Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting December 1, 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
Automotive STP and SDP cable measurement results	Thomas Müller	Rosenberger
Channel Capacity Calculator Updates	Ragnar Jonsson	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_12_01_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 10:11 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: Automotive STP and SDP cable measurement results (Thomas Müller, Rosenberger)

Thomas presented IL data on a SDP (shielded differential pair) cable and compared this to the "straw-man" proposal from George Z. during the Interim. Due to the test setup, about 1m of cable on each end was outside the temperature chamber. Data for microreflections was also provided for this cable.
A comparison to previously presented STP cable IL was presented with both at 11 m. The IL of the STP cable at 7m was shown relative to the "straw-man" proposal. Data for microreflections for the STP cable was shared as well.
Ragnar volunteered to work with Thomas on calculating the micro reflections as there were some issues with doing this in Matlab that need to be resolved.

It was good to see data on cables that have the possibility to meet the "straw-man". There will be future presentations by Ragnar on requirements for microreflections based on the new "straw-man" IL.

There was a question on the small IL drops on slide 4. These are related to the cable construction. It may be possible to reduce or eliminate these.

There were questions about the difference in the materials between the two cables that may impact the IL. There was a question in the difference of the effective length of the wires. This is not significantly different, the difference is due to the twists, not the wire length.

There was a question on the PCB loss. This is not included in the link segment. This excess loss (PCB IL) needs to be accounted for in the PHY calculations.

There was a question if this cable is the "best" we can expect to get or if it may still get better. The response was that there could only be significant improvement by going to a larger gauge.

This is a cable that may require new equipment, but there are multiple cable vendors that should be able to provide this.

Presentation: Channel Capacity Calculator Updates (Ragnar Jonsson, Marvell)

Ragnar shared a presentation on an update to theChannel Capacity Calculator. Enhancements were made for Framing Overhead, temperature impact on IL, and IL limit line from zimmerman_3cy_01a_1120.

Results of the Channel Capacity Calculator were given for some different assumptions.
The Calculator does not include PCB loss.

Ragnar proposed some questions that he would like to see answered by participants. Please consider sending answers through the reflector or in a future presesntation.

Response to 2.5 dB SNR Margin – This may not be enough as some is needed for the PSD mask, and additional sources of loss. Ragnar has accounted for some implementation loss, but we need to keep margin for EMI losses.

George thanked Thomas and Ragnar for using the "straw-man" as intended and he encourages others to look at this and see what may meet this and what may be needed.

It is unlikely that the complete cable would be subjected to the maximum temperature.

As some noise sources are reduced, other noise sources become dominant. There is a limit to how much noise can be eliminated.

Please keep in mind, the Calculator is a simplified calculator and it is not intended to be completely accurate as company specific information cannot be shared with the group.

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

Meeting adjourned at 11:46 AM ET.

Attendees (snapshot of participants in meeting, email)

First	Last	Affiliation
Benny	Prujan	Huawei
Bernd	Horrmeyer	Phoenix Contact
Brett	McClellan	Marvell
Chris	DiMinico	MC Communications, PHY-SI, SenTekse / Panduit
Christian	Neulinger	MD Elektronik
Claude	Gauthier	
Cliff	Fung	Marvell
Daniel	Koppermüller	Leoni Kabl GmbH
Doug	Oliver	Ford
Emilio	Cuesta	TE Connectivity
Eric	DiBiaso	TE Connectivity
Erwin	Koeppendoerfer	Leoni Kabel GmbH
George	Zimmerman	CME Consulting / ADI, Cisco, CommScope, Marvell, SenTekSe
German	Feyh	Broadcom
Harsh	Patel	Molex
Hideki	Goto	Toyota
Hossein	Sedarat	Ethernovia
Jan	De Geest	Amphenol
Jonathan	Silvano de Sousa	GG - Austria
Kamal	Dalmia	Independent
Kambiz	Vakilian	Broadcom
Louise	Yi	FIT
Luisma	Torres	KDPOF
Makoto	Nariya	Sony
Manabu	Kagami	NITech (Nagoya Institute of Technology)
Michikazu	Aono	Yazaki
Mike	Tu	Broadcom
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Patrick	Casher	FIT - Foxconn
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell
Ramana	Murty	Broadcom
Rich	Boyer	Aptiv
Roland	Preis	MD Elektronik
Shaowu	Huang	Marvell
Stefan	Andrä	SEI ANTech – Europe GmbH
Stefan	Gianordoli	GG Group
Stephan	Hartmann	Siliconally GmbH
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Terry	Little	Foxconn Interconnect Technology
Thomas	Müller	Rosenberger
Tom	Souvignier	Broadcom
Toshihiro	Ichimaru	Sumitomo

Yoshihiro	Niihara	Fujikura Ltd.
TOTAL	**46**	**Attendees**

Toshihiro Ichimaru(Sumitomo) Guest

Patel, Harsh

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Ramana Murty (Broadco...

Stefan Gianordoli, GG Group