

PHY BASELINE PROPOSAL AD HOC MINUTES

5 December 2013

George Zimmerman, 802.3bq PHY BASELINE PROPOSAL AD HOC Chair

Welcome – First meeting.

The ad hoc From the minutes of the November Task Force Plenary meeting:

The Chair then chartered a PHY proposal ad hoc, chaired by George Zimmerman, with the following charter/objectives:

- Identify elements necessary to form a baseline proposal
 - o Signaling bandwidth (bounds)
 - o Modulation, EQ, coding, etc.

Participants are encouraged to review IEEE meeting guidelines available at the following URL -

<https://development.standards.ieee.org/myproject/Public/mytools/mob/preparslides.pdf>

A proposed agenda for the meeting follows.

10:00 am meeting start

1. Roll call

Record attendance, attendees' names and affiliations (Following ad hoc meeting practice, ad hoc attendees are asked to please email george@cmeconsulting.onmicrosoft.com a note confirming their attendance):

Attendees:

Shadi AbuGhazaleh - Pulsecom
Anna An - Foxconn
Brian Buckmeier – Bel Stewart Connector
Dave Chalupsky - Intel
Jerry Chiang - Foxconn
Pete Cibula - Intel
Chris DiMinico – MC Communications / Panduit
Thuyen Dinh - Pulse
Harry Forbes - Nexans
Mike Grimwood - Broadcom
Dave Jeskey - Sentinel
Brent McClellan - Marvell
Rich Mellitz - Intel
Martin Rossbach - Nexans
Jeffrey Seefried - Leviton
Masood Shariff - Commscope
Paul Wachtel - Panduit
Peter Wu - Marvell
Bill Woodruff - Broadcom
George Zimmerman – CME Consulting / Aquantia & Commscope

2. Reminder of IEEE patent policy

www.ieee802.org/3/patent.html

At 10:29 AM PST, the Chair read slides 0- 4 of the patent policy, and made the call for patents. There were no responses.

3. Housekeeping

Review & approve meeting agenda. (the skeleton of this email) – Approved without opposition
We have no previous meeting minutes to approve.

4. New business for this ad hoc meeting:

New contributions with discussion:

Zimmerman_3bqah_01_1213.pdf – PHY power components and variations

Presenter: George Zimmerman, CME Consulting

Abstract: This contribution discusses the various components of PHY power and how they may or may not depend on channel parameters. It provides guidance based on previous contributions for analog bandwidths, and a discussion of a first order power estimate. The contribution calls for PHY vendors in the group to turn to consider estimating digital processing power in proposals as that will be vendor architecture dependent, and important in the overall power consumption.

DISCUSSION NOTES: discussion focused on the need to refine overall power consumption estimates based on digital processing. Targeting 3.5W to integrate PHYs into QSFP+ modules was raised as an important design target. PHY vendors were encouraged to examine the strawman proposal and consider what known silicon process advancements (Moore's law) would provide for power reduction when parts were available and what the right relationship would be between digital baud rate and analog receiver power to minimize power.

Zimmerman_3bqah_02_1213.pdf – Strawman

Presenter: George Zimmerman, CME Consulting

Abstract: This contribution presents a strawman baseline proposal based on 10GBASE-T signaling and coding at 3.2 Gbaud. Possible areas for improvement and future work are discussed.

DISCUSSION NOTES: Starting at 4X 10GBASE-T was received as a design point that could be analyzed. Discussion clarified that the transmit power specified was at the MDI (plug/jack) reference plane and not at the input to the "PHY-channel" (pins of the chip to the host PCB), so that individuals providing models could work accordingly. Possible improvements of a THP backchannel, lower transmit power, and protecting uncoded bits were discussed. Future contributions were encouraged from PHY vendors providing their feedback on both power estimates and desired modifications.

An important point that was raised was that to consider reduction of transmit power we will need models of external noise levels seen on host PCBs for PHYs. These should reflect frequencies up to 2GHz. (measuring just with 10GBASE-T PHYs would provide some data, but not a complete set).

Additionally, if analyses of power in a within-rack patch-cord mode are to be provided, the channel modeling ad hoc should be asked for an appropriate patch-cord model.

5. Closing Discussion

Review action items from this meeting

Future presentations & contributions

- PHY vendors were encouraged to provide updated analysis and presentations towards a baseline proposal at the next meeting.

Next steps/future meetings

- The next meeting was scheduled for Thursday January 9, 10AM-12PM PST.

12:00 pm meeting end