

Approved Minutes
IEEE P802.3bs 400 GbE Task Force
Interim Meeting
January 14-16, 2014
Atlanta, GA, USA
Prepared by Kent Lusted

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IEEE P802.3bs Task Force Meeting – 14 January 2015:

Prepared by Kent Lusted

IEEE P802.3bs 400 Gb/s Task Force interim meeting convened at 1:01 p.m., Wednesday, 14, January 2015, by John D'Ambrosia, IEEE P802.3bs Task Force Chair.

Chair appointed Kent Lusted as Task Force recording secretary for this week's meeting.

Introductions were made.

Agenda & General Information

By – John D'Ambrosia

See -- http://www.ieee802.org/3/bs/public/15_01/agenda_3bs_01a_0115.pdf

Chair reviewed the agenda.

Chair indicated that he wanted to postpone any discussions related to modifying the timeline until after the meeting to allow him and Chief Editor the ability to assess approved motions. The chair plans to hold a task force ad hoc teleconference afterwards to discuss modifications to the timeline.

Pete Anslow proposed a change to the agenda item from “approve Sept 2014 interim minutes” to “approve November 2014 plenary minutes”. No objection.

Motion #1:

Move to approve the agenda

- Moved by: Steve Trowbridge
- Second by: Thananya Baldwin
- Pass by voice without opposition

One comment was received on the P802.3bs November plenary meeting minutes after they were posted. There was an error in the filename in Motion #3 at 9:08 a.m. “Move to adopt the proposal in slides 6 to 16 in king_3bs_02_1114.pdf as the baseline proposal for the P802.3bs objective to ‘provide physical layer specifications which support link distances of at least 100 m of MMF’ (400GBASE-SR16)”. However, the presentation was updated and posted afterwards with the additional supporters (Email to D'Ambrosia 11/4). The file name reference to king_3bs_02a_1114.pdf was corrected. Chair noted that the presentation was not changed by the author.

Chair asked if anyone wanted to see the updated minutes. No one responded.

Motion #2:

Move to approve the IEEE P802.3bs November 2014 Plenary meeting minutes with posted corrections (modified by Kent Lusted as noted above).

- Moved by: Pete Anslow
- Second by: Thananya Baldwin
- Pass by voice without opposition

Chair noted that photography and recording not permitted without permission.

Chair called for members of the press. John D'Ambrosia noted that he talks with press but will only disclose high level details available from published meeting material. No one else responded.

Chair continued with the introductory presentation.

Goals:

- Hear technical proposals and supporting presentations
- Address Key Architectural Issues
- Make decisions

Chair noted that the draft, and any other content, is posted for Task Force review only, and neither the content nor access information should be copied or redistributed to others in violation of document copyrights.

Chair displays the Bylaws and Rules slides in

http://www.ieee802.org/3/bs/public/15_01/agenda_3bs_01a_0115.pdf

IEEE Patent Policy: Chair reviewed the Patent related slides on the 4 slides contained in the agenda. Chair calls for potentially essential patents. No one responded. Chair read the Guidelines for IEEE-SA meetings. No one responded.

Chair advised the WG attendees that:

- The IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
- Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
- There may be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.

No one responded.

Chair reviewed the ground rules.

Chair reviewed the IEEE 802.3 Standards process.

Chair displayed links to the adopted objectives, PAR, CSD and timeline.

Chair received a communication from OIF regarding the CEI-56G project. (posted at http://www.ieee802.org/3/bs/public/14_11/OIF_Liaison_CEI56G_Progress_28Oct14.pdf)

Chair received a communication from CDFP MSA (posted at http://www.ieee802.org/3/bs/public/14_11/41031_Letter_to_IEEE.pdf).

It was agreed in November to defer response to these communications until the January 15 Interim. Chair asked Steve Trowbridge to prepare the communications. Chair asked if an ITU-T communication was necessary. Steve Trowbridge noted that it might be necessary, depending on the outcome of this meeting. Steve Trowbridge also noted that the ITU-T meeting is the week immediately after the March Plenary meeting. It was discussed that an update from the Task Force at this meeting might help to drive preparations for the March ITU-T meeting, and it was therefore agreed to send an informal communication to update the interested groups within the ITU-T.

Chair showed links to the ad hoc reports. Chair asked if there were any questions. Chair asked the Task Force if there was interest in seeing the ad hoc summary presentations. The ad hoc summaries were posted on the meeting website. No one responded.

Chair noted the social event is Wednesday evening (i.e. tonight). If attendees go to the social, Chair does not want alcohol brought into the room.

Chair asked for a show of hands to adjust the evening break to align with the social event. There was consensus to modify the evening break time.

Chair reminded attendees to sign into the IEEE-SA Meeting Attendance Tool and to sign book. Update affiliation, if necessary.

Chair reviewed the plans for the week.

John D'Ambrosia asked David Law to chair the meeting.

Presentation #1:

Title: Moving Forward

By: John D'Ambrosia

See: http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf

- John D'Ambrosia noted that the presentation outlines the general order of motions scheduled for the meeting.
- John D'Ambrosia asked Mark Gustlin if he could present the summary on the FEC this week. Mark Gustlin agreed.
- Clarifying questions were asked and answered.

Action Item: John D'Ambrosia to create a web repository for baseline proposals.

David Law returned the chair responsibility to John D'Ambrosia.

Chair asked Mark Gustlin to present the summary table of the proposed FEC choices at the end of his presentation.

Presentation #2:

Title: 400GbE PCS Baseline Proposal

By: Mark Gustlin

See: http://www.ieee802.org/3/bs/public/15_01/gustlin_3bs_02_0115.pdf

Presentation #3:

Title: 500GbE PMD FEC Requirements

By: Mark Gustlin

See: http://www.ieee802.org/3/bs/public/15_01/gustlin_3bs_04_0115.pdf

- Chair asked the authors and individuals making proposals to confirm that the data presented was correct. No corrections were made.
- Keisuke Kojima noted that for 50G NRZ, KR4 FEC is also within a realm of possibilities. If it is a desired direction, it can be explored.

Presentation #4:

Title: PMA Muxing Considerations

By: Jeff Slavick

See: http://www.ieee802.org/3/bs/public/15_01/slavick_3bs_01a_0115.pdf

- Author had an updated presentation with additional supporters.

Presentation #5:

Title: An Alternative Scheme of FOM Bit Mux with Pre-interleave

By: Tongtong Wang

See: http://www.ieee802.org/3/bs/public/15_01/wang_t_3bs_01a_0115.pdf

- Author noted that the presentation was updated with editorial changes.

John D'Ambrosia asked Pete Anslow to chair while he presents.

Presentation #6:

Title: 400G Architecture Baseline Proposal Update

By: John D'Ambrosia

See: http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_02b_0115.pdf

- Clarifying questions were asked and answered.

Broke at 3:18 p.m. Resumed at 3:43 p.m.

Resumed the questioning on Presentation #6:

- John D added a note to slide 8. The updated presentation will be posted as dambrosia_3bs_02b_0115.pdf.
- Another note was added to the presentation on slide 9.

Pete Anslow returned the chair responsibility back to John D'Ambrosia.

Presentation #7:

Title: Energy Efficient Ethernet (EEE) for 802.3bs

By: Arthur Marris

See: http://www.ieee802.org/3/bs/public/15_01/marris_3bs_01_0115.pdf

Presentation #8:

Title: OTN Support Proposal

By: Steve Trowbridge

See: http://www.ieee802.org/3/bs/public/15_01/trowbridge_3bs_01a_0115.pdf

- Clarifying questions were asked and answered.

Presentation #9:

Title: Updated Models – FEC Cores

By: Martin Langhammer

See: http://www.ieee802.org/3/bs/public/15_01/langhammer_3bs_01_0115.pdf

- Author will send updated presentation with a corrected reference.

Presentation #10:

Title: Relative FEC Area Comparison

By: Mark Gustlin

See: http://www.ieee802.org/3/bs/public/15_01/gustlin_3bs_03_0115.pdf

Presentation #11:

Title: Investigation on Technical Feasibility of Stronger RS FEC for 400GbE

By: Xinyuan Wang and Tongtong Wang

See: http://www.ieee802.org/3/bs/public/15_01/wang_x_3bs_01a_0115.pdf

Chair noted that he had updated the webpage with all of the updated files. See

http://www.ieee802.org/3/bs/public/15_01/index.shtml

Chair asked if there was objection to hearing the test equipment presentation prior to the C2C and C2M proposal presentations. No one objected.

Presentation #12:

Title: Test equipment considerations for 400G early implementations

By: Paul Brooks

See: http://www.ieee802.org/3/bs/public/15_01/brooks_3bs_01a_0115.pdf

- Author will send updated presentation with additional supporters.

Straw Poll #1:

I would support adopting the architecture baseline proposal in dambrosia_3bs_02a_0115.pdf

- Yes = 80
- No = 2
- Abstain = 28

Break at 6:09 p.m. Resume at 7:34 p.m.

Chair noted that no alcohol is to be brought into the meeting room.

Presentation #13:

Title: Baseline Proposal for CDAUI-8 Chip-to-Chip (c2c)

By: Mike Li

See: http://www.ieee802.org/3/bs/public/15_01/li_3bs_01a_0115.pdf

- Received some questions regarding the channel IL.
- There were some questions about power.

Presentation #14:

Title: Draft Baseline Proposal for CDAUI-8 Chip-to-Module (c2m) Electrical Interface

By: David Brown

See: http://www.ieee802.org/3/bs/public/15_01/brown_3bs_01a_0115.pdf

Chair confirmed a start time of 8:30 a.m. on Thursday morning.

Broke for the day at 8:42 p.m.

IEEE P802.3bs Task Force Meeting – 15 January 2015:

Prepared by Kent Lusted

Resumed at 8:31 a.m. on 15 January 2015 by John D'Ambrosia, IEEE P802.3bs Task Force Chair.

Chair reminded attendees to sign into the IEEE-SA Meeting Attendance Tool and sign the book. Update affiliation, if necessary.

Chair displayed agenda slides:

http://www.ieee802.org/3/bs/public/15_01/agenda_3bs_01a_0115.pdf

Patent policy: Chair displayed the patent policy related slides in the agenda (http://www.ieee802.org/3/bs/public/15_01/agenda_3bs_01a_0115.pdf). Chair asked if anyone is unfamiliar with the IEEE patent policy. No one responded. Chair called for potentially essential patents. No one responded.

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Chair reminded participants to observe the proper decorum.

Chair discussed the presentation "Moving Forward". The text is not a list of motions but a structure for discussion on motions.

Chair asked for a show of hands for people arriving at the March Plenary before Tuesday. Chair noted that the March Plenary may start on Tuesday afternoon (March 10, 2015) or Wednesday (March 11, 2015) morning to minimize the time between P802.3by and P802.3bs. Attendees were asked to make their travel plans accordingly. Information will be sent to the email reflector.

Presentation #15:

Title: Summary of NRZ CDAUI proposals

By: Piers Dawe

See: http://www.ieee802.org/3/bs/public/15_01/dawe_3bs_01_0115.pdf

- Had several questions regarding the channel differential insertion loss

Chair asked Joel Goergen and Tom Palkert to prepare a slide summarizing the difference in insertion loss data in the NRZ baseline proposal.

Presentation #16:

Title: 56Gbps Modulation

By: Haoi Qian

See: http://www.ieee802.org/3/bs/public/15_01/qian_3bs_01b_0115.pdf

- Author to confirm with Chair that the posted version was correct. Version _01b_ was posted. It was the latest version.

John D'Ambrosia passed the chair responsibility to Pete Anslow.

Presentation #17:

Title: Proposed Baseline text for: Chip-to-module 400 Gb/s eight-lane Attachment Unit Interface (CDAUI-8)

By: Tom Palkert

See: http://www.ieee802.org/3/bs/public/15_01/palkert_3bs_01_0115.pdf

- Presentation was updated with additional supporters.

Broke at 9:45 a.m. Resumed at 10:05 a.m.

The chair responsibility was passed back to John D'Ambrosia.

Chair noted that the P802.3bs Task Force may meet on Tuesday afternoon during the March Plenary, pending room availability. In March, the Task Force will not meet late on Wednesday due to the social event. John D'Ambrosia will work with Mark Nowell to attempt to minimize the overlap between the P802.3bs and the P802.3by meetings.

Chair asked if anyone would object to hearing a late presentation from Joel Goergen with a clarification on the CDAUI loss models. No one objected.

Presentation #18:

Title: C2M Channel Discrepancy Concerns

By: Joel Goergen

See: http://www.ieee802.org/3/bs/public/15_01/goergen_3bs_02_0115.pdf

- Chair asked that future contributions denote the Nyquist and loss assumptions.

Presentation #19:

Title: Proposed Baseline text for: Chip-to-chip 400 Gb/s eight-lane Attachment Unit Interface (CDAUI-8)

By: Tom Palkert

See: http://www.ieee802.org/3/bs/public/15_01/palkert_3bs_02_0115.pdf

- Presentation was updated with additional supporters.
- Author agreed to update the presentation to correct/remove slide 10 (CTLE gain curves) due to an error and confirm change with co-authors.

Brian Welch noted that he has a second presentation [welch_3bs_02_0115.pdf](#) that had errors. Chair asked if there was any objection to the corrected presentation. No one responded.

Presentation #20:

Title: 400G-PSM4: A Proposal for the 500m Objective using 100 Gbps per Lane Signaling

By: Brian Welch

See: http://www.ieee802.org/3/bs/public/15_01/welch_3bs_01a_0115.pdf

- Presentation was updated with additional supporters.
- Clarifying questions were asked and answered.

Presentation #21:

Title: Proposal for 400GE Optical PMD for 2km SMF Objective based on 4 x 100G PAM4

By: David Lewis

See: http://www.ieee802.org/3/bs/public/15_01/lewis_3bs_01a_0115.pdf

- Presentation was updated with additional supporters and a backup slide with a comparison of PAM4 link budget to the 50G link budget.
- Chair asked if there was any objection to hearing the updated presentation. No one objected.
- Several questions on optical link budget.
- Chief Editor noted that additional details are necessary for the editorial team to create a clause from this proposal.

Presentation #22:

Title: 400Gb/s 2km & 10km duplex SMF NRZ PMD Nominal Specifications

By: Chris Cole

See: http://www.ieee802.org/3/bs/public/15_01/cole_3bs_01_0115.pdf

- Clarifying questions were asked and answered.

Broke for lunch at 11:50 a.m. Resumed at 1:00 p.m.

Presentation #23:

Title: 400Gb/s 2km & 10km duplex SMF PAM-4 PMD Nominal Specifications

By: Chris Cole

See: http://www.ieee802.org/3/bs/public/15_01/cole_3bs_02_0115.pdf

- Clarifying questions were asked and answered.

Presentation #24:

Title: Baseline Proposal for 8 x 50G NRZ for 400GbE 2km and 10km PMD

By: Keisuke Kojima

See: http://www.ieee802.org/3/bs/public/15_01/kojima_3bs_01a_0115.pdf

- Presentation was updated with additional supporters and a change to the TX power.
- Clarifying questions were asked and answered.

Presentation #25:

Title: 400GE DMT Multi-Vendor Interoperability Requirements

By: Sacha Corbeil

See: http://www.ieee802.org/3/bs/public/15_01/corbeil_3bs_01a_0115.pdf

- Author had updated presentation with editorial change
- Chair asked attendees to hold questions to the end of the presentation.
- Clarifying questions were asked and answered.

Chair noted that the webpage was updated with the presentations received.

Presentation #26:

Title: 2 km SMF 400 Gb/s live traffic results using DMT test chips

By: David Brown on behalf of Michael Vitic

See: http://www.ieee802.org/3/bs/public/15_01/vitic_3bs_01_0115.pdf

- Clarifying questions were asked and answered.
- Received some comments about power
- Received some comments on RIN.

Presentation #27:

Title: 400GbE DMT Tolerance to MPI using DMT Test Chip

By: Toshiki Tanaka

See: http://www.ieee802.org/3/bs/public/15_01/tanaka_3bs_01a_0115.pdf

Broke at 2:55 p.m. Resumed at 3:15 p.m.

Presentation #28:

Title: Experimental Demonstration of 56Gbps NRZ for 400GbE 2km and 10km PMD Using 100GbE Tx & Rx with Rx EQ

By: Yangjing Wen

See: http://www.ieee802.org/3/bs/public/15_01/wen_3bs_01_0115.pdf

Presentation #29:

Title: Further considerations on 400Gb/s Ethernet SMF PMDs

By: Peter Stassar

See: http://www.ieee802.org/3/bs/public/15_01/stassar_3bs_01_0115.pdf

Presentation #30:

Title: 100 Gbps/λ vs. 50 Gbps/λ : Cost and Power Comparisons in Silicon Photonics

By: Brian Welch

See: http://www.ieee802.org/3/bs/public/15_01/welch_3bs_02a_0115.pdf

- Clarifying questions were asked and answered.

Presentation #31:

Title: 4λ x 100G and 8λ x 50G Relative Power Consumption Comparison for 400G

By: Ram Rao

See: http://www.ieee802.org/3/bs/public/15_01/rao_3bs_01a_0115.pdf

- Author had updated presentation with additional technical content as supporting evidence. Kent Lusted asked if there was an objection from the Task Force to hearing the updated presentation. No one responded.
- Ram Rao to send updated presentation for posting.
- Clarifying questions were asked and answered.
- Chair issued warning to attendees about cost, no matter the currency.

Presentation #32:

Title: Investigation of PAPR Penalty on PAM4 Signaling

By: Riu Hirai

See: http://www.ieee802.org/3/bs/public/15_01/hirai_3bs_01_0115.pdf

- Clarifying questions were asked and answered.

Presentation #33:

Title: Improved Results for both 56 and 112Gb/s PAM4 Signals

By: Winston Way

See: http://www.ieee802.org/3/bs/public/15_01/way_3bs_01a_0115.pdf

- Updated presentation with co-author. Winston to send updated presentation.
- Clarifying questions were asked and answered.
- Received questions regarding FEC penalties.
- Received questions on the experiment setup.

Chair noted a change in the schedule to accommodate Gary Nicholl's presentation today prior to the break, as it was related to discussion related to the electrical interfaces. After the break, straw polls will occur.

Presentation #34:

Title: Value of a Common Electrical Modulation Scheme for CDAUI-8 from a System Perspective

By: Gary Nicholl and Vasu Parthasarathy

See: http://www.ieee802.org/3/bs/public/15_01/nicholl_3bs_01c_0115.pdf

- Author had updated presentation with additional supporters.
- Much discussion on the universal serdes topics
- Chair noted that interfaces outside the scope of the project will not be considered, i.e. backplane.

Straw Poll #2: 6:41 p.m.

For the CDAUI-8 chip-to-chip electrical I/O interface, I support the following modulation (vote one only):

- a) PAM-4 per proposed li_3bs_01a_0115.pdf
- b) PAM-2 (NRZ) per proposed palkert_3bs_02_0115.pdf
- c) Do not support either at this time
- d) Abstain

Results:

a) 47, b) 18, c) 15, d) 30

Straw Poll #3: 6:44 p.m.

For the CDAUI-8 chip-to-module electrical I/O interface, I support the following modulation (vote one only):

- a) PAM-4 per proposed brown_3bs_01a_0115.pdf
- b) PAM-2 (NRZ) per proposed palkert_3bs_01_0115.pdf
- c) Do not support either at this time
- d) Abstain

Results:

a) 45, b) 17, c) 21, d) 26

Chair announced the start time on Friday of 9 a.m.

Break for the day at 6:50 p.m.

IEEE P802.3bs Task Force Meeting – 16 January 2015:

Prepared by Kent Lusted

Resumed at 9:03 a.m. on 16 January 2015 by John D'Ambrosia, IEEE P802.3bs Task Force Chair.

Chair displayed agenda slides:

http://www.ieee802.org/3/bs/public/15_01/agenda_3bs_01a_0115.pdf

Task force decorum.

Patent policy: Chair displayed the patent policy related slides in the agenda (http://www.ieee802.org/3/bs/public/15_01/agenda_3bs_01a_0115.pdf). Chair asked if anyone is unfamiliar with the IEEE patent policy. No one responded. Chair called for potentially essential patents. No one responded.

Chair displayed the Guidelines for IEEE WG meetings.

Chair noted that proposals do not need to be technically complete but have sufficient detail to implement in the initial draft. Technical completeness is required to move to WG Ballot.

Chair asked Steve Trowbridge for an update on the liaison communication response. Steve stated that he has a template prepared and will complete it based on actions today. Chair advised that if no baseline proposals are adopted then the letter should communicate the timeline impact, big ticket items, and a call to industry for participation.

Chair reminded attendees to sign the book and into the IEEE Attendance Tool. Update affiliation, if necessary.

Presentation #35:

Title: Technology adoption scenarios for 2km and 10km SMF PMDs

By: Yoshiaki Sone

See: http://www.ieee802.org/3/bs/public/15_01/sone_3bs_01a_0115.pdf

- Ram Rao offered his support for the presentation.
- Received some comments on interoperability and number of lambdas.

Presentation #36:

Title: The Architecture is the Deliverable

By: David Ofelt

See: http://www.ieee802.org/3/bs/public/15_01/ofelt_3bs_01_0115.pdf

- Updated presentation with additional supporters.

Chair noted that, per the timeline (http://www.ieee802.org/3/bs/timeline_3bs_0514.pdf), this is the meeting where baseline proposals are supposed to be adopted.

Chair noted that he will be asking participants 3 questions for each of the major areas outlined in dambrosia_3bs_01_0115.pdf, slides 8-19:

1. Do you intend to make a motion?
2. Do you intend to withdraw your proposal?
3. What are the big ticket action items necessary to proceed?

David Law, IEEE 802.3 Working Group Chair, summarized his observations from this week's meeting.

Chair noted that he is seeking presentations for baseline proposals to enable the editorial team to prepare an initial draft, identify gaps and progress to a technically complete document.

PCS Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 8)

Proposal: gustlin_3bs_02_0115

Mark Gustlin stated no motion is planned.

Mark Gustlin stated he does not withdraw the proposal.

PCS Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slide 2)

Straw Poll #4: 9:51 a.m.

Would you adopt KP4 as the base FEC in this meeting?

- Yes = 34
- No = 4
- Want to consider other options = 67

There were some comments about which FEC choice is the leading candidate.

Broke at 10:02 a.m. Resumed at 10:33 a.m.

FEC Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 9)

Reference presentation: wang_x_3bs_01_0115.pdf

Mark Gustlin stated No motion is planned.

FEC Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slide 3)

PMA Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 10)

Reference presentations:

- Slavick_3bs_01a_0115.pdf
- Wang_t_3bs_01a_0115.pdf
- Gustlin_3bs_02_0115.pdf

Mark Gustlin stated no motion is planned.

PMA Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slide 4)

Architecture Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 11)

Proposal dambrosia_3bs_02b_0115.pdf

Mark Gustlin stated a motion is planned.

Motion #3: 10:53 a.m.

Move to adopt slides 4 and 8 from dambrosia_3bs_02b_0115 as baseline architecture.

- M: M. Gustlin
- S: P. Anslow
- Technical ($\geq 75\%$),
- Y: 95 , N: 0 , A: 22
- Result: passes

EEE Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 12)

Proposal marris_3bs_01_0115.pdf

Arthur Marris stated a motion is planned.

Motion #4: 1101 a.m.

Move to adopt the EEE baseline proposed in marris_3bs_01_0115.pdf slide 7.

- M: Arthur Marris
- S: Kent Lusted
- Technical ($\geq 75\%$),
- Yes: 96 No: 0 Abstain: 18
- Result: passes

OTN Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 13)

Proposal trowbridge_3bs_01a_0115.pdf

Steve Trowbridge stated a motion is planned.

Motion #5: 11:07 a.m.

Move to adopt slide 10 of trowbridge_3bs_01a_0115.pdf as the baseline for the OTN mapping reference point

- M: Steve Trowbridge
- S: Pete Anslow
- Technical ($\geq 75\%$)
- Y: 74 , N: 0 , A: 43
- Result: passes

Chair stated that he will call on each PMD proposal representative for discussion.

C2C CAUI-8 Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 14)

Proposal: Goergen_3bs_03a_0115.pdf

- Joel Goergen stated no motion is planned.
- Joel Goergen stated that he withdraws the proposal. It is superseded by other proposals.

Proposal: palkert_3bs_02_0115.pdf

- Tom Palkert stated no motion is planned.
- Tom Palkert stated that he does not withdraw the proposal.

Proposal: li_3bs_01a_0115.pdf

- Mike Li stated that motion is planned.
- Mike Li stated that he does not withdraw the proposal.

C2C CAUI-8 Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 15)

Proposal: Goergen_3bs_03a_0115.pdf

- Joel Goergen stated no motion is planned.
- Joel Goergen stated that he withdraws the proposal. It is superseded by other proposals.
- Joel Goergen noted additional work is needed in the LPPI space for the CAUI-8 C2M reference in Goergen_3bs_03a_0115.

Chair noted that he may make a motion to adopt a single modulation type for the C2C and C2M interfaces.

10km SMF Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 17)

Proposal: cole_3bs_01_0115.pdf for 8 lambda x 50G NRZ

- Chris Cole stated no motion is planned.
- Chris Cole stated that he does not withdraw the proposal.

Proposal: kojima_3bs_01_0115.pdf for 8 lambda x 50G NRZ

- Keisuke Kojima stated no motion is planned.
- Keisuke Kojima stated that he does not withdraw the proposal.

Proposal: cole_3bs_02_0115.pdf for 8 lambda x 50G PAM4

- Chris Cole stated no motion is planned.
- Chris Cole stated that he does not withdraw the proposal.

Proposal: takahara_3bs_01_1114.pdf and corbeil_3bs_01_0115.pdf for 4 lambda x 100G DMT

- Tomoo Takahara and Sacha Corbeil stated no motion is planned.
- Tomoo Takahara and Sacha Corbeil stated that they do not withdraw the proposal.

500m SMF Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 18)

Proposal: cole_3bs_03a_0115.pdf for 4 fibers x 2 lambda x 50G NRZ

- Chris Cole stated no motion is planned.
- Chris Cole stated that he does not withdraw the proposal.

Proposal: cole_3bs_04a_0115.pdf for 4 fibers x 2 lambda x 50G PAM4

- Chris Cole stated no motion is planned.
- Chris Cole stated that he does not withdraw the proposal.

Proposal: welch_3bs_01_0115.pdf for 4 fibers x 1 lambda x 100G PAM4

- Brian Welch stated that, yes, a motion is planned.
- Brian Welch stated that he does not withdraw the proposal.

Proposal: lewis_3bs_01a_1114.pdf and corbeil_3bs_01_0115.pdf for 4 lambda x 100G DMT

- Dave Lewis and Sacha Corbeil stated no motion is planned.
- Dave Lewis and Sacha Corbeil stated that they do not withdraw the proposal.

2km SMF Topic (see http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_01_0115.pdf slide 19)

Proposal: cole_3bs_1_0115.pdf for 8 lambda x 50G NRZ

- Chris Cole stated no motion is planned.
- Chris Cole stated that he does not withdraw the proposal.

Proposal: kojima_3bs_1a_0115.pdf for 8 lambda x 50G NRZ

- Keisuke Kojima stated no motion is planned.
- Keisuke Kojima stated that he does not withdraw the proposal.

Proposal: cole_3bs_2_0115.pdf for 8 lambda x 50G PAM4

- Chris Cole stated no motion is planned.
- Chris Cole stated that he does not withdraw the proposal.

Proposal: lewis_3bs_01a_1114.pdf for 4 lambda x 100G PAM4

- Dave Lewis stated no motion is planned.
- Dave Lewis stated that he does not withdraw the proposal.

Proposal: lewis_3bs_01a_1114.pdf and corbeil_3bs_01_0115.pdf for 4 lambda x 100G DMT

- Dave Lewis and Sacha Corbeil stated no motion is planned.
- Dave Lewis and Sacha Corbeil stated that they do not withdraw the proposal.

Chair encouraged attendees to return promptly from lunch.

Break at 11:34 a.m. Resume at 1:03 p.m.

Motion #6: 1:07 p.m.

Move to adopt the following equation as the informative insertion loss equation for CDAUI-8 chip-to-chip electrical I/O interface

$$- IL \leq \{ 1.083 + 2.543\text{SQROOT}(f) + 0.761f \quad 0.01 \leq f \leq 28.05\text{GHz} \} \text{ dB}$$

- M: Goergen
- S: Parthasarathy
- Technical ($\geq 75\%$),
- Y: 79 , N: 0 , A: 29
- Result: passes

Motion #7: 1:27 p.m.

- Move to adopt li_3bs_01a_0115.pdf as the baseline proposal for CDAUI-8 chip-to-chip electrical I/O interface using the informative insertion loss from motion 6.
- M: Goergen
- S: Parthasarathy
- Technical ($\geq 75\%$),
- All: Y: 49 , N: 27 , A: 32
- 802.3 voters: Y: 36, N: 20, A: 25
- Result: fails

Chip-to-Chip CDAUI-8 Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slides 9-10)

Broke at 2:09 p.m. Resumed at 2:22 p.m.

Motion #8: 2:25pm

Move to adopt the following equation as the informative insertion loss equation for CDAUI-8 chip-to-module electrical I/O interface

$$- IL \leq \{ 1.076(0.075 + 0.537\text{SQROOT}(f) + 0.566f) \quad 0.01 \leq f \leq 28.05\text{GHz} \} \text{ dB}$$

- M: Joel Goergen
- S: Vasu Parthasarathy
- Technical ($\geq 75\%$),
- Y: 64 , N: 4, A: 29
- Result: passes

Chip-to-Module CDAUI-8 Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slide 11)

LPPI Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slide 12)

Chair noted that the “Moving Forward” presentation did not explicitly contain LPPI.

Attendance Straw Polls

Chair announced the March Plenary is tentative scheduled to start on Tuesday afternoon, conditional upon room availability and P802.3by schedule. Mark Nowell noted that the P802.3by Task Force will start on Monday morning before the IEEE 802.3 opening Plenary.

- I will attend the IEEE P802.3bs meetings at the March plenary in Berlin, Germany (week of March 8, 2015)
 - Y: 69 , Maybe Y: 19 , Maybe N: 3 , N: 9
- I already purchased tickets to the March social event
 - Y: 8
- I will attend the IEEE P802.3bs meetings at the May interim in Pittsburgh, PA, USA (week of May 18, 2015)
 - Y: 59 , Maybe Y: 26 , Maybe N: 6 , N: 3

10km SMF PMD Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slides 13-15)

500m SMF PMD Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slides 16-18)

2km SMF PMD Big Ticket Items: (see

http://www.ieee802.org/3/bs/public/15_01/big_ticket_items_3bs_01_0115.pdf , slides 19-22)

John D’Ambrosia passed the chair responsibility to David Law. John stated that his only intent is to move the Task Force forward and not for any other agenda regarding selection of PMDs.

Motion #9: 3:20 p.m.

Move to adopt PAM-n (where n is either 2 or 4) as the basis for all SMF PMD baseline proposals

- M: John D’Ambrosia
- S: Mike Dudek
- Technical ($\geq 75\%$), Procedural ($>50\%$)
- all in room: Y: 39 , N: 31 , A: 18
- 802.3voters: Y: 31 N: 21 A: 12
- Result: fails

David Law as Chair clarified the text in the motion that the term “where n is either 2 or 4” would effectively eliminate DMT. The mover and seconder agreed.

David Law returned the chair responsibility to John D’Ambrosia.

Chair noted that all proposals must meet the technical feasibility as well as the broad market potential.

The Task Force reviewed the OIF informal communication letter http://www.ieee802.org/3/bs/public/15_01/trowbridge_3bs_02_0115.pdf . Chair asked if there was objection to adding a link to the January meeting materials as part of the editorial action. No one objected.

The Task Force reviewed the ITU-T informal communication letter http://www.ieee802.org/3/bs/public/15_01/trowbridge_3bs_03_0115.pdf . Chair asked if there was objection to adding a link to the January meeting materials as part of the editorial action. No one objected.

Motion #10: 3:55 p.m.

Move that the IEEE 802.3bs 400 GbE Task Force approve the text in trowbridge_3bs_02_0115.pdf with editorial license granted to the Chair (or his appointed agent) as an informal communication by the Chair to OIF.

- M: Steve Trowbridge
- S: Pete Anslow
- Procedural (>50%)
- Result: pass by voice without opposition

Motion #11: 3:56 p.m.

Move that the IEEE 802.3bs 400 GbE Task Force approve the text in trowbridge_3bs_03_0115.pdf with editorial license granted to the Chair (or his appointed agent) as an informal communication by the Chair to the ITU-T Study Group 15.

- M: Steve Trowbridge
- S: Pete Anslow
- Procedural (>50%)
- Result: pass by voice without opposition

Chair echoed the sentiment expressed during the discussion on Motion #9 and thanked the DMT participants for their contributions.

Chair stated that he will announce the ad hoc teleconference schedule over the email reflector.

Chair reviewed the future meetings.

Future Meetings

- Mar 2015 Plenary - Week of Mar 8
 - Estrel Hotel and Convention Center, Berlin, Germany
- May 2015 Interim - Week of May 18, 2015
 - Omni William Penn Hotel, Pittsburgh, PA, USA
- July 2015 Plenary - Week of July 12
 - Hilton Waikoloa Village
- Sept 2015 Interim – Week of Sept 14
 - – Hyatt Regency Coconut Point, Bonita Springs, FL

- Nov 2015 Plenary
 - Hyatt Regency Dallas, Dallas, TX, USA

Anyone interested in hosting a meeting should contact the Chair or Steve Carlson.

Chair asked participants to review the Big Ticket Item lists and make contributions. After the Chair and Chief Editor have reviewed the adopted proposals, a call will be announced over the reflector

Motion #:12

Motion to Adjourn:

- M: Steve Trowbridge
- S: Peter Stassar
- Pass by voice without opposition.

Meeting ended at 4:01 p.m.

Attendees

IEEE P802.3bs 400GbE Task Force			1/14/2015	1/15/2015	1/16/2015
Last Name	First Name	Employer / Affiliation	Wed	Thurs	Fri
Anslow	Pete	Ciena Corporation	x	x	x
Baden	Eric	Broadcom	x	x	x
Balasubramanian	Vittal	Dell Force10	x	x	x
Balasubramonian	Venu	Marvell	x	x	x
Baldwin	Thananya	Ixia	x	x	x
Bhatt	Vipul	Inphi	x	x	x
Bliss	Will	Broadcom	x	x	x
Booth	Brad	Microsoft	x	x	x
Bouda	Martin	Fujitsu	x	x	x
Bourgeois	Stephane	Belden			x
Bower	Patricia	Fujitsu	x	x	x
Braun	Ralf-Peter	Deutsche Telekom	x	x	x
Brooks	Paul	JDSU	x	x	x
Brown	David	Semtech	x	x	x
Brown	Matt	Applied Micro	x	x	x
Brown	Thomas	Vitesse			x
Butter	Adrian	IBM	x	x	x
Carroll	Martin	Verizon	x	x	x
Chang	Xin	Huawei	x	x	x
Cheng	Wheling	Ericsson	x	x	x
Cober	Don	Comira	x	x	x
Cole	Chris	Finisar	x	x	x
Conroy	Keith	MultiPhy	x	x	x
Corbeil	Sacha	JDS Uniphase	x	x	x
D'Ambrosia	John	Dell	x	x	x
Dawe	Piers	Mellanox	x	x	x
Dudek	Mike	QLogic	x	x	x
Estes	Dave	Spirent Communications	x	x	x
Ewen	John	IBM	x	x	x
Fyh	German	Broadcom			x
Ghiasi	Ali	Ghiasi Quantum		x	x
Goell	James	Nano Precision Prod	x	x	x
Goergen	Joel	Cisco	x	x	x
Gong	Zhigang	D-Net	x	x	x
Gorshe	Steve	PMC_Sierra	x	x	
Graba	Jim	Broadcom			x
Grow	Bob	RMG Consulting		x	x
Gustlin	Mark	Xilinx	x	x	x
Hall	Eric	Aurrion	x	x	x
Hao	Chen	Fujitsu	x	x	x
Healey	Adam	Avago Technologies	x	x	x
Hidaka	Yasuo	Fujitsu Laboratories of America	x	x	x
Hirai	Riu	Hitachi	x	x	x
Horner	Rita	Synopsys	x	x	
Ingham	Jonathan	Avago Technologies	x		
Irwin	Scott	Mosys	x	x	x
Isono	Hideki	Fujitsu Ltd.	x	x	x

IEEE P802.3bs 400GbE Task Force			1/14/2015	1/15/2015	1/16/2015
Last Name	First Name	Employer / Affiliation	Wed	Thurs	Fri
Issenhuth	Tom	Microsoft	x	x	
Jackson	Kenneth	Sumitomo		x	x
Jones	Mark	Xtera	x	x	x
Kagami	Manabu	Toyota			x
Kamino	John	OFS		x	x
Kelsen	Michael	Time Warner Cable	x	x	x
King	Jonathan	Finisar Corp.	x		
Kipp	Scott	Brocade		x	x
Kohmu	Naohiro	Hitachi	x	x	x
Kojima	Keisuke	Mitsubishi Electric Res. Lab	x	x	x
Kolesar	Paul	CommScope	x	x	x
Kreti	Upen Reddy	Cisco	x	x	x
Lane	Brett	Panduit Corp.		x	x
Langhammer	Martin	Altera		x	x
Lapak	Jeff	UNH-IOL			x
Law	David	HP	x		x
LeCheminant	Greg	Keysight Technologies	x	x	x
Lewis	Dave	JDSU	x	x	x
Li	Lei	Fujitsu	x	x	x
Li	Mike	Altera	x	x	x
Little	Paul	Fujitsu Semiconductors	x	x	x
Liu	Zhenyu	Marvell Semiconductor	x	x	x
Lusted	Kent	Intel	x	x	x
Lyubomirsky	Ilya	Finisar	x		
Maki	Jeffery	Juniper Networks	x	x	x
Marris	Arthur	Cadence	x	x	x
Masuda	Takeo	OITDA			x
Matoglu	Erdem	Amphenol	x	x	
McDonough	John	NEC America	x	x	x
Mei	Richard	Commscope			x
Mellitz	Richard	Intel	x	x	x
Motamedi	Amir	Cavium	x	x	
Muir	Ron	JAE	x	x	
Murray	Dale	Light Counting	x	x	x
Nagakubo	Yasunori	Fujitsu Optical Components	x	x	x
Nakamoto	Edward	Spirent Communications	x	x	
Nishimura	Takeshi	Yamaichi Electronics	x	x	x
Nowell	Mark	Cisco	x	x	x
Ofelt	David	Juniper Networks	x	x	x
Ogura	Ichiro	Petra	x	x	x
Palkert	Tom	Luxtera	x	x	x
Pancholy	Rajiv	Broadcom	x	x	
Park	Moon	OE Solutions	x	x	x
Parthasarathay	Vasudevan	Broadcom		x	x
Pepper	Gerald	Ixia	x	x	x
Pimpinella	Rick	Panduit Corp.	x	x	x
Pondillo	Peter	Corning	x	x	x
Qian	Haoli	Credo Semiconductor	x	x	x
Ran	Adee	Intel	x	x	x

IEEE P802.3bs 400GbE Task Force			1/14/2015	1/15/2015	1/16/2015
Last Name	First Name	Employer / Affiliation	Wed	Thurs	Fri
Rao	Ram	Oclaro	x	x	x
Roth	Chris	Molex	x	x	x
Sakamoto	Hisaya	Fujitsu Optical Components	x	x	x
Sella	Omer	Mellanox	x	x	x
Seyed	Hamidi	Broadcom			x
Shanbhag	Megha	TE Connectivity	x	x	x
Shirao	Mizuki	Mitsubishi Electric	x	x	x
Shrikhande	Kapil	Dell	x		
Slavick	Jeff	Avago Technologies	x	x	x
Sommers	Scott	Molex	x	x	
Sone	Yoshiaki	NTT	x	x	x
Stassar	Peter	Huawei	x	x	x
Stone	Rob	Broadcom	x	x	x
Sugitatsu	Atsushi	mitsubishi Electric	x	x	x
Swanson	Steve	Corning	x	x	x
Szczepanek	Andre	Inphi	x	x	x
Szeto	William	Xtera	x	x	x
Tailor	Bharat	Semtech Corp	x	x	x
Tajima	Akio	NEC Corporation	x	x	x
Takahara	Tomoo	Fujitsu Laboratories	x	x	x
Takahata	Kiyoto	NTT	x	x	x
Takai	Atsushi	Oclaro	x	x	x
Takaishi	Toru	Fujitsu Semiconductors	x	x	x
Tanaka	Toshiki	Fujitsu Laboratories	x	x	x
Teipen	Brian	ADVA Optical Networking	x	x	x
Ten	Sergey	Corning		x	x
Thaler	Pat	Broadcom			x
Toyserkani	Pirooz	Cisco	x	x	x
Tracy	Nathan	TE Connectivity	x	x	x
Trowbridge	Steve	Alcatel-Lucent	x	x	x
Twombly	Jeff	Credo Semiconductor	x	x	x
Vaddineni	Manoj	JDSU	x		
Walker	Clint	Intel	x	x	
Wang	Robert	Intel	x	x	
Wang	Tongtong	Huawei	x	x	x
Wang	Xinyuan	Huawei	x	x	x
Wang	Zhongfeng	Broadcom	x	x	x
Way	Winston	NeoPhotonics	x	x	x
Weber	Markus	Fujitsu	x	x	x
Welch	Brian	Luxtera	x	x	x
Wen	Yangjing	Huawei	x	x	x
Wertheim	Oded	Mellanox	x	x	x
White	Martin	Cavium	x	x	x
Wilkie	Bill	Xilinx	x	x	x
Xu	Yu	Huawei	x	x	x
Yuki	Hayato	AutoNetworks Tech			x
Zambell	Andrew	FCI	x	x	
Zhuang	Yang	Huawei		x	
Zivny	Pavel	Tektronix	x	x	x

IEEE P802.3bs 400GbE Task Force			1/14/2015	1/15/2015	1/16/2015
Last Name	First Name	Employer / Affiliation	Wed	Thurs	Fri
Zortea	Tony	PMCS	x	x	