Approved Minutes

IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force Interim Meeting

Webex Meeting
July 1, 2021
Prepared by Mabud Choudhury

Group Name: IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force
Date/Location: Thursday, July 1, 2021. Webex meeting.
Chair: Robert Lingle, Jr (OFS)
Editors: Ramana Murty (Broadcom), Earl Parsons (CommScope)
Recording Secretary: Mabud Choudhury (OFS)
Meeting Participants: Attendance is listed in Appendix A (36 attendees – based on official IMAT attendance; 39 attendees – based on Webex participants list)

Call to order:
IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force (TF) Interim Webex meeting was convened at 12:01 PM Eastern Daylight Time (EDT/ UTC -4), Thursday, July 1, 2021, by Robert Lingle, Jr., P802.3db TF Chair.

Webex Meeting Procedures:
He instructed attendees to either add their affiliations to their names in the Webex participants list, or else list their name with affiliation in the chat window – a meeting requirement. [These two instructions were repeated multiple times throughout the meeting via Chat].

Chair's Presentation:
Title: "Agenda and General Information"
Presenter: Robert Lingle, Jr. (OFS)
agenda_3db_01_070121.pdf

Mr. Lingle then proceeded with reviewing the **Agenda**, Slide 3 of agenda_3db_01_070121.pdf and asked if there were any modifications, additions or deletions? There were none.

.3db Motion #1:
Move to approve the Agenda for Interim TF Teleconference, Slide 3 of agenda_3db_01_070121.pdf

- M: Mike Dudek
- S: Ramana Murty
- (Procedural > 50%)
- Motion approved by unanimous consent.

Agenda approved at 12:06 PM

Approved Agenda:

- Welcome
- Approve Agenda
- Attendance
- Approve Meeting Minutes for May 27th Interim & June 24th Ad Hoc TF meetings

- Goals for this meeting
- Reflector and Web
- Ground Rules
- IEEE
- Structure, Bylaws and Rules
  - Call for Patents. IEEE Patent Policy reminder: http://www.ieee802.org/3/patent.html
  - IEEE Copyright reminder: https://standards.ieee.org/ipr/index.html
  - IEEE Participant reminder: http://www.ieee802.org/devdocs.shtml
  - IEEE Standards Process
- PAR & Objectives
- D1.1 Editors' Report – Earl Parsons (CommScope), Ramana Murty (Broadcom)
- Comment Resolution against D1.1
- Contributions:
  - "Extending wavelength for -VR PMD, in support of D1.1 comments 13, 14, 15, 16 and 17" – David Lewis (Lumentum)
- Straw Polls & Motions – may occur throughout the meeting
- Future Meetings

Attendance: Chair asked attendees to use http://imat.ieee.org/ to record official attendance, provided Session Code, and reviewed the IMAT steps to log attendance for this TF meeting. Attendance record based on IMAT only. The request to record attendance via IMAT along with session code was repeated multiple times via Chat.

Approved Meeting Minutes: Mr. Lingle asked if there were any updates/corrections to the May 27th Interim & June 24th Ad Hoc TF unapproved meeting minutes that had been previously posted for review/feedback. There were none.

.3db Motion #2:

- Move to approve meeting minutes, previously posted, for:
  - May 27, 2021, IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber TF Interim meeting: unapproved_meeting_minutes_3db_01_052721.pdf
  - June 24, 2021, IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber TF Ad Hoc meeting: unapproved_minutes_3db_adhoc_01_062421.pdf
- M: Ramana Murty
- S: Flavio Marques
- (Procedural > 50%)
- Motion passes by unanimous consent.

Task Force Decorum: Chair asked for attendees to stay on mute when not speaking. Chair asked if anyone from the **Press** was present – no one indicated that they were from the Press.

Mr. Lingle provided **Goals for the meeting:**

- Start comment resolution against D1.1
- Review list of Clause 167 TBDs with identified owners and dates for contributions (along with consensus building) to determine/agree to specified values for all TBDs with D1.1 and D1.2 (last TF review draft)

Reflector and Web: Chair showed the links to the IEEE 802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force page, and the email reflector.

TF Private Area: Chair provided Username and Password for TF private area. All draft standards will be in private area.

Chair reviewed:
Ground Rules: slide 12 of agenda_3db_01_070121.pdf
IEEE Structure: slide 13 of agenda_3db_01_070121.pdf
Important Bylaws and Rules: slide 14 of agenda_3db_01_070121.pdf

TF Secretary had shared the IEEE SA Patent, Copyright and Participation Policies prior to the meeting and had asked participants to be familiar these policies. Mr. Lingle asked if any participants had questions, and that there were no questions.

IEEE SA Patent Policy: Mr. Lingle provided overview of slides 15-19 of agenda_3db_01_070121.pdf. Chair made "**Call for Potentially Essential Patents**" at 12:13 PM. No response from TF participants.

IEEE SA Copyright Policy: Mr. Lingle showed slides 20-22 of agenda_3db_01_070121.pdf entitled "IEEE SA Copyright Policy" overview

IEEE SA Participation Policy: Mr. Lingle showed the participation policy overview slides 23-25 of agenda_3db_01_070121.pdf .

Mr. Lingle then reviewed the Overview of IEEE 802.3 Standards Process – completed Study Group Phase, and now in Task Force Comment Phase (slide 27 of agenda_3db_01_070121.pdf).

Chair showed links for Approved Project Documents: PAR, CSD and Objectives slide 31 of agenda_3db_01_070121.pdf). Mr. Lingle then showed the TF Objectives and Timeline, indicating that TF is now back on timeline schedule.

Mr. Lingle reviewed Contributions required to resolve TBDs:

- Recall that a complete & technically sound baseline was presented in December by Ramana.
- TBDs in the draft were based on interest in making different trade-offs between relative costs of Tx & Rx.
- Contributions & consensus building are required to resolve the TBDs. TF discussion on 5/27 resulted in planned contributions below.
- The TF can default to the original proposals from December, if needed.

TBD	Owner	Date	Status
Center wavelength	Dave Lewis	1-Jul	✓
TDECQ	Piers Dawe	July	
# taps on the reference equalizer	Piers Dawe	July	
Stressed receiver sensitivity (OMA outer), each lane (max)	Yi Tang	24-Jun	✓
Over/undershoot	Ramana Murty	July	
TDECQ calculation method	Ali, Greg	July	
Constraints on tap coefficients	Piers Dawe	July?	

Editors' Report:
Title: "802.3db Editors' Report and Comment Agenda"
Presenters: Editors Earl Parsons (CommScope) and Ramana Murty (Broadcom Inc.)
editors_report_D1p1_3db_01_070121.pdf

- Editorial team:
  - Earl Parsons, CommScope, Co-editor earl.parsons@commscope.com
  - Ramana Murty, Broadcom, Co-editor ramana.murty@broadcom.com
- Status:
  - Draft 1.1 was posted to P802.3db private area June 14th
  - D1.1 was open for comments through Friday, June 25th
  - Comments were received from seven individuals
  - 74 total comments
  - Comments received were posted June 28th
  - First batch of proposed responses were posted June 30th
  - Thank you to everyone who commented!
- Comment resolution Agenda and Goals for this meeting:
  - Review comments related to:
    - Rx Sensitivity
    - Center Wavelength for VR
    - MDI
  - Any presentations associated with comments will be reviewed during comment resolution.
- 13 comments scheduled to be reviewed:
  - 10, 46, 47, 48, 49, 50, 56 Receiver sensitivity
  - 2, 13, 15, 65, 70 Center wavelength in VR links
  - 74 MDI

Comment resolution against D1.1 started.

Contribution #1:
Title: "Minimum SECQ Change to Allow Receiver Sensitivity Margin"
Presenter: Yi Tang (Cisco) and Gary Nicholl (Cisco)
tang_3db_adhoc_01a_062421.pdf

Presentation provided:

- Need to improve Rx margin without penalizing Tx
- Proposed raising minimum SECQ to 1.8 dB. Same OMA vs. SECQ curve as in baseline.
- New link budget based on SECQ proposal was illustrated
- Transmit changes: Avg Launch = -4.6 dBm, Min OMA = -2.6 dBm
- Rx changes: min Avg Rx Pow = -6.4 dBm, max SRS = -2 dBm, new Rx sens. Curve

Technical discussion followed – follow-up discussions from June 24th TF ad hoc meeting technical discussions when the contribution was first presented.

Comment 10, 46, 47, 48, 49, 50, 56 dealing with Receiver sensitivity resolved.

Contribution #2:

Title: "Extending wavelength for –VR PMD - in support of D1.1 comments 13, 14, 15, 16, and 17"

Presenter: David Lewis (Lumentum)

lewis_3db_01_070121.pdf

Presentation provided:

- Wavelength range for TBDs for the wavelength ranges of 100GBASE-VR, 200GBASE-VR2, and 400GBASE-VR4:
    - from 844 to 948 nm, enabling –VR links to deploy any center wavelength between 850 and 940 nm, with tolerance at both ends of the range.
- A previous contribution, lewis_3db_01_041521.pdf provided data on reliability testing and RIN testing for 100 Gb/s 940 nm VCSELs
- This contribution provided additional test data on prototype 940 nm VCSELs, including S21 measurements and PAM4 optical eye diagrams – technical feasibility for 940 nm 53 GBd VCSELs

Technical discussion following on topics that included:

- Slide 4: further information on difference between yellow vs. green curves – presenter indicated that they would get further information on the S21 measurements for updated future contribution.
- Slide 5: double check bandwidth calculations (is fiber BW in dBo vs. dBe?)
- Slide 6 and 7: Not TDECQ measurements, but more properly TECQ measurements. Greg Le Cheminant offered to re-process the waveforms, since some thought eyes looked better than numbers. Presenter will update slides to _01a with TECQ in place of TDECQ.
- Does 940 nm really lower cost for -VR links? Is there a cost penalty for -SR link? Need for economic feasibility analysis (the contribution was focused on technical feasibility). Data for economic feasibility analysis is TBD.
- Cost impact of 940 nm on wideband receiver/PD. Need for anti-reflection coating. Presenter mentioned that published SWDM test data includes wideband receivers with good responsivity from 840 to 950 nm.
- GaAs vs InGaAs detectors. Ali Ghiasi indicated that he would provide link via reflector (provided after meeting.
- -VR and -SR interoperability. Need for 2 different measurement filter bandwidths for -VR and -SR. Greg Le Cheminant pointed out that with the proposed method of having a fiber emulation function separate from the scope hardware filter, it would not be necessary to have more than one filter. The new function can include a table based on wavelength so there is no impediment to having any wavelength in the suggested range.
- Advantages of 940 nm (relative to 850 nm) for high temperature. Longer wavelength being considered/pursued in P802.3cz TF. 940 nm VCSELs have better epi-layer structure.
- Review of wideband BiDi and SWDM4 at 50 Gb/s, 26 GBd VCSELs encouraged to further discussion on wideband proposal at 100 Gb/s, 53 GBd VCSELs.

Presenter welcomed feedback from the group and answered clarifying questions. He indicated that he would have updated contribution for July 19 TF Interim meeting. The updated contribution will attempt to answer some of the questions raised but will not have new test data.

Further discussion and resolution of comments related to center wavelength for VR links (comments 2, 13, 15, 65, 70) were deferred to July 19 TF meeting as meeting time expired. Comment resolution of MDI (comment 74) was also deferred to next TF meeting due to lack of time.

The Chair reviewed Contributions required to resolve TBDs, slide 35 of agenda_3db_01_070121.pdf again to emphasize need for contributions supporting comments against D1.1 and to resolve TDBs in July timeframe to keep project on schedule. All contributions to resolve TBDs encouraged by August 5.

Future TF meetings:

- See: http://ieee802.org/3/calendar.html and http://ieee802.org/3/interims/index.html
- P802.3db TF Ad Hoc Teleconferences are currently scheduled:
  - Biweekly on Thursdays at 12 Noon to 2 pm Eastern US (EST/UTC -5): http://www.ieee802.org/3/db/public/adhoc/index.html
  - Next Ad Hoc meeting: Thursday, August 5, 2021, 12 Noon to 2 pm Eastern Daylight US (EDT/UTC -4)
  - Ad hoc meetings will be converted to TF interims when TF business requires
- TF Interim and Plenary Meetings:
  - On TF interim & plenary teleconferences, only 802.3 voters may vote on TF motions
  - Next TF Plenary meeting: Monday, July 19, 2021, 12 Noon to 3 pm Eastern Daylight US (EDT/UTC -4)
  - Next TF Interim meeting: Thursday, July 29, 2021, 12 Noon to 3 pm Eastern Daylight US (EDT/UTC -4)
- July IEEE 802.3 WG Plenary session will be virtual, 12-15 & 19-22 July 2021
  - Remember to Register ($75 registration fee)

Future WG meetings:

Meeting	Location	Dates
IEEE 802 July 2021 plenary	Virtual	12-15 & 19-22 July 2021
IEEE 802.3 September 2021 interim	Virtual	TBD September 2021
IEEE 802 November 2021 plenary	Vancouver, BC, Canada	15-18 November 2021
IEEE 802.3 January 2022 interim	TBD	10-14 & 17-21 January 2022
IEEE 802 March 2022 plenary	Orlando, FL, USA	14-17 March 2022
IEEE 802.3 May 2022 interim	TBD	16-20 & 23-27 May 2022
IEEE 802 July 2022 plenary	Montreal, Quebec, Canada	11-14 July 2022
IEEE 802.3 September 2022 interim	TBD	5-9 & 12-16 September 2022
IEEE 802 November 2022 plenary	Bangkok, Thailand	14-17 November 2022

Upcoming meeting details at: http://ieee802.org/3/interims/index.html

.3db Motion #3:

Move to Adjourn TF Telephonic Interim Meeting

- M: Mike Dudek
- S: James Young

- (Procedural > 50%)
- Motion passes by unanimous consent

The Task Force Interim meeting was adjourned at 2:54 PM EDT/ UTC -4, Thursday, July 1, 2021.

Next Meeting:
Scheduled P802.3db TF Ad Hoc Webex meeting for Thursday, July 19, 2021, at 12:00 Noon – 3:00 PM EDT/UTC -4.

Appendix A: Attendance List IEEE P802.3db Task Force WebEx Interim Meeting
36 individuals attended on Thursday, 1 July 2021, 12:01 Noon – 2:54 PM EDT/UTC -4

	Name	Employer	Affiliation
1	BakroNagy, Istvan	EFFECT Photonics	Effect Photonics
2	Ben Amram, Haim	Retym	Retym
3	Bruckman, Leon	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
4	Chang, Yongmao	Inphi Corporation	Source Photonics
5	Chen, Chan	Applied Optoelectronics, Inc.	Applied Optoelectronics, Inc.
6	Choudhury, Mabud	OFS	OFS
7	Dawe, Piers J G	NVIDIA	Nvidia
8	Didde, Stephen	Keysight Technologies	Keysight Technologies
9	Dudek, Michael	Marvell	Marvell
10	Ferretti, Vincent	Corning Incorporated	Corning Incorporated
11	Feyh, German	Broadcom Corporation	Broadcom Corporation
12	Ghiasi, Ali	Ghiasi Quantum LLC	Ghiasi Quantum LLC, Marvel
13	Hu, Kangmin	Innogrit	Innogrit
14	Jackson, Kenneth	Sumitomo Electric Device Innovations, USA	Sumitomo Electric Industries, LTD
15	Kim, Kihong/Joshua	Hirose Electric (USA), Inc.	Hirose Electric (USA), Inc.
16	Kimber, Eric	Semtech Ltd	Semtech Ltd
17	King, Roger	TRUMPF Photonic Components GmbH	TRUMPF Photonic Components GmbH
18	Klempa, Michael	University of New Hampshire InterOperability Laboratory (UNH-IOL)	Amphenol Corporation
19	Le Cheminant, Greg	Keysight Technologies	Keysight Technologies
20	Lewis, David	Lumentum Inc.	Lumentum Inc.
21	Lin, Youxi	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
22	Lingle, Robert	OFS	OFS
23	Malicoat, David	Malicoat Networking Solutions	Malicoat Networking Solutions; SENKO Advanced Components
24	Marques, Flavio	FURUKAWA ELECTRIC	FURUKAWA ELECTRIC
25	Murty, Ramana	Broadcom Inc.	Broadcom Corporation
26	Palkert, Thomas	Macom, Samtec	Samtec-Macom
27	Parsons, Earl	CommScope, Inc.	CommScope, Inc.
28	Quan, Yu	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
29	Shubochkin, Roman	OFS	OFS
30	Son, Yung Sung	Optomind Inc	Optomind Inc
31	Sun, Xiaobin	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
32	Sun, Yi	OFS	OFS
33	Tang, Yi	Cisco Systems, Inc.	Cisco Systems, Inc.
34	Thompson, lance	II-VI	Finisar Corporation
35	Ulrichs, Ed	Intel Corporation	Intel Corporation
36	Young, James	CommScope, Inc.	CommScope