Unconfirmed Meeting Minutes: Meeting of the IEEE P802.3cg 10 Mbps Single Twisted Pair Ethernet Task Force

September 13-14, 2017
Charlotte, NC USA

Prepared by Jon Lewis

The meeting of the IEEE P802.3cg 10 Mbps Single Twisted Pair Ethernet Task Force convened at 9:04 AM, Wednesday, September 13, 2017 by George Zimmerman, P802.3cg Task Force chair.

Attendance for the meeting is listed in Appendix A

All presentations referenced in these minutes are located on the Sept 2017 802.3cg public website.

Administrative Matters

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

The Task Force Chair called for introductions and affiliations.

George Zimmerman displayed the agenda in agenda_3cg_01_0917.pdf.

Motion #1: Move to approve the agenda as shown in agenda_3cg_01_0917.pdf.

M: Ludwig Winkel S: Bob Grow
Approved by voice without opposition (Procedural > 50%)

George Zimmerman reviewed the agenda in agenda_3cg_01_0917.pdf.

Motion #2: Move to approve minutes of IEEE P802.3cg 10 Mbps Single Twisted Pair Ethernet Task Force from July 2017 as posted.
M: Ludwig Winkel S: Eric DiBiaso

Approved by voice without opposition (Procedural > 50%)

- Mr. Zimmerman noted that there should be no recording or photography without permission.
- Mr. Zimmerman asked if anyone was attending from the press including those who would run a public blog on this meeting. The Chair noted that Peter Jones occasionally uses publically available information.

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 log and the web attendance tracking tool (IMAT).

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 **9:27 AM**, Mr. Zimmerman showed slides 0 through 4 patent policy from agenda_3cg_01_0917.pdf. Mr. Zimmerman showed slide 0 and read aloud slides 1 through 4. Mr. Zimmerman made the call for potentially essential patents at **9:30 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.

LIAISONS

ISO/IEC JTC1 SC25: Alan Flatman gave an update on ongoing work related to P802.3cg. It was noted that ISO/IEC JTC2 SC25 meeting coincides with this IEEE 802.3 interim meeting.

ODVA: ODVA Overview (ODVA_cg_01_0917.pdf) – David Brandt, Rockwell Automation.

TIA TR-42: TR-42 liaison to IEEE 802.3 with Draft 0.3 that is available on the 802.3 private area.

PRESENTATIONS

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

Title: TIA TIA 568.5 Single Pair Draft Overview
(Vaden_Single_pair_568.5_overview-b.pdf)
Presenter: Sterling Vaden, Vaden Enterprises, Surtec, Ind.

The meeting recessed for a short break at 10:13 AM.

The meeting resumed at 10:47 AM.

The Chair called the meeting to order and continued with presentations.

Title: Thoughts about long reach cabling (brandt_cg_01b_0917.pdf)
Presenter: David Brandt, Rockwell Automation

Title: Automotive Link Segment Analysis for 10SPE (DiBiaso_Bergner_01c_0917.pdf)
Presenter: Eric DiBiaso, TE Connectivity

Title: Automotive link segment for 10SPE including multidrop (kaindl_matheus_3cg_01c_09_2017.pdf)
Presenter: Kirsten Matheus, BMW

Title: Management Interface Use Cases for Single Pair Ethernet (bains_lewis_3cg_01b_0917.pdf)
Presenter: Jon Lewis, Dell EMC

Title: Ad Hoc Report (jones_10spe_01_0917.pdf)
Presenter: Peter Jones, Cisco

The meeting recessed for lunch at 11:50 AM.

The Task Force meeting resumed at 1:33 PM.

Title: Elevators (Lifts) Use Case (huszak_3cg_01a_0917.pdf)
Presenter: Gergely Huszak, Kone

Title: A single pair modular connector for large AWG cables (Vaden_Single_pair_modular_connector.pdf)
Presenter: Sterling Vaden, Vaden Enterprises, Surtec, Ind.

Title: Evaluation Board Noise Measurements (Graber_3cg_14_0917.pdf)
Presenter: Marcel Medina, Spirent and Steffen Graber, Pepperl+Fuchs

Title: 10BASE-T1L Draft Overview (Graber_3cg_15a_0917.pdf)
Presenter: Steffen Graber, Pepperl+Fuchs

The Task Force took a short break at 3:23 PM.

The Task Force resumed at 3:46 PM.

Title: Proposal for short-reach multi-drop 10M SPE (former PLCA) (Beruto_3cg_01a_0917.pdf)
Presenter: Piergiorgio Benuto, CanovaTech

Title: TSN and 802.3cg (gunther_3cg_01a_0917.pdf)
Presenter: Craig Gunther, Harman

The Chair indicated that the room would be made available from 8:00 AM – 9:00 AM for a discussion on multi-drop. P802.3cg Task Force meeting will resume at 9:00 AM.

The meeting recessed for the day at 5:14 PM.

The Task Force meeting resumed at 9:02 AM, September 14, 2017.

The Chair called the meeting to order and asked if anyone had not seen the participation or patent slides this week. None responded. The Chair then proceeded with the presentations for the meeting.

Title: Proposed text for 802.3cg Powering Annex (diminico_01_0917.pdf)
Presenter: Chris Diminco, MC Communications, Panduit

Title: Options for Powering 802.3cg (stewart_01_0917.pdf)
Presenter: Heath Stewart, Analog Devices

Title: Examples of Elevators (Lifts) Use Case (Huszak_3cg_02a_0917.pdf)
Presenter: Gergely Huszak, Kone

Title: Ideas for Objective 5 "Support for optional single-pair Autonegotiation" (Gottron_3cg_01a_0917.pdf)
Presenter: Jens Gottron, Siemens, AG

The meeting recessed for a short break at 10:03 AM.

The meeting resumed at 10:32 AM.

Title: Editor's Report: P802.3cg Draft D0.1 (maguire_3cg_01_0917.pdf)
Presenter: Valerie Maguire, Siemon; P802.3cg chief editor

The Chief Editor informed the Task Force that Draft 0.2 is posted in the private area. The Task Force agreed that an OAM channel is needed for the short reach PHY and that the OAM channel for the long reach PHY should remain in the draft at this time.

Motion #3 through Motion #12 all refer to the 10BASE-T1L PHY.
Motion #3: Move to adopt the use of the 4B3T line code as specified on page 4 in "Graber_3cg_15a_0917.pdf".

- **M: S. Graber S: D. Brandt**
- **Y:29 N:0 A:0**

- **(Technical >= 75%)**
- **Motion Passes**

Motion #4: **Move to adopt the use of comma sequences for the signaling of data and idle data streams as defined on pages 6 and 7 in "Graber_3cg_15a_0917.pdf".**

- **M: S. Graber S: M. McCarthy**
- **Y:32 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #5: **Move to adopt the side stream scrambling procedure as described on pages 8 to 10 in "Graber_3cg_15a_0917.pdf".**

- **M: S. Graber S: L. Winkel**
- **Y:32 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #6: **Move to adopt the PCS transmit state diagram as specified on page 17 in "Graber_3cg_15a_0917.pdf" with editorial license to conform to IEEE 802.3 style.**

- **M: S. Graber S: M. McCarthy**
- **Y:32 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #7: **Move to adopt the PCS receive state diagram as specified on pages 20 and 21 in "Graber_3cg_15a_0917.pdf" with editorial license to conform to IEEE 802.3 style.**

- **M: S. Graber S: P. Beruto**
- **Y:32 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #8: **Move to adopt the jabber state diagram as specified on page 23 in "Graber_3cg_15a_0917.pdf".**

- **M: S. Graber S: B. Voss**
- **Y:31 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #9: **Move to adopt the PHY Control state diagram as defined on page 26 in "Graber_3cg_15a_0917.pdf" with editorial license to conform to IEEE 802.3 style.**

- **M: S. Graber S: L. Winkel**
- **Y:31 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #10: **Move to adopt the Link Monitor state diagram as defined on page 28 in "Graber_3cg_15a_0917.pdf" with editorial license to conform to IEEE 802.3 style.**

- **M: S. Graber S: J. Gottron**
- **Y:33 N:0 A:0**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #11: **Move to adopt the MII interface according to Clause 22 as the MAC interface (see page 24 in "Graber_3cg_15a_0917.pdf").**

- **M: S. Graber S: M. Wucher**
- **Y:32 N:0 A:1**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #12: **Move to adopt an optional management interface (MDC/MDIO) according to Clause 45 (see page 35 in "Graber_3cg_15a_0917.pdf").**

- **M: S. Graber S: B. Voss**
- **Y:29 N:0 A:1**
- **(Technical >= 75%)**
- **Motion Passes**

Motion #13: **Move to adopt text in diminico_01_0917.pdf for 802.3cg Optional Power Distribution Annex.**

- **M: Chris DiMinico S: B. Voss**
- **Technical >= 75%**
- **Y: 28 N:0 A:2**

Motion #14: **Adopt the equations on slide 18 of http://www.ieee802.org/3/cg/public/Sept2017/DiBiaso_Bergner_01c_0917.pdf as a baseline for the 10SPE short reach link segment.**

IL <	**1+1.6 (f-1)/9 dB**	**f=0.3…. 10MHz**
	2.6 + 2.3 (f-10)/23 dB	**f=10 …. 33MHz**
	4.9 + 2.3 (f-33)/33 dB	**f=33 ……40MHz**
RL >	**14 dB**	**f=0.3…10MHz**
	14-10*LOG10(f/10) dB	**f=10…40MHz**
MC >	**30 dB**	**f=0.3…20MHz**
	30-20*LOG10(f/20) dB	**f=20…200MHz**

- **M: Kirsten Matheus S: Eric DiBiaso**
- **Technical >= 75%**
- **Y:28 N:0 A:1**
- **Motion Passes**

Motion #15: **Move that the 802.3cg Task Force supports the inclusion of in-system use cases, as described in bains_lewis_10spe_01a_0910.pdf, subject to a successful CFI and Study Group outcome.**

- **M: P. Jones S:R. Naismith**
- **Procedural > 50%**
- **Y:30 N: 0 A:0**
- **Motion Passes**

Motion #16: **Move that 802.3cg add the following objective:**

  - **Define a multi-drop PHY using Clause 4 half-duplex operation supporting up to at least 25m of balanced pair cabling in passive linear topologies.**

- **M: Kirsten Matheus S: David Brandt**
- **Technical (>= 75%)**
- **Y:33 N:0 A:0**
- **Motion Passes**

Motion #17: **Move that 802.3cg define an optional collision reduction method based on Beruto_3cg_01a_0917.pdf to provide PHY-level multi-drop performance improvement.**

- **M: Piergiorgio Beruto S: Ron Naismith**
- **Technical (>= 75%)**
- **Y:31 N:1 A:1**
- **Motion Passes**

Motion 18: **Move to approve draft 0.2 text as presented and instruct editor to implement changes agreed to during online discussion and motions to generate draft 0.3.**

- **M: B. Voss S: S. Vaden**
- **Motion Passes by Voice without Opposition**

The Chair then reviewed the draft liaison letters for 802.1 and TIA TR42:

Proposed draft liaison to 802.1

Proposed draft liaison to TIA TR42

Future Meeting Straw Polls:

- **I am likely to attend 802.3cg at:**
- **November plenary (Orlando, FL USA):**
  - **Y: 30 N: 1 M: 3**
- **January Interim (ITU Geneva, CH)**
  - **Y: 19 N: 3 M: 9**

After completing the meeting agenda the Chair asked if there was further business for the Task Force, none responded. The Chair then adjourned the meeting at 12:26 PM.

Appendix A: Attendees at the IEEE P802.3cg 10 Mb/s Single Twisted Pair Ethernet Task Force Meeting, September 13-14, 2017.

IEEE P802.3cg Task Force Sept'17				**9/13/17**	**9/14/17**
Last Name	**First Name**	**Employer**	**Affiliation**	**Wednesday**	**Thursday**
Amason	Dale	NXP	NXP	X	
Beruto	Piergiorgio	Canova Tech SRL	Canova Tech SRL	X	X
Brandt	David	Rockwell Automation	Rockwell Automation	X	X
Brownlee	Phillip	TDK	TDK	X	X
Carlson	Steve	High Speed Design	Robert Bosch	X	
Carty	Clark	Cisco	Cisco	X	X
DiBiaso	Eric	TE Connectivity	TE Connectivity	X	X
DiMinico	Christopher	MC Communications	Panduit	X	X
Donahue	Curtis	UNH - IOL	UNH - IOL	X	X
Eyal	Massad	Valens	Valens	X	
Flatman	Alan	LAN Technologies	LAN Technologies	X	X
Franchuk	Brian	Emerson Automation Solutions	Emerson Automation Solutions	X	X
Frosch	Rick	Phihong USA	Phihong USA		X
Gardner	Mike	Molex, LLC	Molex, LLC	X	X
Goldberg	Jonathan	IEEE-SA	IEEE-SA		X
Gottron	Jens	Siemens AG	Siemens AG	X	X
Graber	Steffen	Pepperl+Fuchs	Pepperl+Fuchs	X	X
Grau	Olaf	Robert Bosch	Robert Bosch	X	X
Grau	Olaf	Robert Bosch	Robert Bosch	X	X
Grow	Robert	RMG Consulting	RMG Consulting	X	X
Gunther	Craig	Harmon International	Harmon International	X	X
Gustlin	Mark	Xilinx	Xilinx	X	
Huszak	Gergely	Kone	Kone	X	X
Hyakutake	Yasuhiro	Adamant Co., Ltd	Adamant Co., Ltd	X	X
Jeskey	Dave	Sentinel Connector	Sentinel Connector	X	
Jisk	Jason	UNH-IOL	UNH-IOL	X	X
Jones	Peter	Cisco	Cisco	X	X
Khan	Mohammed	Pulse Electronics	Pulse Electronics	X	
Klempa	Michael	UNH-IOL	UNH-IOL	X	X
Krieger	Olaf	Volkswagen	Volkswagen	X	X
Lewis	Jon	Dell | EMC	Dell | EMC	X	X
Madgar	Zahy	Valens	Valens	X	
Maguire	Valerie	Siemon	Siemon	X	X

Matheus	Kirsten	BMW	BMW	X	X
McCarthy	Mick	Analog Devices	Analog Devices	X	X
McClellan	Brett	Marvell	Marvell	X	X
Miller	Martin	Microchip	Microchip	X	X
Mueller	Harald	Endress+Hauser	Endress+Hauser	X	X
Naismith	Ronald	Schneider Electric	Schneider Electric	X	X
O'Neil	Adam	UNH-IOL	UNH-IOL	X	X
Pandey	Sujan	NXP	NXP	X	X
Pardo	Carlos	KDPOF	KDPOF	X	X
Peker	Arkadiy	Microsemi	Microsemi		X
Renteria	Victor	Bel Fuse Inc.	Bel Fuse Inc.	X	X
Scantamburlo	Nicola	CanovaTech	CanovaTech	X	X
Sparrowhawk	Bryan	Leviton	Leviton	X	X
Stewart	Heath	Analog Devices	Analog Devices		X
Thompson	Geoff	GraCaSI SA.	Independent	X	X
Tremblay	David	HPE	HPE	X	
Vaden	Sterling	Surtec, Ind.	Vaden Enterprises	X	X
Voss	Bob	Panduit	Panduit	X	X
Wendt	Matthias	Philips Lighting	Philips Lighting	X	X
Winkel	Ludwig	Siemens AG	Siemens AG	X	X
Wu	Peter	Marvell	Marvell	X	X
Wucher	Markus	Endress+Hauser	Endress+Hauser	X	X
Yseboodt	Lennart	Philips Lighting	Philips Lighting		X
Zielinski	Martin	Emerson Automation Solutions	Emerson Automation Solutions	X	X
Zimmerman	George	CME Consulting	Commscope, Aquantia, CME Consulting, Cisco, ADI, BMW, APL Group	X	X