Unapproved Meeting Minutes
IEEE P802.3bq Rx CMNR Ad Hoc

November 19th, 2014
Prepared by Pete Cibula

Meeting Agenda:

1) Roll call - Record attendance, attendees' names and affiliations

2) Reminder of IEEE patent policy: www.ieee802.org/3/patent.html

3) Housekeeping:
   a) Review & approve meeting agenda.

4) New business for the November 19th ad hoc meeting as follows:
   a) Review relevant content from prior study group/task force work and/or new contributions with discussion
   b) New contributions with discussion
      - Clarifying Induced Common Mode Voltages on Shielded Twisted Pair Cabling (Pete Cibula, Intel Corporation).

5) General Discussion and meeting wrap-up
   a) Next steps/future meetings

The 2nd meeting of the P802.3bq Receiver Common-Mode Noise Rejection (Rx CMNR) Ad Hoc was called to order at 9:35 AM Pacific Standard Time.

1) Participants were asked to register their attendance by email; responses are reproduced in the attendance record at the end of these minutes.

2) Participants were reminded of the IEEE's patent policy. All in attendance acknowledged the policy; as a reference, anyone not familiar with said policy is directed to the URL above.

3) Houskeeping & general updates:

   a) The agenda was reviewed with those in attendance. Attendees were notified that one contribution had been received and would be added to the proposed agenda. The updated agenda was accepted without opposition.

   b) Participants discussed alternative meeting times so as to minimize conflicts with other concurrent standards meetings. Attendees agreed that **a new meeting time of 9:30AM to 11:00AM Pacific Standard Time on alternate Wednesdays** would minimize known conflicts. The chair accepted an action to update the current meeting series with the new start and finish times.

c) Participants then heard a new contribution that clarified a recent P802.3bq Task Force contribution and provided some additional background on the cable clamp methodology, submitted by Pete Cibula (Intel Corporation).
   - The presenter noted that this contribution is a follow-up to cibula_3bq_02a_1114.pdf, offering a few clarifications, some additional analysis of previously presented results, and some ongoing and planned extensions of this work.
     (1) Clarifications included noting that the measurements of interest are the differential voltages that result when common-mode noise is coupled onto a test channel, in this case by means of a cable clamp.
     (2) Additional analysis included identifying differential noise envelopes and presenting a limited comparison between cable clamp- and chamber-induced differential voltages.
     (3) Ongoing extensions included measurements of the unloaded cable clamp and a review of the clamp calibration methodology (induced noise limits) outlined in 802.3-2012 Annex 40.B1.
   - Participants discussed several items related to the existing test and improvements/ enhancements for 40GBASE-T PHYs.
     (1) Noting that the 1000BASE-T requirement was intended to simulate the effects of a 3V/m immunity test, participants discussed how to better align any proposed CMNR test with standard practices for industrial/telecom/commercial systems, where a 10V/m stress may be applied.
        (a) Participants agreed that any reference to applied stress levels should be left as "TBD" in any text developed for P803.3bq until studies related to higher field strengths are brought forward.
     (2) During discussion of the apparent correlation of initial cable clamp- and chamber-induced differential noise levels (itself an area for further investigation), participants shared a variety of opinions on the cable clamp test and its usefulness.
        (a) Comments included observations that, while one value of retaining the test is defining the expectation that the receiver should be able to tolerate some level of common-mode noise (and by extension improving interoperability), having a test that is inconsistent/not repeatable and inconclusive adds limited value.
        (b) Participants agreed that further work to correlate the cable clamp and chamber tests will help define a more useful requirement and test/diagnostic.
     (3) Discussion of the cable clamp calibration methodology focused on the limit lines defined for maximum induced common-mode and differential-mode noise levels. A concern was raised that such limits, while useful and necessary, may be misinterpreted as pass/fail criteria for cables. As such, any new noise limit lines should align with the capabilities of the link segment cabling. Participants noted that a review of related, standard test methods for shielded cable coupling attenuation and shielding effectiveness would be helpful in considering and defining calibration limits for 40GBASE-T technology.
   - Participants agreed that developing proposed, strawman text showing the direction of the requirement with blank/TBD numbers is a logical, parallel activity to be pursued while technical investigations continue, acknowledging that the specifics will in fact be the more significant points of future discussion.

4) Meeting wrap-up - The next meeting was scheduled for December 3rd, 2014 at 9:30 AM Pacific Standard Time.

The P802.3bq Rx CMNR Ad Hoc meeting was adjourned at 10:40 AM Pacific Standard Time.

Meeting Attendance (From e-mail acknowledgements and on-line participant list)

Name	Employer	Affiliation (if different)
Brian Buckmeier	Bel Fuse, Inc.	
Pete Cibula	Intel	
Chris DiMinico	MC Communications	
Thuyen Dinh	Pulse	
German Feyh	Broadcom	
Mike Good	Berk-Tek LLC	
Dave Jeskey	Sentinel Connector Systems	
Brett McClellan	Marvell	
Neven Pischl	Broadcom	
Masood Shariff	Commscope	
Tom Souvignier	Broadcom	
Ron Tellas	Panduit	
Paul Vanderlaan	Berk-Tek LLC	
Peter Wu	Marvell	
George Zimmerman	CME Consulting	Aquantia, Commscope