Minutes for IEEE 802.3bp 1000BASE-T1 EMC Ad Hoc Conference Call February 26, 2014

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Conference Call February 26, 2014
Time 08:30AM PDT – 10:00AM PDT
802.3bp EMC Ad Hoc Co-chairs: Mehmet Tazebay, Stefan Buntz,

Agenda for the 802.3bp EMC Ad Hoc Conference Call

1. Opening & Patent Policy Review

2. Objective of the conference call (Mehmet Tazebay)

3. Contributions

   #1. "15m / 4 inlines link segment testing", by Michael Rucks, Delphi

   #2. "1000BASE-T1 TX PSD MASK definition based on CISPR 25 Ed.3 2007 strip line emission test recommendation", by Ahmad Chini & Mehmet Tazebay, Broadcom

   #3. Update on Slow Transient Noise

   #4. "Effects of New NEXT Limit on Performance", by Xiaofeng Wang

   #5. Update on PoDL noise by Dave Dwelley

4. Discussions, Questions & Next Steps

5. Closure of the call

A. Participants
Mehmet Tazebay, Ahmad Chini, Benson Huang, Sasha Babenko, Sheng Fu, Wes Mir, Meng Zeng, Will Bliss, Bert Bergner, Rich Boyer, Sterling Vaden, Michael Rucks, Zhengzhong Gu, Dave Dwelley, Shaoan Dai, Neven Pischl, Mike Gardner, Xiaofeng Wang, Stefano Valle, Peter Wu, Satoshi Ibuki.

B. Summary of Discussions & Comments

- Review of patent policy
- Presentations & Discussions
    - Michael Rucks (Delphi) provided his balance measurements for 1-pair 15m link segments. The highlights are the following:
        - The results show that there are link segments which will not meet the 1000BASE-T1 mode conversion limit lines.
        - The influence of the connector will be further studied.
        - There were questions regarding to the calibration. Michael re-iterated the importance for Scd11 and Scd22 parameters for calibration check.
        - There was a concern with respect to artificial measurement impact for Scd versus Sdc which may or may not have impacted these results. This will be double-checked. In future, the general consensus for balance measurements is to consider **Sdc** parameter instead.
    - Ahmad Chini (Broadcom) provided clarification for the definition of 1000BASE-T1 TX PSD Mask based on CISPR 25 Ed.3 2007 stripline emission test recommendation. The highlights are the following:
        - CISPR 25 Ed.3 2007 provides information on stripline method for the measurement of radiated emissions from components and modules.
        - TX PSD mask is defined for a single emitter regardless the solution is half duplex or full duplex.
        - CISPR 25 Ed.3 2007 Stripline test measures emission from a single EUT although there are more emitting sources in a car. The limit-lines were established for a single EUT only.
        - There are certainly more transmitters than the 2 transceivers at the two sides of a link. The aggregate radio emission in an automotive is assumed to be factored in by OEMs and reflected in single EUT test limit-lines in order to reflect the aggregate effect.
        - The group has understood this clarification and there were no discussions.
    - Mehmet Tazebay provided update on the slow transient noise. The highlight is that the analysis & test results show that the slow transient noise has negligible impact as a noise component compared to the fast transient noise component (as presented in January 2014 Indian Wells interim meeting). A contribution will be made by Broadcom in March 2014 Beijing plenary.
    - Xiaofeng Wang (Qualcomm) presented his contribution in response to proposal for relaxing the Alien NEXT limit line. He addressed the question of performance degradation of 1000BASE-T1 if the Alien NEXT would be relaxed by 6dB from the adopted levels. Here are the highlights:
        - 15m 1-pair UTP channel at room temperature was considered for this study.
        - The following system parameters are being considered:
            - -140dBm/Hz background noise, Modified PSD Masks (PAM-2 w/1Vpp, PAM-3 w/1.37Vpp, PAM-4 w/1.4Vpp), 5.8mV rms quantization noise, 7.8dB backoff for ISI, echo and RFI.
        - The results show that quantization noise dominates the other noise components. The proposed ANEXT limit line is still smaller than AFEXT at 15m. → The increase of 6dB in ANEXT leads to negligible increase in total noise.
        - The group has agreed to continue the discussion in the PHY Ad Hoc and committed to resolve the answer by or in Beijing meeting.

- Dave Dwelley (Linear) provided information for PoDL noise effect for 1000BASE-T1 and discussed the inclusion of noise Table-33-9/11 from Clause-33. All the noise components are indicated to be less than 1MHz frequency range. A contribution for clarification will be made to 802.3bp TF by/in Beijing meeting.

- No other open items or questions from the group. There will be a face-to-face meeting in March 2014 Beijing plenary.

C. Status of action points & next steps

#	Description of Action	Responsible	Status
1	Feedback on slow transient noise	802.3bp TF	Closed. Broadcom will provide an update in the upcoming March 2014 plenary
2	Feedback on PoDL noise	PoDL TF	Closed. PoDL TF will give a liaison letter which will provide the data for PoDL noise effect
3	Other topics	None	None

D. The call was closed at 9:49am PDT