

# Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting January 19, 2021

Prepared by Natalie Wienckowski

## Proposed Agenda:

Title	Presenters(s)	Affiliation(s)
Agenda	Natalie Wienckowski (ad hoc Chair)	General Motors
TF Chair's Comments	Steve Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia
<a href="#">Link Segment Measurements</a>	Eric DiBiaso, Bert Bergner, Emilio Cuesta	TE Connectivity
<a href="#">Achievable Cable Reach for different cable models and PAM sizes</a>	Ragnar Jonsson	Marvell
<a href="#">Thoughts on the IL strawman</a>	George Zimmerman	CME Consulting, Inc., Marvell
P802.3cy To-do list	Natalie Wienckowski	General Motors
Closing Remarks	Steve Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia

[See adhoc webpage for agenda deck and presentations](#)

## Agenda/Admin Natalie Wienckowski as ad hoc chair:

Meeting began at 10:03 am ET.

## Introductions & Affiliations.

### Presented file: [cy Task Force adhoc agenda 01 19 21.pdf](#)

1. Reviewed the Attendance information related to the ad hoc.
2. Displayed the Participation slide and reviewed it.
3. Displayed patent slide deck, and reviewed it.  
Call for Patents was made at 10:08 am Eastern Time, none responded
4. Reminded participants to indicate full names and employer/affiliation for the meeting minutes.

Instructions for subscribing to the reflector may be found at <http://www.ieee802.org/3/cy/reflector.html>. If you cannot subscribe to the reflector for some reason, and need additional assistance please contact the Task Force chair.

**Chair's comments:** None at this time.

## **Presentations/Discussion:**

### **Presentation: [Link Segment Measurements](#) (Eric DiBiaso, Bert Bergner, Emilio Cuesta, TE Connectivity)**

Emilio presented IL data on an 11 m cable. He also presented RL data on three link segments with different lengths with in-line connectors in different positions. He also did calculations of residual echo.

Cable construction, gauge, insulation type, material, etc. can be changed to change the cable characteristics.

The cable used for the testing is twisted with a very slow twist, almost a parallel pair.

This data confirms that the IL proposal by Hossein is difficult to meet with 11m of cable that is AWG26.

It would be very helpful if s4p files could be provided, even if it is provided for just a subset of the points. It can be taken from the plots, but this is time consuming.

### **Presentation: [Achievable Cable Reach for different cable models and PAM sizes](#) (Ragnar Jonsson, Marvell)**

Ragnar presented information looking at potential cable length for different cable data presented, with different PAM sizes. He explained how he set up the Channel Capacity Calculator to perform these calculations. He found that there are some cables that can meet the 11 m goal. He also found that PAM4 generally enables the longest cables. He proposed that we consider a piecewise-linear limit line for the IL.

It's important to be consistent and clear in terminology when referring to the cable, link segment, Tx to Rx, etc.

### **Presentation: [Thoughts on the IL strawman](#) (George Zimmerman, CME Consulting, Inc., Marvell)**

George presented his thoughts on adopting a baseline for IL, especially if it is one that may conflict with our objectives. He doesn't think we're ready to adopt a baseline.

He also provided information on adding noise sources.

He proposed a new Strawman to consider.

There was a request for information on the impact of CMCs, if they are used for these implementations.

It would be good to get estimates on what cables

## **Presentation: [P802.3cy To-do list usage](#) (Natalie Wienckowski, General Motors)**

The To-Do list was not updated due to a lack of time. Participants are urged to review the list for topics they can support and for missing topics. Please send a message to the reflector with requested changes to the list.

The current list can be found on this page: [To Do spreadsheets](#)

## **Closing Discussion**

If we change objectives, they need to also be approved by IEEE802.3.

If we change CSDs, they need to be approved by IEEE802.3 and IEEE802.

There is a PHY call later today.

There is an 802 WG meeting on Thursday. This starts one hour earlier than our regular 802.3cy ad hoc.

Next week's 802.3cy call is an Interim and will be on Zoom. The meeting notice is available on the calendar.

Meeting adjourned at 12:00 PM ET.

## **Attendees (snapshot of participants in meeting, email)**

<b>First</b>	<b>Last</b>	<b>Affiliation</b>
Bert	Bergner	TE Connectivity
Brett	McClellan	Marvell
Chris	DiMinico	MC Communications, PHY-SI, SenTekse / Panduit
Chris	Mash	Ethernovia
Christian	Neulinger	MD Elektronik
Curtis	Donahue	UNH-IOL
Dan	Kennefick	Daikin America
Daniel	Koppermüller	MD Elektronik
Dave	Hess	Cord Data
Emilio	Cuesta	TE Connectivity
Eric	DiBiaso	TE Connectivity
Erwin	Köepfendorfer	Leoni Kabel GmbH
George	Zimmerman	CME Consulting / ADI, APL Group, Cisco Systems, CommScope, Marvell, SenTekSe

<b>First</b>	<b>Last</b>	<b>Affiliation</b>
German	Feyh	Broadcom
Harsh	Patel	Molex
Haysam	Kadry	Ford
Hiroshi	Sawano	OITDA / optoelectronics industry and technology development association
Hossein	Sedarat	Ethernovia
Jonathan	Silvano de Sousa	GG - Austria
Kae	Dube	UNH-IOL
Kambiz	Vakilian	Broadcom
Larry	McMillan	Western Digital
Louise	Yi	FIT
Luisma	Torres	KDPOF
Makoto	Nariya	Sony
Masato	Shiino	Furukawa
Michael	Reinhard	SEI ANTech
Michikazu	Aono	Yazaki
Mike	Tu	Broadcom
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Olaf	Grau	Robert Bosch GmbH
Olindo	Savi	Hubbell
Peter	Orlowski	UNH-IOL
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell
Ramana	Murty	Broadcom
Rich	Boyer	Aptiv
Roland	Preis	MD Elektronik
Ryan	Petrarca	TDK
Shaowu	Huang	Marvell
SJ	Yu	Foxconn Interconnect Technology
Stefan	Andrä	SEI ANTech – Europe GmbH
Steve	Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Terry	Little	Foxconn Interconnect Technology
Thomas	Müller	Rosenberger
Tom	Souvignier	Broadcom
Xingxin	Zhang	Huawei
<b>TOTAL</b>	<b>50</b>	<b>Attendees</b>

## Presenters (51)

-  Bert Bergner (TE) Guest
-  Boyer, Rich - External Network
-  chris diminico Guest
-  Chris Mash Guest
-  Christian Neulinger - MD Elektronik Guest
-  Curtis Donahue Guest
-  Curtis Donahue Guest
-  Curtis Donahue Guest
-  Dan Kennefick Guest
-  Daniel Koppermüller - MD Elektronik GmbH Guest
-  Dave Hess, Cord Data Guest
-  Emilio Cuesta (TE Connectivity) Guest
-  Eric DiBiaso - TE Guest
-  Erwin Koeppendoerfer; Leoni Kabel GmbH Guest
-  George Zimmerman (CME Cnsltng/ADI,APL Gp, Cisco,...)
-  German Feyh (Broadcom) Guest
-  Grau Olaf (XC/EKE1) - External Network
-  Haysam M. Kadry (Ford) Guest
-  Hiroshi SAWANO (OITDA) Guest
-  Hossein Sedarat (Ethernovia) Guest
-  Jonathan Silvano de Sousa (GG - AUSTRIA) Guest
-  Kae Dube (UNH-IOL) Guest
-  Kambiz Vakilian(Broadcom) Guest
-  Larry McMillan (Western Digital) Guest
-  Louise Yi (FIT) Guest
-  Luisma Torres (KDPOF) Guest
-  Makoto Nariya (Sony) Guest
-  Masato Shiino, FURUKAWA Guest
-  Michael Reinhard - SEI ANTech Guest
-  Michikazu Aono - [Yazaki] Guest
-  Mike Tu (Broadcom) Guest
-  Natalie A. Wienckowski
-  Nobuyasu Araki YAZAKI Guest
-  Olindo Savi [Hubbell] Guest
-  Patel, Harsh Guest
-  Peter Orłowski (UNH-IOL) Guest
-  Peter Wu, Marvell Guest
-  Ragnar Jonsson (Marvell) Guest
-  Ramana Murty [Broadcom] Guest
-  Roland Preis - MD-Elektronik GmbH Guest
-  Ryan Petrarca (TDK) Guest
-  Shaowu Huang (Marvell) Guest
-  SJ Yu (FIT) Guest
-  Stefan Andrä (SEI ANTech) Guest
-  Steve Carlson (HSD, Bosch, Ethernovia) Guest
-  Sujan Pandey (Huawei) Guest
-  Taiji Kondo, MegaChips Guest
-  Terry Little (Foxconn Interconnect Technology)
-  Thomas Mueller (Rosenberger) Guest
-  Tom Souvignier (Broadcom) Guest
-  Xingxin Zhang-Huawei Guest

 Brett McClellan (Marvell)