

# Electrical Interface Ad-hoc Meeting

- Opening/Agenda/Work-items

IEEE P802.3bs 400Gb/s Ethernet Task Force  
1<sup>st</sup> February 2016

# Opening

- The charter of the Electrical Interface Ad hoc is:
  - Address all issues in relation to the electrical interfaces to ensure progress towards a technically complete draft.
    - *Identify issues or omissions in the draft*
    - *Find consensus now, rather than in comment resolution.*
- Next Ad-hoc Meeting
  - 8<sup>th</sup> February
- Attendees names and affiliations will be taken from the Webex participants list.
  - Please use an e-mail address indicating affiliation when signing in. If you attend via phone only, or if your employer and affiliation are different, please send me an e-mail.

# Patent Policy

- <http://www.ieee802.org/3/patent.html>

# Agenda

Ad-hoc Opening/Agenda	Andre Szczepanek	szczepanek_01_020116_elect
Electrical Ad Hoc Work-Items	Andre Szczepanek	szczepanek_01_020116_elect
Resolving SNDR	Richard Mellitz	mellitz_01_020116_elect

# Agenda & Minutes

- Any objections to the Agenda ?
- Any objections to the minutes from the last meeting ?
  - [http://www.ieee802.org/3/bs/public/adhoc/elect/11Jan\\_16/minutes\\_draft\\_11-Jan\\_2016\\_elect.pdf](http://www.ieee802.org/3/bs/public/adhoc/elect/11Jan_16/minutes_draft_11-Jan_2016_elect.pdf)

# Electrical Ad Hoc Work-Items

# Note

- I have used Draft 1.2 numbering in the slides I am about to show.
  - Addition of the CTLE table to Annex 120E has shifted the table numbers of all the tables that follow it !

# TBDs and magenta text – 120D (C2C)

- No TBDs
- These Magentas received no comments on Draft 1.1
  - The editor intends to enter comments on D1.2 to turn them black
    - “electrical interconnect of approximately 25 cm in length”
    - COM parameter table values
      - $C_d$  ,  $C_b$
      - $g_{DC}$
      - $F_{z1}$  ,  $F_{z2}$
      - $F_{p1}$  ,  $F_{p2}$
      - $R_{LM}$
      - $N_b$
      - $\eta_o$



# TBD's and magenta text – 120E (C2M)

- The following Magentas and TBDs received no comments on Draft 1.1
  - The editor intends to enter comments on D1.2 to turn these black
    - The crosstalk generator is calibrated at TP4 with target differential peak-to-peak amplitude of 900 mV and target transition time of 12 ps.
    - Table 120E-3: *ESMW 0.25 UI*
    - The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with target amplitude of 900 mV peak-to-peak differential and 20% to 80% target transition time of 12 ps
  - The editor intends to enter a comment on D1.2 to turn this TBD to black 12 ps
    - The target pattern generator 20% to 80% transition time in the module stressed input test is TBD ps.

# Magenta text – 120E (C2M)

## ■ Other Magentas

- *120E.3.3.2: Even-odd jitter shall be less than or equal to TBD UI regardless of the transmit equalization setting.*
  - *This TBD is unnecessary here as the Even-Odd jitter value is defined in Tables 120E-6 & 120E-9.*
  - *Remove line, and add footnote to even-odd jitter values in Tables 120E-6 and 120E-9 "Regardless of transmit equalizer setting."*
  
- *Table 120E-5/120E-8: Applied pk-pk sinusoidal jitter Table 88-13*
  - *This magenta depends on the "Additional Jitter tolerance measurement frequencies" work-item*
  - *I intend to enter a comment to make this black if no alternative frequencies are adopted*
  
- *Table 120E-6; Table 120E-9 Pattern generator characteristics TBD UI*
  - *Both tables had identical values in Annex 83E (CAUI-4 C2M)*
  - *See the next slide for two strawmen proposals for these tables*
  - *I will hold an email straw poll on these proposals, before the next Ad Hoc*

# 120E Pattern generator characteristics table proposals

## ■ Proposal #1 : CAUI-4 C2M like:

Parameter	Value
Total Jitter (pk-pk)	0.28 UI
Random Jitter (pk-pk)	0.15 UI
Max even-odd jitter (pk-pk)	0.017 UI

Per CAUI-4 C2M

Per KP4/OIF-56G-VSR-PAM4

## ■ Proposal #2 : C2C and VSR-PAM4 like

- Define Jitter as “Clock jitter” per C2C and VSR-PAM4, and use Clause 94.3.12.6.1 measurement method

Parameter	Value
Clock Random Jitter RMS (max)	0.01 UI
Clock Deterministic jitter pk-pk (max)	0.04 UI
Max even-odd jitter (pk-pk)	0.019 UI

Per CDAUI-4 C2C Tx TP0a

# Issues deferred by comment resolution

- $R_{LM}$  measurement method
- $SNR_{TX}/SNDR$  values
- Allow for use of a module transmitter TXFIR in eye measurement method
- Additional Jitter tolerance measurement frequencies
- CRU Bandwidth

# Backup

# Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- **Participants [Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2]:**
  - **“Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents**
  - **“Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)**
- **The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group**
- **Early identification of holders of potential Essential Patent Claims is strongly encouraged**
- **No duty to perform a patent search**

# Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards Bylaws

*<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>*

IEEE-SA Standards Board Operations Manual

*<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>*

Material about the patent policy is available at

*<http://standards.ieee.org/about/sasb/patcom/materials.html>*

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at [patcom@ieee.org](mailto:patcom@ieee.org) or visit <http://standards.ieee.org/about/sasb/patcom/index.html>

This slide set is available at  
<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>

# Call for Potentially Essential Patents

- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
  - Either speak up now or
  - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
  - Cause an LOA to be submitted