

Unapproved Minutes
**IEEE P802.3db 100 Gb/s, 200 Gb/s, and 400 Gb/s Short Reach Fiber Task Force
Ad Hoc Meeting**

Webex Meeting
December 17, 2020

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, December 17, 2020. 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 (55 attendees)

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 12:01 PM Eastern Standard Time (EST/ UTC -5), Thursday, December 17, 2020 by Robert Lingle, Jr., P802.3db TF Chair.

Mr. Lingle welcomed attendees. He requested that each attendee indicate their name and employer/affiliation in an e-mail to the ad hoc recording secretary: Mabud Choudhury (mchoudhury@ofsoptics.com) for the meeting minutes. Chair instructed attendees to either add their affiliations to their names in the 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. (OFS)

[lingle_3db_adhoc_01a_121720.pdf](#) (version 01a updates/corrects future meeting dates)

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

12:03 PM: The agenda was approved by the Task Force without opposition. **Approved Agenda:**

- Meeting Attendance and Webex
- Approve Agenda
- Reflector and Web
- 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>
- Contributions
 - "Baseline Proposal for 100 Gb/s per Lane Optical PMDs Supporting 50 and 100m OM4 MMF" - Ramana Murty, David Dolfi
 - "Important Test Considerations for Generating Transmitter Specifications" - David Leyba, Greg D. Le Cheminant, Kevin Suiker

- "Requirement for VCSEL based 100G/lane solution in SR scenario" - Youxi Lin, Jianyu Zheng
- Future Meetings

Mr. Lingle showed the links to the IEEE P802.3db Task Force webpage, ad hoc page, and the email reflector.

12:04 PM: Chair reviewed "Call for potential Essential Patent Claims" slides 5-6 of [lingle_3db_adhoc_01a_121720.pdf](#).

IEEE Patent Policy reminder: <http://www.ieee802.org/3/patent.html>

IEEE SA Copyright Policy: Mr. Lingle provided overview of slide 7 of [lingle_3db_adhoc_01a_121720.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 8 of [lingle_3db_adhoc_01a_121720.pdf](#).

IEEE Participant reminder: <http://www.ieee802.org/devdocs.shtml>

Contribution #1:

Title: "Baseline Proposal for 100 Gb/s per Lane Optical PMDs Supporting 50 and 100m OM4 MMF"

Presenter: Ramana Murty (Broadcom)

[murty_3db_adhoc_01b_121720.pdf](#)

(version 01a, no longer posted, added supporters [slide 2] and corrects wavelength spec on the Receive Characteristics [slide 9])

(version 01b adds one additional supporter [slide 2] and corrects Transmit Characteristics Table [slide 8]:

Launch power in OMA_{outer} minus TDECQ(min) has distinct values for the 50m and 100m links. This correction is for the additional 0.2 dB in link budget for the 50m link that should appear in the table)

- Presentation provides baseline proposal to meet adopted 50 m and 100 m reach objectives
- Technical discussion followed
- Topics discussed included: RE: test methodology, going beyond 9 taps (from .3ck, at least 15 taps available), test methodology MMF vs. SMF, transmit characteristics 0.2 dB difference for 50 m vs. 100 m, center wavelength receive characteristics (corrected in version 01a), RE: reference equalizer – should/could be <9 taps (5 taps) for 50 m vs. interoperability for 50 m and 100 m, need to revisit and further study on pre-emphasis (slide 7) – need for more contributions, need to keep 50 m version low-cost and low-power, need to relook at SRS, TDECQ reference response bandwidth.
- Clarifying questions asked and answered
- Author welcomed feedback from the group

Contribution #2:

Title: "Important Test Considerations for Generating Transmitter Specifications"

Presenter: Greg D. Le Cheminant (Keysight Technologies)

[le_cheminant_3db_adhoc_01_121720.pdf](#)

- Presented:
 - Quick review of IEEE link budget method

- Transmitter contribution to the link budget
- Eye closure metric for PAM4 systems: TDECQ; evolution of TDECQ
- Worst-case allowed receiver for 802.3db and impact transmitter on test definitions
- Implications on receiver test
- Technical discussion followed.
- Topics discussed included: additional tap vs. testing response time, PAM4 links and TDECQ, eye skew, receiver noise and TDECQ measurement.
- Author welcomed feedback from the group
- Clarifying questions asked and answered

Contribution #3:

Title: "Requirement for VCSEL based 100G/lane solution in SR scenario"

Presenter: Youxi Lin (Huawei)

[lin_3db_adhoc_01_121720.pdf](#)

- Presented:
 - VCSEL technical feasibility review
 - System margin considerations in 100G/lane 100m MMF scenario
 - Link budget, TDECQ and error floor
 - Considerations on baseline
- Technical discussion followed
- Topics discussed included: TDECQ PRBS15 vs. SSPRQ, lower noise floor for integrated product vs. “breadboarded” product, error being sufficiently random, PRBS15 for TDECQ vs. PRBS31 or BER, utilizing capability of SSPRQ, MMF vs. SMF as it relates to issues with error floor, more errors for certain symbols, TDECQ not guarantying error floor, TDECQ and BER being orthogonal, TDECQ being implemented in scope vs. not having fully complexity and characteristics of full receiver
- Clarifying questions asked and answered
- Author welcomed feedback from the group

Chair encouraged continuation of technical discussions on TF reflector.

Future 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 meeting Thursday, January 14, 2021, 12 Noon to 2 pm Eastern US (EST/UTC -5)
- P802.3db TF Interim Teleconference:
 - Thursday, January 21, 2021, 12 noon to 2 pm Eastern US (EST/UTC -5),
 - During 802.3 WG Interim Teleconference Weeks (January 18 – January 28)

The Task Force Ad Hoc meeting was adjourned at 2:20 PM EST/ UTC -5, Thursday, December 17, 2020.

Next Meeting:

Scheduled P802.3db TF ad hoc Webex meeting for Thursday, January 14, 2021 at 12:00 Noon – 2:00 PM EST/UTC -5.

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

55 individuals attended on Thursday, 17 December 2020, 12:01 PM – 2:20 PM EST/UTC -5

	Last Name, First Name	Employer	Affiliation
1	Abbott, John	Corning Incorporated	Corning Incorporated
2	Akbaba, Enis	Maxim Integrated Products	Maxim Integrated Products
3	Baca, Richard	Microsoft Corporation	Microsoft Corporation
4	Bhatt, Vipul	Finisar Corporation	Finisar Corporation
5	Bruckman, Leon	HUAWEI	HUAWEI
6	Chang, Yongmao	Inphi Corporation	Source Photonics
7	Chen, Chan	Applied Optoelectronics, Inc.	Applied Optoelectronics, Inc.
8	Choudhury, Golam	OFS	OFS
9	Dawe, Piers J G	Mellanox Technologies	Nvidia
10	Deandrea, John	Finisar Corporation	Finisar Corporation
11	Denoyer, Gilles	Maxim Integrated Products	Maxim Integrated Products
12	Ferretti, Vincent	Corning Incorporated	Corning Incorporated
13	Ghiasi, Ali	Ghiasi Quantum LLC	Ghiasi Quantum LLC, Inphi
14	Gustlin, Mark	Cisco Systems, Inc.	Cisco Systems, Inc.
15	Healey, Adam	Broadcom Inc.	Broadcom Inc.
16	Hu, Kangmin	Innogrit	Innogrit
17	Jackson, Kenneth	Sumitomo Electric Device Innovations, USA	Sumitomo Electric Industries, LTD
18	Kim, Inho	Marvell	Marvell
19	Kimber, Eric	Semtech Ltd	Semtech Ltd
20	Latchman, Ryan	MACOM	MACOM
21	Le Cheminant, Greg	Keysight Technologies	Keysight Technologies
22	Lewis, David	Lumentum Inc.	Lumentum Inc.
23	Lingle, Robert	OFS	OFS
24	Lyubomirsky, Ilya	Inphi Corporation	Inphi Corporation
25	Maki, Jeffery	Juniper Networks, Inc.	Juniper Networks, Inc.
26	Malicoat, David	Malicoat Networking Solutions	Malicoat Networking Solutions; SENKO Advanced Components
27	Mellitz, Richard	Samtec, Inc.	Samtec, Inc.
28	Mi, Guangcan	Huawei Technologies Co. Ltd	HUAWEI
29	Murty, Ramana	Broadcom Corporation	Broadcom Corporation
30	Nering, Raymond	Cisco	Cisco Systems, Inc.
31	Palkert, Thomas	EIC	Molex-Macom
32	Parsons, Earl	CommScope, Inc.	CommScope, Inc.
33	Piehler, David	Dell	Dell Technologies
34	Pimpinella, Rick	Panduit Corp.	Panduit Corp.

35	Radhamohan, Rajeshmohan	MAXLINEAR INC	MaxLinear Inc
36	Shubochkin, Roman	OFS	OFS
37	Thompson, Lance	Finisar Corporation	Finisar Corporation
38	Young, James	CommScope, Inc.	CommScope

	Last Name	First Name	Affiliation	Employer
1	Akbaba	Enis	Maxim Integrated	Maxim Integrated
2	Balemarchy	Kasyapa	OFS	OFS
3	Bhatt	Vipul	II-VI	II-VI
4	Bolig	Matt	Inphi	Inphi Corp.
5	Bruckman	Leon	Huawei	Huawei
6	Castro	Jose	Panduit	Panduit Corp.
7	Calvin	John	Keysight Technologies	Keysight Technologies
8	Chan	Richard	II-VI	II-VI
9	Chen	Chan Chih David	AOI	AOI
10	Choudhury	Mabud	OFS	OFS
11	Dawe	Piers	Nvidia	Nvidia
12	De Keulenaer	Timothy	Nvidia	Nvidia
13	Didde	Stephen	Keysight	Keysight
14	Dolfi	David	Broadcom	Broadcom
15	Dudek	Mike	Marvell	Marvell
16	Ferretti	Vince	Corning	Corning Incorporated
17	Ghiasi	Ali	Ghiasi Quantum, Inphi	Ghiasi Quantum LLC
18	Guckenberger	Drew	Maxlinear	Maxlinear
19	He	Xiang	Huawei	Huawei
20	Hu	Kangmin	Innogrit	Innogrit
21	Ingham	Jonathan	Independent	Independent
22	Kimber	Mark	Semtech	Semtech Limited
23	Kirkland	Bill	Semtech	Semtech Limited
24	Latchman	Ryan	MACOM	MACOM
25	Law	David	HPE	HPE
26	LeCheminant	Greg	Keysight	Keysight
27	Ledentsov	Nikolay	VI Systems GmbH	VI Systems GmbH
28	Lewis	David	Lumentum	Lumentum
29	Lin	Youxi	Huawei	Huawei Technologies Co.,Ltd.
30	Lingle, Jr.	Robert	OFS	OFS
31	Lyubomirsky	Ilya	Inphi Corp.	Inphi Corp.
32	Murray	Dale	LightCounting	LightCounting
33	Murty	Ramana	Broadcom	Broadcom
34	Nering	Raymond	Cisco	Cisco Systems, Inc.
35	Nishimura	Takeshi	Yamaichi	Yamaichi Electronics

36	Nowell	Mark	Cisco	Cisco Systems, Inc.
37	Palkert	Tom	Samtec, Macom	EIC
38	Parsons	Earl	CommScope	CommScope
39	Piehler	David	Dell	Dell
40	Pimpinella	Rick	Panduit Corp.	Panduit Corp.
41	Raabe	Christian	Cisco	Cisco Systems, Inc.
42	Radhamohan	Rajesh	Broadcom	Broadcom
43	Rodes	Roberto	II-VI	II-VI
44	Son	Yung	Optomind Inc.	Optomind Inc.
45	Sun	Yi	OFS	OFS
46	Swanson	Steve	Corning Incorporated	Corning Incorporated
47	Tang	Yi	Cisco	Cisco Systems, Inc.
48	Thompson	Lance	II-VI	II-VI
49	Ulrichs	Ed	Intel	Intel Corporation
50	Wang	Ruoxu	Huawei Technologies Co.,Ltd.	Huawei Technologies Co.,Ltd.
51	Winzer	Peter	Nubis Communications	Nubis Communications
52	Xie	Chongjin	Alibaba	Alibaba
53	Young	James	CommScope	CommScope
54	Yu	Quan	Huawei	Huawei
55	Zhang	Bo	Inphi	Inphi Corp.