 and 5 are described in Table 86-11 in 83E.3.3.2.1 (line 1 on page 184) and 83E.3.4.1.1 (line 25 on page 186)

Highlighted Technical Comments

- r01-34: Petrilla, John

Subclause: 83E.3.1

- Comment:
  - In Table 83E-1 (also 83E-3) there are parameters Eye width and Eye height and references that eventually lead to the method in 83E.4.2. Here terms EW6 & EW15 and EH6 & EH15 are defined and used. Unfortunately there's no explicit mapping between Eye width and Eye height in the tables and EW6 & EW15 and EH6 & EH15 in 83E.4.2 and the term "eye width" is used with both terms EW6 and EW15. It would be helpful to the reader, if the mapping were explicit.
- Suggested remedy:
  - Change Eq 83E-7 from "EW15 = EW6 - 3.19 x (RJR + RJL)" to "Eye width = EW15 = EW6 - 3.19 x (RJR + RJL)" and Change Eq 83E-8 from "EH15 = EH6 - 3.19 x (RN0 + RN1)" to "Eye height = EH15 = EH6 - 3.19 x (RN0 + RN1)"
- Proposed response:
  - PROPOSED REJECT.
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
  - The connection between the term eye height and EW15 is made via the text "The eye width is then given by Equation (83E-7)". Similarly for eye height.

Highlighted Technical Comments

- r01-52: Dawe, Piers J G

Subclause: 83E.3.1.2

- Comment:
  - If we are going to touch 83E.3.1.2 it would be good to clean up the confusion between voltage and peak voltage. At present, according to 83E.3.1.2, AC common-mode voltage is 0 by definition.
- Suggested remedy:
  - Change "The peak-to-peak differential voltage vdi is defined to be SLi<p> minus SLi<n>." to "The peak-to-peak differential voltage vdi is defined to be the maximum of SLi<p> minus the minimum of SLi<n>."
- Proposed response:
  - PROPOSED REJECT.
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
  - The peak-to-peak differential voltage text is consistent with the definition in other clauses (93.8.1.3)

Highlighted Technical Comments

- r01-54: Dawe, Piers J G — Subclause 83E.3.1.2
- Comment:
  - Sentences duplicate Table 83E-1: "The peak-to-peak differential output voltage is less than or equal to 900 mV. The peak-to-peak differential output voltage is less than or equal to 35 mV when the transmitter is disabled."
- Suggested remedy:
  - Delete the sentences, or change to "The maximum limits for peak-to-peak differential output voltage when the transmitter is enabled and disabled are given in Table 83E-1.".
- Proposed response:
  - PROPOSED REJECT.
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
  - Text is not technically incorrect

Highlighted Editorial Comment

- r01-21: Dudek, Michael

Subclause: 83E.3.1.6

- Comment:
  - This section is describing the host output eye width and eye height so it is strange to have the "recommended CTLE peaking value" as "also" used for host output eye measurement.
- Suggested remedy:
  - Change "The recommended CTLE peaking value (which is also used for host output eye measurements) is provided to the module via the variable Recommended_CTLE_value." to "The recommended CTLE peaking value is used for host output eye measurements. In addition it is provided to the module via the variable Recommended_CTLE_value. "
- Proposed response:
  - PROPOSED ACCEPT IN PRINCIPLE.
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
  - However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
  - Change:
  - The recommended CTLE peaking value (which is also used for host output eye measurements) is provided
  - to the module via the variable Recommended_CTLE_value. If a Clause 45 MDIO is implemented, this variable
  - is accessible through register 1.169 (see 45.2.1.92a).
  - to
  - "The recommended CTLE peaking value is used for host output eye measurements. In addition it is provided to the module via the variable Recommended_CTLE_value. "
  - If a Clause 45 MDIO is implemented, this variable is accessible in the module through register 1.169 (see 45.2.1.92a).“
  - Also see comment r01-13

Highlighted Technical Comments

- r01-13: RAN, ADEE

Subclause 83E.3.1.6

- Comment:
  - The way the variable Recommended_CTLE_value is described here is confusing; it is not clear which sublayer or entity this variable belongs to. In the context of host output eye measurement, it seems to belong to the "host" side of the C2M link, since there is no module in this test. But in the context of the Module stressed input test (83E.3.4.1.1), it seems to exist in the module, since there is no host in that test. But there is only one variable, and it is not described how its value is shared between the chip to the module.
  - This question is also relevant for MDIO addressing. Consider two cases: a) both chip and module implement MDIO; b) the chip implements MDIO while the module does not. In case a, register 1.169 in the module affects the module receiver, while at the chip side, this address has no effect; in the second case, one could expect that writing the register at the chip side would somehow relay the information to the module (based on the current text in 83E.3.1.6 which mentions this register).
  - It is more reasonable to define the variable as belonging to the receiver in the module. The host output eye definition should be rephrased to avoid confusion - especially, remove the reference to the MDIO register, which is irrelevant in this case.
- Suggested remedy:
  - Change
  - "The recommended CTLE peaking value (which is also used for host output eye measurements) is provided to the module via the variable Recommended_CTLE_value. If a Clause 45 MDIO is implemented, this variable is accessible through register 1.169 (see 45.2.1.92a)."
  - to
  - "The reference CTLE setting used for the host output eye measurements is the same setting which the host provides to the module via the variable Recommended_CTLE_value. If a Clause 45 MDIO is implemented, this variable is accessible through register 1.169 (see 45.2.1.92a)." "
- Proposed response:
  - PROPOSED ACCEPT IN PRINCIPLE.
  - See comment r01-21

Highlighted Technical Comments

- r01-60: Dawe, Piers J G
- Comment:
  - The 19 ps crosstalk generators here (emulating a host) should be the same as the ones in 83E.3.2.1 which are calibrated at 900 mV with an unstated pattern, presumably PRBS31 or equivalent. Yet here they are calibrated at 900 mV with PRBS9, which will make the signal a few percent bigger when the pattern is changed for the stressed input test. The bigger signal will be beyond the 900 mV limit for the module input, and the two different amplitudes will be a nuisance for labs testing both hosts and modules.
  - There is a similar problem in the other direction.
- Suggested remedy:
  - Change 900 to 870, here and in 83E.3.4.2.1.
- Proposed response:
  - PROPOSED ACCEPT IN PRINCIPLE.
  - (applies to 83E.3.3.2.1 and 83E.3.4.1.1 in clean version)
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
  - In 83E.3.3.2.1 and 83E.3.4.1.
  - Change:
  - The crosstalk signal is calibrated with Pattern 4. The pattern is changed to Pattern 5 (with or
  - without FEC encoding), Pattern 3 or a valid 100GBASE-R signal for the stressed input test.
  - to:
  - The crosstalk signal transition time is calibrated with Pattern 4. The pattern is changed to Pattern 5 (with or without FEC encoding), Pattern 3 or a valid 100GBASE-R signal for amplitude calibration and the stressed input test

Subclause 83E.3.3.2.1

Highlighted Technical Comments

- r01-62: Dawe, Piers J G

Subclause: 83E.3.4.1.1

- Comment:
  - Is this target transition time of 19 ps at TP4 correct?.
- Suggested remedy:
  - Should it be 12 ps as in 83E.3.1.6?.
- Proposed response:
  - PROPOSED ACCEPT IN PRINCIPLE.
  - Change in 83E.3.4.1.1
  - The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with target amplitude of 900 mV peak-to-peak differential and 20% to 80% target transition time of 19 ps as measured at TP4.
  - to
  - The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with target amplitude of 900 mV peak-to-peak differential and 20% to 80% target transition time of 12 ps as measured at TP4.
  - Additional background on the change: Min rise/fall from module is 12ps and for the host output, xtalk generator is calibrated at TP4 with target transition of 12ps

Highlighted Technical Comments

- r01-22: Dudek, Michael — Subclause 83E.3.4
- Comment:
  - As stated in the footnote the DC common mode voltage (min) and (max) are generated by the host not the module. The specification is really the voltage tolerance. We already have this tolerance specified as a single-ended voltage tolerance so these additional specifications are not needed.
- Suggested remedy:
  - Delete the rows "DC common mode voltage (min) and DC common mode voltage (max).
- Proposed response:
  - PROPOSED REJECT.
  - This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
  - During the implementation of Table 83E-7 some committee members felt that specifying both single-ended voltage tolerance and DC common mode voltage was desirable.