Unapproved Minutes
IEEE P802.3bq Channel Model Ad Hoc
June 5, 2013
Prepared by Pete Cibula and Brad Booth

Meeting Agenda:

1) Roll call - Record attendance, attendees' names and affiliations
2) Reminder of IEEE patent policy: www.ieee802.org/3/patent.html
3) Approve last meeting minutes (located here)
4) Review ad hoc charter/scope and deliverables for new participants (included for reference in the following two bullets)
   a) Defining a set of channel models for PHY complexity evaluation, including host channel model
   b) Provide early feedback on key parameters to cabling bodies (Can a parameter be improved? Is a relaxation a cost benefit?)
5) Action item updates from the May 17th meeting
   a) Action Item #1: S. Vaden – Update on port numbering information to be provided to the ad hoc with discussion
   b) Action Item #2: M. Grimwood and G. Zimmerman – Update on data collection for MDI and isolation path with discussion
   c) Action Item #3: B. Booth and P. Cibula - Update on data collection on PCB stackup and noise for 10GBASE-T systems with discussion.
   d) Action Item #4: C. DiMinico and W. Larsen – Update on cabling channel MDI-to-MDI efforts.
      i) Chris and Wayne will be scheduling weekly conference calls starting June 7th at 8 AM Pacific Time.
   e) Action Item #5: P. Cibula - Share some of his 10GBASE-T test channel configurations and identify ones he considers irrelevant for 40GBASE-T.
6) Review action items from this meeting
7) Suggestions for future presentations
8) Next steps/future meetings
9) Adjourn

The 2nd meeting of the 802.3bq Channel Modeling Ad Hoc was called to order at 8:05 AM Pacific Time.

1) The agenda was reviewed with those in attendance; no modifications were suggested and the agenda was approved without opposition. The agenda stands approved.

2) Participants were asked to email B. Booth or P. Cibula a note confirming their attendance. The attendance record at the bottom of these minutes is a compilation of email confirmations and an online meeting log.

3) P. Cibula reminded everyone of the patent policy. Those not familiar with it were directed to the URL above.

4) There were no modifications suggested to the minutes of the last meeting and the meeting minutes were approved without opposition. The May 17, 2013 minutes stand approved.

5) P. Cibula briefly reviewed ad hoc charter for new participants. The meeting was then opened to hear action item updates from the May 17th meeting.
   a) Action item #1: S. Vaden shared an update on port numbering conventions ("Port designations") that follow ANSI/TIA 1183 August 2012. Discussion of the contribution included (1) mapping these TIA 1183 conventions into the Touchstone (or SnP) 16-port network parameter data file format that was proposed for the PHY-to-PHY channel model, considerations of associating ports with individual conductors vs. pairs, considerations for modeling and measuring shielded cabling systems, and relationships between models and measurement systems. The latter topic results in a general AR for the ad hoc to converge on measurement parameters and configurations that are "model friendly".
      i) **Action item (all): Converge on measurement bandwidth and bandwidth steps for modeling and future measurements.**
   b) Action Item #2: M. Grimwood and G. Zimmerman reported that the MDI and isolation path sub-team had nothing to share at this time, but that initial data is still being gathered. Information has been solicited from several magnetics suppliers, but a mechanism to coordinate/consolidate and transfer that information is needed. An invitation was extended to members of the magnetics community to participate in developing contributions over the next few weeks.
   c) Action Item #3: B. Booth and P. Cibula also reported that the PCB stackup and noise had no feedback at this time but were gathering data from their internal signal integrity and design teams.
      i) **Action item: (MDI and isolation path and PCB stackup and noise sub-teams): Present data collected to this point at the next (or subsequent) Channel Modeling ad hoc meeting.**
   d) Action Item #4: C. DiMinico and W. Larsen facilitated several updates from the MDI-to-MDI cable channel sub-team.
      i) The general ad-hoc was reminded that the Cable Channel sub-team set up a call scheduled to occur on Friday, June 7th
      ii) P. Kish shared a contribution on channel return loss modeling ("Channel Return Loss Modeling Results – IEEE 802.3bq ad hoc"). The contribution included definitions of MathCad model parameters related to cable asymptotic impedance (Zcbl), Patch cord asymptotic impedance (Zcrd) and definitions of cable transmission line constants. These parameters and definitions were then used to model several channel topologies that were discussed in the previous ad hoc meeting, with the added feature of randomly varying the characteristic impedance of various sections that make up the cable model about the center value. The results affirmed the general understanding that the cable topology and configurations are reflected in the modeled cable channel return loss, and also suggest some opportunity to relax some proposed cable return loss specifications.
      iii) S. Vaden shared a presentation on Cabling channel models developed in ANSOFT that described the return loss and insertion loss of several similar channel configurations modeled using ANSOFT. The results, which also included several "what if" channel configuration scenarios modeled against the TIA Category 8 draft limits, were observed to be in general agreement with the MathCad-based results.
      iv) W. Larsen then reviewed his contribution on Return Loss Modeling, again using several of the topologies under discussion. It was noted that the longer channel models all pass based on the TIA component requirements and ISO class II limits, but that short channels may be problematic. The contribution included a consideration of insertion loss deviation (ILD), that modeling suggests is relatively length independent, which led to some discussion about the significance of this variation and an Action Item for further investigation of this parameter.
         (1) **Action item: More work/input required on ILD curve**

v) C. DiMinico agreed to delay his contribution to the 40GBASE-T Channel modeling ad hoc with an overview of 802.3 copper modeling and 40GBASE-T PHY-Channel until the next ad hoc meeting due to lack of time

e) Action Item #5: P. Cibula's presentation of some of his experience with 10GBASE-T test channel configurations was also delayed until the next meeting due to lack of time.

6) The meeting concluded with a review of the meeting Action Items as follows:
   a) S. Vaden: Converge on measurement bandwidth and bandwidth steps
   b) P. Cibula, B. Booth: Present collected data at the next ad hoc meeting
   c) W. Larsen: More work/input required on ILD curve
   d) P. Cibula: Schedule missed presentations as first order of new business

7) The next meeting was scheduled for Wednesday, June 19th at 8:00AM PDT.

The 802.3bq Channel Modeling Ad Hoc meeting was adjourned without opposition at 10 AM Pacific Daylight Time.

Brad Booth and Pete Cibula, IEEE 802.3bq Channel Model ad hoc co-chairs

Meeting Attendance

Name	Employer	Affiliation (if different)
Brad Booth	Dell	
Peter Cibula	Intel	
Rich Mellitz	Intel	
Dave Chalupsky	Intel	
Alan Flatman	LAN Technologies	
Bob Wagner	Panduit	
Sterling Vaden	OCC	
Wayne Larsen	Commscope	
Yakov Belopololsky	Bel Stewart	
Thuyen Dinh	Pulse	
Ken Stead	Molex	
Robert Fransen	Panduit	
Ron Nordin	Panduit	
Peter Wu	Marvell	
Paul Vanderlaan	Nexans	
Paul Neveux	Superior Essex	
Paul Langner	Aquantia	
Paul Kish	Belden	
Augusto Panella	Molex	
Mike Grimwood	Broadcom	
Martin Rossbach	Nexans	
Jerry Chiang	Foxconn	
Bernie Hammond	TE Connectivity	
George Zimmerman	CME	Aquantia, Commscope
Fred Fons	Foxconn	
Curt Maynes	3M	

Chris DiMinico	MC Communications	Panduit
Brian Celella	Siemon	
Beth Kochuparambil	Cisco	
Andrew Jimenez	Anixter	
Anna An	Foxconn	
Jan Kupec	??	
Dave Jeskey	Sentinel Connector Systems	
Brian Buckmeier	??	
Kory ??	??	