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

February 18th, 2015
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 February 18th ad hoc meeting as follows:
   a) Annex 40B Clamp Experiment to Assess EMC Performance (Bryan Moffitt, CommScope)

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

The 6th 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) Housekeeping & general updates:

   a) The agenda was reviewed with those in attendance and the agenda was accepted without opposition.

4) New business:

   a) A new contribution, Annex 40B Clamp Experiment to Assess EMC Performance (Bryan Moffitt, CommScope) was reviewed with ad hoc participants. The contribution presented results from ongoing work to evaluate the electrical characteristics and performance of the Annex 40B cable clamp and its suitability for induced electromagnetic noise rejection testing of 40GBASE-T ports.

      - Cable clamp performance, as measured by common-mode and differential-mode noise signals induced by the clamp onto Category 8 shielded cable with plugs mated to a simulated MDI port (modular jack mounted to a vertical ground plane), is characterized under 6 conditions as described in the contribution.

(1) Two Category 8 plug variants were tested with each of three modular jacks – prototype Cat 8 jack, Production Cat6A jack, and prototype Cat8 ICM.

Major points of the discussion are summarized below.

- The combination of a plug and modular jack shows higher induced noise levels than observed in previously reported results for a shielded cable with no connectors.
- The clamp induced energy is representative of that induced in the shield and interconnects by an external field and is functionally consistent across the frequency range of interest.
- The clamp does appear to be suitable for application as an alternative to shielded room (EMC radiated immunity) testing as proposed during development of the corresponding specification in Clause 40.6.1.3.3.
- Further evaluation, including correlation with EMC testing, is recommended to define test stress levels and source adjustment criteria.

b) Participants discussed proposed text for Clause 113 (included in the contribution), which was also forwarded to the 802.3_NGBASET reflector and is repeated here for reference.
   - 113.5.4.3 Rejection of External EM Fields
     - When the cabling system is subjected to electromagnetic fields, currents are generated in the shield which may be converted to interference. This specification is provided to limit the sensitivity of the PMA receiver to external EM fields picked up by the cabling system. It provides an assessment method of the electromagnetic performance of the link segment and the PHY, including the MDI.
     - A test can be made using the cable clamp test defined in 40.6.1.3.3. A 6 dBm sine wave source from 80 MHz to 2000 MHz can be used to generate an external electromagnetic field and corresponding shield current. A system integrating a 40GBASE-T PHY may perform this test.
     - Operational requirements of the transceiver during the test are determined by the manufacturer.
   - Participants discussed implications of updating the specification in the context of comments against the draft in the upcoming plenary. Both the P802.3bq Task Force Chair and the Chief Editor gave some guidance and general recommendations on how to proceed from this point forward, summarized as follows:
     (1) Create text (similar to the above proposal) that sufficiently describes a technically complete specification for immunity to external EM fields – in this case, immunity over external RF fields from 80MHz to 2GHz with strengths typically applied in radiated immunity tests.
     (2) Continue work in the ad hoc (along with ballot commenters) to refine/confirm the source-adjustment criteria, measurement points, and levels used with the clamp methodology in the subclause

ad hoc chair's note – After the meeting, many constructive comments on the proposed text were discussed in e-mail discussions. These comments, as well as suggested updates to the proposed text, will be discussed in the March 4th, 2015 Rx CMNR ad hoc meeting.

5) Meeting wrap-up - The next meeting was scheduled for March 4th, 2015 at 9:30 AM Pacific Standard Time.

The P802.3bq Rx CMNR Ad Hoc meeting was adjourned at 11:05 AM Pacific Standard Time.

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

Name	Employer	Affiliation (if different)
Jim Bauer	Marvell	
Brian Buckmeier	Bel Stewart Connector	
Dave Chalupsky	Intel	
Pete Cibula	Intel	
Chris DiMinico	MC Communications	Panduit
German Feyh	Broadcom	
Jon Lewis	Dell	
Bryan Moffitt	CommScope	
Dieter Schicketanz	University of Science, Reutlingen	
Masood Shariff	CommScope	
Tom Souvignier	Broadcom	
Ron Tellas	Panduit	
Paul Vanderlaan	Nexans	
Bob Wager	Panduit	
Paul Wachtel	Panduit	
Peter Wu	Marvell	
George Zimmerman	CME Consulting	Aquantia, Commscope