Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting October 14, 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
Cable Insertion Loss Measurements	Rich Boyer	Aptiv
Automotive STP cable measurements	Thomas Müller	Rosenberger
Insertion Loss and PHY Complexity	Hossein Sedarat	Ethernovia
A Limit on Micro Reflections	Hossein Sedarat	Ethernovia
Method for Restricting Micro-Reflections	Ragnar Jonsson, Ramin Farjadrad	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 10:05 am ET.

Introductions & Affiliations.

Presented file: cy_Task_Force_adhoc_agenda_201014.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 10:10 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: The Chair was unable to attend.

Presentations/Discussion:

Presentation: Cable Insertion Loss Measurements (Rich Boyer, Aptiv)

The presenter showed IL testing of cables, explaining the test method and equipment used. These were 2G and 4G cables that were available in the lab. This shows that the way the cable is built can impact the frequency characteristics of the cable. How the cable is suspended inside the shield impacts the IL at higher frequencies.

Presentation: Automotive STP cable measurements (Thomas Müller, Rosenberger)

The presenter shared IL cable measurements. A 10m cable was tested as that is the length available and then the data was scaled to 11 m. Measurements were provided for room temperature. There was a question related to the change in slope of the IL on slide 4 as to whether this could be related to phase. Thomas will check this in the raw data. The gray line on slide 4 is early data on a cable under development.

Data on RL was also provided with a method to "gate the RL" to remove the impact of the fixtures. It is gated by "time gating" to remove connection from the plot.

A request was made for the s4p data files. Thomas will try to provide these.

Data at various temperatures will be provided at a future date.

Presentation: Insertion Loss and PHY Complexity (Hossein Sedarat, Ethernovia)

The presenter discussed the impact of IL on PHY Complexity and provided a suggestion for an upper bound for IL lower than what most data is showing. Assumes that 24dB noise margin is needed based on the defined BER.

Participants think it's a bit early to start setting limits as we don't know the noise at these frequencies.

The board design may also have difficulty meeting the alien crosstalk limit, especially with longer cables as the board may need to be better.

There was a question if it is possible to meet a total insertion loss limit of 24 dB when including cable and PCB.

The power output is typically defined at the edge of the PCB, not at the PHY pins. It may be helpful to revisit the loss on the PCB as that may impact the possible loss in the cable.

In chat at end of meeting: FWIW, to control the board loss, we could also define a test point and specify the phy level at that test point in addition to the MDI levels.

Presentation: A Limit on Micro Reflections (Hossein Sedarat, Ethernovia)

Delayed to October 21 meeting due to lack of time.

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

Delayed to October 21 meeting due to lack of time.

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

The To-Do list was updated with the items that need to be done soon. 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 updated list can be found on this page: To Do spreadsheets

Closing Discussion

The next meeting is scheduled for October 21.

Meeting adjourned at 11:59 AM ET.

Attendees (snapshot of participants in meeting, email)

First	Last	Affiliation
Brett	McClellan	Marvell
Chris	Mash	Ethernovia
Christian	Neulinger	MD Elektronik
Clark	Carty	Cisco
Dan	Kennefick	Daikin America
Dave	Hess	Cord Data
Emilio	Cuesta	TE Connectivity
Eric	DiBiaso	TE Connectivity
Erwin	Koeppendoerfer	Leoni Kabel GmbH
Fred	Dawson	Chemours
George	Zimmerman	CME Consulting / ADI, Cisco, CommScope, Marvell, SenTekSe
German	Feyh	Broadcom

First	Last	Affiliation
Harsh	Patel	Molex
Haysam	Kadry	Ford
Hideki	Goto	Toyota
Hossein	Sedarat	Ethernovia
Jan	De Geest	Amphenol
Jens	Freyhoff	Daikin Chemical
Jonathan	Silvano de Sousa	GG
Kamal	Dalmia	Independent
Kazuya	Takayama	Nitto Denko Corp.
Makoto	Nariya	Sony
Manabu	Kagami	NITech (Nagoya Institute of Technology)
Masato	Shiino	Furukawa
Michael	Reinhard	SEI ANTech
Michikazu	Aono	Yazaki
Mike	Tu	Broadcom
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell
Rich	Boyer	Aptiv
Roland	Preis	MD Elektronik
Stefan	Gianordoli	GG Group
Stephan	Hartmann	Siliconally GmbH
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Takashi	Fukuoka	Sumitomo Electric
Takeo	Masuda	OITDA/PETRA
Terry	Little	Foxconn Interconnect Technology
Thomas	Mueller	Rosenberger
Tzahi	Madgar	Valens
Yoshihiro	Niihara	Fujikura Ltd.
TOTAL	**XX**	**Attendees**
43		

Presenters (42)

- Boyer, Rich - External Network
- Brett McClellan (Marvell) Guest
- Chris Mash Guest
- Christian Neulinger - MD Elektronik Guest
- Clark Carty (Cisco) Guest
- Dan Kennefick - Daikin America Guest
- Dave Hess (Cord Data) Guest
- Eric DiBiaso - TE Guest
- Erwin Koeppendoerfer;Leoni Kabel GmbH Guest
- Ford, Haysam Kadry Guest
- Ford,Haysam Kadry Guest
- Fred Dawson -Chemours Guest
- George Zimmerman (CME Consulting/ADI,... Guest
- German Feyh (Broadcom) Guest
- Hideki Goto (Toyota) Guest
- Hossein Sedarat (Ethernovia) Guest
- Jan De Geest (Amphenol) Guest
- Jens Freyhoff (DAIKIN Chemical) Guest
- Jonathan Silvano de Sousa (GG - AUSTRIA) Guest
- Kamal Dalmia (Independent) Guest
- Manabu Kagami - NITech 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
- Roland Preis - MD-Elektronik GmbH Guest
- Stephan Hartmann - Siliconally GmbH Guest
- Sujan Pandey (Huawei) Guest
- Taiji Kondo, MegaChips Guest
- Takashi Fukuoka - Sumitomo Electric Guest
- Takayama, Kazuya (Nitto Denko Corp.) Guest
- Takeo Masuda[OITDA/PETRA] Guest
- Terry Little (Foxconn Interconnect Technolo... Guest
- Thomas Müller [Rosenberger, Rosenberger] Guest
- Tzahi Madgar Guest
- Yoshihiro Niihara - Fujikura Ltd. Guest

- Emilio Cuesta (TE Connectivity) Guest
- Stefan Gianordoli, GG Group Guest
- George Zimmerman (CME Consulting/ADI, Cisco Commscope Marvell Sentekse Guest