

# Unconfirmed Meeting Minutes: Meeting of the IEEE P802.3dg Long-Reach Single Pair Ethernet TF

March 11, 2024 Hybrid Plenary Meeting

Prepared by Bob Voss

All times in MDT

IEEE P802.3dg Task Force meeting was called to order at 3/11/2024 1:30 PM MDT by the chair, George Zimmerman.

The hybrid plenary meeting was held in person in Denver, CO and electronically via WebEx.

Attendance is listed in Appendix A.

All presentations referenced in these minutes are located on the Task Force Public web page ([https://www.ieee802.org/3/dg/public/May\\_2022/index.htm](https://www.ieee802.org/3/dg/public/May_2022/index.htm))

The Chair displayed and proceeded to review the agenda in [https://ieee802.org/3/dg/public/May\\_2022/agenda\\_3dg\\_01b\\_20240311.pdf](https://ieee802.org/3/dg/public/May_2022/agenda_3dg_01b_20240311.pdf).

The agenda was approved at 1:35PM MDT by unanimous consent.

Approval of meeting minutes waived until tomorrow's meeting.

**Members of the Press**, at 1:41PM MDT the chair asked for any press members to identify themselves. None heard.

## Goals for the Meeting

- Hear technical presentations
- Progress PHY baselines
- Progress discussion on MII

## Plenary Meeting Fees

**Attendance**, the Chair advised the group that the attendance will be taken from IMAT and Webex.

At 1:45PM MDT, the Chair resumed review of the agenda deck, including the following items – a review of the participation policy, a review of the IEEE copyright policy, a review of the IEEE policy on dominance, and a review of the IEEE Standards process. There were no questions.

**IEEE Patent Policy**, The Chair read aloud the patent slides, slides 0 through 4. The call for patents was made at 1:50PM MDT and **none** responded.

The Chair resumed review of the agenda deck material after the call for patents.

At 1:51PM MDT, the chair reviewed the IEEE SA Copyright policy, participant behavior, individual process, fair and equitable consideration, showing the requisite slides for each topic.

The chair said there are no liaisons or communications for the task force to consider at this time.

The chair displayed a slide with the Revised Timeline (approved 7/11/20230) and reports the schedule has slipped from this revised timeline.

### Presentations and Discussion:

At 1:59PM MDT, the Chair moved on to the presentations.

#### **Presentation: IEEE P802.3dg 100BASE-T1L PHY Impulse Noise Measurements on Cables**

(Presented by Michael Brychta, Analog Devices)

- [https://iee802.org/3/dg/public/May\\_2022/Brychta\\_3dg\\_update\\_B\\_2024-Mar-09.pdf](https://iee802.org/3/dg/public/May_2022/Brychta_3dg_update_B_2024-Mar-09.pdf)
- Presentation started at 2:00PM MDT.
- Starting at 2:24PM MDT, questions were asked and answered.

#### **Presentation: IEEE P802.3dg 100BASE-T1L PHY Time Domain Simulations (updated)**

(Presented by Brian Murray, Analog Devices)

- [https://iee802.org/3/dg/public/May\\_2022/Murray\\_3dg\\_03092024.pdf](https://iee802.org/3/dg/public/May_2022/Murray_3dg_03092024.pdf)
- Presentation started at 3:04PM MDT.
- Starting at 3:24PM MDT, questions were asked and answered

### **AFTERNOON BREAK 3:42PM – 4:05PM**

#### **Presentation: Time domain simulations for different AWGN models**

(Presented by Tingting Zhang, Huawei Technologies)

- [https://iee802.org/3/dg/public/May\\_2022/Tingting\\_3dg\\_12\\_03\\_2024.pdf](https://iee802.org/3/dg/public/May_2022/Tingting_3dg_12_03_2024.pdf)
- Presentation started at 4:07PM MDT.
- Starting at 4:20PM MDT, questions were asked and answered.

#### **Presentation: Adding Sequence Ordered Set to MII**

(Presented by William Lo, Axonne)

- [https://iee802.org/3/dg/public/May\\_2022/Lo\\_3dg\\_01\\_03112024.pdf](https://iee802.org/3/dg/public/May_2022/Lo_3dg_01_03112024.pdf)
- Presentation started at 4:45PM MDT.
- Starting at 4:51PM MDT, questions were asked and answered.

#### **Presentation: MII to SMII Proposal**

(Presented by William Lo, Axonne)

- [https://iee802.org/3/dg/public/May\\_2022/Lo\\_3dg\\_02\\_03112024.pdf](https://iee802.org/3/dg/public/May_2022/Lo_3dg_02_03112024.pdf)
- Presentation started at 4:55PM MDT.
- Starting at 5:04PM MDT, questions were asked and answered.

#### **Presentation: Motor Feedback Communications Cable Parameters (LATE)**

(Presented by Dayin Xu, Rockwell Automation)

- [https://iee802.org/3/dg/public/May\\_2022/xu\\_3dg\\_01\\_03112024.pdf](https://iee802.org/3/dg/public/May_2022/xu_3dg_01_03112024.pdf)
- Presentation started at 5:15PM MDT.
- Starting at 5:23PM MDT, questions were asked and answered.

**Presentations and discussion concluded at 5:24PM MDT.**

At **5:27PM MDT**, the chair recessed the meeting until **9:00AM MDT on 12Mar2024**.

At **9:00AM MDT**, Mr. Zimmerman reconvened the meeting.

Mr. Zimmerman reviewed the front matter slides for the group found at

[https://iee802.org/3/dg/public/May\\_2022/agenda\\_3dg\\_01b\\_20240311.pdf](https://iee802.org/3/dg/public/May_2022/agenda_3dg_01b_20240311.pdf).

At **9:04AM MDT**, Mr. Zimmerman gave the call for patents. No response heard.

The chair resumed the presentation covering copyright policy, IEEE Code of Ethics & Conduct, individual process, fair and equitable consideration.

Presentations and Discussion started at 9:08AM MDT.

**Presentation: Ethernet MII Interfaces Refinement of Previous Proposals (LATE)**

(Presented by Jason Potterf, Cisco Systems)

- [https://ieee802.org/3/dg/public/May\\_2022/Potterf\\_MII\\_Proposals\\_Expansion\\_2024-03-12.pdf](https://ieee802.org/3/dg/public/May_2022/Potterf_MII_Proposals_Expansion_2024-03-12.pdf)
- Presentation started at 9:10AM MDT.
- Starting at 9:28AM MDT, questions were asked and answered.

Mr. Potterf offered **Straw Poll #1 Control Bandwidth Reservation**

- Yes, Mandatory Feature, 12 + 3 = 15
- Yes, Optional Feature, 2
- No, Omit Feature, 2+1 = 3
- Abstain, No Opinion, 11

Mr. Potterf offered **Straw Poll #2 Embedded MDIO**

- Yes, Mandatory Feature, 16
- Yes, Optional Feature, 5
- No, Omit Feature, 3
- Abstain, No Opinion, 10

Mr. Potterf offered **Straw Poll #3 PTP Timestamping**

- Yes, Mandatory Feature, 14
- Yes, Optional Feature, 9
- No, Omit Feature, 1
- Abstain, No Opinion, 10

Mr. Potterf offered **Straw Poll #4 Frame Preemption (802.1Q IET)**

- Yes, Mandatory Feature, 9
- Yes, Optional Feature, 4
- No, Omit Feature, 1
- Abstain, No Opinion, 18

Mr. Potterf offered **Straw Poll #5 Energy Efficient Ethernet (LPI)**

- Yes, Mandatory Feature, 15
- Yes, Optional Feature, 8
- No, Omit Feature, 0
- Abstain, No Opinion, 8

Mr. Potterf offered **Straw Poll #6 Four-Pair 10/100 PHY Compatibility**

- Yes, Mandatory Feature, 15
- Yes, Optional Feature, 2
- No, Omit Feature, 2
- Abstain, No Opinion, 15

Mr. Potterf offered **Straw Poll #7 Half-Duplex Operation (COL)**

- Yes, Mandatory Feature, 15
- Yes, Optional Feature, 4
- No, Omit Feature, 2
- Abstain, No Opinion, 11

Mr. Potterf offered **Straw Poll #8 Half-Duplex Late Collision Frame Correlation**

- Yes, Mandatory Feature, 4
- Yes, Optional Feature, 4
- No, Omit Feature, 4
- Abstain, No Opinion, 19

Mr. Potterf offered **Straw Poll #9 PLCA Support**

- Yes, Mandatory Feature, 13
- Yes, Optional Feature, 1
- No, Omit Feature, 0
- Abstain, No Opinion, 17

**Straw Poll #10, “Where should this work be done?”**

- New IEEE 802.3 New Project, 8
- IEEE 802.3dg, 6
- Industry Specification, 4
- Don't do this work, 1
- Abstain, 8

Mr. Zimmerman posed another straw poll, **Straw Poll #11**

**“I would support defining at least the aspects of an MII relevant to 100Mb full duplex in 802.3dg.”**

- Support, 18
- Oppose, 2
- Abstain, 11

**Morning Break, 10:09AM > 10:30AM MDT**

The chair resumed the meeting at 10:33AM MDT. Mr. Zimmerman reported a conversation with Mr. Potterf during the break. Mr. Potterf plans to present this work to the NEA Ad Hoc at the July 2024 Plenary meeting in Montreal.

## PHY Discussion

- Discussion started at 10:38AM MDT.

Mr. Zimmerman proposed a straw poll to initiate the discussion.

## Straw Poll #12 – PHY

- **I would support adopting a PHY line code (with or without FEC) of: (choose one)**
  - **PAM3, 17**
  - **PAM4, 2**
  - **I would oppose adopting at this time, 0**
    - (trying to make up my mind, need questions answered)
  - **Abstain (no opinion), 12**

The chair offered a slide titled, **Proposed Direction**

- **Proponents commit to the group to bring full proposals – including justification for noise models and link segments used to the group prior to the May 2024 Interim meeting, for decision at the May interim.**
- **Models/proposals should include:**
  - **Link segment models & rationale.**
  - **Noise models for crosstalk AND impulse noise & rationale.**
  - **Line code (constellation), baud rate, FEC, and framing overhead.**
  - **Performance metrics and simulation results.**
- **Participants with questions they feel need answered, please feel free to use the reflector.**

The chair asked the group if anyone objected to adopting this proposed direction.

The group PHY discussion concluded at **11:51AM MDT.**

## Next meetings

- **Ad Hocs – Wednesday, 7-9am PDT, opportunities 4/3, 4/17**
  - Other dates, 3/27, 5/1 have conflicts – will find another day if needed.
  - Participants wishing to present at ad hoc meetings need to give the chair 1 week notice of their desire to present.
- **May 2024 802.3 Interim, Annapolis, MD, May 13-16**
  - In Person with remote access
  - See <https://www.ieee802.org/3/interims/index.html> for information.

Having exhausted the agenda, the meeting was adjourned at **11:53 AM MDT.**

## Appendix A: IEEE P802.3dg Long-Reach Single Pair Ethernet Task Force Attendance

Last Name	First Name	Employer	Affiliation	Monday 3/11		Tuesday 3/12	
				IMAT	Webex	IMAT	Webex
Akin	Sami	Volkswagen AG	Volkswagen Ag			X	X
Alberti	Hector	Arroyo ADI			X		X
Aronson	Joseph	Texas Instruments Inc.	Texas Instruments Inc.	X	X	X	X
Arroyo	Hector		Analog Devices Inc.	X		X	
Baggett	Tim	Microchip Technology, Inc.	Microchip Technology, Inc.	X	X	X	X
Beauregard	Francois	Belden Canada ULC	Belden	X		X	X
Benyamin	Saied	Ethernovia	Ethernovia			X	
Brandt	David	Rockwell Automation	Rockwell Automation		X	X	X
Brychta	Michal	Analog Devices Inc.	Analog Devices Inc.	X	X	X	X
Chabot	Craig	University of New Hampshire InterOperability Laboratory (UNH-IOL)	University of New Hampshire InterOperability Laboratory (UNH-IOL)	X	X	X	X
Chang	Jae-yong	Keysight Technologies Inc	Keysight Technologies Inc	X		X	
Chini	Ahmad	Broadcom Corporation	Broadcom Corporation	X	X	X	
Cliber	David	TE Connectivity	TE Connectivity			X	X
Donahue	Curtis	Rohde & Schwarz	Rohde & Schwarz	X		X	
Estrakh	Daniel	Valens Semiconductor	Valens Semiconductor			X	X
Graber	Steffen	Pepperl+Fuchs SE	Pepperl+Fuchs SE	X		X	
Gubow	Martin	Keysight Technologies	Keysight Technologies			X	
Haydt	Mary Sue	Microchip Technology, Inc.	Microchip Technology, Inc.	X	X	X	X
Huszak	Gergely	Self	KONE	X		X	
Jones	Chad	Cisco Systems, Inc.	Cisco Systems, Inc.	X		X	
Jones	Peter	Cisco Systems, Inc.	Cisco Systems, Inc.	X	X	X	X
Jonsson	Ragnar	Marvell Semiconductor, Inc.	Marvell	X		X	X
Lackner	Hans	QoSCom GmbH	QoSCom GmbH	X	X		X

Last Name	First Name	Employer	Affiliation	Monday 3/11		Tuesday 3/12	
				IMAT	Webex	IMAT	Webex
Law	David	Hewlett Packard Enterprise	Hewlett Packard Enterprise			X	
Lennartsson	Kent	Kvaser AB	Kvaser AB	X	X	X	X
Lewis	Jon	Dell Technologies	Dell Technologies	X		X	
Lo	William	Marvell Semiconductor, Inc.	Axonne Inc.	X	X	X	X
Lou	Wei	Broadcom Corporation	Broadcom Corporation	X	X	X	X
Maguire	Valerie	Copperopolis	Copperopolis, affiliated with CME Consulting	X		X	
Mcclellan	Brett	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.	X			
Mueller	Harald	Endress + Hauser	Endress + Hauser	X	X	X	X
Murray	Brian	Analog Devices Inc.	Analog Devices	X	X	X	X
Paul	Michael	Analog Devices Inc.	Analog Devices			X	X
Peters	Kevin	Inneos	Inneos	X		X	
Peterson	Eric	Blue Origin	Blue Origin	X		X	
Pischl	Neven	Broadcom Corporation	Broadcom Corporation			X	X
Potterf	Jason	Cisco Systems, Inc.	Cisco Systems, Inc.	X	X	X	X
Razavi	Alireza	Marvell	Marvell	X	X		
Regev	Alon	Keysight Technologies	Keysight Technologies			X	
Reinhard	Michael	SEI ANTech-Europe GmbH	SEI Automotive Europe GmbH	X	X	X	X
Schreiner	Stephan	Rosenberger Hochfrequenztechnik GmbH & Co. KG	Rosenberger	X	X	X	X
shirani	ramin	Ethernovia	Ethernovia			X	
sisk	jason	University of New Hampshire InterOperability Laboratory (UNH-IOL)	University of New Hampshire InterOperability Laboratory (UNH-IOL)	X	X	X	X
Steffen	Graber	Pepperl+Fuchs			X		X
Steyer	Janik	Ege Robert Bosch GmbH			X		X
Steyer-Ege	Janik	Robert Bosch GmbH	Robert Bosch GmbH	X		X	
Sun	jingcong	Motorcomm Electronic Technology Co	Motorcomm Electronic Technology Co	X	X	X	X

Last Name	First Name	Employer	Affiliation	Monday 3/11		Tuesday 3/12	
				IMAT	Webex	IMAT	Webex
TAZEBAY	MEHMET	Broadcom Corporation	Broadcom Corporation	X	X	X	
Tellas	Ronald	Belden	Belden	X	X	X	X
Thompson	Geoffrey	GraCaSI S.A.	INDEPENDENT		X	X	X
Turner	Max	Ethernovia					X
Voss	Robert	Panduit Corp.	Panduit Corp.	X		X	
Withey	James	Fluke Corporation	Fluke Corporation			X	
Wu	Peter	Marvell			X		
Xu	Dayin	Rockwell Automation	Rockwell Automation	X	X	X	X
yong	Jae	Chang [Keysight]			X		
Zhang	Tingting	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd	X	X	X	X
Zhuang	Yan	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd	X	X		X
Zimmerman	George	CME Consulting, Inc.	CME Consulting/ADI, APL Group, Cisco, Marvell, OnSemi, SenTekSe LLC, Sony	X	X	X	X