

# Minutes IEEE P802.3ch Multigig Automotive Ethernet PHY TF AdHoc meeting March 21, 2018

Prepared by George Zimmerman

## Proposed Agenda:

1. Agenda/Admin: George Zimmerman, agenda\_3chah\_01a\_030718.pdf
2. SG Chair's comments: no presentation (S. Carlson – verbal only)
3. Presentations:
  - a. Natalie Wienckowski, GM North America (for Olaf Krieger (VW), Doug Oliver & Jim Lawlis (Ford)) – OEM Consolidated Multi-Gig Ethernet Topologies
  - b. Conrad Zerna, Fraunhofer IIS – 802.3CH REQUIRED EMC DATA
  - c. Ramin Farjadrad, Aquantia - Required EMC and Noise Measurements For Immunity Analysis in Automotive Environment
4. Discussion & Next steps – All

[See adhoc webpage for agenda deck and presentations](#)

## Agenda/Admin George Zimmerman acting as ad hoc chair:

Meeting began at 7:03am PT.

## Introductions & Affiliations.

### Presented file: [agenda 3chah 01a 032118.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 7:11AM Pacific 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/ch/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 – S. Carlson

Steve Carlson, Chair of the IEEE P802.3ch Task Force informed the group that the instructions for presenters had been updated to move up the required dates for submission of presentations. Additionally he gave instructions that inclusion of material either from presentations given to the Task Force or from other sources be properly attributed, with the file name used, as these will be available on a public website. He then turned the discussion over to Natalie Wienckowski, as Chief Editor, to discuss a tracking spreadsheet for closing issues in the draft, where individuals can sign up to helping define parts of our draft, as well as what dates various parts of the specification are expected to be discussed.

## **Presentations/Discussion:**

**Presentation:** [OEM Consolidated Multi-Gig Ethernet Topologies](#), Natalie Wienckowski, GMNA, Olaf Krieger (Volkswagen AG), Doug Oliver & Jim Lawlis (Ford Motor Company).

The presenter reviewed a consolidated view of potential multi-gigabit topologies, reflecting discussion between the multiple experts following the March Plenary. The presentation highlighted that 95% of the link segments were between 0.2m and 11m in length, but reaching the upper 5% required an additional 4 m in length to 15m. In all cases there were 2 inline connectors. Not all combinations of section length (between 2 inliners) were possible, as the length was constrained to a maximum of 15m. In some of the longer cases, heavier gauge (24AWG) might be used.

**Presentation:** [802.3CH REQUIRED EMC DATA](#) Conrad Zerna, Fraunhofer IIS

The presenter discussed the need for consideration of 5G and vehicle-to-vehicle communications in the EMC test data, and asked for frequency information. Ms. Wienckowski indicated that Mr. Oliver had provided her with one example of requirements at <http://www.fordemc.com>.

Additionally, the presenter discussed a technique to augment the stripline EMC to higher frequencies – a tubular wave coupler, which is described in ISO 11452-4, and asked for input on baseline limits for TWC test to help out PHY developers. None on the call responded with familiarity on this particular test, and it was recommended to send the request to the reflector.

**Presentation:** [Required EMC and Noise Measurements For Immunity Analysis in Automotive Environment](#), Ramin Farjadrad, Aquantia

The presenter discussed three different types of noise sources for PHY designs: wideband noise, narrowband RFI and random white noise, and asked for input in terms of realistic voltages seen in the common mode and differential mode amplitudes for noise, rather than Volts/m of a field or transfer functions of cabling. Discussion centered around how the EMC measurements in automotive OEMs are focused on the functionality of systems, and not getting precise voltages at the inputs.

There was some discussion that this was similar to Conrad's request – getting a baseline for what would be acceptable levels in a repeatable laboratory environment. A participant observed this was similar to work done in LAN PHYs with the 'cable clamp' most recently in 802.3bq. Information on that endeavor may be found at <http://www.ieee802.org/3/bq/public/rxcmr/index.html>. Some additional background may be found at [http://www.ieee802.org/3/bq/public/nov14/cibula\\_3bq\\_02a\\_1114.pdf](http://www.ieee802.org/3/bq/public/nov14/cibula_3bq_02a_1114.pdf)

[http://www.ieee802.org/3/bq/public/jul14/cibula\\_3bq\\_02a\\_0714.pdf](http://www.ieee802.org/3/bq/public/jul14/cibula_3bq_02a_0714.pdf).

Discussion centered around the need to use the component level specs for automotive EMC, which was a worst-case. The presenter asked about the evolving EMC environment in automotive environments which might not be reflected in the current component level tests. Consultation with EMC experts was required.

Another participant pointed out that the emissions requirements provide some isolation.

## Closing Business

The next meeting will be April 4 at 7am pacific time.

Meeting closed –8:51am PDT

## Attendees (from Webex + emails)

First	Last	Affiliation
Alex	(MediaTek)	Mediatek
Shaziah	A	GM
Sasha	Babenko	Molex
Alan	Barry	Analog Devices
Devaraju	Basappa	OmniPHY
Jim	Bauer	Marvell
Bert	Bergner	TE
Youssef	Bouri	Aptiv
Phillip	Brownlee	TDK
Steven	Carlson	High Speed Design/Bosh
Mabud	Choudhury	OFS Optics
Gerrit	den Besten	NXP
Eric	DiBiaso	TE
Marc	Dupuis	Webindustries
Massad	Eyal	valens
Ramin	Farjad	Aquantia
German	Feyh	Broadcom
Zeph	Freeman	Microchip
Olaf	Grau	Bosh
Yasuhiro	Hyakutake	Adamant
Venkat	Iyer	Microchip
Brian	Johnson	Aptiv
Haysam	Kadry	Ford
Taiji	Kondo	Megachips
Tzahi	Madgar	valens
Darko	Marinac	Yazaki-Europe
Kirsten	Matheus	BMW
Larry	Matola	Aptiv
Brett	McClellan	Marvell
Greg	McSorley	Amphenol-Highspeed

Wes	Mir	Aptiv
Henry	Muyshondt	Microchip
Josef	Ohni	MD-Electronik
Sujan	Pandey	NXP
Damien	QUENSON	Acome
Vimalli	Raman	Yazaki-Europe
Thomas	Reinders	Aptiv
Litsa	Rubino	Aptiv
Masood	Shariff	CommScope
Tom	Souvignier	Broadcom
Yves	Stricot	Aptiv
Giuseppe	Tofanicchio	ST
Mike	Tu	Broadcom
Christoph	Wechsler	Audi
Natalie	Wienckowski	GM
Peter	Wu	Marvell
Kent	Younglove	Yazaki
John	Yurtin	Aptiv
Conrad	Zerna	Fraunhofer IIS
George	Zimmerman	CME Consulting/ADI, APL Group,
Helge	Zinner	Continental
Harald	Zweck	Infineon
Imanishi		Murata
TOTAL	53	Attendees