

# MMF Ad Hoc meeting minutes

15<sup>th</sup> May 2014

Approved minutes  
recorded by jonathan king

# MMF ad hoc meeting minutes, 15<sup>th</sup> May. 2014

- **Meeting started** at 1 pm Eastern, chaired by Jonathan King.
- **Attendee list** was taken from the sign in sheet, 26 attendees were noted.
- **Presentations** shared in the MMF ad hocs 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>
- **House keeping:** The agenda was approved.
- **Presentations:**
  - Improved 100GBASE-SR4 Transmitter testing – Piers Dawe
  - 100GBASE-SR4 TxVEC update – John Petrilla
- **Discussion:**
  - Piers reviewed previous work on a proposal for an improved TxVEC test which could use a ‘scope based histogram measurement at +/-0.11UI (like TxVEC) but with a restricted bandwidth (as would be used for TDP testing). Piers outlined methods which would allow scope noise, MPN, MN and a ‘software’ reference Rx to be accounted for, to allow calculation of a TDP like value.
  - John Petrilla reviewed his earlier work, and shared a new analysis of measurements which showed TxVEC for Gaussian-like transmitters was a close match to measured link margin.

The MMF ad hoc Chair summarized the key features of both Tx test proposals, and facilitated the review and editing by the MMF ad hoc of a working slide to capture the path forward to resolve the transmitter test issue. The resulting slide is included in these minutes, and was approved by the MMF ad hoc by voice. Jonathan agreed to produce a draft FrameMaker version of Cl.95 with TDP replaced by TxVEC for review in the next MMF ad hoc.
- **Meeting ended** at 3.15 pm.
- **Next meeting:** Thursday June 5<sup>th</sup>, 2014 , (via Webex and teleconference)

# Summary of the two Tx test proposals

- “TxVEC” – Tx eye opening measurement based on histograms measured on an oscilloscope with an O:E bandwidth of 0.75 x bit-rate.
- “Improved TxVEC” – Tx eye opening measurement based on histograms measured on an oscilloscope with **lower** O:E bandwidth
  - O:E bandwidth includes allowance for worst case fiber effects
- and convolution of simulated Gaussian noise with the measured data
  - to calculate an equivalent of the combined transmitter and dispersion penalty.

# TxVEC path forward

- Make the VEC test in an O:E bandwidth which includes the effects of the fiber and reference Rx.
  - Will be lower bandwidth than the standard O:E for 25Gb/s lanes.
  - Expect better alignment of measurements with performance for eye shapes that are not symmetrical or formed by Gaussian signals
    - therefore less margin left on the table or rejection of acceptable devices.
  - Optimize “all but” ratio for histograms.
  - Review correlation between “all but” ratio and SRS set-up and calibration
- John Petrilla has agreed to prepare text for a proposed solution with a comment on draft 3.0 which describes the change in measurement bandwidth.
- If post-processing of measurements is shown to yield additional net benefits and can be defined in a timely fashion then these upgrades could be included in the draft.
- The MMF ad hoc should continue to review the recommended Tx quality metric.

# Attendees

John Abbott, Corning

Pete Anslow, Ciena

Brad Booth, Microsoft

Piers Dawe, Mellanox

Dan Dove, Dove Networking  
Solutions/Huawei

Mike Dudek, Qlogic

Jonathan King, Finisar

Paul Kolesar, Commscope

Mike Li, Altera

Jeff Maki, Juniper

Yonatan Malkiman, Mellanox

Jiangwei Man, Huawei

Rich Mellitz, Intel

Tom Palkert, Molex, Luxtera

John Petrilla, Avago Tech

Ram Roa, Oclaro

Salvatore Rotolo, ST Microelectronics

Sam Sambasivan, ATT Labs

Kapil Shrikhande, Dell

Peter Stassar, Huawei

Andre Szczepanek, Inphi

Bharat Tailor, Semtech Corp

Pirooz Tooyserkani, Cisco

Nathan Tracy, TE Connectivity

Ed Ulrichs, Source Photonics

Patrick Vanvickle, Sumitomo

Pavel Zivny, Tektronics