

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

November 6-8, 2017  
Orlando, FL NC USA

Prepared by Jon Lewis

The meeting of the IEEE P802.3cg 10 Mbps Single Twisted Pair Ethernet Task Force convened at 1:03 PM, Wednesday, November 6, 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 [Nov 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\_01a\_1117.pdf.

**Motion #1: Move to approve the agenda as shown in agenda\_3cg\_01a\_1117.pdf.**

**M: Matthius Wendt                    S: James Withey  
Approved by voice without opposition (Procedural > 50%)**

George Zimmerman reviewed the agenda in agenda\_3cg\_01a\_1117.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: Valerie Maguire    S: Peter Jones**

**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. None responded.

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 **1:21 PM**, Mr. Zimmerman showed slides 0 through 4 patent policy from agenda\_3cg\_01a\_1117.pdf. Mr. Zimmerman showed slide 0 and read aloud slides 1 through 4. Mr. Zimmerman made the call for potentially essential patents at **1:24 PM**, and none responded. Mr. Zimmerman then completed the reading of slide #4.

The Chair asked for introductions and affiliations from those that joined the meeting late.

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.

### **LIAISONS**

TIA TR-42: [http://www.ieee802.org/3/minutes/nov17/incoming/TR42-2017-09-127a\\_to\\_IEEE\\_802d3.pdf](http://www.ieee802.org/3/minutes/nov17/incoming/TR42-2017-09-127a_to_IEEE_802d3.pdf)

IEC TC 65/SC 65C/JWG 10: [http://www.ieee802.org/3/minutes/sep17/incoming/IEC-65C-JWG10\\_to\\_IEEE\\_802d3\\_Jul\\_2017.pdf](http://www.ieee802.org/3/minutes/sep17/incoming/IEC-65C-JWG10_to_IEEE_802d3_Jul_2017.pdf)

ISO/IEC JTC1 SC25:

[http://www.ieee802.org/3/minutes/nov17/incoming/SC25\\_N2753\\_to\\_IEEE\\_802d3\\_1\\_pai\\_r.pdf](http://www.ieee802.org/3/minutes/nov17/incoming/SC25_N2753_to_IEEE_802d3_1_pai_r.pdf)

Profibus/Profinet:

[http://www.ieee802.org/3/minutes/nov17/incoming/PI\\_to\\_IEEE\\_P802d3cg\\_Nov.pdf](http://www.ieee802.org/3/minutes/nov17/incoming/PI_to_IEEE_P802d3cg_Nov.pdf)

### **PRESENTATIONS**

Mr. Zimmerman reviewed the presentations for this week.

ODVA: Update to IEEE P802.3cg on ODVA Liaison Activities  
([ODVA\\_cg\\_01b\\_1117.pdf](#)) – David Brandt, Rockwell Automation.

**Title: Ad Hoc Report (jones\_10spe\_01\_1117.pdf)**

**Presenter: Peter Jones, Cisco**

**Discussion: Peter asked the Task Force if there were any objections to approving the minutes from the November 1, 2017 meeting, none responded.**

**Title: Editor's Report: P802.3cg Draft D0.3 (maguire\_3cg\_01a\_1117.pdf)**

**Presenter: Valerie Maguire, Siemon; P802.3cg chief editor**

Discussion: The Chief Editor asked for volunteers for specific clauses. Piergiorgio Beruta, Canova Tech (Clause 148) and Gergely Huszak, Kone (Clause 147) agreed to help.

**Title: Extensions to Clause 104 powering (stewart\_3cg\_01\_1117.pdf)**

**Presenter: Heath Stewart, Analog Devices**

**Title: PoDL Thoughts (Graber\_3cg\_16a\_1017.pdf)**

**Presenter: Stefen Graber, Pepperl+Fuchs**

**The meeting recessed for a short break at 3:16 PM.**

**The meeting resumed at 3:45 PM.**

**Title: Autonegotiation Use Cases (wucher\_3cg\_01a\_1117.pdf)**

**Presenter: Markus Wucher, ENDRESS+HAUSER**

**Title: Clause 98 AutoNegotiation (Graber\_3cg\_17a\_1017.pdf)**

**Presenter: Stefen Graber, Pepperl+Fuchs**

The Chair noted that the last presentation scheduled for today would be postponed. Geoff Thompson gave an overview of that presentation at the Chairs request.

**The Task Force meeting recessed for the day at 4:55 PM to resume at 8:30 AM.**

**The Task Force was brought to order at 8:34 AM.**

George Zimmerman reviewed the agenda in agenda\_3cg\_01a\_1117.pdf.

- 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. None responded.

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 **8:49 AM**, Mr. Zimmerman asked if there were any attendees that had not seen the patent policy this week, none responded. Mr. Zimmerman then made the call for potentially essential patents at **8:50 AM**, and none responded. Mr. Zimmerman then read aloud 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.

The Chair then called for introductions from the Task Force.

**Title: PCS, PMA, and PLCA for Short Reach – proposal (beruto\_3cg\_01\_1117.pdf)**  
**Presenter: Piergiorgio Beruto, Canova Tech**

**Title: Parameters for multidrop short reach PHY (kattainen\_huszak\_3cg\_01\_0117.pdf)**  
**Presenter: Gergely Huszak, Kone**

**The meeting recessed for a short break at 10:04 AM.**

**The meeting resumed at 10:30 AM.**

**Title: 10SPE Encoding Comparison (An\_3cg\_01a\_1117.pdf)**  
**Presenter: Hongming An, Microchip**

**Title: Proposal for PSD Mask Adoption (beruto\_3cg\_02a\_1117.pdf)**  
**Presenter: Piergiorgio Beruto, Canova Tech**

The Chair opened the floor for discussion on the short reach PHY presentations.

**Title: Scope Issues (Thompson%20for%20Dot3cg%20Nov2017.pdf)**  
**Presenter: Geoff Thompson, GraCaSI**

The Chair then reviewed the plans for the afternoon including the joint meeting with 802.1.

**The meeting recessed for lunch at 11:51 AM to resume at 3:30 PM after the joint meeting with 802.1.**

**The meeting resumed at 3:53 PM.**

**Title: 10BASE-T1L PHY Draft comments (Graber\_3cg\_18\_1117.pdf)**

**Presenter: Stefen Graber, Pepperl+Fuchs**

**Title: Single-pair cabling channel specifications (hess\_10SPE\_01\_1025.pdf)**

**Presenter: Dave Hess, Cord Data**

**The meeting recessed for the day at 4:59 PM to resume at 8:30 AM Wednesday.**

**The meeting resumed at 8:30 AM.**

George Zimmerman reviewed the agenda in agenda\_3cg\_01a\_1117.pdf.

- 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. None responded.

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 **8:35 AM**, Mr. Zimmerman asked if there were any attendees that had not seen the patent policy this week, none responded. Mr. Zimmerman then made the call for potentially essential patents at **8:36 AM**, and none responded. Mr. Zimmerman then read aloud 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.

The Chair asked if there was any objection to hearing a late presentation from Conrad Zerna, none responded.

**Title: Closing Chief Editor’s Report P802.3cg draft 0.3 (maguire\_3cg\_02\_1117.pdf)**

**Presenter: Valerie Maguire, Siemon; P802.3cg chief editor**

Title: 802.3CG PMA ELECTRICAL AND LINK SEGMENT DEFINITION ... CHECKED  
(171108\_802cg3\_Zerna\_T1S\_pmaElectrical\_linkSegment\_EMG.pdf)  
Presenter: Conrad Zerna, Fraunhofer

The Chair then reviewed the draft liaison letters:

[Proposed draft liaison to IEC/SC65](#)

[Proposed draft liaison to TIA TR42](#)

[Proposed draft liaison to ISO/IEC SC25 WG3](#)

The meeting recessed for a short break at 10:20 AM.

The meeting resumed at 10:46 AM.

The Chair continued reviewing the proposed draft liaison to ISO/IEC SC25 WG3.

**Future Meeting Straw Polls:**

- I am likely to attend 802.3cg at:
  - January Interim (ITU Geneva, CH)
    - Y: 30 N: 14 M: 22
  - March Plenary (Rosemont, IL USA)
    - Y: 41 N: 2 M: 23

**Motion #3:** Move to adopt Clause 98 with modifications to support an optional 625 kbit/s baud rate as proposed in Graber\_3cg\_16a\_1017.pdf, Slides 8 to 10.

M: S. Graber S: L. Winkel

Y: 38 N: 0 A: 19

(Technical  $\geq$  75%)

Motion Passes

**Motion #4:** Move to adopt auto negotiation rate procedure as defined in Clause 98 as shown in Graber\_3cg\_19\_1117.pdf.

M: S. Graber S: M. Wucher

Y: 48 N: 0 A: 10

(Technical  $\geq$  75%)

Motion Passes

**Motion #5:** Move to add an additional type to Clause 104 supporting the 10BASE-T1L PHY.

M: S. Graber S: B. Voss

Y: 44 N: 0 A: 17

(Technical  $\geq$  75%)

Motion Passes

**Motion #6:** Move to include the parameters specified in Graber\_3cg\_20\_1117.pdf into the new Clause 104 Type.

M: S. Graber S: H. Mueller

Y: 42 N: 0 A: 20

(Technical >= 75%)

Motion Passes

**Motion #7:** Move to include the timing parameters and capacitor values specified in Stewart\_3cg\_01\_1117.pdf into the new Clause 104 Type (detailed text will come from Heath Stewart).

M: S. Graber S: J. Gottron

Y: 40 N: 0 A: 20

(Technical >= 75%)

Motion Passes

**Motion #8:** Move to adopt the link monitor state machine as proposed in Graber\_3cg\_18\_1117.pdf, slide 7.

M: S. Graber S: M. McCarthy

Y: 43 N: 0 A:

(Technical >= 75%)

Motion Passes

**Motion #9:** Move to adopt the informative annex A.1 as described in document 10BASE-T1L Clause 164 Rev. F.pdf with editorial license.

M: S. Graber S: B. Voss

Y: 43 N: 0 A: 17

(Technical >= 75%)

Motion Passes

**Motion #10:** Move to adopt the PCS specification, including TX / RX state machines, 4B5B coding and PCS loopback function, as described in beruto\_3cg\_01a\_1117.pdf, with editorial license, to integrate into clause 147.

M: P. Beruto S: K. Matheus

Y: 30 N: 2 A: 35

(Technical >= 75%)

Motion Passes

**Motion #11:** Move to amend Motion #10: "Move to adopt the PCS specification, including TX / RX state machines, 4B5B TBD coding and PCS loopback function, as described in beruto\_3cg\_01a\_1117.pdf, with editorial license, to integrate into clause 147."

M: G. Den Besten S: M. Shariff

Y: 11 N: 13 A: 41

(Technical >= 75%)

Motion to Amend Fails

**Motion #12:** Move to adopt the Differential Manchester Coding (DME), as described in [beruto\\_3cg\\_01a\\_1117.pdf](#), with editorial license, to integrate into clause 147, marking TBD the items in the relevant sections of [8023cg\\_D0p3\\_T1S\\_revB.PDF](#).

M: P. Beruto S: G. Huszak

Y: 34 N: 0 A: 27

(Technical >= 75%)

Motion Passes

**Motion #13:** Move to adopt the PMD electrical specifications for the point-to-point and multidrop operating modes, as described in [beruto\\_3cg\\_01a\\_1117.pdf](#), with editorial license, to integrate into clause 147, marking TBD the items in the relevant sections of [8023cg\\_D0p3\\_T1S\\_revB.PDF](#).

M: P. Beruto S: C. Zerna

Y: 31 N: 0 A: 23

(Technical >= 75%)

Motion Passes

**Motion #14:** Move to adopt the PMA test modes, as described in [beruto\\_3cg\\_01a\\_1117.pdf](#), with editorial license, to integrate into clause 147.

M: P. Beruto S: C. Zerna

Y: 34 N: 0 A: 19

(Technical >= 75%)

Motion Passes

**Motion #15:** Move to adopt the PMA electrical specifications, including PSD mask equations and voltage levels, as described in [beruto\\_3cg\\_02a\\_1117.pdf](#), with editorial license, to integrate into clause 147.

M: P. Beruto S:

Motion Withdrawn

**Motion #16:** Move to adopt the PLCA specification, as a baseline to go into the Reconciliation Sublayer as an option as described in [beruto\\_3cg\\_01a\\_1117.pdf](#).

M: P. Beruto S: G. Huszak

Y: 22 N: 2 A: 14

(Technical >= 75%)

Motion Passes

**Motion #17:** Move to approve draft liaison to IEC SC65

[ieee802d3 to IECSC65JWG10 d3](#)

M: B. Voss S: A. Flatman

Procedural (50%)

Approved by voice without opposition.

**Motion #18:** Move to approve draft liaison to TIA TR42 [IEEE 802d3 to TIA TR42 d1](#)

M: C. Diminico S: A. Flatman



**Procedural (50%)**  
**Approved by voice without opposition.**

**Motion #19:** Move to approve draft liaison to ISO/IEC SC25 WG3  
[IEEE 802d3 to ISOIEC SC25 WG3 11 2017 draft 2](#)

**M: B. Voss S: J. Withey**

**Procedural (50%)**  
**Approved by voice without opposition.**

**Motion #20:** Move to instruct the chair to postpone presentation of the new multidrop objective in Motion #16 from the September 2017 meeting until the January Working Group meeting.

**M: P. Jones S: G. Huszak**

**Y: 7 N: 6 A: 25**

**(Procedural > 50%)**

**Motion Passes**

**Straw Poll #1: I support adding a power mode supporting a power budget of 32W at 24VDC**

**Y: 15 N: 0 A: 18**

**Straw Poll #2: I support adding objective to support at least 32 nodes on the multidrop mixing segment**

**Y: 17 N: 0 A: 16**

**Motion #21:** Move to approve draft 0.3 text as presented and instruct editor to implement changes agreed to during online discussion and motions to generate draft 1.0.

**M: V. Maguire S: S. Graber**

**Y: 35 N: 0 A: 1**

**Motion Passes**

**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 1:11 PM.**

Appendix A: Attendees at the IEEE P802.3cg 10 Mb/s Single Twisted Pair Ethernet Task Force Meeting, November 6-8, 2017.

| IEEE P802.3cg Task Force Nov'17 |              |                     |                     | 11/6/17 | 11/7/17 | 11/8/17   |
|---------------------------------|--------------|---------------------|---------------------|---------|---------|-----------|
| Last Name                       | First Name   | Employer            | Affiliation         | Monday  | Tuesday | Wednesday |
| A                               | Shaziah      | GM                  | GM                  | X       | X       | X         |
| Aekins                          | Robert       | Legrand             | Legrand             | X       | X       | X         |
| Akkihal                         | Shiva        | Microchip           | Microchip           |         | X       |           |
| Alessandro                      | Ingrassia    | Canova Tech         | Canova Tech         |         | X       | X         |
| An                              | Hongming     | Microchip           | Microchip           | X       | X       | X         |
| Bains                           | Amrik        | Cisco               | Cisco               | X       | X       | X         |
| Beaudoin                        | Denis        | TI                  | TI                  |         | X       | X         |
| Beruto                          | Piergiorgio  | Canova Tech SRL     | Canova Tech SRL     | X       | X       | X         |
| Brandt                          | David        | Rockwell Automation | Rockwell Automation | X       | X       | X         |
| Brownlee                        | Phillip      | TDK                 | TDK                 | X       | X       | X         |
| Carlson                         | Steve        | High Speed Design   | Robert Bosch        | X       | X       | X         |
| Carty                           | Clark        | Cisco               | Cisco               | X       | X       | X         |
| Chadha                          | Mandeep      | Microsemi           | Microsemi           | X       | X       | X         |
| Chalupsky                       | David        | Intel               | Intel               |         | X       | X         |
| Dachin                          | Tseng        | Realtek             | Realtek             | X       | X       | X         |
| Delecount                       | Henri Xavier | Network Generation  | Network Generation  |         | X       | X         |
| Den Besten                      | Gerrit       | NXP Semiconductor   | NXP Semiconductor   | X       | X       | X         |
| Deng                            | Hailang      | Mediatek            | Mediatek            | X       | X       | X         |
| DiBiaso                         | Eric         | TE Connectivity     | TE Connectivity     | X       | X       | X         |
| DiMinico                        | Christopher  | MC Communications   | Panduit             |         |         | X         |
| Dinh                            | Thuyen       | Pulse               | Pulse               |         | X       | X         |
| Donahue                         | Curtis       | UNH - IOL           | UNH - IOL           | X       | X       |           |
| Estes                           | Dave         | Spirent             | Spirent             |         | X       | X         |
| Fathi                           | Borhan       | Nvidia              | Nvidia              |         |         | X         |

| IEEE P802.3cg Task Force Nov'17 |            |                              |                              | 11/6/17 | 11/7/17 | 11/8/17   |
|---------------------------------|------------|------------------------------|------------------------------|---------|---------|-----------|
| Last Name                       | First Name | Employer                     | Affiliation                  | Monday  | Tuesday | Wednesday |
| 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       |           |
| Gottron                         | Jens       | Siemens AG                   | Siemens AG                   | X       | X       | X         |
| Graber                          | Steffen    | Pepperl+Fuchs                | Pepperl+Fuchs                | X       | X       | X         |
| Grow                            | Robert     | RMG Consulting               | RMG Consulting               | X       | X       | X         |
| Gustlin                         | Mark       | Xilinx                       | Xilinx                       |         | X       |           |
| Hall                            | Robert     | Johnson Controls             | Johnson Controls             |         | X       | X         |
| Hess                            | Dave       | Cord Data                    | Cord Data                    | X       | X       | X         |
| Hormmeyer                       | Bernd      | Phoenix Contact              | Phoenix Contact              | X       | X       |           |
| Huszak                          | Gergely    | Kone                         | Kone                         | X       | X       | X         |
| Hyakutake                       | Yasuhiro   | Adamant Co., Ltd             | Adamant Co., Ltd             | X       | X       | X         |
| Jones                           | Peter      | Cisco                        | Cisco                        | X       | X       | X         |
| Kagami                          | Manabu     | Toyota CRDL                  | Toyota CRDL                  |         |         | X         |
| Kato                            | Hideki     | YAZAKI                       | YAZAKI                       | X       | X       | X         |
| Kattainen                       | Ari        | Kone                         | Kone                         | X       | X       | X         |
| Katz                            | David      | Phoenix Contact              | Phoenix Contact              | X       | X       | X         |
| Klaus                           | Andrew     | Marvell                      | Marvell/Jaspar               | X       | X       | X         |
| Kumeda                          | Taketo     | YAZAKI                       | YAZAKI                       | X       | X       | X         |
| Lackner                         | Hans       | QoSCom Gmbh                  | QoSCom Gmbh                  | X       | X       | X         |
| Lane                            | Brett      | Panduit                      | Panduit                      | X       | X       | X         |
| Lee                             | HJ         | LGE                          | LGE                          | X       | X       | X         |
| Leung                           | Michael    | Marvell                      | Marvell                      | X       | X       | X         |
| Lewis                           | Jon        | Dell   EMC                   | Dell   EMC                   | X       | X       | X         |
| Lin                             | Alex       | Mediatek                     | Mediatek                     | X       | X       | X         |
| Maguire                         | Valerie    | Siemon                       | Siemon                       | X       | X       | X         |

| IEEE P802.3cg Task Force Nov'17 |             |                     |                     | 11/6/17 | 11/7/17 | 11/8/17   |
|---------------------------------|-------------|---------------------|---------------------|---------|---------|-----------|
| Last Name                       | First Name  | Employer            | Affiliation         | Monday  | Tuesday | Wednesday |
| Matheus                         | Kirsten     | BMW                 | BMW                 | X       | X       | X         |
| McCarthy                        | Mick        | Analog Devices      | Analog Devices      | X       | X       | X         |
| McClellan                       | Brett       | Marvell             | Marvell             | X       | X       | X         |
| Miller                          | Martin      | Microchip           | Microchip           | X       | X       |           |
| Mooney                          | Paul        | Spirent             | Spirent             | X       | X       |           |
| Mueller                         | Harald      | Endress+Hauser      | Endress+Hauser      | X       | X       | X         |
| Mueller                         | Thomas      | Rosenberger         | Rosenberger         | X       | X       | X         |
| Naismith                        | Ronald      | Schneider Electric  | Schneider Electric  | X       | X       | X         |
| Pandey                          | Sujan       | NXP                 | NXP                 | X       | X       | X         |
| Regev                           | Alon        | Ixia                | Ixia                |         | X       |           |
| Renteria                        | Victor      | Bel Fuse Inc.       | Bel Fuse Inc.       | X       | X       | X         |
| Rubino                          | Letsu       | Delphi              | Delphi              |         |         | X         |
| Saraf                           | Ritesh      | Omniphy             | Omniphy             | X       | X       | X         |
| Schuessler                      | Jim         | Samsung Electronics | Samsung Electronics | X       | X       | X         |
| Schweitz                        | Laura       | Turck               | Turck               | X       | X       | X         |
| Shariff                         | Masood      | Commscope           | Commscope           | X       | X       | X         |
| Sisto                           | John        | Microchip           | Microchip           | X       | X       |           |
| Smith                           | Daniel      | Seagate             | Seagate             |         |         | X         |
| Sparrowhawk                     | Bryan       | Leviton             | Leviton             | X       | X       | X         |
| Taiji                           | Kondo       | Megachips           | Megachips           | X       | X       | X         |
| Tellas                          | Ron         | Belden              | Belden              |         |         | X         |
| Thompson                        | Geoff       | GraCaSI SA.         | Independent         | X       | X       |           |
| Vaden                           | Sterling    | Surtec, Ind.        | Vaden Enterprises   | X       | X       | X         |
| Voss                            | Bob         | Panduit             | Panduit             | X       | X       | X         |
| Weber                           | Karl        | Beckhoff Automation | Beckhoff Automation |         | X       |           |
| Wechsler                        | Christopher | Audi AG             | Audi AG             | X       | X       | X         |
| Wendt                           | Matthias    | Philips Lighting    | Philips Lighting    | X       | X       | X         |
| Wienckowski                     | Natalie     | GM                  | GM                  |         | X       | X         |

| IEEE P802.3cg Task Force Nov'17 |            |                              |   | 11/6/17 | 11/7/17 | 11/8/17   |
|---------------------------------|------------|------------------------------|---|---------|---------|-----------|
| Last Name                       | First Name | Employer                     | Affiliation   | Monday  | Tuesday | Wednesday |
| Winkel                          | Ludwig     | Siemens AG                   | Siemens AG  | X       | X       | X         |
| Withey                          | James      | Fluke Networks               | Fluke Networks  | X       | X       | X         |
| Wu                              | Peter      | Marvell                      | Marvell   | X       | X       | X         |
| Wucher                          | Markus     | Endress+Hauser               | Endress+Hauser  | X       | X       | X         |
| Xu                              | Dayin      | Rockwell Automation          | Rockwell Automation   | X       | X       | X         |
| Zerna                           | Conrad     | Frannhofer IIS               | Frannhofer IIS  | X       | X       | X         |
| Zielinski                       | Martin     | Emerson Automation Solutions | Emerson Automation Solutions                                    | X       | X       | X         |
| Zimmerman                       | George     | CME Consulting               | Commscope, Aquantia, CME Consulting, Cisco, ADI, BMW, APL Group | X       | X       | X         |
| Zweck                           | Harald     | Infineon Tech.               | Infineon Tech.  | X       | X       | X         |