Unconfirmed Meeting Minutes: IEEE 802.3 10 Mb/s Single Twisted Pair Ethernet Study Group

November 8-9, 2016
San Antonio, TX, USA

Prepared by Jon Lewis

IEEE 802.3 10 Mb/s Single Twisted Pair Ethernet Study Group (10SPE) meeting convened at 8:00 AM, Tuesday, November 8, 2016 by George Zimmerman, Study Group Chair.

Attendance is listed in Appendix A

ADMINISTRATIVE MATTERS

Presentation: agenda_10SPE_01b_1116.pdf
Presenter: George Zimmerman, Chair.

The Chair called for introductions and affiliations, the participants introduced themselves, and the Chair then proceeded with the agenda.

The Chair reviewed the agenda. Mr. Zimmerman turned to presentation agenda_10SPE_01b_1116.pdf and reviewed the schedule of presentations for the meeting.

Motion #1: **Move to approve the agenda**

M: Matthias Wendt S: Mick McCarthy
Approved by voice vote without objection (Procedural > 50%)

Motion #2: **Move to approve the minutes of the September 2016 Interim meeting with date in title corrected to 2016.**

M: Henry Muyshondt S: Steve Carlson
Approved by voice vote without objection (Procedural > 50%)

The Chair then resumed the review of presentation agenda_10SPE_01b_1116.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 – there were no indications from the group,

Mr. Zimmerman then continued review of the presentation, Big Ticket items for this meeting, to develop PAR, CSDs, and Objectives for 10 Mb/s Single Twisted Pair Ethernet.

Mr. Zimmerman reviewed the goals for the meeting, access to the reflector and website, and ground rules.

IEEE Patent Policy, Mr. Zimmerman read aloud the patent policy for study groups from agenda_10SPE_01b_1116.pdf, page entitled "Guidelines for IEEE-SA Meetings" (8:16 am).

Mr. Zimmerman reviewed the standards development process for IEEE and where this study group is in the process.

Motion #3: Move to request that the IEEE 802.3 Working Group request the extension of the 10 Mb/s Single Pair Ethernet Study Group.

M: Steve Carlson S: Ludwig Winkel
Approved by voice vote without objection (Procedural > 50%)

Mr. Zimmerman reviewed the WG motion from the July 2016 plenary meeting of the 802.3 WG to establish the Study Group.

LIAISONS

The Chair moved to liaisons, and noted that there was one liaison for the Study Group to consider.

TR42-2016-10-160b_to_IEEE_802d3

It was decided by the Study Group that a response was not necessary at this time as the next TR42 meeting was after the January Interim at which time more information would be available.

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

The Chair completed review of the agenda presentation.

PRESENTATIONS

The Chair then moved to the presentations for the meeting.

NOTE: Abstracts are given when supplied by the presenter.

Title: 10SPE - 10 Mb/s Single Twisted Pair Ethernet Study Group Ad Hoc Report (jones_10spe_01a_1116.pdf)

Abstract: The presenter outlined the work done in the 5 meetings prior to the November Plenary including 11 presentations and 160 attendees.
Presenter: Peter Jones, Cisco, Chair, Study Group Ad Hoc
Discussion: Peter Jones asked if there was any objection to approving the minutes from the September 7th Ad hoc meeting, none responded and the minutes were approved.
Future Ad hoc meetings will be every second Wednesday starting November 16, 2016. Additional details to be distributed on the reflector.

Title: Technical Feasibility for Intrinsically Safe Link Segment (Graber_10SPE_08_1116.pdf)
Abstract: Do not preclude working within an Intrinsically Safe device and system as defined in IEC 60079.
Presenter: Steffen Graber, Pepperl+Fuchs

Title: Powering in an Intrinsically Safe Environment (Graber_10SPE_07_1116.pdf)
Abstract: Specify an optional power distribution technique for use over the 10 Mb/s single twisted pair link segments in conjunction with 10Mbps single-pair PHYs.
Presenter: Steffen Graber, Pepperl+Fuchs

Break at 9:39am. Resumed at 10:03am.

Title: Long-Reach PHY Design Perspectives (Gauthier_10SPE_01a_11082016.pdf)
Abstract: A look at the implementation aspects of Long-Reach 10Mb/s SPE PHY to establish technical feasibility.
Presenter: Claude Gauthier, OmniPHY

Title: Link Segment Considerations for Industrial Applications (diminico_01b_1116.pdf)
Abstract:
Presenter: Chris DiMinico, MC Communications/Cu-Test/Panduit
Discussion: It was noted that this is a perfect use of the existing ad hoc meeting.

Title: SHDSL overview (traeber_10SPE_01a_1116.pdf)
Abstract: Presentation showing technical feasibility of the PHY.
Presenter: Mario Traeber, Intel

Lunch Break at 12:07pm to resume at 1:30pm.

The Study Group meeting resumed at 1:31pm.

Title: Proposed Objectives (zimmerman_10SPE_01c_1116.pdf)

Presenter: George Zimmerman, CME Consulting, Aquantia, LTC, CommScope, Cisco Systems
Discussion: The Chair discussed the adopted objectives from the September meeting, the additional objectives that have consensus from previous ad-hoc meetings and objectives that need additional work to reach consensus.

Title: Requirements of Link Quality Diagnostics (winkel_10SPE_01_1116.pdf)
Abstract: Comment on Topic "Incorporate Link Quality Diagnostics"
Presenter: Ludwig Winkel, Siemens AG
Discussion: Clarification that both initial diagnostics and run-time diagnostics were desired.

Title: Factory Automation Use Case for Daisy-chain Power Delivery (Xu_10SPE_02_1116.pdf)
Abstract: Specify an optional power distribution technique for use over the 10 Mb/s single twisted pair link segments in conjunction with 10Mbps single-pair PHYs
Presenter: Dayin Xu, Rockwell Automation

Title: 10BASE-T1: Power & Data II (yseboodt_10spe_01_1116.pdf)
Abstract: This presentation explores a Data & Power architecture designed to fit applications that require a daisy-chained cable topology.
Presenter: Lennart Yseboodt, Philips Lighting
Discussion: Comments concerning the multi-drop phy and if the existing objectives preclude the consideration of multi-drop phy.

Afternoon Break at 3:30pm.

Meeting resumed at 4:05pm.

The Chair then moved to straw polls to find out if there was consensus for the motions to be presented on Wednesday.

Straw Poll #1:
Adopt Objectives #9 through #13 on page 4 of zimmerman_10SPE_01c_1116.pdf
Y: 37 N: 0 A: 2

Straw Poll #2:
Adopt Objectives #9 through #14 on page 4 of zimmerman_10SPE_01c_1116.pdf
Y: 12 N: 9 A: 17

Straw Poll #3:
Adopt the following objective: Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to:
10^-10 on link segments up to at least 15m, and

10^-9 on link segments up to at least 1km
Y: 38 N: 0 A: 1

Straw Poll #4:
Adopt the following objective: Specify one or more optional power distribution techniques for use over the 10 Mb/s single balanced twisted-pair link segments in conjunction with 10 Mb/s single balanced twisted-pair PHYs
Y: 39 N: 0 A: 2

Straw Poll #5:

Adopt the following objective: Support Clause 104 as an optional power distribution, with possible augmentation, on at least the 15m link segment
Y: 4 N: 26 A: 12

Do you believe rewording this would get your support?
Y: 2 N: 23 A: 8

Straw Poll #6:
Adopt the following changes to our PAR:

Change 5.2.b. as shown:

5.2.b. Scope of the project: Specify additions to and appropriate modifications of IEEE Std 802.3 to add 10 Mb/s Physical Layer (PHY) specifications and management parameters for operation, and associated optional provision of power, on single balanced twisted-pair copper cabling. ~~Define methodology for the optional provision of power to connected Data Terminal Equipment (DTE) for use with IEEE 802.3 10 Mb/s single-pair interfaces.~~

5.5 Change IEEE 802.3 to IEEE Std. 802.3

Change 5.6 as shown:

5.6 Stakeholders for the Standard: End-users, vendors, system integrators, and providers of systems and components (e.g., sensors, actuators, instruments, controllers, network infrastructure, user interfaces, and servers) for automotive, other transportation, industrial~~, factory, process~~, and building automation.

8.1 – add "5.2b – IEEE Std 802.3 – IEEE Standard for Ethernet".

Y: 38 N: 0 A: 1

Straw Poll #7:
Do you think objective #14 is redundant with objective #7 & 8 and any other #1-13 objectives in zimmerman_10SPE_01c_1116.pdf
Y: 18 N: 10 A: 11

THE MEETING RECESSED FOR THE DAY AT 5:40PM, TO RECONVENE WEDNESDAY AT 1:00PM

THE MEETING RECONVENED WEDNESDAY AT 1:30PM

The Chair called the meeting to order and proceeded with the agenda (agenda_10SPE_01b_1116.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.

IEEE Patent Policy, Mr. Zimmerman showed the patent policy for study groups from agenda_10SPE_01b_1116.pdf, page entitled "Guidelines for IEEE-SA Meetings" (1:32 pm).

The meeting then moved to motions and further business which include comments on the 10SPE Study Group CSDs and PAR.

Motion #4: Move to adopt the following changes to our PAR:
Change 5.2.b. as shown:

> **5.2.b. Scope of the project: Specify additions to and appropriate modifications of IEEE Std 802.3 to add 10 Mb/s Physical Layer (PHY) specifications and management parameters for operation, and associated optional provision of power, on single balanced twisted-pair copper cabling. ~~Define methodology for the optional provision of power to connected Data Terminal Equipment (DTE) for use with IEEE 802.3 10 Mb/s single-pair interfaces.~~**

5.5 Change IEEE 802.3 to IEEE Std. 802.3
Change 5.6 as shown:

> **5.6 Stakeholders for the Standard: End-users, vendors, system integrators, and providers of systems and components (e.g., sensors, actuators, instruments, controllers, network infrastructure, user interfaces, and servers) for automotive, other transportation, industrial~~, factory, process~~, and building automation.**

8.1 – add "5.2b – IEEE Std 802.3 – IEEE Standard for Ethernet".

M: Jon Lewis S: David Hoglund
Y: 47 N: 0 A: 0 (Technical >= 75%)
Motion Passes/Fails

Title: Reflections of the Ad Hoc Chair (jones_10spe_02b_1116_1.pdf)
Abstract: The goal is to put forward some opinions/discussion points to help us move forwards.
Presenter: Peter Jones, Cisco, Chair, Study Group Ad Hoc

Motion #5: Move to adopt Objectives #9 through #13 on page 4 of zimmerman_10SPE_01c_1116.pdf

M: Peter Jones S: David Brandt
Y: 49 N: 0 A: 0 Technical (>= 75%)
Motion Passes/Fails

Motion #6: Move to adopt the following objective: Maintain a bit error ratio (BER) at the MAC/PLS service interface of less than or equal to:
10^-10 on link segments up to at least 15m, and
10^-9 on link segments up to at least 1km
M: Ludwig Winkel S: Peter Jones
Y: 49 N: 0 A: 0 Technical (>= 75%)
Motion Passes/Fails

Motion #7: Move to adopt the following objective: Specify one or more optional power distribution techniques for use over the 10 Mb/s single balanced twisted-pair link segments, in conjunction with 10 Mb/s single balanced twisted-pair PHYs, in the automotive and industrial environments
M: Steffen Graber S: Mick McCarthy
Y: 49 N: 0 A: 0 Technical (>= 75%)
Motion Passes/Fails

The Chair asked if anyone had further business, none responded.

FUTURE MEETINGS
Mr. Zimmerman reviewed future meeting locations from the agenda presentation.

Straw Poll on Attendance
Attend January 802.3 Interim:

Y: 26 N: 12 A: 12

Attend March 802 Plenary:

Y: 31 N: 3 A: 15

The Chair announced that the next ad-hoc meeting would be Wednesday, November 16, 2016 at 9:00AM Pacific. Claude Gauthier agreed to be the champion of the 'living list' of phy considerations and features.

No further motions of business were offered.

Adjournment
Motion #14: To adjourn the meeting
- **M: J. Lewis S: B. McClellan**
- **Motion Passes by Voice without Opposition**

The Meeting was adjourned at 2:15PM, Wednesday, November 9, 2016.

Appendix A: Attendees at the IEEE 802.3 10 Mb/s Single Twisted Pair Ethernet Study Group Meeting, November 8-9, 2016

Last Name	First Name	Employer	Affiliation	Tuesday	Wednesday
Ahmed	Mohammad	TE Connectivity	TE Connectivity		X
Akasaki	Shogo	DENSO	DENSO	X	X
Amason	Dale	NXP	NXP	X	X
Bains	Amrik	Cisco	Cisco	X	X
Bohm	Mark	Microchip Technology	Microchip Technology	X	X
Brandt	David	Rockwell Automation	Rockwell Automation	X	X
Brillhart	Theo	Fluke Electronics	Fluke Electronics	X	X
Brownlee	Phillip	TDK	TDK	X	X
Canchi	Radhakrishna	Kyocera	Kyocera	X	
Carlson	Steve	High Speed Design	High Speed Design	X	
Carty	Clark	Cisco	Cisco	X	X
Chalupsky	David	Intel	Intel	X	
Dai	Shaoan	Marvell	Marvell	X	X
DiBiaso	Eric	TE Connectivity	TE Connectivity	X	X
DiMinico	Christopher	MC Communications	Panduit	X	
Donahue	Curtis	UNH - IOL	UNH - IOL	X	X
Flatman	Alan	LAN Technologies	LAN Technologies	X	X
Fransen	Robert	Panduit Corp.	Panduit Corp.	X	X
Gardner	Mike	Molex, LLC	Molex, LLC	X	
Gauthier	Claude	OmniPHY	OmniPHY	X	X
Graber	Steffen	Pepperl+Fuchs	Pepperl+Fuchs	X	X
Grau	Olaf	Robert Bosch	Robert Bosch	X	X
Hess	Dave	Cord Data	Cord Data	X	X
Hogenmiller	Thomas	Bosch	Bosch	X	
Hoglund	David	Johnson Controls	Johnson Controls	X	X
Horrmeyer	Bernd	Phoenix Contact	Phoenix Contact	X	X
Hyakutake	Yasuhiro	Adamant Co., Ltd	Adamant Co., Ltd	X	
Jimenez	Andrew	Anixter Inc.	Anixter Inc.	X	X
Jones	Peter	Cisco	Cisco	X	X
Klaus	Andrew	Marvell	Marvell/Jaspar	X	X
Kountz	Dennis	Chemours	Chemours	X	
Lackner	Hans	QoSCom Gmbh	QoSCom Gmbh	X	X
Law	David	Hewlett Packard Enterprise	Hewlett Packard Enterprise	X	
Lewis	Jon	Dell | EMC	Dell | EMC	X	X
Li-Chang	Chen	Realtek	Realtek	X	X
Maguire	Valerie	Siemon	Siemon	X	
Manchester	Gary	Molex, LLC	Molex, LLC	X	

Last Name	First Name	Employer	Affiliation	Tuesday	Wednesday
Matheus	Kirsten	BMW	BMW	X	X
Matola	Larry	Delphi	Delphi	X	X
McCarthy	Mick	Analog Devices	Analog Devices	X	X
McClellan	Brett	Marvell	Marvell	X	X
Moffitt	Bryan	Commscope	Commscope	X	X
Moritake	Toshijuki	JAE	JAE	X	X
Muir	Ron	JAE	JAE	X	
Muyshondt	Henry	Microchip Technology	Microchip Technology	X	X
Pandey	Sujan	NXP	NXP	X	X
Picard	Jean	Texas Instruments	Texas Instruments	X	X
Puls	Timothy	Semtech Corp	Semtech Corp	X	X
Resnef	Tamir	Semtech Corp	Semtech Corp	X	X
Schewe	Frank	Phoenix Contact	Phoenix Contact	X	X
Schicketanz	Dieter	Consultant	Reutlingen University	X	X
Schmidt	Hans-Peter	OTH University	OTH University	X	
Schweitz	Laura	Turck	Turck	X	X
Sedarat	Hossein	Aquantia	Aquantia	X	X
Shariff	Masood	Commscope	Commscope	X	X
Sparrowhawk	Bryan	Leviton	Leviton	X	X
Tajima	Takayuki	Yazaki	Yazaki	X	
Traeber	Mario	Intel	Intel	X	X
Tremblay	David	HPE	HPE	X	X
Umnov	Alexander	Corning	Corning	X	X
Vaden	Sterling	Surtec, Ind.	Vaden Enterprises	X	X
Wang	Xiaofeng	Qualcomm	Qualcomm	X	X
Wendt	Matthias	Philips Lighting	Philips Lighting	X	X
Wienckowski	Natalie	GM	GM	X	X
Winkel	Ludwig	Siemens	Siemens	X	X
Wucher	Markus	Endress+Hauser	Endress+Hauser		X
Xu	Dayin	Rockwell Automation	Rockwell Automation	X	X
Yoo	Sungjong	Molex, LLC	Molex, LLC	X	X
Yseboodt	Lennart	Philips Lighting	Philips Lighting	X	
Zerna	Conrad	Frannhofer IIS	Frannhofer IIS	X	X
Zimmerman	George	CME Consulting	Commscope, Aquantia, LTC, CME Consulting, Cisco	X	X
Zinner	Helge	Continental	Continental	X	X