MMF Ad Hoc meeting minutes

15th Aug 2013

Approved minutes

recorded by jonathan king

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- **Meeting started** at 9 am Pacific, chaired by Jonathan King.
- **Attendee list** was taken from the Webex attendee list, ~15 attendees were noted.
- **Presentations** shared in the MMF ad hoc can be found at the MMF ad hoc web page.
  - *http://www.ieee802.org/3/bm/public/mmfadhoc/meetings/index.html*
- **IEEE patent policy:** Attendees were reminded of the IEEE patent policy
  - *http://www.ieee802.org/3/patent.html*
- **Agenda slides were agreed**, no other topics were raised.
- **Meeting minutes for 1st August**: When asked, no objections were made to approving the 1st August meeting minutes, so they are approved by the MMF ad hoc.
- **Presentation 1:** 100GBASE-SR4 TDP update – John Petrilla, showing the method used to generate the TDP value for clause 95, with detailed notes on the ref_Tx and ref_Rx parameters and how those interact.
- **Discussion:** The group reviewed John's slides. In the definition of TDP in Clause 95, the ref_Rx has a bandwidth of 12.6 GHz which adds stress equivalent to 100 m OM4, including worst case chromatic dispersion. A practical ref_Tx with rise-fall times of 12 ps, combined with the 12.6 GHz ref_Rx, results in significant ISI penalty, consequently the reference sensitivity measurement is higher than for a similar Rx with 0.75 x bitrate bandwidth. It was agreed this should be compensated for. Several options were discussed:

  1) Use a 0.75 x bitrate receiver for the reference sensitivity measurement with the ref_Tx.
  – Effectively two different receivers are used for the ref_Tx and DUT_Tx sensitivity measurements, which has several practical difficulties. No-one favored this option.
  2) Add a compensation factor X dB to the TDP value.
  3) Add an additional line item into the allocation for penalties which accounts for the X dB.

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- **Discussion continued:** Of the other two options, option 2 was favored because it results in a TDP value which matches most closely the expected sensitivity penalty due to a worst case Tx and link combination. Draft text which will describe how to derive the compensation value was started (see next slide); this needs further work.

- **Meeting ended** at 10.49 am.
- **Actions and issues requiring resolution:**
  - Jonathan will propose some text for review next meeting, to describe how compensation for the effect of the 12.6 GHz ref_Rx can be compensated for in the reference sensitivity measurement used in the TDP test.

- **Next meetings:** 22nd August 2013, 9am to 10.30am

Draft text for 'Option 2' so far
TDP reference sensitivity correction factor

- In section 95.8.5 modify item 'g' to become:

"The reference sensitivity S and the measurement P_DUT are both measured with the sampling instant displaced from the eye center by ± 0.11 UI. Because the reference sensitivity is measured using the same reference receiver as the P_DUT measurement, a correction factor X dB is required to calculate TDP. For each of the two cases (early and late), if P_DUT(i) is larger than (S(i)-X), the TDP(i) for the transmitter under test is the difference between P_DUT(i) and (S(i)-X), TDP(i) = P_DUT(i) – S(i) + X . Otherwise, TDP(i) = 0. The TDP is the larger of the two TDP(i)."

- *Editors notes:*
  - *a) X=Y + ref Tx VEC at ± 0.11 UI from the middle of eye, in 19.3 GHz Bw Rx.*
  - *b) Y is ~ 0.7 dB, and is the approximate difference between the VEC at +/-0.11 UI with a 19.3 GHz bandwidth Rx and the VEC at +/-0.11 UI with a 12.6 GHz bandwidth Rx. Y is calculable using the spreadsheet model.*
  - *c) Add text to item 'd' to describe the measurement of VEC of the ref_Tx at +/0.11 UI into a 19.3 GHz bandwidth eye measurement system.*

  The draft text needs further work to address the notes and needs further review by the MMF ad hoc.

Attendees

Pete Anslow, Ciena
Dave Brown, Semtech
Jose Castro, Draka
Dave Chalupsky,
Piers Dawe, Mellanox
Dan Dove, APM
Mike Dudek, Qlogic
Galen Fromm, Cray
Ali Ghiasi, Broadcom
Jonathan King, Finisar
Greg LeCheminant, Agilent
John Petrilla, Avago Technologies
Rick Rabinovich, Alcatel-Lucent
Mike Ressl, Hitachi Cable
Mike Sluyski, Intel
Brian Teipen, Adva Optical
Pirooz Tooyserkani, Cisco
Nathan Tracy, TE
Paul Vanderlaan, Berk-Tek