MMF Ad Hoc teleconference minutes

25th October 2012

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- Meeting started at 8:01 am Pacific, chaired by Jonathan King. The attendee list was taken from the Webex attendee list.
- Documentation for the call can be found at the Ad Hoc web page.
  - http://www.ieee802.org/3/bm/public/mmfadhoc/meetings/index.html
- Attendees were reminded of the IEEE patent policy.
  - http://www.ieee802.org/3/patent.html
- Jonathan asked if anyone had any amendments to the unapproved minutes from the 28th Feb, 29th June, 6th July 2012 calls. No one responded, so those minutes are approved by the MMF Ad Hoc.
- Jonathan presented introductory slides describing the proposed goal for the MMF ad hoc to develop baseline proposals for the MMF objectives, and outlining the content of the ideal baseline proposal. The meeting was then open for discussion.
- Discussion points:
  - Correction: It was pointed out that the definition of a separate PMD for the MMF 20m objective was described in the 5 criteria presentation as being conditional on it achieving a significant reduction in 'cost, density, or power'. *The introductory slides for this meeting have been corrected to reflect this.*
  - Combined or separate baseline proposals for the 100m and 20m PMDs ? Several people said it's not yet clear what we will end up defining, particularly for the 20m reach objective, e.g. both reach objectives may be met by one PMD. There was discussion on whether a distinct 20m reach PMD should interoperate with the 100m PMD. Ali Ghiasi said he expected work on both reach objectives to proceed simultaneously. John Petrilla said that he would expect 100m and 20m reach PMDs to share the same VCSEL and receiver/TIA components, so he wouldn't expect them to be intrinsically incompatible; he also pointed out that the task force (and ad hocs) are contribution driven, which will determine whether we have combined or separate baseline presentations. John said he intended first to bring in contributions on the 100m reach PMD using the KR4 FEC, and invited contributions on the 20m reach options. Jonathan said 'me too'.

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- Un-retimed PMD for 20m reach: the possibility of an un-retimed 20m reach PMD which used the KR4 FEC was discussed, and interest expressed by several people; it was agreed that this may allow a significant power reduction, and that more study is needed. It was agreed that an un-retimed interface would need an un-retimed interface spec, along the lines of nPPI.
- Reach without FEC: the possibility of defining a PMD's reach when FEC is disabled was discussed. Pete Anslow thought this was something that could be the subject of a white paper or proprietary work, but didn't belong in the standard; since 802.3bj has mandatory FEC, it would be a non standard way of using the same 100m PMD.
- An agreed available link model: nice to have to allow easy link budget checking, but not a necessity.
- Target BER: John Petrilla said his link modeling has assumed a target post-FEC BER of 10^{-15}, and asked what target error rate should be used in future. A concern was raised that a FEC supported system targeting a corrected BER of 10^{-12} would have an underlying error floor which would be noticeable to end users. Pete Anslow said that the corrected BER vs SNR for a FEC supported link was better (steeper) than a conventional link, so that link margin would lead to much lower BER floors for a FEC supported link than for a conventional link. It was also noted that a FEC supported PMD should be specified at it's uncorrected output BER. Pete suggested we follow the technical discussion in 802.3bj of pre- vs post- FEC error rates for different assumptions of error statistics, and of the importance of frame error ratios vs bit error ratios. It was noted that the task force's current objective is a BER of 10^{-12} .
- Link jitter budget: Petar Pepeljugoski, and several others, noted that link models also need to consider eye opening in the time domain. Petar said he is studying available power budget and reach for various options.
- Actions: Jonathan agreed (at John Petrilla's suggestion) to compile tables to allow easier comparison of various proposals of transmitter and receiver parameter values.

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- Needing resolution/further work:
  - Relationship of BER before and after FEC decoding; decide target uncorrected BER
  - Relationship of frame error ratio to bit error ratio; does this affect 802.3bm?
  - If defined, should the 20m reach PMD be compatible with the 100m PMD ?
  - Contributions addressing the 100m MMF reach objective
  - Contributions addressing options for 20m MMF reach objective, preferably showing significant cost density or power improvements

- Next meeting: Thursday 8th November, 2012, 8am Pacific Standard Time
  Webex meeting details will follow

Attendees

John Abbott, Corning
John D'Ambrosia, Force10Networks
Pete Anslow, Ciena
Ahmet Balcioglu, Hittite
Kasyapa Balemarthy, OFS
Kevin Burt, Samtec
Dave Chalupsky, Intel
Umesh Chandra, Force10Networks
Hsu-Feng Chou, Source Photonics
Greg LeCheminant, Agilent
Piers Dawe, IPtronics
Dan Dove, Applied Micro
Galen Fromm, Cray
Ali Ghiasi, Broadcom
Paul Goldgeier, Color-chip
Mark Gustlin, Xilinx
Hiro Iwadate, SEI
Jack Jewell, independant
Walter Katz, S-Soft
Jonathan King, Finisar
Paul Kolesar, Commscope
Kevin Lefebvre, Eigenlight

Sharon Lutz, US Conec
Jeffery Maki, Juniper
Marco Mazzini, Cisco
Phil McClay, TE
Brian Misek, Avago Technologies
Andy Moorwood, Infinera
Peter Pepeljugoski, IBM
John Petrilla, Avago Technologies
Rick Pimpinella, Panduit
Liang Qiu, Nexans
Rick Rabinovich, Alcatel-Lucent
Mike Ressl, Hitachi Cable
Olaf Sahlen,
Kapil Shrikhande, Dell
Steve Swanson, Corning
Andre Szczepanek, Inphi
Nathan Tracy, Tyco
Ed Ulrichs,
CK Wong, FCI
Hiroki Yanagisawa,
Tawa ,