

# Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting December 8, 2020

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="#">Cable Measurements</a>	Rich Boyer	Aptiv
<a href="#">Refined Method for Restricting Micro Reflections</a>	Ragnar Jonsson	Marvell
<a href="#">Limiting Factors on Signal-to-Noise Ratio</a>	Hossein Sedarat	Ethernovia
<a href="#">Symmetrical 2-pair and Asymmetrical 1-pair TDD operation SNR Margin with updated parameters</a>	Kamal Dalmia	Aviva Links
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 10:02 am ET.

## Introductions & Affiliations.

### Presented file: [cy Task Force adhoc agenda 12 08 20.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 10:06 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: Cable Measurements (Rich Boyer, Aptiv)**

Rich provided data (IL and RL) on a 28 gauge STP cable at 3 temperatures (-40, 23, 85). The cable tested was 7m in length. He also put his cable into the Channel Capacity Calculator and showed how this cable performs based on the other default settings in the calculator.

There was a question on the ripple in the IL. This is caused by the cable construction.

The touchstone files will be shared in the private area.

The difference in RL measurements when taken from the two different ends. This can vary from one segment of cable to another which is shown by taking the measurements from each end. This may also be due to differences in launch from both ends.

### **Presentation: Refined Method for Restricting Micro Reflections (Ragnar Jonsson, Marvell)**

Ragnar shared a presentation that proposes scaling the allowed remaining micro-reflections based on the IL. This allows higher reflections for short cables with low IL. He did simulations based on the link segment combinations proposed earlier and used the cable data previously presented. He showed how the SDP and STP link segment combinations compare to the proposed limits.

There were some questions on the Channel Capacity Calculator settings used. Ragnar will provide a future presentation to explain these assumptions.

Hossein stated that the connectors and connector location shouldn't impact the micro-reflections, but the simulations shared showed that this does have an impact. He questioned if there is an issue in the way the simulations are run. Ragnar stated that the connectors do impact the RL of the cable near the connectors.

Temperature dependency is going to be critical for meeting the longer link length.

Keep in mind that IEEE802.3 defines link segment characteristics, not cable or connector specific requirements.

There was a question in whether the second in-line in Cable 21 "disappeared". Ragnar will need to go back and check.

## **Presentation: Limiting Factors on Signal-to-Noise Ratio (Hossein Sedarat, Ethernovia)**

Hossein provided a presentation suggesting additional noise factors that should be included in analyzing the SNR margin. He explained each of these and why they're important.

Ragnar argued that some of these are already included in the calculator. He agrees that some items may need to be included, but he doesn't agree with all of the values.

For future presentations on noise sources, please include analysis, not just your conclusion. When you refer to other presentations, make sure those include analysis. Without analysis it's hard to get to agreement.

Kamal was asked if he applied all these losses to 802.3ch, other than the PCB loss, and to see what margin it had. This would give you an idea of whether these values are realistic. Hossein argued that the values for ch are different.

George stated the strawman probably needs to be adjusted and he welcomes proposals on this at future meetings.

## **Presentation: Symmetrical 2-pair and Asymmetrical 1-pair TDD operation SNR Margin with updated parameters (Kamal Dalmia, Aviva Links)**

Moved to next meeting due to lack of time.

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

The To-Do list was updated. 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**

Please respond to the [Doodle Poll](#) with your plans to attend the next few meetings. The poll closes on December 9<sup>th</sup>. We may need to change a meeting to an interim if there is a request to make a Motion. We don't want to hold a Motion if a number of our participants aren't available.

Thanks for another productive meeting! We were concerned that we might not have enough presentations for the weekly cadence, but that hasn't been an issue and we're getting really good presentations.

Please use the reflector to continue the discussions started during the meeting. The reflector archives all these posts and they can be reviewed at a future date.

Please sign up to the reflector if you haven't already done so! This is our only way to keep in touch with you outside the meetings. This is also how you get information on the upcoming meetings.

Meeting adjourned at 11:57 AM ET.

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

First	Last	Affiliation
Bernd	Hormmeyer	Phoenix Contact
CC	Chou	CMIO Amphenol
Chris	DiMinico	MC Communications, PHY-SI, SenTekse / Panduit
Christian	Neulinger	MD Elektronik
Clark	Carty	Cisco
Cliff	Fung	Marvell
Dan	Kennefick	Daikin America
Daniel	Koppermüller	Leoni Kabl GmbH
Dave	Hess	Cord Data
Emilio	Cuesta	TE Connectivity
Eric	DiBiaso	TE Connectivity
Erwin	Koependoerfer	Leoni Kabel GmbH
George	Zimmerman	CME Consulting / ADI, Cisco, CommScope, Marvell, SenTekSe
German	Feyh	Broadcom
Harsh	Patel	Molex
Haysam	Kadry	Ford
Hossein	Sedarat	Ethernovia
Jim	Hsu	CMIO Amphenol
Kamal	Dalmia	Aviva Links
Kevin	Liu	CMIO Amphenol
Louise	Yi	FIT
Makoto	Nariya	Sony
Michael	Reinhard	SEI ANTech
Mike	Tu	Broadcom
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell
Rich	Boyer	Aptiv
Roland	Preis	MD Elektronik
Shaowu	Huang	Marvell
Snow	Liao	CMIO Amphenol
Steve	Carlson	HSD, Bosch, Ethernovia
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Terry	Little	Foxconn Interconnect Technology
Thomas	Müller	Rosenberger

First	Last	Affiliation
Tom	Souvignier	Broadcom
Yoshihiro	Niihara	Fujikura Ltd.
Zac	Liu	Amphenol
<b>TOTAL</b>	<b>40</b>	<b>Attendees</b>

Presenters (38)

-  Bernd Hormmeyer - Phoenix Contact Guest
-  Boyer, Rich - External Network
-  CC.Chou(CMIO Amphenol) Guest
-  chris diminico Guest
-  Christian Neulinger - MD Elektronik Guest
-  Clark Carty (Cisco) Guest
-  Cliff Fung (Marvell) Guest
-  CMIO Jim Hsu Guest
-  CMIO-Snow Guest
-  Dan Kennefick - Daikin America Guest
-  Daniel Koppermüller - MD Elektronik Guest
-  Dave Hess, Cord Data Guest
-  Emilio Cuesta (TE Connectivity) Guest
-  Eric DiBiasco - TE Guest
-  Erwin Koependoerfer; Leoni Kabel GmbH Guest
-  George Zimmerman (CME Consulting/ADI,... Guest
-  German Feyh (Broadcom) Guest
-  Haysam Kadry, Ford Guest
-  Hossein Sedarat (Ethernovia) Guest
-  Kamal Dalmia - Aviva Links Guest
-  Kevin Liu (Amphenol CMIO) Guest
-  Louise Yi (FIT) Guest
-  Makoto Nariya (Sony) Guest
-  Michael Reinhard - SEI ANTech Guest
-  Mike Tu (Broadcom) Guest
-  Natalie A. Wienckowski
-  Nobuyasu Araki YAZAKI Guest
-  Patel, Harsh Guest
-  Ragnar Jonsson (Marvell) Guest
-  Roland Preis - MD-Elektronik GmbH Guest
-  Shaowu Huang (Marvell) Guest
-  Steve Carlson (HSD, Bosch, Ethernovia) Guest
-  Sujan Pandey (Huawei) Guest
-  Taiji Kondo, MegaChips Guest
-  Terry Little (Foxconn Interconnect Technolo... Guest
-  Thomas Mueller (Rosenberger) Guest
-  Yoshihiro Niihara - Fujikura Ltd. Guest
-  Zac Liu Guest

Marvell, Peter wu

Tom Souvignier (Broadcom) , Zac Liu - Amphenol

CMIO-Snow

Snow Liao