IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force
Ad Hoc Meeting
Webex Meeting
April 29, 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, April 29, 2021. Webex meeting.
Chair: Robert Lingle, Jr (affiliated with OFS)
Editors: Ramana Murty (affiliated with Broadcom), Earl Parsons (affiliated with CommScope)
Recording Secretary: Mabud Choudhury (affiliated with OFS)
Meeting Participants: Attendance is listed in Appendix A (36 attendees – based on official IMAT attendance list; 37 Webex participants)

Call to order:
IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force (TF) Ad Hoc WebEx meeting was convened at 12:02 PM Eastern Daylight Time (EDT/ UTC -4), Thursday, April 29, 2021 by Robert Lingle, Jr., P802.3db TF Chair.

Chair asked attendees to use http://imat.ieee.org/ to record attendance and provided Session Code for the meeting. Attendance record based on IMAT only.
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. [These two instructions were repeated multiple times throughout the meeting].

Chair's Presentation:
Title: "Agenda and General Information"
Presenter: Robert Lingle, Jr. (affiliated with OFS)
lingle_3db_adhoc_01_042921.pdf

Mr. Lingle then proceeded with reviewing the **Agenda** and asked if there any modifications, additions, or deletions? There were none.
12:05 PM: The agenda was approved by the Task Force by unanimous consent. **Approved Agenda:**

- Meeting Attendance and Webex
- Approve Agenda
- Reflector and Web
- Private Area
- IEEE
  - 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
- Editors' Report for D1.0
- Contributions
  - "Recap and update on 940 nm VCSEL transmitter for 802.3db" – David Lewis (Lumentum)

        – "MPO Keying Considerations for 802.3db" – Tom Mitcheltree (US Conec)
- Straw Polls
- Future meetings

Reflector and Web: Mr. Lingle showed the links to the IEEE P802.3db Task Force webpage, ad hoc 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 asked if anyone was unfamiliar with any of the IEEE Patent, Copyright and Participation policies, which had been shared via TF reflector prior to the meeting. No one responded.

12:08 PM: Chair reviewed IEEE-SA patent policy slides 6-7 of lingle_3db_adhoc_01_042921.pdf . Chair made a "Call for Essential Patent Claims." There was no response.
IEEE Patent Policy reminder: http://www.ieee802.org/3/patent.html

IEEE SA Copyright Policy: Mr. Lingle provided overview of slide 8 of lingle_3db_adhoc_01_042921.pdf entitled "IEEE SA Copyright Policy"
IEEE Copyright reminder: https://standards.ieee.org/ipr/index.html

IEEE SA Participation Policy: Mr. Lingle showed the participation policy slide 9 of lingle_3db_adhoc_01_042921.pdf .
IEEE Participant reminder: http://www.ieee802.org/devdocs.shtml

Editors' Report:
Title: "Editors' Report (D1.0 first report)"
Presenters: Ramana Murty (affiliated with Broadcom Inc.) and Earl Parsons (affiliated with CommScope)
editors_report_D1p0_3db_adhoc_01a_042921.pdf
(Version 01a, shown at meeting and posted after meeting updates: slide 4, updated to show correct methods for comment entry).

Editors' Report provided:
- Draft 1.0 was posted to P802.3db private area on April 21st
- Includes
  - Changes discussed during comment resolution against D0.2 on Apr 15
  - Editorial changes to Clauses 1, 30, 78, 91, 116 and 167 as well as Introduction and Front matter as described on slide 11 in https://www.ieee802.org/3/db/public/April-15-2021/editors_report_comments_D0p2_3db_01_041521.pdf
  - Clause 45
- D1.0 is open for comments through Wednesday, May 5th AOE
- Comments will be reviewed at the May Interim starting May 13

TF Chair's conventions on comment resolution:
Mr. Lingle provided the following conventions for comment resolution:
- Editors will prepare proposed responses to comments
- Use of "the bucket"

- o Editors may wish to place comment responses believed to be non-controversial "in the bucket," to save time
- o In the case of essentially similar comments, editors may also propose to resolve one representative comment, while placing essentially similar ones "in the bucket," allowing the editors to draft final responses to those offline, based on resolution of the representative comment.
- o Participants may request to remove comments from the bucket
- Comments may be supported by up to preferably 15 min contributions; contributions not directly referencing a comment against the draft will only be heard if all other business completes early during a session
- Individual comments will be resolved by a simple majority, if needed.
- Two types of straw polls may be useful: directional vs decisional. For a decisional straw poll, a simple majority (> 50%) will result in closing of the comment. A decisional straw poll will be triggered following discussion if there are at least two objections to the question: "Is there anyone who opposes the comment response as written on the screen?"
- The motion to generate the next draft based on the body of resolved comments requires > 75% approval as a technical motion.

Chair sought feedback on these conventions from TF. No comments were made.

Contribution #1:
Title: "Recap and update on 940 nm VCSEL transmitter for 802.3db"
Presenter: David Lewis (affiliated with Lumentum)
lewis_3db_01_041521.pdf (previously posted for, but not presented due to time constraints, for April 15 TF Interim meeting)

Presentation provided:
- Recap and update on 940 nm VCSELs in addressing TBD for wavelength for 50 m VR variant.
- Positive results to date. Expect more updated results in May.

Technical discussion followed including some these topics:
- Backward compatibility to SR/850 nm, relative cost of 940 nm vs. 850 nm, utilizing high-volume/high-yield of 3D sensing VCSELs, excess bandwidth vs. long equalizer, tradeoff with fiber bandwidth, legacy SR – InP vs. GaAs, 940 nm for next-generation VCSELs, dual 850 nm and 940 nm on receiver side/photodiode, IEC estimated EMB min (MHz*km) values at 940 nm of 1085 for OM3 and 1566 for OM4, different TDECQ requirements for 850 nm vs. 940 nm.
- Clarifying questions asked and answered.
- Author welcomed feedback from the group. He indicated that he would have follow-up contribution as additional data for 940 nm VCSELs become available.

Contribution #2:
Title: "MPO Keying Considerations for 802.3db"
Presenter: Tom Mitcheltree (affiliated with US Conec)
mitcheltree_3db_01_041521.pdf (presentation previously made during April 15 TF Interim meeting)
 Presentation provided:
- Evaluate tradeoffs of various 200G VR2/SR2 & 400G VR4/SR4 MPO keying conventions.
- Proposal: Adopt Parsons definition of two 200G VR2/SR2 options and two 400G VR4/SR4 MDI options:
    - Option A = APC (angled) MPO-16 with Offset Key
    - Option B = PC (flat) MPO-12 with Center Key

Technical discussion followed including some these topics:
- Clarify that market has adopted non-standard (IEEE 802.3cm) APC/angled MPO-16 MDI interface for 400G-SR8, so harmonizing to non-standard SR8 MDI, APC/angled not necessary for SR/LC, minimizing risk of back reflection (BR) as key issue, lane assignments for MPO-16 – outer vs. center positions, forward use of 800G-SR8 (or 2x400G-SR4), market demand for APC/angled MPO-12 for 200G-SR4, damage not issue for mistakenly mating angled with flat – but will result in poor performance, need for angled at MDI and for fiber cable plant, hybrid patch-cord, offset key for APC/angled vs. different color that PC/flat .
- Clarifying questions asked and answered.
- Author welcomed feedback from the group.

Mr. Lingle had to step away from meeting from 1:08 PM – 1:19 PM EDT/UTC-4. He assigned Mr. Choudhury as acting Chair during this period.

.3db Straw Poll #1:
- I support including the following MDI options for 200G-VR2, 400G-VR4, 200G-SR2, and 400G-SR4 (Chicago rules)
    A. 12 Fiber Flat
    B. 12 Fiber Angled
    C. 16 Fiber Angled
- A: 21   B: 12   C: 17
- No Answer: 12

Straw Poll #1 by voter list:

	Attendees	A	B	C
1	Tom Mitcheltree - US Conec	X		X
2	Mabud Choudhury OFS	X	X	X
3	Matt Bolig Inphi			
4	Earl Parsons [CommScope]	X	X	
5	Flavio Marques / Furukawa Electric	X		
6	Ramana Murty [Broadcom]		X	X
7	Gary Nicholl Cisco			
8	Rick Pimpinella - Panduit Corp.	X		
9	Kangmin Hu [Innogrit]	X		X
10	Vince Ferretti [Corning]	X		X
11	Enis Akbaba @ Maxim Integrated			
12	Tom Palkert, Samtec, Macom			
13	Chan Chih David Chen [AOI]	X	X	
14	Stephen Didde Keysight			
15	Mike Dudek Marvell	X		X
16	Yi Tang [Cisco]		X	X
17	Yasuo Hidaka [Credo]			
18	Richard Mellitz Samtec	X	X	
19	Raymond Nering - Cisco	X		X
20	John DeAndrea, II-VI/Finisar			
21	Greg D Le Cheminant Keysight	X	X	X

22	YI SUN-OFS	X	X	
23	Ed Ulrichs Intel			
24	Frank Chang Source Photonics		X	
25	Jose Castro Panduit	X		X
26	Leon Bruckman Huawei			
27	Mark Kimber Semtech			X
28	Piers Dawe [Nvidia]			X
29	Yung Son Optomind			
30	Lin Youxi—Huawei	X	X	
31	Yu Quan[Huawei]	X		
32	Olindo Savi [Hubbell]	X		X
33	John S Abbott Corning	X		X
34	Lance Thompson - II-VI			
35	david malicoat -Independent/Senko	X		X
36	Jeffery Maki [Juniper Networks]			
37	David Lewis Lumentum	X	X	X
38	James Young [Commscope]	X	X	X

.3db Straw Poll #2:
- I DO NOT support including the following MDI options for 200G-VR2, 400G-VR4, 200G-SR2, and 400G-SR4 (Chicago rules)
    - A.   12 Fiber Flat
    - B.   12 Fiber Angled
    - C.   16 Fiber Angled
  - A: 1   B: 10   C: 5
  - No Answer: 22

Straw Poll #2 by voter list:

	Attendees	A	B	C
1	Tom Mitcheltree - US Conec			
2	Mabud Choudhury OFS			
3	Earl Parsons [CommScope]			
4	Flavio Marques / Furukawa Electric		X	
5	Ramana Murty [Broadcom]			
6	Gary Nicholl Cisco		X	X
7	Rick Pimpinella - Panduit Corp.		X	X
8	Kangmin Hu [Innogrit]			
9	Vince Ferretti [Corning]		X	
10	Tom Palkert, Samtec, Macom			
11	Chan Chih David Chen [AOI]			
12	Stephen Didde Keysight			
13	Mike Dudek Marvell		X	
14	Yi Tang [Cisco]			X
15	Yasuo Hidaka [Credo]			

#	Attendees			
16	Richard Mellitz Samtec			
17	Raymond Nering - Cisco		X	
18	John DeAndrea, II-VI/Finisar			
19	Greg D Le Cheminant Keysight			
20	YI SUN-OFS			
21	Ed Ulrichs Intel			
22	Frank Chang Source Photonics			
23	Jose Castro Panduit		X	
24	Leon Bruckman Huawei			
25	Mark Kimber Semtech	X	X	
26	Piers Dawe [Nvidia]			
27	Yung Son Optomind			
28	Lin Youxi—Huawei			X
29	Yu Quan[Huawei]			X
30	Olindo Savi [Hubbell]			
31	John S Abbott Corning		X	
32	Lance Thompson - II-VI			
33	david malicoat -Independent/Senko			
34	Jeffery Maki [Juniper Networks]		X	
35	James Young [Commscope]			

.3db Straw Poll #3:
- I support including the following MDI options for 200G-VR2, 400G-VR4, 200G-SR2, and 400G-SR4 (Chicago rules)
  - A. Flat with center key
  - B. Angled with center key
  - C. Angled with offset key
- A: 19   B: 7   C: 13
- No Answer: 13

Straw Poll #3 by voter list:

#	Attendees	A	B	C
1	Tom Mitcheltree - US Conec	X		X
2	Mabud Choudhury OFS	X		X
3	Earl Parsons [CommScope]	X	X	
4	Flavio Marques / Furukawa Electric	X		
5	Ramana Murty [Broadcom]	X		X
6	Gary Nicholl Cisco	X	X	X
7	Rick Pimpinella - Panduit Corp.	X		
8	Kangmin Hu [Innogrit]	X	X	
9	Vince Ferretti [Corning]	X		X
10	Tom Palkert, Samtec, Macom			
11	Chan Chih David Chen [AOI]	X		X
12	Stephen Didde Keysight			

#	Name			
13	Yi Tang [Cisco]			
14	Yasuo Hidaka [Credo]			
15	Richard Mellitz Samtec			
16	Raymond Nering - Cisco	X		X
17	John DeAndrea, II-VI/Finisar			
18	Greg D Le Cheminant Keysight			X
19	YI SUN-OFS	X	X	X
20	Ed Ulrichs Intel			
21	Frank Chang Source Photonics			
22	Jose Castro Panduit	X		
23	Leon Bruckman Huawei			
24	Mark Kimber Semtech			X
25	Piers Dawe [Nvidia]			
26	Yung Son Optomind			
27	Lin Youxi—Huawei	X	X	
28	Yu Quan[Huawei]	X		
29	Olindo Savi [Hubbell]	X		X
30	John S Abbott Corning	X	X	
31	Lance Thompson - II-VI			
32	david malicoat -Independent/Senko			
33	Jeffery Maki [Juniper Networks]	X		X
34	James Young [Commscope]	X	X	X

Future meetings (slide 12 of lingle_3db_adhoc_01_042921.pdf , not shown during meeting due to lack of time)**:**
- 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 (EDT/UTC -4): http://www.ieee802.org/3/db/public/adhoc/index.html
    - Next Ad Hoc meeting: Thursday, June 10, 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:
    - On TF interim teleconferences, only 802.3 voters may vote on TF motions.
    - Next Interim meeting: Thursday, May 13, 2021, 12 Noon to 2 pm Eastern Daylight US (EDT/UTC -4)

- May IEEE 802.3 WG Interim session will be virtual, May 17 – 27, 2021.

The Task Force Ad Hoc meeting was adjourned at 2:09 PM EDT/ UTC -4, Thursday, April 29, 2021.

Next Meeting:
Scheduled P802.3db TF Interim Webex meeting for Thursday, May 13, 2021, 12 Noon to 2 pm Eastern US (EDT/UTC -4).

Appendix A: Attendance List IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force WebEx Ad Hoc Meeting

43 individuals attended on Thursday, 29 April 2021, 12:02 PM – 2:09 PM EDT/UTC -4

	Name	Employer	Affiliation
1	Abbott, John	Corning Incorporated	Corning Incorporated
2	Akbaba, Enis	Maxim Integrated Products	Maxim Integrated Products
3	Bolig, Matthew	Inphi Corporation	Inphi Corporation
4	Bruckman, Leon	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
5	Chen, Chan	Applied Optoelectronics, Inc.	Applied Optoelectronics, Inc.
6	Choudhury, Mabud	OFS	OFS
7	Dawe, Piers J G	NVIDIA	Nvidia
8	Deandrea, John	Finisar Corporation	Finisar Corporation
9	Didde, Stephen	Keysight Technologies	Keysight Technologies
10	Dudek, Michael	Marvell	Marvell
11	Ferretti, Vincent	Corning Incorporated	Corning Incorporated
12	Hidaka, Yasuo	Credo Semiconductor	Credo Semiconductor
13	Hu, Kangmin	Innogrit	Innogrit
14	Kamino, John	OFS	OFS
15	Kimber, Eric	Semtech Ltd	Semtech Ltd
16	Lewis, David	Lumentum Inc.	Lumentum Inc.
17	Lin, Youxi	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
18	Lingle, Robert	OFS	OFS
19	Maki, Jeffery	Juniper Networks, Inc.	Juniper Networks, Inc.
20	Marques, Flavio	FURUKAWA ELECTRIC	FURUKAWA ELECTRIC
21	Mellitz, Richard	Samtec, Inc.	Samtec, Inc.
22	Mitcheltree, Tom	US Conec, Ltd.	US Conec, Ltd.
23	Murty, Ramana	Broadcom Inc.	Broadcom Corporation
24	Nering, Raymond	Cisco Systems, Inc.	Cisco Systems, Inc.
25	Palkert, Thomas	Macom, Samtec	Samtec-Macom
26	Parsons, Earl	CommScope, Inc.	CommScope, Inc.
27	Pimpinella, Rick	Panduit Corp.	Panduit Corp.
28	Quan, Yu	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd
29	Savi, Olindo	Hubbell Incorporated	Hubbell Incorporated
30	Son, Yung Sung	Optomind Inc	Optomind Inc
31	Sorbara, Massimo	GLOBALFOUNDRIES	GLOBALFOUNDIRES
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	Intel
36	Young, James	CommScope, Inc.	CommScope