Meeting Minutes
IEEE P802.3bq Channel Model Ad Hoc

February 18th, 2014
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) Houskeeping:

   a) Review & approve meeting agenda.

4) New business for the February 18th ad hoc meeting as follows:
   a) Channel Modeling ad hoc sub-team updates with discussion – status of new/ongoing work
   - PCB transmission lines and noise for 10GBASE-T systems (B. Booth and P. Cibula)
   - MDI-to-MDI cabling channel (C. DiMinico and W. Larsen)
   - MDI and isolation path (G. Zimmerman)

   b) New contributions with discussion
   - 40GBASE-T ARJ45 ICM (Victor Renteria, Bel Stewart & TRP Connector)
     - Update to the first ARJ45 ICM that addresses insertion loss issues as well as NEXT and FEXT issues pointed out in the January task force meeting.
   - 40GBASE-T Channel Model Elements Summary/Decoder (Pete Cibula, Intel)
     - Follow-up from the January meeting; a simple summary matrix and description of the various model elements available in the P802.3bq Channel Data area.

   c) General discussion on system background noise and other channel impairments

5) General Discussion and meeting wrap-up
   a) Review action items from this meeting
   b) Next steps/future meetings

The 14th meeting of the P802.3bq Channel Modeling Ad Hoc was called to order at 8:07 AM Pacific Standard Time.

1) Participants were asked to sign an attendance sign-in sheet (reproduced in the attendance record at the bottom of these minutes).

2) Participants were reminded of the IEEE's patent policy. Those not familiar with it were directed to the URL above.

3) Houskeeping & general updates:

a) The agenda was reviewed with those in attendance. Attendees were asked to note any corrections or additions. None were noted and a motion was made to approve the agenda.
   - M: Dave Chalupsky
   - S: George Zimmerman

   Approved by voice vote without opposition.

b) Minutes from the last meeting are available as unapproved minutes.

4) No specific updates were provided by ad hoc subteams; system background noise measurements are in process and an updated ICM model will be shared in this meeting.

5) The meeting was then opened to hear new business for the February 18th ad hoc meeting as follows:

a) 40GBASE-T ARJ45 ICM (Victor Renteria, Bel Stewart & TRP Connector)
   - *Note: The presenter, Victor Renteria, was unable to join the meeting due to unknown issues with the collaboration tool. Participants reviewed the contribution and questions were collected to be forwarded to the author at the end of the meeting.*
   - The contribution provides an update to the first ARJ45 ICM that addresses insertion loss issues as well as NEXT and FEXT issues pointed out in the January task force meeting. Participants reviewed the accompanying overview presentation, which includes a description of the model I/O port mapping and insertion loss, return loss and NEXT characteristics. Questions for Victor include a request to describe the measurement setup, a brief description of what has been changed/enhanced with respect to the previous model, and an indication of the backwards compatibility of the magnetics in 10Gb/1Gb applications (specifically with respect to open circuit inductance). One final request related to the ability to partition the model into connector and magnetic elements.
     - Victor did reply to the "what's changed" question by e-mail before the end of the meeting, noting that the model includes new magnetics components.

b) 40GBASE-T Channel Model Elements Summary/Decoder (Pete Cibula, Intel)
   - The presenter shared work-in-progress on an Excel worksheet that summarizes the models and model elements that are available in the Channel Data area of the P802.3bq task force. Meeting participants were in agreement that this would be a useful reference. The workbook will be available in the channel data area in the not-too-distant future; most likely after the March IEEE Plenary.

c) General discussion focused on two topics:
   - The number of possible channel configurations, especially with respect to the number of host PCB channels. Action required from the discussion:
     (1) Participants from the systems community were asked to identify the top ~3 to 6 relevant or important host channel configurations (based on length, spacing, structure, impedance) for use in end-to-end channel models.

   - Noise and impairments in MDI to MDI cabling. While cabling targeted for use in 40GBASE-T applications uses S/FTP or PIMF construction provides improved common-mode and alien crosstalk noise rejection, this performance and immunity depends on good grounding and bonding and associated installation practices. Several participants from the cabling

community noted that other standards development organizations are working on shielding and installation practices and procedures. Actions required from the discussion:

(1) Cabling participants were asked to provide an overview/tutorial of cable grounding, bonding, shielding and installation practices for the ad hoc
(2) Further discussion of cable impairments will continue in the PHY baseline proposal ad hoc. Experts in that forum will be able to evaluate the relative importance of any impairment and develop specific work/action requests as needed.

d) Closing discussion – Action item review and future meetings
   - Five action items were identified:
     (1) *Pete Cibula: Forward questions related to the improved ICM to Victor Renteria (describe the measurement setup, provide a brief description of what has been changed/enhanced with respect to the previous model, indicate the backwards compatibility of the magnetics in 10Gb/1Gb applications, and clarify if the model can be partitioned into connector and magnetic elements*
     (2) *Pete Cibula: Complete and post the channel model element summary/decoder.*
     (3) *System participants (Dave Chalupsky/Ray Schmelzer/Pete Cibula/others): Identify the top ~3 to 6 relevant or important host channel configurations.*
     (4) *Cabling participants (TBD): Provide an overview/tutorial of cable grounding, bonding, shielding and installation practices.*
     (5) *PHY baseline proposal ad hoc participants: If possible, identify relevant cable/channel impairments for further study.*

e) The meeting chair asked for a motion to adjourn
   - M: Chris DiMinico
   - S: George Zimmerman

   Approved by voice vote without opposition.

6) Meeting wrap-up - The next meeting was scheduled for Tuesday, March 4th, 2014 at 8:00AM PST.

The P802.3bq Channel Modeling Ad Hoc meeting was adjourned at 9:20 PM Pacific Standard Time.

Meeting Attendance

Name	Employer	Affiliation (if different)
Dave Chalupsky	Intel	
Pete Cibula	Intel	
Chris DiMinico	MC Communications	
Thuyen Dinh	Pulse	
Dave Jeskey	Sentinel Connector Systems	
Wayne Larsen	Commscope	
Victor Renteria	BelFuse/TRP	
Martin Rossbach	Nexans	
Dieter Schicketanz	University of Science, Reutlingen	
Kory Sefidvash	Broadcom	
Masood Shariff	Commscope	
Sterling Vaden	Vaden Enterprises	Vaden Enterprises
Paul Vanderlaan	Berk-Tek LLC	
Paul Wachtel	Panduit	
Bob Wagner	Panduit	
Peter Wu	Marvell	
George Zimmerman	CME Consulting	Aquantia, Commscope