Unapproved Minutes

IEEE P802.3ck 100 Gb/s, 200 Gb/s and 400 Gb/s Electrical Interfaces Task Force

Telephonic series for July 2020 Meeting

June 30, July 6, July 8, July 15, July 21, July 22, July 28, and July 29, 2020

Online Meeting

Prepared by Beth Kochuparambil and Kent Lusted

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IEEE P802.3ck 100 Gb/s Electrical Lane Task Force – June 30, 2020

Prepared by Kent Lusted

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Presentations posted at: http://www.ieee802.org/3/ck/public/20_07/index.html

Meeting began at 7:00 a.m. Pacific by Beth Kochuparambil, IEEE 802.3ck Task Force Chair.
(Note: all times are Pacific time zone unless otherwise indicated)

Beth welcomed attendees.

Meeting began with the agenda presentation:
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_01_0720.pdf

The chair reminded participants to indicate full names and employer/affiliation correctly for the meeting minutes. Reminded participants to mute lines when not speaking and reviewed the steps to unmute.

Presented the proposed agenda.

Motion #1:

Move to approve the 30 June agenda.
Moved by: Adee Ran
Second by: Nathan Tracy
Passed by unanimous consent

Chair asked if there were any other corrections or modifications to be noted for the May 6th minutes. No one responded.

Motion #2:

Move to approve the May 6, 2020 telephonic interim meeting minutes.
Moved by: Adee Ran
Second by: Nathan Tracy
Passed by unanimous consent

Chair reminded participants of the IEEE Participation Requirements and showed the slide with the Participation requirements. (see: http://www.ieee802.org/devdocs.shtml) Reminded participants of the IEEE copyright policy. (See: https://standards.ieee.org/ipr/index.html) Chair reminded participants of the IEEE patent policy. (See: http://www.ieee802.org/3/patent.html) She asked if anyone was unfamiliar with the IEEE patent policy. No one responded. Chair made the call for patents. No one responded.

Chair provided an overview of the Task Force status. Chair noted that editors are using a "bucket" for comments deemed non-controversial. The proposed responses would be adopted with a motion at the end of the meeting series.

Reviewed the Draft 1.2 Telephonic interim series. The bridge would open 30 minutes early for discussions on the Wednesday telephonic calls. Consensus building presentations and updates on these topics are due the Friday before the topic is to be covered, noon Pacific time.

Reminded participants of the IEEE 802.3 Working Group plenary meeting details.

Chair reviewed the potential schedule change on slide 11 of the agenda deck.

Chair reviewed the ground rules.

Chair called for members of the press. No one responded.

It was noted that comments currently collected in the "bucket" are to be reviewed by participants and if any of them are to be taken out of the bucket, participants are to notify leadership by 16 July, 2020. The proposed "bucket" responses are posted at http://www.ieee802.org/3/ck/comments/draft1p2/8023ck_D1p2_comments_proposed_bucket.pdf

Reviewed the common comment resolution process.

Chief Editor's Report

Matt Brown

See: http://www.ieee802.org/3/ck/public/20_07/editorsrep_3ck_01_0720.pdf

- There were 300 comments from 22 reviewers
- An updated proposed responses file was posted on 29 June with new withdrawals, fixed/added references, or corrected references. See: http://www.ieee802.org/3/ck/comments/draft1p2/8023ck_D1p2_comments_proposedResponses_a.pdf
- Discussed that the comments related to the C2M TP4 (#107 , 108, 109, 115, 116, 130, 135, 228, 191, 192, 193, 194, 196, 200, 212, and 215) might be pushed to the next meeting.

Comment resolution began.

Comment Discussion Presentation - Medium Delay:

Prepared by Howard Heck
See: http://www.ieee802.org/3/ck/public/20_07/heck_3ck_02_0720.pdf

Presentation #1:

"Transmitter Initial Conditions ", Adam Healey
See: http://www.ieee802.org/3/ck/public/20_07/healey_3ck_01a_0720.pdf

- Reviewed and discussed the tap weights in proposal 2 on slide 5.

Comment Discussion Presentation - TX Presets:

Prepared by Howard Heck and Jeff Slavick
See: http://www.ieee802.org/3/ck/public/20_07/heck_3ck_03_0720.pdf

- On slide 5, it was noted that slide 4 and 5 of the healey presentation have the same resolution to UPDATE_IC.

Comment Discussion Presentation - KR Test Fixtures

Prepared by Howard Heck
See: http://www.ieee802.org/3/ck/public/20_07/heck_3ck_01_0720.pdf

Presentation #2:

"Electrical PMD Measurements: What about Test Fixtures", Liav Ben-Artsi and Adee Ran
See: http://www.ieee802.org/3/ck/public/20_07/benartsi_3ck_01_0720.pdf

- Discussed the concepts for the transmitter. The receiver solution has not yet been considered.

Straw Poll #1:

I support use of the TP0v methodology as proposed in benartsi_3ck_01_0720 (choose one):
Y: 16, N: 1, Need more information: 21
See comment #33 for details

Chair asked the editorial team to prepare a draft impact for comment #33 (and similar comments on test points) to review with participants in the July 6, 2020 meeting. There were volunteers to assist with the preparation.

Chair noted that the next meeting would cover the test point comments (from above), C2C, and KR, as well as the C2M TP4.

Chair reminded participants of the next meeting on 6 July, 2020 at 7am PDT.

Meeting ended at ~10:00 a.m.

IEEE P802.3ck 100 Gb/s Electrical Lane Task Force – July 6, 2020

Prepared by Kent Lusted

Proposed Agenda:

- Approval of the Agenda
- IEEE Patent Policy reminder (see below for links)
- IEEE Copyright reminder (see below for link)
- IEEE Participation Requirements reminder (see below for link)
- Ground Rules and Operations
- Comment Resolution (numbers listed are the comment # we will address*)
    - KR Channel COM & RLDC
        - For reference: benartsi_3ck_adhoc_01_121218 & benartsi_3ck_01_0119
        - sun_3ck_02_0720
        - #53, 206, 262, 263, 264
        - brown_3ck_01_0720
        - #11039
    - C2C TX Equalizer feedback
        - ran_3ck_02_0320
        - #11059, 11082
    - TX FIR
        - sun_3ck_01_0720
        - C2C: #167, 183, 184
        - C2C c(-3): #11144
        - KR step size: #222
    - CC TP0a/TP5a Test Fixture and similar
        - For Reference: benartsi_3ck_01_0720
        - heck_3ck_01a_0720
        - #33, 34, 36, 31, 35, 153, 154
    - KR RX IT Channel: #38, 156, 157
    - C2C RX IT Np: #11156
        - brown_3ck_01_0720
    - C2C
        - brown_3ck_01_0720
        - Test Channel RL: #170, 11078
        - TX Jitter: #168
        - TX RSSDFE4: #171
        - TX vfmin: #58, 59, 165
    - TX AC CM noise: #28, 29, 54, 205
        - wu_3ck_01_0720
    - TX linear fit pulse & SNDR: #12, 166, 155

- brown_3ck_02_0720

Presentations posted at: http://www.ieee802.org/3/ck/public/20_07/index.html

Meeting began at ~7:00 a.m. Pacific by Beth Kochuparambil, IEEE 802.3ck Task Force Chair. (Note: all times are Pacific time zone unless otherwise indicated)

Beth welcomed attendees.

Meeting began with the agenda presentation:
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_02_0720.pdf

The chair reminded participants to indicate full names and employer/affiliation correctly for the meeting minutes. Reminded participants to mute lines when not speaking and reviewed the steps to unmute.

Presented the proposed agenda.

Chair noted that the agenda on slide 4 has the same comments from the email reflector announcement but in a different order preferred by the editorial team.

Chair noted a late presentation from Mau-Lin Wu on TX AC Common Mode noise related to consensus building and asked if there was objection. No one responded.

Motion #3:

Move to approve the 6 July agenda.
Moved by: Mike Dudek
Second by: Rich Mellitz
Passed by unanimous consent

There was a request to defer comment #11059 to the end of the day's meeting to facilitate further consensus building. Chair asked participants interested in the topic to contact Adee Ran.

Chair reminded participants of the IEEE Participation Requirements and showed the slide with the Participation requirements. (see: http://www.ieee802.org/devdocs.shtml) Reminded participants of the IEEE copyright policy. (See: https://standards.ieee.org/ipr/index.html) Chair reminded participants of the IEEE patent policy. (See: http://www.ieee802.org/3/patent.html) She asked if anyone was unfamiliar with the IEEE patent policy. No one responded. Chair made the call for patents. No one responded.

Chair reviewed the ground rules.

It was noted that comments currently collected in the "bucket" are to be reviewed by participants and if any of them are to be taken out of the bucket, participants are to notify leadership by 16 July, 2020. The proposed "bucket" responses are posted at http://www.ieee802.org/3/ck/comments/draft1p2/8023ck_D1p2_comments_proposed_bucket.pdf

Discussed the attendance procedures for the current meeting.

Comment resolution began.

Comment Discussion Presentation - Cl 163

Prepared by Phil Sun

See: http://www.ieee802.org/3/ck/public/20_07/sun_3ck_02_0720.pdf

- Slides 3-7

Chair asked the editors to modify the proposed response to #204 (not on the day's list) as a result of the direction set in comment #206.

Presentation #3:

"TX FIR Range of C2C", Phil Sun

See: http://www.ieee802.org/3/ck/public/20_07/sun_3ck_01_0720.pdf

- Discussed the results on slide 9. The format for the table was clarified to be [max value : step size : min value] for c(-1), c(-2), c(-3), and c(+1).
- It was noted that a value of 0.28 was not on the grid for the proposed step size of 0.025. A value of 0.275 would be on grid.

Comment Discussion Presentation - KR Test Fixtures

Prepared by Howard Heck

See: http://www.ieee802.org/3/ck/public/20_07/heck_3ck_01a_0720.pdf

- Chair noted that the editorial team prepared the summary at her request in the 30 June 2020 meeting.
- Discussed that the method makes substantial changes to the specification and the need for analysis before incorporating into the draft.

Chair asked the editors to modify the proposed responses as a result of the direction set in comment #33. Chief Editor noted that the proposed responses for comments on the "KR/C2C test fixture TP0v" and "KR RX IT channel" topics may be updated, if relevant. The "TX linear fit pulse, value" should be reviewed as well.

Comment Discussion Presentation - Cl 163

Prepared by Phil Sun

See: http://www.ieee802.org/3/ck/public/20_07/sun_3ck_02_0720.pdf

- Slides 8-9

Chair asked for a show of hands in support of Phil Sun's possible response to comment #156 on http://www.ieee802.org/3/ck/public/20_07/sun_3ck_02_0720.pdf slide 9. Chair noted there was consensus to move in favor of the response (7-2) and not enough against to necessitate a straw poll for counting.

Chief Editor noted that the proposed response to comment #38 might be updated offline as a result of the direction set by comment #156.

Chair noted that the next meeting is 8 July 2020 at 7:00 a.m. Pacific (see http://www.ieee802.org/3/ck/public/20_07/index.html). The bridge would be opened 30 minutes early to facilitate consensus building among participants. The agenda for the next meeting would be published over the email reflector.

Meeting ended at ~10:00 a.m.

IEEE P802.3ck 100 Gb/s Electrical Lane Task Force – July 8, 2020

Prepared by Beth Kochuparambil and Kent Lusted

Proposed Agenda:

- Approval of the Agenda
- IEEE Patent Policy reminder (see below for links)
- IEEE Copyright reminder (see below for link)
- IEEE Participation Requirements reminder (see below for link)
- Ground Rules and Operations
- Comment Resolution (numbers listed are the comment # we will address*)
    - TP4 NE/FE parameters, eye height, VEC, swing**
        - hidaka_3ck_01_0720.pdf
        - ghiasi_3ck_02_0720.pdf
        - ran_3ck_adhoc_01_052720.pdf (for reference)
        - Consensus Discussion led by ran_3ck_01_0720.pdf
        - Related to comments #175, 176, 177, 178, 211, 238, 11060
        - Related to comments #107, 108, 109, 115, 116, 130, 135, 228, 191, 192, 193, 194, 196, 200, 212, 215
    - C2M ESMW and EW parameters
        - brown_3ck_adhoc_02_062420.pdf
        - #231, 173, 32, 246
    - Continuing Monday's comment agenda
        - brown_3ck_02_0720 – C2C/KR (same document and comments, just rearranged the order)
            - TX linear fit pulse, reference: #166 (slide 8)
            - C2C RX IT Np: #11156 (slide 2)
            - Test Channel RL: # 11078, 170 (slide 3)
            - TX Jitter: #168 (slide 4)
            - TX RSSDFE4: #171 (slide 5)
            - TX SNDR: #155 (slide 9)
        - wu_3ck_01_0720 (same comments, just different order)
            - KR Channel Diff to CM Conversion Loss: #11039, brown_3ck_01_0720 (slide 7)
            - CC TX AC CM noise: #28, 54, 205, 29, brown_3ck_01_0720 (slide 3-6)
        - C2C TX Equalizer feedback
            - New Presentation ran_3ck_02_0720 (replacing ran_3ck_02_0320)
            - #11059, 11082
        - From 6/30 agenda
            - RLCC: brown_3ck_01_0720 (slide 8), #208, 207

Presentations posted at: http://www.ieee802.org/3/ck/public/20_07/index.html

Meeting began at ~7:00 a.m. Pacific by Beth Kochuparambil, IEEE 802.3ck Task Force Chair. (Note: all times are Pacific time zone unless otherwise indicated)

Beth welcomed attendees.

Meeting began with the agenda presentation:
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_03_0720.pdf

The chair reminded participants to indicate full names and employer/affiliation correctly for the meeting minutes. Reminded participants to mute lines when not speaking and reviewed the steps to unmute.

Presented the proposed agenda.

Motion #4:

Move to approve the 8 July agenda.
Moved by: Adee Ran
Second by: Tom Palkert
Passed by unanimous consent

Chair reminded participants of the IEEE Participation Requirements and showed the slide with the Participation requirements. (see: http://www.ieee802.org/devdocs.shtml) Reminded participants of the IEEE copyright policy. (See: https://standards.ieee.org/ipr/index.html) Chair reminded participants of the IEEE patent policy. (See: http://www.ieee802.org/3/patent.html) She asked if anyone was unfamiliar with the IEEE patent policy. No one responded. Chair made the call for patents. No one responded.

Chair reviewed the ground rules.

It was noted that comments currently collected in the "bucket" are to be reviewed by participants and if any of them are to be taken out of the bucket, participants are to notify leadership by 16 July, 2020. The proposed "bucket" responses are posted at http://www.ieee802.org/3/ck/comments/draft1p2/8023ck_D1p2_comments_proposed_bucket.pdf

Chair reminded participants of the online unstructured discussion time allocated 30 minutes prior to the start of the formal meeting on Wednesdays in the meeting series.

Comment resolution began.

Presentation #4:

"C2M Module Output Spec at TP4 ", Yasuo Hidaka
See: http://www.ieee802.org/3/ck/public/20_07/hidaka_3ck_01d_0720.pdf

- Updated version '01d' with technical updates based on offline consensus building and calculation corrections. No objection.
- On slide 7, the second set of bullets titled "With one TX FIR setting" has a typo; "EH" should be "VEC".
- Discussed the method to estimate the max DC swing. It was derived starting with the 24mV EH spec at Near End.

Presentation #5:

"C2M Methodology, CTLE Gain, and DFE Taps ", Ali Ghiasi
See: http://www.ieee802.org/3/ck/public/20_07/ghiasi_3ck_02a_0720.pdf

- Updated version '01a' with editorial changes to map the comment numbers. No objection.
- On slide 7, the EW UI cases I/II/III were the 3 package sizes: 2mm, 7mm, 8mm.

Presentation #6:

"Module Output/Host Input Characteristics at TP4/TP4a ", Adee Ran
See: http://www.ieee802.org/3/ck/public/20_07/ran_3ck_01b_0720.pdf

- Updated version '01b' with changes based on offline consensus building. No objection.
- On slide 9, the term "min EH (max.)" was a typo. It should be "EH (min.)".
- It was noted that the proposal on slide 9 has two module output electrical transmitter settings.
- Discussed various details of the proposal on slide 9.
- Chair asked for a set of straw polls to understand the direction of the group.

Straw Poll #2:

For the C2M TP4 module-to-host, I would support defining for the module electrical output to have (chicago rules):

A: one setting
B: two settings
C: more than two settings

A: 18, B: 28, C: 13

Straw Poll #3:

For the C2M TP4 module-to-host, I would support defining for the module electrical output to have (choose 1):

A: one setting
B: two settings
C: more than two settings

A: 11, B: 19, C: 4

Straw Poll #4:

I would support the VEC (max.) values proposed in ran_3ck_01b_0720 slide 9 (choose one):
Y: 22, N: 2, A: 2

Straw Poll #5:

I would support the EH (min.) (labeled as "Min EH (max.)") values proposed in ran_3ck_01b_0720 slide 9 (choose one):
Y: 23, N: 1, A: 5

Straw Poll #6:

I would support the differential peak-to-peak (max.) values proposed in ran_3ck_01b_0720 slide 9 (choose one):
Y: 13, N: 10, A: 3

The time limit for this discussion was reached. The chief editor transitioned to the list of comments on following topics.

Straw Poll #7:

I support removing the EW and ESMW parameters and replacing with jitter specifications as proposed in the suggested remedy of comment #231
Y: 11, N: 22
See comment #231 for details

Chief Editor noted that he would update other proposed comment responses (such as #173) based on the direction of comment #231.

Comment Discussion Presentation - C2C/KR topics

Prepared by Matt Brown
See: http://www.ieee802.org/3/ck/public/20_07/brown_3ck_02_0720.pdf

Chief Editor noted that he would update other proposed comment responses (such as #170) based on the direction of comment #11078.

Presentation #7:

"AC common mode and SDC21 limits ", Mau-Lin Wu
See: http://www.ieee802.org/3/ck/public/20_07/wu_3ck_01a_0720.pdf

- Discussed the details of the plot on slide 7.
- Discussed the impact of channel loss on the allowed amount of AC common mode.

Chair noted that the Q&A for presentation #4 would go beyond the announced stop time of 10:00 a.m. Pacific. She asked if there were objections. There was no objection.

Chair reminded participants of the next IEEE 802.3ck meeting is on Wednesday, 15 July 2020. (see: http://www.ieee802.org/3/ck/public/20_07/index.html). Also reminded participants of the IEEE 802.3 Working Group opening plenary on Monday, 13 July (see: http://www.ieee802.org/3/email_dialog/msg01066.html) and the participation requirements.

Chair noted that the Task Force received a liaison communication from the OIF. The files will be posted to the website soon and announced over the reflector.

Chair asked the editors to modify the proposed responses to relevant comments as a result of the directions set in previously closed. The updated proposed responses announcement would

be sent via the email reflector. Chair noted that she would like to adopt these updated responses using a "bucket" motion at the 15 July meeting. Please review the updated responses and send pull requests to the Task Force leadership.

Chair noted that the ERL topic would be deferred two weeks in order to focus on the existing topics.

Meeting ended at ~10:10 a.m.

IEEE P802.3ck 100 Gb/s Electrical Lane Task Force – July 15, 2020

Prepared by Beth Kochuparambil and Kent Lusted

Proposed Agenda:

- Approval of the Agenda
- IEEE Patent Policy reminder (see below for links)
- IEEE Copyright reminder (see below for link)
- IEEE Participation Requirements reminder (see below for link)
- Ground Rules and Operations
- Comment Resolution (numbers listed are the comment # we will address*)
    - Closed-as-a-result Bucket comments
    - C2M TP4/TP4a Parameters
        - #175, #177, #176
        - 11060, 107, 108, 109, 115, 116, 130, 135, 178, 228, 191, 192, 193, 194, 196, 197, 211, 212, 215, 238
    - KR RX IT SNDR Np value: #155, brown_3ck_02_0720 (slide 9)
    - KR channel differential to CM conversion loss: #11039, related to: wu_3ck_01_0720, brown_3ck_01_0720 (slide 7)
    - KR/C2C TX AC CM noise
        - #28, 54, 205
        - #29
        - Related to: wu_3ck_01_0720, brown_3ck_01_0720 slides 3-6
    - KR TX RLCC: #57
    - C2M TX RLCC: #208, 207, brown_3ck_01_0720 slide 8
    - KR RX IT channel: #38, 157
    - KR/C2C test fixture TP0v
        - IL: #35, 34
        - RL: #154
    - C2C TX EQ FB: #11059

Presentations posted at: http://www.ieee802.org/3/ck/public/20_07/index.html

Meeting began at ~7:00 a.m. Pacific by Beth Kochuparambil, IEEE 802.3ck Task Force Chair. (Note: all times are Pacific time zone unless otherwise indicated)

Beth welcomed attendees.

Meeting began with the agenda presentation:
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_04_0720.pdf

Chair noted that the attendee names and affiliations for the minutes would be taken from the webex logs. However, participants wanting to record attendance for the 802.3 record need to use IMAT.

The chair reminded participants to indicate full names and employer/affiliation correctly for the meeting minutes. Reminded participants to mute lines when not speaking and reviewed the steps to unmute.

Presented the proposed agenda. Chair noted the addition of a liaison notification from the emailed agenda.

Motion #5:

Move to approve the agenda.

Moved by: Tom Palkert

Second by: Nathan Tracy

Passed by unanimous consent

Chair reminded participants of the IEEE Participation Requirements and showed the slide with the Participation requirements. (see: http://www.ieee802.org/devdocs.shtml) Reminded participants of the IEEE copyright policy. (See: https://standards.ieee.org/ipr/index.html) Chair reminded participants of the IEEE patent policy. (See: http://www.ieee802.org/3/patent.html) She asked if anyone was unfamiliar with the IEEE patent policy. No one responded. Chair made the call for patents. No one responded.

Chair reviewed the ground rules.

Chair noted that a liaison from OIF was received and posted to the website private area. (see letter: http://www.ieee802.org/3/minutes/jul20/incoming/OIF_liaison_letter_IEEE802.3_CEI_30June2020.pdf and attachments: http://www.ieee802.org/3/private/liaison_docs/OIF/0720_OIF_liaison_IEEE_CEI-112G_30June2020_withcover.pdf) Participants interested in forming a response should contact the Chair.

Chair reviewed the "close as a result" bucket. (see: http://www.ieee802.org/3/ck/public/20_07/comments_proposedclosure_as_a_result_of_3ck_01_0720.pdf) Chair had asked the editors to modify the proposed responses to relevant comments as a result of the directions set in previously closed. Chair noted that comments 153, 31, 173, and #12 were requested to be pulled from the bucket.

There was a request to remove all of the comments from the “close as a result” bucket. All of the comments were pulled from the “close as a result” bucket.

Comment resolution began.

Straw Poll #8:

I support closing comment #175 with: Adopt a near end and a far end setting with an MDIO register bit select between the setting as discussed in slide 9 of ran_3ck_01b_0720. Implement with editorial license.
(See comment 175)
Y: 37, N: 10

Straw Poll #9:

I would support closing comment 176 setting far-end and near-end differential peak to peak voltage (max) to 600 mV as proposed on slide 9 of ran_3ck_01b_0720.
(See comment 176)
Y: 19 , N: 20

Comment #57 was withdrawn.

Comment Discussion Presentation - C2C/KR topics

Prepared by Matt Brown
See: http://www.ieee802.org/3/ck/public/20_07/brown_3ck_01_0720.pdf

Chair reminded participants to sign into the IEEE meeting attendance tool to record IEEE 802.3 Working Group attendance.

Chair reminded participants that comments currently collected in the “bucket” are to be reviewed by participants and if any of them are to be taken out of the bucket, participants are to notify leadership by 16 July, 2020 AOE. The proposed “bucket” responses are posted at http://www.ieee802.org/3/ck/comments/draft1p2/8023ck_D1p2_comments_proposed_bucket.pdf

Chair reminded participants of the next Task Force meetings on July 21 and 22, 2020. The primary topics would be ERL and copper cable.

Chair asked the editors to modify the proposed responses to relevant comments as a result of the directions set in previously closed comments. The updated proposed responses announcement would be sent via the email reflector. Chair noted that she would like to adopt these updated responses using a “closed as a result bucket” motion at the next meeting. Please review the updated responses and send pull requests to the Task Force leadership.

Meeting ended at ~10:10 a.m.

IEEE P802.3ck 100 Gb/s Electrical Lane Task Force – July 21, 2020

Prepared by Beth Kochuparambil and Kent Lusted

Proposed Agenda:

- Approval of the Agenda
- IEEE Patent Policy reminder (see below for links)
- IEEE Copyright reminder (see below for link)
- IEEE Participation Requirements reminder (see below for link)
- Ground Rules and Operations
- Comment Resolution (numbers listed are the comment # we will address*)
    - Motion to close Second Closed-as-a-result Bucket comments
    - Motion to close NC Bucket comments
    - Cross-Clause 162 & 120F
        - vf(min): #165
        - jitter: #140, 168
    - Cable Assembly (CA) **given a time limit for Tuesday
        - diminico_3ck_01_0720
        - diminico_3ck_02_0720 (consensus deck)
        - CA IL: #181
        - CA DC RL: #71, 181, 148, 74, haser_3ck_adhoc_02_061720 (for reference)
        - CA CD IL: #148, 181
        - CA CC RL: #73, 181, 76, haser_3ck_ adhoc_02_061720 (for reference)
        - CA COM Tr: #149
        - CA COM SNRTX: #37
        - ILMaxHost(f) TBD, ILCamin(f) TBD: #182
        - MDI Connector contact map: #1, lusted_3ck_01_0720
        - Frequency Range: #91, 79, 80, 81, 84, 85, 87, 89, 90
        - FOMILD: #83 (value), 84 (frequency range), 180
        - ICN: # 92, 93, 94, 95, 96
        - RL: #180, 86, 87
        - CM IL: #180, 88, 89
        - MDI connectors: #232,233,234,251,252, 253,254
    - ERL Parameters
        - champion_3ck_01a_0720
        - kochuparambil_3ck_01_0720 **we will address the following comments together as a group, summarized on slide 6
        - Tr Values – 14, 44
        - N Values – 45, 50, 51, 52
        - Nbx Values – 6, 46, 47, 48, 15, 49

        - ERL Values – 68, 5, 8, 10, 16, 18, 23
        - COM Qualifier – 11163
    - ERL/TDR Method: #43
    - ERL Wording
        - kochuparambil_3ck_01_0720 **we will address the following comments together in 2 groups
        - C2M/TP4 table reference: #51, 50, 52, 19 (21, 24, 26 from bucket)
        - "Beginning of the ___ conn": #110, 111, 112, 113
    - CR CA COM
        - heck_3ck_04_0720
        - Channel variables: #124, 125, 126, 127, 128, 129, 217, 218, 219, 221, 230
        - eta0: #69, 78, 11161
        - PN skew: #204
        - Reference DFE, Minimum tap limits: #247
        - Reference DFE, Span: #248
        - Reference DFE, RSS limit: #240, 250
        - Package transmission line model: #150
        - Units: #151 (CC with 163.10 and 120F.4.1)
    - CR Electricals
        - TX ACCM: #203, 55
        - TX linear fit & Vf: #255, 141
        - TX EQ control: #144, 258, 256
        - RLCD: # 137, 138, 139
        - Swing" # 257
    - Liaison Response to OIF

Presentations posted at: http://www.ieee802.org/3/ck/public/20_07/index.html

Meeting began at ~7:05 a.m. Pacific by Beth Kochuparambil, IEEE 802.3ck Task Force Chair. (Note: all times are Pacific time zone unless otherwise indicated).

Beth welcomed attendees.

Meeting began with the agenda presentation:
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_05_0720.pdf

Chair noted that the attendee names and affiliations for the minutes would be taken from the webex logs. However, participants wanting to record attendance for the 802.3 record need to use IMAT.

The chair reminded participants to indicate full names and employer/affiliation correctly for the meeting minutes. Reminded participants to mute lines when not speaking and reviewed the steps to unmute.

Presented the proposed agenda.

Chair noted that a draft response to OIF was posted to the website and that participants should review it. (see: http://www.ieee802.org/3/ck/public/20_07/Liaison_toOIF_July2020.pdf) The response would be discussed on 22 July.

The comment agenda for both 21 July and 22 July were posted at http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_05_0720mini.pdf

Motion #6:

Move to approve the agenda for the 21 and 22 July meetings.
Moved by: Mike Dudek
Second by: Tom Palkert
Passed by unanimous consent

Chair reminded participants of the IEEE Participation Requirements and showed the slide with the Participation requirements. (see: http://www.ieee802.org/devdocs.shtml) Reminded participants of the IEEE copyright policy. (See: https://standards.ieee.org/ipr/index.html) Chair reminded participants of the IEEE patent policy. (See: http://www.ieee802.org/3/patent.html) She asked if anyone was unfamiliar with the IEEE patent policy. No one responded. Chair made the call for patents. No one responded.

Chair reviewed the ground rules.

Reviewed the "closed as a result" bucket. (see: http://www.ieee802.org/3/ck/public/20_07/comments_proposedclosure_as_a_result_of_3ck_02a_0720.pdf) Comment #194 and comment #193 had updated responses from the original posting; the responses were changed from "Proposed Reject" to "Proposed Accept in Principle" due to an editorial error. The response to comment #11060 was incorrectly pointing to comment #238 and was corrected to point to the correct comment, #175. It was noted that there was a request to remove comment #238 from this bucket.

Motion #7:

Move to adopt the proposed responses in comments_proposedclosure_as_a_result_of_3ck_02a_0720.pdf with the exception of comment #238.
M: Matt Brown
S: Arthur Marris
Technical (>75%)
Passed by unanimous consent

Chair noted that the non-contentious bucket posted to the website (see: http://www.ieee802.org/3/ck/comments/draft1p2/8023ck_D1p2_comments_proposed_bucket.pdf) had requests to pull comments prior to the deadline.

Motion #8:

Move to adopt the proposed responses in 8023ck_D1p2_comments_proposed_bucket.pdf except comments 1, 3, 4, 21, 24, 26, 41, 61, 62, 63, 64, 127, 128, 159, 169, 179, 213, 214, 216, 219, 227, 237, 239, 244
M: Mike Dudek
S: Chris Diminico
Technical (>75%)
Passed by unanimous consent

Chair noted that approximately two hours was allocated for the copper cable topic and the remainder of the meeting to ERL.

Comment resolution began.

Comment Discussion Presentation - Cable Assembly topics

Prepared by Chris Diminico
See: http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_02c_0720.pdf
Changes were made to the file and saved as version '2d' (see http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_02d_0720.pdf)
The Chief Editor noted that although no comment closed due to slide 4, there was consensus on the proposed IL min shown.

Chris Diminico noted that his presentation supporting several comments (see: http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_01_0720.pdf) is still relevant, but is OK not to present. Relevant information had been pulled into the comment discussion presentation.

As a result of the direction set by comment #37, the proposed responses to related comments would be updated offline by the editorial team.

Reviewed the Mated Test Fixtures frequency range on slides 18 and 19 of http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_02c_0720.pdf

Chair noted that straw poll #10 and #11 are related to comments # 79,80,81,84,85,87,89,90,91.

Straw Poll #10:

I would support the upper limit of the frequency range for MTF specifications other than ICN to be: (chicago rules)
A: 40 GHz
B: 50 GHz
C: A compromise; such as 50 GHz with some relaxtion after 40 GHz
A: 9, B, 35, C: 14
(see comment #91)

Straw Poll #11:

I believe that a change should be made on the frequency upper limit for MTF specifications at this time?
Y: 16, N: 28, A: 8
(see comment #91)

Chair reminded participants wanting to record attendance for the IEEE 802.3 Working Group record to sign into IMAT.

Presentation #8:

"ERL Limit Recommendation for Tp1 Tp4 Copper Cables", Bruce Champion
See: http://www.ieee802.org/3/ck/public/20_07/champion_3ck_01a_0720.pdf

- On slide 5, the author noted that there was a typo in the title. The eta_0 values were not varied.
- The ERL values for the host were the default COM spreadsheet settings.
- Discussed the results on slide 5.

Comment Discussion Presentation - ERL topics

Prepared by Beth Kochuparambil
See: http://www.ieee802.org/3/ck/public/20_07/kochuparambil_3ck_01_0720.pdf
Discussed and reviewed ERL parameter comments on slide 6.
Changes were made and saved at
http://www.ieee802.org/3/ck/public/20_07/kochuparambil_3ck_01a_0720.pdf

Chair noted that comment #11163 was withdrawn.

As a result of the direction set by comment #45, the proposed responses to related comments would be updated offline by the editorial team and compiled into another "close as a result" bucket to be posted on the website.

Chair noted that the comment agenda would continue on 22 July.

Chair noted that the pre-meeting discussion will be on the MTF frequency range. The pre-meeting session begins 30 minutes before the start of the meeting.

Break for the day at ~10:00 a.m.

IEEE P802.3ck 100 Gb/s Electrical Lane Task Force – July 22, 2020

Prepared by Beth Kochuparambil and Kent Lusted

Continue Approved Agenda from July 21st minutes:

Presentations posted at: http://www.ieee802.org/3/ck/public/20_07/index.html

Meeting began at ~7:05 a.m. Pacific by Beth Kochuparambil, IEEE 802.3ck Task Force Chair. (Note: all times are Pacific time zone unless otherwise indicated).

Beth welcomed attendees.

Meeting began with the agenda presentation:
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_06_0720.pdf

Chair noted that the attendee names and affiliations for the minutes would be taken from the webex logs. However, participants wanting to record attendance for the IEEE 802.3 Working Group record need to use IMAT.

The chair reminded participants to indicate full names and employer/affiliation correctly for the meeting minutes. Reminded participants to mute lines when not speaking and reviewed the steps to unmute.

Chair noted that the agenda was approved on July21. She will walk the group through policies and ground rules again as a reminder, however, the Task Force will continue with the previously approved agenda.

For reference, the comment agenda for 22 July was posted at
http://www.ieee802.org/3/ck/public/20_07/agenda_3ck_06_0720mini.pdf

Chair reminded participants of the IEEE Participation Requirements and showed the slide with the Participation requirements. (see: http://www.ieee802.org/devdocs.shtml) Reminded participants of the IEEE copyright policy. (See: https://standards.ieee.org/ipr/index.html)

Chair reminded participants of the IEEE patent policy. (See: http://www.ieee802.org/3/patent.html) She asked if anyone was unfamiliar with the IEEE patent policy. No one responded. Chair made the call for patents. No one responded.

Chair reviewed the ground rules.

Chair noted that a draft response to OIF was posted to the website and that participants should review it. (see: http://www.ieee802.org/3/ck/public/20_07/Liaison_toOIF_July2020.pdf) A draft response was posted to the website (http://www.ieee802.org/3/ck/public/20_07/Liaison_toOIF_July2020.pdf). Chair received a request for a liaison to FibreChannel and would be preparing a response for consideration by the Task Force.

Comment resolution resumed.

Comment Discussion Presentation - Cable Assembly topics

Prepared by Chris Diminico
See: http://www.ieee802.org/3/ck/public/20_07/diminico_3ck_02d_0720.pdf
Slide 19 had the frequency range related comments.

As a result of the direction set by comment #91, the proposed responses to related comments would be updated offline by the editorial team and compiled into another "close as a result" bucket to be posted on the website.

Comment Discussion Presentation - CR COM topics

Prepared by Howard Heck
See: http://www.ieee802.org/3/ck/public/20_07/heck_3ck_04a_0720.pdf

Presentation #9:

"Eta_0 & SNR Tx Impact on Copper Cables ", Bruce Champion
See: http://www.ieee802.org/3/ck/public/20_07/champion_3ck_02_0720.pdf

- On slide 5, discussed the impact of eta_0 on the cable reach.

Straw Poll #12:

I would support changing the value of eta0 to 9E-9 V^2/GHz

Y: 25, N: 19
(see comment #69)

During the discussion of straw poll #12, Chair noted that a vote of "no" would close the comment as a reject with no consensus to make a change.

As a result of the direction set by comment #69, the proposed responses to related comments would be updated offline by the editorial team and compiled into another "close as a result" bucket to be posted on the website.

Adee Ran withdrew comment #141.

Adee Ran withdrew comment #165.

Adee Ran withdrew comment #168.

Chair reminded participants wanting to record attendance for the IEEE 802.3 Working Group record to sign into IMAT.

Straw Poll #13:

I support resolving comment #138 as follows: (chicago rules)
A: keep TX RLCD per Draft 1.2
B: modify TX RLCD per comment 138 suggested remedy
C: remove TX RLCD specification
A: 12, B: 11, C:13
(see comment #138)

Chair displayed the updated proposed response to OIF. (see: http://www.ieee802.org/3/ck/public/20_07/IEEE_802d3_to_OIF_CEI_0720_draft2.pdf)
Chair displayed the proposed liaison to T11 updated with feedback. (see: http://www.ieee802.org/3/ck/public/20_07/IEEE_802d3_to_T11_2_0720_draft2.pdf)
There was discussion but no changes were made.

Motion #9:

Move that the IEEE P802.3ck Task Force approve IEEE_802d3_to_OIF_CEI_0720_draft2.pdf and IEEE_802d3_to_T11_2_0720_draft2.pdf with editorial license granted to the WG Chair (or his appointed agent) as liaison communication from the IEEE 802.3ck Task Force to OIF and Fibre Channel, respectively.
M: Mike Dudek
S: Mike Li
Technical (>75%)
Passed by unanimous consent

Chair noted that the next Task Force meetings are scheduled for 28 and 29 July 2020. (see: http://www.ieee802.org/3/ck/public/20_07/index.html)

Chair asked the editorial team to prepare another "closed as a result" bucket from the 21-22 July meeting. There may be a second bucket with updated responses to the "easy" comments. Chair would seek approval of these buckets at the 28 July meeting. Details would be sent to the email reflector.

Chair reminded participants of the IEEE 802.3 Working Group meeting on Thursday. 23 July 2020.

Chair noted that the Task Force leadership was working on a plan for the next draft and steps to progress forward. There was a potential additional meeting under discussion in mid August. Details would be sent to the email reflector. It was noted that the OIF was scheduled to meet the week of August 3, 2020.

Chair reminded participants wanting to record attendance for the IEEE 802.3 Working Group record to sign into IMAT.

Meeting ended at ~10:00 a.m.

Attendees

Name	Affiliation	Employed by	6/30	7/6	7/8	7/15	7/21	7/22
Adam Healey	Broadcom	Broadcom	x	x	x	x	x	x
Adee Ran	Intel	Intel	x	x	x	x	x	x
AJ Yang	Foxconn Interconnect	Foxconn Interconnect	x					
Alan Kinningham	I-PEX	I-PEX	x			x	x	x
Alex Haser	Molex	Molex	x	x	x	x	x	x
Alex Lin	MediaTek Inc.	MediaTek					x	x
Ali Ghiasi	Ghiasi Quantum/Inphi	Ghiasi Quantum/Inphi	x	x	x	x	x	x
Andy Jimenez	Anixter	Anixter						x
Anup Shah	Mentor	Mentor				x		
Arthur Marris	Cadence	Cadence	x	x	x	x	x	x
Athos Kasapi	Cadence	Cadence			x			
Ayal Shoval	Synopsys	Synopsys	x	x	x		x	x
Beth Kochuparambil	Cisco	Cisco	x	x	x	x	x	x
Bill Kirkland	Semtech	Semtech		x	x			

Biman Chattopadhyay	Synopsys	Synopsys	x	x	x	x	x	x
Bo Zhang	Inphi	Inphi				x	x	x
Brandon Gore	Samtec	Samtec	x	x	x	x	x	x
Bruce Champion	TE Connectivity	TE Connectivity	x	x	x		x	x
Bupesh Pandita	Microsoft	Microsoft		x	x			x
Champion (Chien Ping) Kao	Intel	Intel	x	x	x	x	x	x
Chan Chih (David) Chen	Applied Optoelectronics	Applied Optoelectronics	x	x	x	x	x	x
Chris DiMinico	PHY-SI	PHY-SI	x	x	x	x	x	x
Christopher Pohl	Beckhoff Automation	Beckhoff Automation				x		
Clint Walker	Alphawave IP	Alphawave IP	x	x	x	x	x	x
Dave Estes	Spirent	Spirent				x	x	x
Dave Hess	Cord Data	Cord Data					x	
David Chalupsky	Intel	Intel	x			x		
David Malicoat	Senko	Independent	x	x	x	x	x	x
David Ofelt	Juniper	Juniper	x			x	x	
David Piehler	Dell EMC	Dell EMC				x	x	x

Denis Beaudoin	Texas Instruments	Texas Instruments				x		
Ed Frlan	Semtech	Semtech						x
Ed Ulrichs	Intel	Intel	x		x	x	x	x
Edward Nakamoto	Spirent	Spirent				x	x	
Enis Akbaba	Maxim Integrated	Maxim Integrated	x		x	x	x	x
Eric Maniloff	Ciena Corporation	Ciena Corporation					x	
Fernando DeBerardinis	eSilicon	eSilicon				x		
Flavio Marques	Furukawa Electric	Furukawa Electric				x	x	
Frank Chang	Source Photonics	Source Photonics	x		x	x	x	x
Frank Lambrecht	Xilinx	Xilinx				x	x	x
Gary Nicholl	Cisco	Cisco	x		x	x	x	x
Geoff Zhang	Xilinx	Xilinx	x	x	x	x	x	x
George Luk	Credo	Credo			x	x	x	x
Gergely Huszak	KONE	KONE				x		
Greg LeCheminant	Keysight	Keysight	x	x	x			x
Greg McSorley	Amphenol	Amphenol	x	x	x	x	x	x

Hai-Feng Liu	HG Genuine	HG Genuine					x	
Hansel Dsilva	Achronix	Achronix	x	x	x			
Hao Ren	Huawei	Huawei						x
Hideki Isono	Fujitsu Optical	Fujitsu Optical				x	x	
Hormoz Djahanshahi	Microchip	Microchip	x	x	x	x	x	x
Howard Heck	Intel	Intel	x	x	x	x	x	x
Ichiro Ogura	Petra JP	Petra JP					x	x
Inho Kim	Marvell	Marvell	x	x	x	x	x	x
Jacky Chang	HPE	HPE	x		x	x	x	x
Jairo Bustos Heredia	Wurth Elektronik	Wurth Elektronik				x		x
Jamal Riani	Inphi	Inphi				x		
James Weaver	Arista	Arista	x	x	x	x	x	x
James Withey	Fluke	Fluke					x	
James Young	Commscope	Commscope			x	x	x	x
Jane Lim	Cisco	Cisco	x	x	x	x	x	x
Jason Potterf	Cisco	Cisco				x		
Jeff Hutchins	Ranovus	Ranovus						x

Jeff Slavick	Broadcom	Broadcom	x	x	x	x	x	x
Jeffery Maki	Juniper	Juniper	x		x	x	x	x
Jeremy Stephens	Microsoft	Microsoft					x	
Jim Theodoras	HG Genuine	HG Genuine				x	x	x
John Calvin	Keysight	Keysight	x	x	x	x	x	x
John Ewen	Marvell	Marvell	x	x	x	x	x	x
John Yurtin	Aptiv	Aptiv	x			x	x	
Jonathan Ingham	Foxconn Interconnect	Foxconn Interconnect				x	x	x
Joshua Kim	Hirose	Hirose		x	x	x	x	x
Kazuhiko Ishibe	Anritsu Company	Anritsu Company				x		
Ken Jackson	SEI-Device	SEI-Device						x
KengHua Chuang	HPE	HPE	x			x	x	
Kent Lusted	Intel	Intel	x	x	x	x	x	x
Kumaran Krishnasamy	Broadcom	Broadcom	x		x	x		x
Lance Thompson	Finisar	Finisar					x	
Larry McMillan	Western Digital	Western Digital					x	

Leesa Noujeim	Google	Google	x					
Leon Bruckman	Huawei	Huawei					x	
Liav Ben-Artsi	Marvell	Marvell	x	x	x	x	x	x
Lokesh Kabra	Synopsys	Synopsys	x					
Louise Yi	Foxconn Interconnect	Foxconn Interconnect				x		
Mabud Choudhury	OFS	OFS				x	x	x
Manoj Sharma	ST Micro	ST Micro	x					
Mark Andruchow	Alphawave IP	Alphawave IP	x					
Mark Bordogna	Intel	Intel					x	
Mark Gustlin	Cisco	Cisco	x			x		
Mark Kimber	Semtech	Semtech	x		x	x	x	x
Mark Nowell	Cisco	Cisco				x	x	
Masoud Koochakzadeh	Max Linear	Max Linear					x	
Masoud Koochakzadeh	Max Linear	Max Linear		x	x	x		
Matt Brown	Huawei	Huawei	x	x	x	x	x	x
Matthias Fritsche	Harting	Harting						x

Mau-Lin Wu	Mediatek	Mediatek	x	x	x	x	x	x
Megha Shanbhag	TE Connectivity	TE Connectivity				x		
Michael Takefman	Inphi	Inphi				x	x	x
Michal Brychta	Analog Devices Inc.	Analog Devices Inc.				x		
Mike Dudek	Marvell	Marvell	x	x	x	x	x	x
Mike Klempa	UNH-IOL	UNH-IOL	x			x	x	x
Mike Li	Intel	Intel	x	x	x	x	x	x
Nathan Tracy	TE Connectivity	TE Connectivity	x		x	x	x	x
Nobuyasu Araki	Yazaki	Yazaki					x	
Patrick Casher	Foxconn Interconnect	Foxconn Interconnect					x	
Paul Brooks	Viavi	Viavi				x	x	x
Peter Wu	Marvell	Marvell					x	
Phil Sun	Credo	Credo	x	x	x	x	x	x
Phong Pham	US Conec, Ltd.	US Conec, Ltd.				x		
Piers Dawe	NVIDIA	NVIDIA	x	x	x	x	x	x
Pirooz Tooyserkani	Cisco	Cisco	x	x		x	x	x
Qing Xu	Ranovus	Ranovus		x				

Qingya She	Fujitsu	Fujitsu				x	x	
Ragnar Jonsson	Marvell	Marvell					x	
Rajmohan Hegde	Broadcom	Broadcom	x	x	x	x	x	x
Ray Schmelzer	Wilder Tech	Wilder Tech	x					
Rich Mellitz	Samtec	Samtec	x	x	x	x	x	x
Richard Pitwon	Resolute Photonics	Resolute Photonics				x		
Rick Pimpinella	Panduit	Panduit				x		x
Rick Rabinovich	Keysight	Keysight	x	x	x	x	x	x
Rita Horner	Synopsys	Synopsys				x	x	x
Rob Stone	Facebook	Facebook	x					
Robert Aekins	Legrand	Legrand				x		
Robert Lingle	OFS	OFS				x	x	
Robert Summers	Maxim Integrated	Maxim Integrated			x			
Roy Wang	HPE	HPE				x	x	
Ruben Perez De Aranda Alonso	KDPOF	Knowledge Dev. for POF						x
Ruibo Han	China Mobile	China Mobile				x		
Ryouma	JP Yazaki	JP Yazaki					x	

Toyoda								
Sam Kocsis	Amphenol	Amphenol	x	x	x	x	x	x
Scott Griffiths	Rockwell Automation	Rockwell Automation					x	
Scott Sommers	Molex	Molex	x	x	x	x	x	x
Scott Walley	Max Linear	Max Linear			x	x		x
Sean Murphy	Texas Instruments	Texas Instruments				x	x	
Shawn Nicholl	Xilinx	Xilinx				x	x	
Shimon Muller	Axalume	Axalume				x	x	x
Simon Mark	Würth Elektronik	Würth Elektronik					x	
SJ Yu	Foxconn Interconnect	Foxconn Interconnect	x	x	x	x	x	x
Sridhar Ramesh	Independent	Independent				x	x	
Stephen Didde	Keysight	Keysight	x	x	x	x	x	x
Steve Carlson	Robert Bosch/Ethernovia	High-Speed Design					x	
Steve Sekel	Keysight	Keysight	x	x	x	x	x	x
Steve Trowbridge	Nokia	Nokia	x	x	x	x	x	x
Steven Scott Gorshe	Microchip	Microchip				x		

Taiji Kondo	MegaChips	MegaChips					x	
Takeshi Nishimura	Yamaichi, USA	Yamaichi, USA		x	x			
Tanner Fortier	UNH-IOL	UNH-IOL					x	
Tao Hu	Marvell	Marvell	x			x		
Ted Sprague	Infinera	Infinera				x	x	
Tedros Tsegaye	Innolight	Innolight					x	
Tedros Tsegaye	Innolight	Innolight						x
Terry Little	Foxconn Interconnect	Foxconn Interconnect	x	x	x		x	
Timothy De Keulenaer	NVIDIA	NVIDIA	x	x	x	x	x	x
Tom Issenheth	Huawei	Issenhuth Consulting					x	x
Tom Palkert	Macom/Samtec	Macom/Samtec	x	x	x	x	x	x
Tomoo Takahara	Fujitsu	Fujitsu				x		
Toshiaki Sakai	Socionext	Socionext	x		x	x	x	x
Upen Kareti	Cisco	Cisco			x	x	x	x
Valerie Maguire	The Siemon Company	The Siemon Company				x		
Viet Tran	Keysight	Keysight				x	x	x

Xiang He	Huawei	Huawei	x	x	x		x	
Xinyuan Wang	Huawei	Huawei					x	
Yan Zhuang	Huawei	Huawei				x	x	x
Yasuo Hidaka	Credo	Credo	x	x	x	x	x	x
Yong Kim	NIO	NIO					x	
Yongmao Chang	Source Photonics	Source Photonics				x		
Zhiwei Yang	ZTE	ZTE		x	x	x		x
Zvi Rechtman	Mellanox	Mellanox		x	x		x	