

**Meeting Minutes**  
**IEEE P802.3bq Channel Model Ad Hoc**

**March 4th, 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](http://www.ieee802.org/3/patent.html)
- 3) Houskeeping:
  - a) Review & approve meeting agenda.
- 4) New business for the March 4<sup>th</sup> 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
    - PHY Channels based on Class II, with new Bel ARJ45 MDI and variances of PCBs (D. Schicketanz, Reutlingen University/Leoni Kerpen)
    - Data on 5 m connector free channel (Wayne Larsen, Commscope)
  - 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 15<sup>th</sup> 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.

- 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. A new PHY to PHY channel configuration and measurements/model parameters for a connector-free 5m channel will be presented in this meeting.
- 5) The meeting was then opened to hear new business for the March 4<sup>th</sup> ad hoc meeting as follows:
- a) PHY Channels based on Class II, with new Bel ARJ45 MDI and variances of PCBs (D. Schicketanz, Reutlingen University/Leoni Kerpen)
- The contribution extends previous work on Class II channels by including an improved ARJ45 ICM element as well as considering the effects of various host channel PCB configurations. The presenter noted that no major differences are observed among the various category 8.2 cable channels used in this work, while the PCB element contributes more significant variations. It was also noted that the new ARJ45-based ICM shows improved NEXT and FEXT margin. The contribution included several observations on PCB layout options and their effects on NEXT, FEXT, return loss and insertion loss. Participants discussed several issues related to PCB design and implementation (layout, board materials) and touched on magnetics performance for 10Gb/1Gb interoperability (magnetics open circuit inductance and tradeoffs between backwards compatibility and return loss).
  - In the last channel ad hoc a question was raised if it is sufficient to get good EMC performance with shielded systems because it may be very dependent on installation.
    - ISO IEC has two standards on installation practices for shielded and unshielded cabling with good explanations (ISO/IEC 14763-2)
    - For stable EMC performance a standard on bonding is under development (ISO/IEC 30129 CD stage)
- b) Data on 5 m connector free channel (Wayne Larsen, Commscope)
- The presenter shared channel characteristics for a 5m connector-free direct attach cabling channel made from 20% de-rated material (Note: The 20% de-rating refers to the channel insertion loss relative to the corresponding horizontal cabling; in this case, 20% higher insertion loss per meter). Discussion indicates that the proper partitioning is for the cord data to NOT include the MDI, as this has been included in the ICM data. This type of channel data will continue to be useful for the PHY baseline proposal ad-hoc in optimizing PHY power and operating modes.
- c) Closing discussion – Action item review and future meetings
- The TF Chair noted that there would be no additional ad hoc meetings before the March Plenary meeting and that TF Chair reminds the group that requests for presentations are due today (March 4<sup>th</sup>).
  - TF Chair asks for submitters of content to the ad hocs to check that their material is posted within a few days of sending; if not, please remind the TF Chair.
- 6) Meeting wrap-up - The next meeting was not scheduled pending further discussion at the March Plenary meeting.

**The P802.3bq Channel Modeling Ad Hoc meeting was adjourned at 9:10 PM Pacific Standard Time.**

## Meeting Attendance

<b>Name</b>	<b>Employer</b>	<b>Affiliation (if different)</b>
Yakov Belopolsky	Bel Stewart Connector	
Brad Booth	Microsoft	
Dave Chalupsky	Intel	
Jerry Chiang	Foxconn Interconnect Technology	
Pete Cibula	Intel	
Chris DiMinico	MC Communications	
Thuyen Dinh	Pulse	
Harry Forbes	Nexans	
Mike Good	Berk-Tek LLC	
Dave Jeskey	Sentinel Connector Systems	
Andrew Jimenez	Anixter	
Jan Kupec	R&M A.G.	
Wayne Larsen	Commscope	
Victor Renteria	Belfuse/TRP	
Martin Rossbach	Nexans	
Mohammad Saboori	Pulse	
Dieter Schicketanz	University of Science, Reutlingen	Leoni Kerpen
Masood Shariff	Commscope	
Tom Souvignier	Broadcom	
Ronald Tellas	Panduit	
Sterling Vaden	Vaden Enterprises	Vaden Enterprises
Paul Vanderlaan	Berk-Tek LLC	
Paul Wachtel	Panduit	
Peter Wu	Marvell	
George Zimmerman	CME Consulting	Aquantia, Commscope