

## Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting October 21, 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 Limit on Micro Reflections	Hossein Sedarat	Ethernovia
Method for Restricting Micro-Reflections	Ragnar Jonsson, Ramin Farjadrad	Marvell
Link Segment Topology Proposal for Testing	Thomas Müller	Rosenberger
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 201021.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: A Limit on Micro Reflections (Hossein Sedarat, Ethernovia)**

The presenter reviewed the importance of limiting the power of residual echo of the micro reflections. Proposed a limit on micro-reflections. This needs to be reviewed by cable manufacturers for feasibility.

There was a question on the impedance differences in the cable that can cause this. These can be very small differences in impedance. The reflections from the components on the board are part of the first major reflection and is cancelled as part of that. The equation proposed may have more residual power in a better cable with less loss. In this case, the micro reflections aren't attenuated as much, but neither is the signal.

From a cable point of view, this is trying to define a RL to IL ratio.

### **Presentation: Method for Restricting Micro-Reflections (Ragnar Jonsson, Ramin Farjadrad, Marvell)**

The presenter listed the benefits of restricting the micro reflections. Suggests a simple limit line where peaks above the limit line are cancelled and those below, even from connectors, are below the limit line. This limit line is moved for each cable so that there are 8 peaks above the line. Showed the impact of good/difficult cables and ideal/real connectors on micro reflections. A link segment with good cables and connectors may have issues depending upon how they are built, e.g. multiple short segments at a cable end.

There was a question about the "limit line". This is not a specific limit but is a line that is moved up and down until there are 8 peaks above the line and the rest are below.

0.3 ns is a good number based on the length of reflections that have been seen in link segment measurements.

Does this method mean that we need to define the cable and connectors separately? No, we will still define the link-segment from MDI to MDI.

It's possible that 2 0.3ns times may be needed for a single difficult connector.

Ragnar will bring a future presentation showing the impact of -40 dB residual echo power relative to the transmit power.

### **Presentation: Link Segment Topology Proposal for Testing (Thomas Müller, Rosenberger)**

Due to a lack of time, this presentation is delayed until the October 28th meeting.

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

The To-Do list was not reviewed or 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**

Good discussion today. Hossein and Ragnar are encouraged to get together to discuss this. Those with outstanding questions or comments are encouraged to use the reflector to continue this discussion.
















































































































































































The next meeting is scheduled for October 28.

Meeting adjourned at 12:04 PM ET.


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


<b>First</b>	<b>Last</b>	<b>Affiliation</b>
Brett	McClellan	Marvell
Charles	Razzell	Maxim Integrated
Chris	Mash	Ethernovia
Christian	Neulinger	MD Elektronik
Clark	Carty	Cisco
Dave	Hess	Cord Data
Eric	DiBiaso	TE Connectivity
Erwin	Koependoerfer	Leoni Kabel GmbH
Harsh	Patel	Molex
Haysam	Kadry	Ford
Hideki	Goto	Toyota
Hossein	Sedarat	Ethernovia
Jae-yong	Chang	Keysight
Jan	De Geest	Amphenol
Kambiz	Vakilian	Broadcom
Luisma	Torres	KDPOF
Makoto	Nariya	Sony
Masato	Shiino	Furukawa
Michikazu	Aono	Yazaki
Mike	Tu	Broadcom
Nagaramya	Jayagopal	Intel Corporation
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell
Rich	Boyer	Aptiv
Stephan	Hartmann	Siliconally GmbH
Steve	Carlson	HSD, Bosch, Ethernovia
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Takashi	Fukuoka	Sumitomo Electric
Terry	Little	Foxconn Interconnect Technology
Thomas	Mueller	Rosenberger
Tom	Souvignier	Broadcom
Toshihiro	Ichimaru	Sumitomo
Yang	Yumeng	Huawei
Yoshihiro	Niihara	Fujikura Ltd.
<b>TOTAL</b>	<b>38</b>	<b>Attendees</b>

Presenters (38)

 Boyer, Rich - External Network				
 Brett McClellan (Marvell) Guest				
 Charles Razzell (Maxim Integrated) Guest				
 Chris Mash Guest				
 Christian Neulinger - MD Elektronik Guest				
 Clark Carty (Cisco) Guest				
 Dave Hess (Cord Data) Guest				
 Eric DiBiaso - TE Guest				
 Erwin Koepfendorfer; Leoni Kabel GmbH Guest				
 Haysam M. Kadry (Ford) Guest				
 Hideki Goto (Toyota) Guest				
 Hossein Sedarat (Ethernovia) Guest				
 Jae-yong Chang Guest				
 Jan De Geest (Amphenol) Guest				
 Jayagopal, Nagaramya - External Network				
 Kambiz Vakilian (Broadcom) Guest				
 Luisma Torres (KDPOF) Guest				
 Masato Shiino (FURUKAWA) Guest				
 Michael Reinhard - SEI ANTech Guest				
 Michikazu Aono - Yazaki Guest				
 Mike Tu (Broadcom) Guest				
 Molex, Harsh Patel Guest				
 Nariya, Makoto (SSS) Guest				
 Natalie A. Wienckowski				
 Nobuyasu Araki, Yazaki Guest				
 Peter Wu, Marvell Guest				
 Ragnar Jonsson (Marvell) Guest				
 Stephan Hartmann - Siliconally GmbH Guest				
 Steve Carlson (HSD, Bosch, Ethernovia) Guest				
 Sujan Pandey (Huawei) Guest				
 Taiji Kondo, MegaChips Guest				
 Takashi Fukuoka - Sumitomo Electric Guest				
 Terry Little (Foxconn Interconnect Technology) Guest				
 Thomas Müller (Rosenberger) Guest				
 Tom Souvignier (Broadcom) Guest				

 Toshihiro Ichimaru(Sumitomo) Guest

 YANG Yumeng-Huawei Guest

 Yoshihiro Niihara - Fujikura Ltd. Guest