Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting January 12, 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
Worst Case Cable Temp	Natalie Wienckowski	General Motors
Immunity to Radiated Electric Field Above 4.0 GHz	Rich Boyer	Aptiv
Channel Capacity Calculator V1.3	Ragnar Jonsson	Marvell
A Proposal for the Limit Line of Insertion Loss	Hossein Sedarat	Ethernovia
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_12_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 10:09 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: Remember that we are an individual driven process, not an entity driven process. Presentations are from individuals, not companies.

We need people to be crisp and concise in their discussions so that we can stay on schedule.

Steve will be chartering a PHY ad hoc which Natalie Wienckowski will chair to enable more detailed PHY discussions. A poll will be sent out to determine the best meeting time, which may be scheduled for 3 hours. Everyone who is interested is invited to participate.

Presentations/Discussion:

Presentation: Worst Case Cable Temp (Natalie Wienckowski, General Motors)

Natalie presented information on temperature of different cable segments based on location.

Haysam said that based on the information he received, he agrees with the information presented.

There was a question about the impact of the dielectric on temperature. This is why cable temperature has been varied during the testing.

Presentation: Immunity to Radiated Electric Field Above 4.0 GHz (Rich Boyer, Aptiv)

Rich presented information on existing/in progress specs with requirements for EMC above 4 GHz. He also proposed the next steps to be taken.

There was a qestion on the ISO 11452-9 testing and the distance of the antena from the DUT. This varies depending upon the expected location of the DUT in the vehicle.

There was a question about how the testing transitions from frequency to frequency. All modulation types are done at a given frequency. The power is generally reduced by 6 dB, the frequency is changed, and all modulation types are tested at the new frequency.

Presentation: Channel Capacity Calculator V1.3 (Ragnar Jonsson, Marvell)

Ragnar provided a presentation on the latest update of the Channel Capacity Calculator and defined what changes were made and why. He alao provided some example calculations and shared his assumptions for these calculations. He also used the 802.3ch specification values to do a "sanity check" on the calculator.

There was a question on how the PCB trace length and PSD are linked. Typically the PSD is measured at the MDI, which includes the PCB on one end so Ragnar has included 3 in of PCB on the receive side only.

There was a question about the AFE-noise and should that be larger than it was for ch? This is a "green" cell so it can be modified by the user to see the impact of changing this.

EC cancelation is the cancelation of the micro reflections which is separate from the value used for the Connector EC cancelation.

Presentation: A Proposal for the Limit Line of Insertion Loss (Hossein Sedarat, Ethernovia)

Hossein presented a proposal for an IL limit line to be considered for a Motion on January 26th.

Steve thanked Hossein for following the process and sharing this proposal with the group.

Please keep in mind that no baseline adopted is written in stone. This can be changed by a future motion or comment on the draft that is approved.

The IL proposed is for the link segment. This does not include the PCB.

There was a request by multiple participants that Fmax be reduced to 9 GHz, if possible, as it is harder to create cables for higher than 9 GHz. The reason for the higher frequency is to know how to design the filter in the PHY.

There may be a motion on January 26th for IL. It may or may not be the same equation as was presented.

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

Thanks to everyone for all their hard work which allows us to make progress even though all meetings are virtual.

Please remember there will be a Motion to approve the timeline on January 26th. If you have any comments or requested changes to the timeline please post them to the reflector.

A poll for potential meeting times for the PHY ad hoc will be sent out shortly. Anyone who is interested in this topic is welcome to attend.

Make sure you go to the IEEE802.3 calendar and download the Zoom meeting for January 26th. You will need to sign into IMAT on the 19th and 26th meetings. There is no registration required for the Interim meeting. You need to attend an 802.3 meeting 4 of the 8 days. One of the meetings needs to be the IEEE 802.3 WG meeting on January 21st.

Meeting adjourned at 12:00 PM ET.

Attendees (snapshot of participants in meeting, email)

First	Last	Affiliation
Anthony	New	Prysmian Group
Bob	Grow	RMG Consulting
Brett	McClellan	Marvell
Christian	Neulinger	MD Elektronik
Dan	Kennefick	Daikin America
Daniel	Koppermüller	MD Elektronik
Dave	Hess	Cord Data
Doug	Oliver	Ford
Eric	DiBiaso	TE Connectivity
Erwin	Köeppendörfer	Leoni Kabel GmbH
Harsh	Patel	Molex
Haysam	Kadry	Ford
Hideki	Goto	Toyota
Hossein	Sedarat	Ethernovia
Jim	Graba	Broadcom
Jonathan	Silvano de Sousa	GG - Austria
Kambiz	Vakilian	Broadcom
Larry	McMillan	Western Digital
Leon	Bruckman	Huawei
Louise	Yi	FIT
Makoto	Nariya	Sony
Manabu	Kagami	NITech (Nagoya Institute of Technology)
Michael	Reinhard	SEI ANTech
Michikazu	Aono	Yazaki
Mike	Tu	Broadcom
Nagaramya	Jayagopal	Intel Corporation
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell

First	Last	Affiliation
Rich	Boyer	Aptiv
Roland	Preis	MD Elektronik
Shaowu	Huang	Marvell
SJ	Yu	Foxconn Interconnect Technology
Stefan	Andrä	SEI ANTech – Europe GmbH
Stefan	Gianordoli	GG Group
Stephan	Hartmann	Siliconally GmbH
Steve	Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Terry	Little	Foxconn Interconnect Technology
Thomas	Müller	Rosenberger
Xingxin	Zhang-Huawei	Huawei
Yang	Yumeng	Huawei
Yoshihiro	Niihara	Fujikura Ltd.
TOTAL	**45**	**Attendees**

Presenters (43)

- Anthony New (Prysmian Group) Guest
- Bob Grow, RMG Consulting Guest
- Boyer, Rich - External Network
- Brett McClellan (Marvell) Guest
- Christian Neulinger - MD Elektronik Guest
- Dan Kennefick Guest
- Daniel Koppermüller - MD Elektronik GmbH Guest
- Dave Hess, Cord Data Guest
- Eric DiBiaso - TE Guest
- Erwin Köppendörfer; Leoni Kabel GmbH Guest
- Haysam Kadry (Ford) Guest
- Hideki Goto (Toyota) Guest
- Hossein Sedarat (Ethernovia) Guest
- Jayagopal, Nagaramya - External Network
- Jim Graba, Broadcom Guest
- Jonathan Silvano de Sousa (GG - AUSTRIA) Guest
- Kambiz Vakilian -Broadcom Guest
- Leon Bruckman (Huawei) Guest
- Louise Yi (FIT) Guest
- Makoto Nariya (Sony) Guest
- Manabu Kagami - NITech Guest
- Michael Reinhard - SEI ANTech Guest
- Michikazu Aono - [Yazaki] Guest
- Mike Tu (Broadcom) Guest
- Natalie A. Wienckowski
- Nobuyasu Araki YAZAKI Guest
- Patel, Harsh Guest
- Peter Wu, Marvell Guest
- Ragnar Jonsson (Marvell) Guest
- Roland Preis - MD-Elektronik GmbH Guest
- Shaowu Huang (Marvell) Guest
- SJ Yu (FIT) Guest
- Stefan Andrä SEI ANTech Guest
- Stefan Gianordoli, GG Group Guest
- Stephan Hartmann - Siliconally GmbH Guest
- Steve Carlson (HSD, Bosch, Ethernovia) Guest
- Sujan Pandey (Huawei) Guest
- Taiji Kondo, MegaChips Guest
- Terry Little (Foxconn Interconnect Technolo...
- Thomas Müller [Rosenberger, Rosenberger] Gu
- Xingxin Zhang-Huawei Guest
- Yang Yumeng Huawei Guest
- Yoshihiro Niihara - Fujikura Ltd. Guest
- Doug Oliver [Ford] Guest
- Larry McMillan (Western Digital)