

Unconfirmed Meeting Minutes: Joint meeting of the IEEE P802.3cg 10 Mbps Single Twisted Pair Ethernet Task Force and IEEE 802.3 Multi-Gigabit Automotive Ethernet PHY Study Group

March 13-16, 2017
Vancouver, BC Canada

Prepared by Jon Lewis

The joint meeting of the IEEE P802.3cg 10 Mbps Single Twisted Pair Ethernet Task Force and IEEE 802.3 Multi-Gigabit Automotive Ethernet PHY Study Group convened at 1:35PM, Monday, March 13, 2017 by George Zimmerman, P802.3cg Task Force chair and Steve Carlson, IEEE 802.3 Multi-Gigabit Automotive Ethernet PHY Study Group (NGAUTO) chair.

Attendance for the joint meeting is listed in Appendix A

Administrative Matters

Mr. Zimmerman appointed Jon Lewis as recording secretary for this session.

George Zimmerman displayed the agenda in [agenda_3cg_01d_0317.pdf](#).

The Task Force Chair called for introductions and affiliations.

George Zimmerman reviewed the agenda in [agenda_3cg_01d_0317.pdf](#).

- Mr. Zimmerman asked if anyone was attending from the press including those who would run a public blog on this meeting. None responded.
- Mr. Zimmerman noted that there should be no recording or photography without permission.

Chair reviewed the goals for the meeting big ticket items, access to the reflector and website, and ground rules for the meeting.

Attendance, Mr. Zimmerman advised the group of the IEEE meeting attendance tool and procedures, including both the attendance book and the web attendance tracking tool.

Mr. Zimmerman reviewed the slide entitled “Participation in IEEE 802 Meetings” and asked if there was any discussion necessary, none responded.

IEEE Patent Policy, at **1:53 PM**, Mr. Zimmerman showed slides 0 through 4 patent policy from agenda_3cg_01d_0317.pdf. Mr. Zimmerman showed slide 0 and read aloud slides 1 through 4.

Mr. Zimmerman made the call for potentially essential patents at **1:54 PM**, and none responded. Mr. Zimmerman then completed the reading of slide #4

Chair reviewed the IEEE 802.3 Standards process and where the Task Force was in the process and the process by which we will develop the standard.

Mr. Zimmerman reviewed the presentations for this week. The meeting start time for Tuesday was changed to 8:00 AM.

Chair reviewed the approved P802.3cg project documents.

The meeting then moved to NGAUTO introduction and Steve Carlson reviewed the NGAUTO agenda: [agenda_3NGAUTO_01_0317.pdf](#) noting that since this is a joint meeting and the slides are template based, some slides were not repeated.

Mr. Carlson then read aloud "Guidelines for IEEE-SA Meetings" since the study group operates slightly different from a task force.

LIAISONS

TIA TR-42 to IEEE 802.3 regarding single-pair Ethernet ([TR42-2017-02-055b to IEEE 802d3.pdf](#))

- *Valerie Maguire presented the TIA liaison letter to the task force.*
- *No immediate response is necessary since the next TIA meeting is after the May interim.*

ISO/IEC JTC1 SC25 to IEEE 802.3 on 1-pair cabling ([SC25 N2670 to IEEE 802d3 1 pair.pdf](#))

- *Alan Flatman presented the ISO/IEC liaison letter to the task force.*

Update to IEEE P802.3cg on ODVA Liaison Activities ([ODVA_cg_02_0317.pdf](#))

- *David Brandt presented the TIA liaison letter to the task force.*

Mr. Zimmerman asked Masood Shariff to propose text for responses to the liaisons that would be reviewed on Tuesday.

Title: Ad Hoc Report ([zimmermanjones 3cg_01a_0317.pdf](#))

Presenter: George Zimmerman, Chair P802.3cg; CME consulting / ADI, Aquantia, BMW, Cisco, Commscope, LTC for Peter Jones, Cisco

Discussion: Next proposed P802.3cg ad-hoc meeting is 2 weeks from Wednesday, March 15. Exact date and time to be posted to the reflector.

Motion #1: Move to approve minutes of IEEE 802.3 Multigig Automotive Ethernet Study Group ad hoc minutes from 1/17, 2/1, 2/15, and 3/1 as posted.

M: G. Zimmerman S: N. Wienckowski

Approved by voice without opposition (Procedural > 50%)

Motion #2: Move to approve the agenda as shown in [agenda 3cg 01a 0317.pdf](#)

M: S. Carlson **S:** M. McCarthy
Approved by voice without opposition (Procedural > 50%)

Motion #3: Move to approve the minutes of the January 2017 IEEE P802.3cg 10 Mbps Single Pair Ethernet Task Force meeting as amended (date, “acting chair”, p. 2)

M: S. Carlson **S:** J. Gilb
Approved by voice without opposition (Procedural > 50%)

The meeting recessed for a short break at 3:18 PM.

The meeting resumed at 3:42 PM.

PRESENTATIONS

Mr. Zimmerman then moved to the presentations for the meeting.

Title: Possible Joint Work (overlap between IEEE 802.3cg and NGAUTO)
([carlson 3NGAUTO 01 0317.pdf](#))

Presenter: Steve Carlson, Chair 802.3 Multi-Gig Automotive Ethernet PHY Study Group,
High Speed Design / Robert Bosch GmbH
Discussion: No additional overlap items were identified by the group.

Title: The Road to Draft 1.0 ([zimmerman 3cg 01 0317.pdf](#))

Presenter: George Zimmerman, Chair P802.3cg; CME consulting / ADI, Aquantia, BMW,
Cisco, Commscope, LTC
Discussion:

Title: Lessons from Existing Multi-Drop Networks ([carlson 3NGAUTO 02 0317.pdf](#))

Presenter: Steve Carlson, Chair 802.3 Multi-Gig Automotive Ethernet PHY Study Group,
High Speed Design / Robert Bosch GmbH
Discussion:

Mr. Carlson reviewed the schedule for NGAUTO for the week noting that the NGAUTO Study Group was in recess until 9:00 AM Wednesday morning. P802.3cg will resume the Task Force meeting at 8:00 AM Tuesday in the Columbia room.

The joint meeting recessed for the day at 5:02 PM.

The Task Force meeting resumed at 8:06 AM.

NOTE: Only P802.3cg Task Force was re-convened.

George Zimmerman reviewed the agenda in [agenda_3cg_01d_0317.pdf](#).

- Mr. Zimmerman asked if anyone was attending from the press including those who would run a public blog on this meeting. None responded.
- Mr. Zimmerman noted that there should be no recording or photography without permission.

Chair reviewed the goals for the meeting big ticket items, access to the reflector and website, and ground rules for the meeting.

Attendance, Mr. Zimmerman advised the group of the IEEE meeting attendance tool and procedures, including both the attendance book and the web attendance tracking tool.

Mr. Zimmerman reviewed the slide entitled “Participation in IEEE 802 Meetings” and asked if there was any discussion necessary, none responded.

IEEE Patent Policy, at **8:15 AM**, Mr. Zimmerman asked if anyone had not heard the patent policy this week or if anyone would like to hear the patent policy read aloud, none responded. Mr. Zimmerman made the call for potentially essential patents at **8:16 AM**, and none responded. Mr. Zimmerman then completed the reading of slide #4

Chair reviewed the IEEE 802.3 Standards process and where the Task Force was in the process and the process by which we will develop the standard.

Mr. Zimmerman reviewed the presentations for this week. The meeting start time for Tuesday was changed to 8:00 AM.

PRESENTATIONS

Mr. Zimmerman then moved to the presentations for the meeting.

Title: Length vs. IL-Bandwidth vs. Wire Gauge ([vaden_3cg_01_0317.pdf](#))

Presenter: Sterling Vaden, Surtec Industries; George Zimmerman, Chair P802.3cg; CME consulting / ADI, Aquantia, BMW, Cisco, Commscope, LTC

Title: Additional 1000m link base line proposals ([Fritsche_Schicketanz_3cg_01a_0317.pdf](#))

Presenter: Matthias Fritsche, Harting Electronics; Dieter Schicketanz, Reutlingen University

Title: Analysis of Connector S-parameters for 10SPE ([DiBiaso_Bergner_01a_0314.pdf](#))

Presenter: Eric DiBiaso, TE Connectivity; Bert Bergner TE Connectivity

Title: Link Segment Baseline Proposal Industrial Applications ([diminico_01_0317.pdf](#))
Presenter: Chris Diminico, MC Communications/Cu-Test/Panduit
Discussion: Informative table should be added to the first draft. It was also noted that this is a worst-case scenario.

Title: First considerations for the 10Mbps@15m channel
([matheus_buntz_10SPE_01a_0317.pdf](#))
Presenter: Kirsten Matheus, BMW; Michael Kaindl, BMW; Stefan Buntz, Daimler; Marc Schreiner, Daimler
Discussion:

The meeting recessed for a short break at 10:10 AM.

The meeting resumed at 10:38 AM.

Title: First considerations for 10Mbps@15m multidrop
([matheus_buntz_10SPE_02a_0317.pdf](#))
Presenter: Kirsten Matheus, BMW; Michael Kaindl, BMW; Stefan Buntz, Daimler; Marc Schreiner, Daimler
Discussion: Mr. Zimmerman asked Kirsten to chair an ad-hoc meeting Wednesday morning to help drive the multi-drop decision.

Title: Intrinsic Safety Proposal ([Graber_3cg_04_0317.pdf](#))
Presenter: Steffen Graber, Pepperl+Fuchs

Title: Matlab model for 4B3T PHY Proposal ([Graber_3cg_03_0317.pdf](#))
Presenter: Steffen Graber, Pepperl+Fuchs
Discussion: It was noted that this evaluation board was not intrinsically safe.

Title: Evaluation board for 4B3T PHY proposal ([Graber_3cg_02_0317.pdf](#))
Presenter: Steffen Graber, Pepperl+Fuchs

The meeting recessed for lunch at 12:00 PM.

The meeting resumed at 1:35 PM.

Title: Noise Environment for PHY Proposal Evaluation ([Graber_3cg_01a_0317.pdf](#))
Presenter: Steffen Graber, Pepperl+Fuchs
Discussion: Mr. Zimmerman noted that an informal ad-hoc would be held for this topic from 10:00 AM to 12:00 PM Wednesday to help work on the specifics of the test setup.

Title: Generic 1-pair Topology Considerations ([shariff_3cg_01a_0317.pdf](#))
Presenter: Masood Shariff, Commscope

The meeting recessed for a short break at 3:13 PM.

The meeting resumed at 3:32 PM.

Title: Optional Power Distribution Concept ([diminico_02_0317.pdf](#))

Presenter: Chris Diminico, MC Communications/Cu-Test/Panduit

Discussion:

Title: Non-Industrial Use of P802.3cg ([Lewis_3cg_01_0317.pdf](#))

Presenter: Jon Lewis, Dell EMC

Discussion:

Mr. Zimmerman then reviewed the plan for Wednesday including ad-hoc meetings starting at 8:00 AM. The meeting then moved to review the liaison letter response prepared by an ad-hoc this week and presented by Masood Shariff, Commscope.

Mr. Zimmerman asked Masood to convene an ad-hoc to finalize the liaison response from 1:30 PM to 3:00 PM Wednesday for approval by the Task Force on Thursday morning.

Title: Multidrop Ethernet for In-cabinet Applications ([brandt_cg_01_0317.pdf](#))

Presenter: David D. Brandt, Rockwell Automation

Discussion:

The Task Force meeting recessed for the day at 5:18 PM.

The joint meeting resumed at 8:06 AM.

Administrative Matters

George Zimmerman reviewed the agenda in [agenda_3cg_01d_0317.pdf](#).

- Mr. Zimmerman asked if anyone was attending from the press including those who would run a public blog on this meeting. None responded.
- Mr. Zimmerman noted that there should be no recording or photography without permission.

Chair showed the goals for the meeting, access to the reflector and website, and ground rules for the meeting.

Attendance, Mr. Zimmerman advised the group of the IEEE meeting attendance tool and procedures, including both the attendance book and the web attendance tracking tool.

Mr. Zimmerman reviewed the slide entitled "Participation in IEEE 802 Meetings".

The Chair reviewed the IEEE 802.3 Standards process and where the Task Force was in the process and the process by which we will develop the standard.

IEEE Patent Policy, at **8:10 AM**, Mr. Zimmerman asked if anyone had not heard the patent policy this week or if anyone would like to hear the patent policy read aloud, none responded. Mr. Zimmerman made the call for potentially essential patents at **8:11 AM**, and none responded. Mr. Zimmerman then completed the reading of slide #4

Mr. Zimmerman then reviewed the schedule for the day and resumed presentations for the meeting.

Motion #4: Move to approve minutes of IEEE 802.3 Multigig Automotive Ethernet Study Group ad hoc minutes from 1/17, 2/1, 2/15 and 3/1 as posted

M: G. Zimmerman **S:** N. Wienckowski

Approved by voice without opposition (Procedural > 50%)

Title: Measurement Ad Hoc Report ([meas_adhoc_3cq_0317.pdf](#))

Presenter: George Zimmerman, Chair P802.3cg; CME consulting / ADI, Aquantia, BMW, Cisco, Commscope, LTC

Title: Multi-Drop Ad Hoc summary ([20170315_Multidrop_Adhoc_Summary.pdf](#))

Presenter: Kirsten Matheus, BMW

Motion #5: Move to adopt the link segment Insertion loss, Return Loss, ANEXT and AFEXT from slide 10, slide 25, slide 28 and slide 30 respectively in [diminico_01_0317.pdf](#) for the 1000 m link segment baseline.

M: Chris Diminico **S:** Bryan Moffitt

Y: 43 **N:** 0 **A:** 2

Motion Passes (Technical >= 75%)

Motion #6: Move to adopt “the maximum loop resistance of a 1000 m link segment shall be less than or equal to 50.66 ohms for the link segment baseline (“highlighted in yellow” slide 36 in [diminico_01_0317.pdf](#)).

M: Chris Diminico **S:** Ron Nordin

Motion #6 was withdrawn by mover and seconder.

Mr. Zimmerman discussed the timeline as described in the agenda and asked if anyone would put forth a motion to adopt a timeline, none responded.

Motion #7: Move to adopt the liaison letter

[IEEE 802d3 to TIA TR42 0317 liaison draft reva.pdf](#) and instruct the Task Force Chair present the letter for approval at the working group meeting.

M: Theo Brillhart **S:** Mick McCarty

Approved by voice without opposition (Procedural > 50%)

Motion #8: Move to adopt the liaison letter

[IEEE 802d3 to ISOIEC SC25 WG3 0317 draft revb.pdf](#) and instruct the Task Force Chair present the letter for approval at the working group meeting.

M: Masood Shariff **S:** Matthias Fritsche

Approved by voice without opposition (Procedural > 50%)

Future Meeting Straw Polls:

- I am likely to attend 802.3cg at:
- May Interim (New Orleans, LA USA):
 - Y: 30 N: 2 M: 8
- July plenary (Berlin, Germany):
 - Y: 27 N: 6 M: 10
- September Interim (Charlotte, NC USA)
 - Y: 20 N: 5 M: 20

Adjournment

Motion #9: Move to adjourn the meeting.

M: Curtis Donahue **S:** David Brandt

MOTION PASSES by voice without opposition (Procedural > 50%)

The Meeting was adjourned at 10:10 AM

Appendix A: Attendees at the IEEE P802.3cg 10 Mb/s Single Twisted Pair Ethernet Task Force Meeting, March 13-16, 2017.

802.3cg Working Group Mar'17				3/13/17	3/14/17	3/16/17
Last Name	First Name	Employer	Affiliation	Monday	Tuesday	Thursday
Agnes	Andrea	ST Microelectronics	ST Microelectronics		X	
Amason	Dale	NXP	NXP		X	X
Angha	Ali	Spirent Communications	Spirent Communications	X	X	X
Bains	Amrik	Cisco	Cisco	X	X	X
Bar-Niv	Amir	Aquantia	Aquantia	X	X	
Bohm	Mark	Microchip Technology	Microchip Technology	X	X	X
Brandt	David	Rockwell Automation	Rockwell Automation	X	X	X
Brillhart	Theo	Fluke Electronics	Fluke Electronics	X	X	X
Brownlee	Phillip	TDK	TDK	X	X	X
Carlson	Steve	High Speed Design	Robert Bosch	X		X
Carty	Clark	Cisco	Cisco	X	X	X
Chadha	Mandeep	Microsemi	Microsemi	X	X	
Choudary	Mabud	OFS	OFS	X		
DiBiaso	Eric	TE Connectivity	TE Connectivity	X	X	X
DiMinico	Christopher	MC Communications	Panduit		X	X
Donahue	Curtis	UNH - IOL	UNH - IOL	X	X	
Dupuis	Marc	Web Industries	Web Industries	X	X	
Eitel	Cornelia	Hirschmann Automation and Control	Hirschmann Automation and Control	X	X	X
Flatman	Alan	LAN Technologies	LAN Technologies	X	X	X
Franchuk	Brian	Emerson Automation Solutions	Emerson Automation Solutions	X	X	X
Fritsche	Matthias	Harting	Harting	X	X	X
Gardner	Mike	Molex, LLC	Molex, LLC	X		X
Gauthier	Claude	OmniPHY	OmniPHY			X
Gelite	Tabiar	Renesas	Renesas	X	X	X
Gilb	Jamel	General Atomics Aeronautical Systems Inc.	General Atomics Aeronautical Systems Inc.	X	X	
Gottron	Jens	Siemens AG	Siemens AG	X	X	
Graber	Steffen	Pepperl+Fuchs	Pepperl+Fuchs	X	X	X
Grau	Olaf	Robert Bosch	Robert Bosch	X	X	X
Grow	Robert	RMG Consulting	RMG Consulting	X		X
Hayashi	Takehiro	HAT Lab	HAT Lab	X	X	X

802.3cg Working Group Mar'17				3/13/17	3/14/17	3/16/17
Last Name	First Name	Employer	Affiliation	Monday	Tuesday	Thursday
Hess	Dave	Cord Data	Cord Data		X	X
Hogenmiller	Thomas	Bosch	Bosch		X	X
Hormmeyer	Bernd	Phoenix Contact	Phoenix Contact	X	X	
Hyakutake	Yasuhiro	Adamant Co., Ltd	Adamant Co., Ltd	X	X	X
Jimenez	Andrew	Anixter Inc.	Anixter Inc.		X	
Kawatsia	Yasuaki	Apresia Systems	Apresia Systems	X	X	
Khan	Mohammed	Pulse Electronics	Pulse Electronics	X	X	
Kim	Yong	Broadcom Ltd.	Broadcom Ltd.	X		
Lackner	Hans	QoSCom Gmbh	QoSCom Gmbh	X	X	X
Law	David	Hewlett Packard Enterprise	Hewlett Packard Enterprise	X		
Lewis	Jon	Dell EMC	Dell EMC	X	X	X
Li-Chung	Chen	Realtek	Realtek	X	X	X
Madgar	Tzahi	Valens	Valens	X		X
Maguire	Valerie	Siemon	Siemon	X	X	
Matheus	Kirsten	BMW	BMW	X	X	X
McCarthy	Mick	Analog Devices	Analog Devices	X	X	X
McClellan	Brett	Marvell	Marvell	X	X	X
McSorley	Greg	Amphenol	Amphenol	X		
Mei	Richard	Commscope	Commscope	X	X	
Moffitt	Bryan	Commscope	Commscope	X	X	X
Mueller	Harald	Endress+Hauser	Endress+Hauser	X	X	X
Muyschondt	Henry	Microchip Technology	Microchip Technology	X	X	
Nordin	Ron	Panduit	Panduit		X	X
Pandey	Sujan	NXP	NXP	X	X	X
Patel	Harsh	Molex, LLC	Molex, LLC	X		X
Peker	Arkadiy	Microsemi	Microsemi		X	
Picard	Jean	Texas Instruments	Texas Instruments	X	X	X
Pischl	Nevin	Independent	Independent	X		X
Regev	Alon	Ixia	Ixia		X	X
Renteria	Victor	Bel Fuse Inc.	Bel Fuse Inc.	X	X	X
Schweitz	Laura	Turck	Turck	X	X	X
Sedarat	Hossein	Aquantia	Aquantia	X	X	X
Shariff	Masood	Commscope	Commscope	X	X	X
Sparrowhawk	Bryan	Leviton	Leviton	X	X	X
Umnov	Alexander	Corning	Corning	X		
Vaden	Sterling	Surtec, Ind.	Vaden Enterprises	X	X	X
Vanderlaan	Paul	Berk-Tek LLC	Berk-Tek LLC	X	X	X

802.3cg Working Group Mar'17				3/13/17	3/14/17	3/16/17
Last Name	First Name	Employer	Affiliation	Monday	Tuesday	Thursday
Wendt	Matthias	Philips Lighting	Philips Lighting		X	
Wienckowski	Natalie	GM	GM	X		X
Winkel	Ludwig	Siemens AG	Siemens AG	X	X	X
Wu	Peter	Marvell	Marvell	X	X	X
Wucher	Markus	Endress+Hauser	Endress+Hauser	X	X	X
Yi	Jun	Champkin Company	Champkin Company	X	X	
Zielinski	Martin	Emerson Automation Solutions	Emerson Automation Solutions	X	X	X
Zimmerman	George	CME Consulting	Commscope, Aquantia, LTC, CME Consulting, Cisco	X	X	X
Zinner	Helge	Continental	Continental	X	X	X