Unconfirmed Meeting Minutes: IEEE P802.3bq 40GBASE-T Task Force

July 15-16, 2014
San Diego, California, USA

Prepared by George Zimmerman

IEEE P802.3bq 40GBASE-T Task Force meeting convened at 09:03 AM, Tuesday, July 15, 2014 by David Chalupsky, 802.3bq Task Force Chair.

Attendance is listed in Appendix A

ADMINISTRATIVE MATTERS
Presentation: agenda_3bq_01_0714.pdf
Presenter: Dave Chalupsky, Chair.

The Chair called for introductions and affiliations.

The Chair reviewed the agenda. Mr. Chalupsky turned to presentation agenda_3bq_01_0714.pdf and reviewed the schedule of presentations for the meeting.

Motion #1: Approve the agenda from agenda_3bq_01_0714.pdf,

M: Pete Cibula S: Paul Vanderlaan
Approved by voice vote without objection (Procedural > 50%)

Motion #2: Approve the minutes from the May meeting (http://www.ieee802.org/3/bq/public/may14/unconfirmed_minutes_3bq_0514.pdf)

M: Wayne Larsen S: Shadi AbuGhazaleh
Approved by voice vote without objection (Procedural > 50%)

The Chair then resumed the review of presentation agenda_3bq_01_0714.pdf:
- Mr. Chalupsky 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. Chalupsky noted that there should be no recording or photography without permission.

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

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

IEEE Patent Policy, at **9:24 AM**, Mr. Chalupsky showed slides 0 through 4 patent policy from agenda_3bq_01_0714.pdf. Mr. Chalupsky showed slide 0 and read aloud slides 1 through 4.

Mr. Chalupsky made the call for potentially essential patents at **9:27 AM**, and none responded. Mr. Chalupsky then completed the reading of slide #4.

Mr. Chalupsky then continued review of the presentation, Big Ticket items for this meeting.

LIAISONS

The Chair moved to liaisons, and noted two liaisons from TIA to 802.3 which Mr. Law, Chair of the 802.3 Working Group had assigned to the Task Force.

The first indicated Draft 2.0a ANSI/TIA-568-C.2-1(the TIA Category 8 specification) had been liaised to IEEE 802.3 from TIA TR42, and that the draft had been posted to the private area of the Task Force website. (see http://www.ieee802.org/3/minutes/jul14/incoming/TR42-2014-06-095_to_IEEE_802d3.pdf)

The second indicated that TIA was working on an informative Technical Standards Bulletin (TSB) on applications for High Performance Structured Cabling, and was seeking input from the IEEE 802.3 Working Group related to 40GBASE-T.

The Chair read the liaison from TIA soliciting input on high performance structured cabling from: http://www.ieee802.org/3/minutes/jul14/incoming/TR42-2014-06-089b_to_IEEE_802d3.pdf

The Chair completed review of the presentation noting the project objectives which were unchanged from the prior meeting, and since the group has been in Task Force.

PRESENTATIONS

The Chair then moved to the presentations for the meeting. (Secretary's note – where significant group discussion occurred, particularly involving future actions, a summary of any follow-on points is provided. Abstracts are given as a guide to the presentation material, where possible, these are as provided by authors.)

Title: Status of Cat 8 in TIA (larsen_3bq_01_0714.pdf)
Abstract: This contribution provides information about the current status of the cat 8 development (cabling system to support 40GBASE-T) in TIA.
Presenter: Wayne Larsen, Commscope (also Chair, TIA TR42.7)
Discussion: There was a question of clarification that the specifications presented were from the same draft version as the draft liaised by TIA, to which the presenter affirmed that yes, they were from the same, current draft version.

Title: 40GBASE-T Advantages and Use Cases (jimenez_3bq_01_0711.pdf)
Abstract: This contribution provides a discussion of the historical advantage of BASE-T (relative cost, availability, flexibility), a comparison of relative cost of 10GBASE-T and predicted 40GBASE-T to other interconnect technology, and, the effect of 40GBASE-T on architecture choices.
Presenter: Andrew Jimenez, Anixter

Discussion: The presenter noted that the work presented was an output of the high performance structured cabling applications group in TIA, referenced in the liaison above. There was discussion leading to discussion of an appropriate response to the liaisons.

The Chair entertained discussion of responses to the two liaisons.
The group initially expressed a desire to liaise a timeline, when one was adopted to both TIA and ISO. In the course of discussion it was pointed out that the "first liaison", was procedurally merely a cover letter to the liased Cat 8 draft, and that no reply was necessary.

Valerie Maguire offered to author an acknowledgement response to the liaison on the high performance structured cabling TSB.

The Chair then moved to continue with the scheduled presentations.

Title: Channel Modeling Ad Hoc Report (cibula_3bq_01_0714.pdf)
Abstract: Report of activities of the 802.3bq channel modeling ad hoc since the May Interim meeting. The channel modeling ad hoc held 2 conference calls since the May interim. The channel modeling ad hoc believes that its work is now complete.
Presenter: Pete Cibula, Intel, Chair 802.3bq channel modeling ad hoc
Discussion: There was no discussion, the group thanked Mr. Cibula for his hard work.

BREAK AT 10:25 AM UNTIL 10:47 AM

At 10:47 AM Mr. Cibula assumed secretary role so Mr. Zimmerman could present.

Title: PHY Baseline Proposal Ad Hoc Report (zimmerman_3bq_01_0714.pdf)
Abstract: Two PHY Baseline Proposal Ad Hoc meetings were held since the May Interim meeting. This contribution reports on those meetings, summarizes the contributions heard, and discusses next steps towards a PHY Baseline Proposal.
Presenter: George Zimmerman, CME Consulting / Aquantia & Commscope, Chair 802.3bq PHY Baseline Proposal ad hoc
Discussion: Participants thanked the ad hoc chair for his report.

At 10:56 AM, Mr. Zimmerman re-assumed secretary role.

Title: 40GBASE-T RJ45 ICM (renteria_3bq_01_0714.pdf)
Abstract: This contribution provides updated results on an RJ45-based integrated connector-magnetics (ICM) using 3rd generation magnetics.
Presenter: Victor Renteria, Bel-Stewart Connector
Discussion: None.

Title: 40GBASE-T ARJ45 ICM (renteria_3bq_02_0714.pdf)
Abstract: This contribution provides updated results on an ARJ45-based integrated connector-magnetics (ICM) using 3rd generation magnetics.
Presenter: Victor Renteria, Bel-Stewart Connector

Discussion: There was a request for a brief discussion of the differences between the ARJ-45 and RJ-45 connectors. Mr. Renteria clarified that the main differences were the location of the contacts.

At 11:26 AM Mr. Cibula assumed secretary role so Mr. Zimmerman could present.

Title: 802.3bq Editors Report (zimmerman_3bq_02_0714.pdf)

Abstract: The editor for 802.3bq went through the status of the draft, including sub editor responsibilities and proposals for adopting baseline text based on the existing Clause 55 text, with some modifications. He also highlighted items requiring technical work by the committee.

Presenter: George Zimmerman, CME Consulting, Inc/Commscope & Aquantia, Chief Editor for 802.3bq

Discussion: The editor reviewed the Clause 98 editorial team as of June 2014, noting that on the occasion of his passing, Hugh Barrass's vision, contributions and editorial efforts will be missed by the team. Specific and significant gaps include integrating elements and features of Clause 91 FEC and EEE.

The editor shared a high-level overview of progress on big ticket items, highlighted several technical items requiring work by the task force, and a plan of attack for the balance of the editor's report – review a logical grouping of slides, discuss, and potentially entertain associated motions at the Task Force Chair's discretion.

LUNCH BREAK at 11:49AM until 1:20PM

Following lunch, the editor's report resumed, with Mr. Cibula continuing to serve as recording secretary.

Meeting business resumed at 1:31PM with a review of the proposed TIA liaison text provided by Valerie Maguire. The text was accepted with one minor correction and will be forwarded to the working group as liaison to the TIA.

Review of the P802.3bq Editor's report resumed at 1:37 PM.

The editor noted that relevant planned contributions are welcome during this review and discussion, and suggested that if consensus is reached on a topic, it will then be incorporated as baseline text to be used in the initial draft.

"Untouched" clauses and their corresponding mapping to Clause 98 were presented. Participants discussed the idea of removing fast retrain support at this time, but it was noted that as yet there is no proposal to remove fast retrain from the specification.

<u>Motion #3:</u> Move to: adopt Clauses 55.6, 55.9, 55.10, and 55.11 as baseline text for Clause 98 with editorial license to modify to reference 40G as necessary, as detailed on slide 8 of zimmerman_3bq_02_0714.pdf

M: G. Zimmerman S: C. Diminico
Technical (> 75%)
Y: 15 N: 0 A: 1
MOTION PASSES

"Thorny Administrative Stuff" related to the project objectives were reviewed, and after the review a participant suggested leaving the inexact objective as is since it does not impede the progress of the work of the task force. As there was no further discussion on the issue, the inexact objective remains as-is.

After "Low hanging fruit" associated with Clause 98 EEE, the editor asked if there were any objections to scaling timing with bit/LDPC frame timing in line with the announced intention of addressing the basics and making obvious changes. None were noted.

<u>Motion #4:</u> Move 802.3bq support Low Power Idle operation as in the Clause 55 base for EEE, scaling timing as with the 40Gbps bit timing (as per slide 10 of zimmerman_3bq_02_0714.pdf)
M: G. Zimmerman S: T. Souvignier
Technical (> 75%)
Y: 15 N:0 A: 1
MOTION PASSES

"Low hanging fruit" associated with Clause 98.4 PMA was reviewed, and the editor noted that this clause will require modifications associated with references to the PMA/PCS interface as there is no longer a PCS. It was noted that start-up timing is defined independent of bit times, as it doesn't automatically shrink by a factor of 4.

<u>Motion #5:</u> Move adopt clause 55.4 PMA sublayer as 98.4, with license to the editor to implement necessary modifications to replace PCS/PMA interface with FEC/PMA interface (as per slide 11 of zimmerman_3bq_02_0714.pdf)
M: G. Zimmerman S: V. Maguire
Technical (> 75%)
Y: 16 N: 0 A: 1
MOTION PASSES

The significant harvest of "Low hanging fruit" associated with Clause 98.5 PMA electrical characteristics was highlighted as including "a whole lot of little pieces that will need adjustment." Highlights of the associated discussions are noted in the following list.

- Transmitter linearity - Participants reviewed some specific points associated with the scaling the overall transmitter bandwidth and the perceived need to preserve or cover linearity in the low frequency region (below ~150MHz) by adding test tones. At this time, and without specific contributions on the topic, the proposed scaling approach was not identified as a concern and discussion on Tx linearity was closed.
- Transmitter droop - It was noted that the proposed scaling solution (10ns to 2.5ns) would be more appropriate for a 40GBASE-T single-rate PHY, and that the suggested change would also lead to improvements in open circuit inductance.
- Transmitter timing jitter - Scaling timing jitter by 4x was perceived to be somewhat natural given its effect on the PHY. Concerns associated with the associated definition of jitter used in the text ("RMS period jitter") were raised, noting that the specific text of "period jitter" is somewhat ill-defined. The specification "works" since the measurement parameters are well-defined. There was general consensus that a desired direction for the Clause 98 jitter requirement is to make the text consistent with the test.
- Transmitter PSD mask and power level - A scaling proposal brought forth in the PHY proposal ad hoc was used as the basis for the suggested limits of -0.8dBm to +1.2dBm, which preserves the 2dBm ranged defined in Clause 55. Discussion of the advantages of this range noted that the suggest limits technically offer some improvement with respect to alien crosstalk performance; however, this is less important for 40GBASE-T, which is not an alien crosstalk limited system. After reviewing some history associated with the evolution of the requirement in 10GBASE-T, participants agreed to simplify the Tx power level specification to a more straightforward range of -1.0dBm to +1.0 dBm.
- Transmit clock frequency - The editor strongly encouraged that participants closely look at implementation considerations and confirm that clock sources exist that can meet the 50ppm requirement.
- Receiver frequency tolerance - No discussion
- Receiver alien crosstalk noise rejection - Participants discussed whether or not the title of the requirement is aligned with the specification definition and test implementation – perhaps a different characterization, such as exogenous noise (used in ISO), would be more appropriate. Other discussion included whether or not the requirement and test should be included, given that other noise sources may be below the specified noise level. Given that the test is performed on a system that includes noise, it was noted that the requirement may be useful in calibrating the PHY to accommodate system noise levels using a BER curve. At this time, it was determined that including the specification in Clause 98 will drive discussion and contributions on the specification.

<u>Motion #6:</u> Move adopt clause 55.5 PMA electrical specifications as 98.5, including test modes and fixtures as baseline specifications scaling 98.5.2 test mode 4 frequencies by 4X, and output droop times from 10ns to 2.5ns, including modifications to PMA electrical tests, as per slides 12-14 of zimmerman_3bq_02_0714.pdf, with the transmit power on slide 13 modified to be -1.0 to +1.0 dBm.
M: G. Zimmerman S: P. Cibula
Technical (> 75%)

Y: 17 N: 0 A: 1
MOTION PASSES

There was no discussion on “Items to wait until further definition of other clauses” as they depend on the definition of other clauses (Clauses 1, 30, 45, 28, 98.12 PICS).

At 2:49 PM, Mr. Zimmerman re-assumed secretary role.

Title: 40GBASE-T 98.7 Link Segment Specifications (diminico_3bq_1_0714.pdf)
Abstract: This contribution proposes an outline of baseline text, based on Clause 55, for the Link Segment Specifications portion of Clause 98.
Presenter: Chris Diminico, MC Communications/Panduit, Editor for 802.3bq Link Segment Specifications
Discussion: During the discussion a correction was made to slide 4 of the presentation, where the PSANEXT loss to insertion loss ratio section had not been deleted, as had been indicated on slide 3. This resulted in a revision to the presentation, diminico_3bq_1a_0714.pdf.

Motion # 7: Move that the IEEE P802.3bq Task Force adopt proposal in diminico_3bq_01a_0714.pdf slide 4 and note below as baseline text for IEEE P802.3bq as draft standard and give editorial license to implement.

NOTE – ELFEXT in 802.3an is changed to ACRF in 98.7.2.4.4, 98.7.2.4.5, 98.7.2.4.6 and 98.7.3.2.1 to align with TIA and ISO cabling standards definitions.

M: Chris DiMinico S: Alan Flatman
Y:18 N:0 A:1

(Technical >75%)
MOTION PASSES

Title: Cabling Transmission Parameters (larsen_3bq_02_0714.pdf)
Abstract: This contribution summarizes the cabling transmission parameters of IL, RL, PSANEXT, and PSAACRF under development in both ISO and TIA, and starts a conversation aimed at selecting those cabling transmission requirements.
Presenter: Wayne Larsen, Commscope
Discussion: There was some clarifying discussion from the floor

Motion #8: Adopt the equations given in TIA category 8 draft on page 4 of larsen_3bq_02_0714.pdf as the link segment IL requirement.
M: Wayne Larsen S: Theo Brillhart

In discussion it was pointed out that the ISO class I was the most inclusive specification, and the mover (Mr. Larsen) offered the friendly amendment, which was accepted.

Motion #8 (amended): Adopt the equations given in ISO class I on page 4 of larsen_3bq_02_0714.pdf as the link segment IL requirement.

M: **Wayne Larsen** **S: Theo Brillhart**
Y:15 **N:0** **A:3**
Technical (>75%)
MOTION PASSES

Motion #9: Adopt the return loss requirements from ISO class I on page 7 of larsen_3bq_02_0714.pdf, as the link segment return loss requirements.
M: **Wayne Larsen** **S: Alan Flatman**
Y: 18 **N: 0** **A: 1**
Technical (>75%)
MOTION PASSES

Motion #10: Adopt the equations in the ISO and TIA standards for PSANEXT, from 1 MHz to 2000 MHz on page 10 of larsen_3bq_02_0714.pdf (Editor to have license to choose the anchor frequency)
M: **Wayne Larsen** **S: Alan Flatman**
Y: 18 **N: 0** **A: 1**
Technical (>75%)
MOTION PASSES

Motion #11: Adopt the equations in the ISO and TIA standards for PSAACRF, from 1 MHz to 2000 MHz on page 12 of larsen_3bq_02_0714.pdf (Editor to have license to choose the anchor frequency)
M: **Wayne Larsen** **S: Alan Flatman**
Y: 18 **N: 0** **A: 1**
Technical (>75%)
MOTION PASSES

BREAK AT 3:38 UNTIL 4:05 PM

Title: 40G EEE Proposal (graba_3bq_01_0714.pdf)
Abstract: This contribution presents some proposed parameters and modifications to energy efficient Ethernet operation in 40GBASE-T.
Presenter: Jim Graba, Broadcom
Discussion: Several members of the group asked questions of clarification around the proposal for a PHY level disabling of LPI, which the presenter clarified was to be refined so that it could be proposed formally to the group at a later time.

Motion #12: Adopt proposal #1 on page 7 of Graba_3bq_01a_0714.pdf to increase Refresh length from 4 to 6 LDPC frames.
M: **Jim Graba** **S: Will Bliss**
Y: 15 **N: 0** **A: 3**
Technical (>75%)
MOTION PASSES

Motion #13: Adopt proposal #2 on page 7 of Graba_3bq_01a_0714.pdf to decrease length of Sleep from 9 to 6 LDPC frames.
M: Jim Graba S: George Zimmerman
Y: 14 N: 0 A: 4
Technical (>75%)
MOTION PASSES

At 4:34 PM Mr. Cibula assumed secretary role so Mr. Zimmerman could present.

Title: Power Backoff Schedule Proposal (zimmerman_3bq_03_0714.pdf)
Abstract: This contribution proposes a power backoff schedule to mitigate near-far alien far-end crosstalk in 40GBASE-T.
Presenter: George Zimmerman, CME Consulting / Commscope & Aquantia
Discussion: Questions of clarification were asked and answered, and the presenter offered the following two motions:

Motion #14: Adopt PBO schedule on slide 9 of zimmerman_3bq_03_0714.pdf as power backoff schedule, in subclause 98.4.3.1 to replace Table 55-11 as source.
M: George Zimmerman S: Wayne Larsen
Y: 18 N: 0 A: 0
Technical (>75%)
MOTION PASSES

Motion #15: Adopt -154 dBm/Hz as the noise level in clause 98.5.4.4 Alien Crosstalk Noise Rejection.
M: George Zimmerman S: Paul Vanderlaan
Y: 18 N: 0 A: 0
Technical (>75%)
MOTION PASSES

At 5:00 PM Mr. Zimmerman re-assumed the secretary role.

Title: 40GBASE-T PTS AND PSD (souvignier_3bq_01_0714.pdf)
Abstract: This contribution proposes modifications to the periodic training sequence transmit power and power spectral density mask baseline text
Presenter: Tom Souvignier, Broadcom
Co-Author: German Feyh, Broadcom
Discussion: The presenter mentioned that the scaling of the transmit power mask scaling was previously adopted by the group, and moved to offer the following motion modifying the periodic training sequence:

Motion #16: For incorporation into clause 98: Adopt that the subclause 55.3.4 PMA training side-stream scrambler polynomials will be amended by: If the device auto-negotiated to reinitialize the values of its scrambler state every 16384 symbol periods, the device will stop re-initialization at the start of the state: PBO exchange.

M: Tom Souvignier S: George Zimmerman
Y: 18 N: 0 A: 1
Technical (>75%)
MOTION PASSES

THE MEETING RECESSED FOR THE DAY AT 5:21PM

THE MEETING RECONVENED WEDNESDAY JULY 16, 2014 AT 9:05 AM

The chair briefly reviewed the agenda presentation, particularly reviewing the following items:

- Mr. Chalupsky 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. Chalupsky noted that there should be no recording or photography without permission.

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

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

IEEE Patent Policy, at **9:10 AM**, Mr. Chalupsky showed slides 0 through 4 patent policy from agenda_3bq_01_0714.pdf. Mr. Chalupsky showed slide 0 and read aloud slides 1 through 4. Mr. Chalupsky made the call for potentially essential patents at **9:11 AM**, and none responded. Mr. Chalupsky then completed the reading of slide #4.

The Chair reminded that the group had a liaison response pending, which had been previewed the previous day.

The Chair then resumed the agenda of presentations for meeting.

Title: Common-Mode Noise Rejection Specifications and Initial Considerations for 40GBASE-T (cibula_3bq_02_0714.pdf)

Abstract: This contribution reviewed the history and application of the common mode rejection test in BASE-T PHYs, and provided some observations and considerations for its application to 40GBASE-T.

Presenter: Pete Cibula, Intel

Discussion: There were several questions of clarification asked of the presenter, particularly regarding whether conditions for a pass allowed a fast retrain event, and whether there were particular EMI mitigation procedures inherent in the test results presented.

- During discussion it became clear that should fast retrain be maintained in the draft, the test methodology might benefit from text describing how such data interruptions might be logged & counted.
- There was vigorous discussion about testing and requirements on cabling that would better specify the expected levels of common mode and differential mode noise that the PHY might see in EMC tests. Contributions to the PHY ad hoc and the Task Force were solicited.
- Participants noted that there was a substantial body of work from the cabling industry, including specifications for high frequency.

- The editor noted that the section of the draft entitled “Installation and Maintenance guidelines” might be a good place to add references to existing standards providing guidance on maintaining common mode rejection in cabling.
- Mr. Flatman volunteered a presentation summarizing relevant specifications for shielded cabling planning, installation and use.

BREAK AT 10:29 AM AND RECONVENED AT 10:43 AM

Motion #17: Motions 8 and 9 shall be implemented from 1 MHz to 2000 MHz and shall include the frequency range from 1600 MHz to 2000 MHz, without the ffs designation found in the ISO TR.
M: Wayne Larsen S: Alan Flatman
Y: 12 N: 0 A: 1
Technical (>75%)
MOTION PASSES

The Chair then presented the liaison draft to TIA TR42.7 thanking them for the document on high performance structured cabling.
(http://www.ieee802.org/3/bq/public/jul14/draft_liaison_802.3_to_TIA_HPSC.pdf)

Having completed the technical presentations, the Chair then turned to the Editor to discuss progress and next steps.

Title: Editors Summary of Progress (zimmerman_3bq_04_0714.pdf)
Abstract: This contribution provides the editors summary of progress and some next steps.
Presenter: George Zimmerman, CME Consulting/Commscope & Aquantia, Editor for 802.3bq
Discussion: The editor presented progress, there was some discussion of filling out the remaining cabling specifications, any EMC issues and the MDI sections at the September, and possibly the November meetings.

Motion #18: Instruct the editor to prepare P802.3bq D0.9 for preview by the Task Force prior to August 21, 2014
M: Wayne Larsen S: Paul Vanderlaan
Technical (>75%)
Y: 14 N: 0 A: 0
MOTION PASSES

DISCUSSION, MOTIONS & STRAW POLLS

Having concluded the presentations for the meeting, the Chair then moved to discussion, motions and (additional) straw polls.

PROJECT SCHEDULE DISCUSSION

The Chair then turned to a discussion of a proposed project schedule in chalupsky_3bq_01_0714.pdf.

The Chair discussed a proposed project timeline, chalupsky_3bq_01_0714.pdf, and there was some discussion of whether the group would need 2 or 3 cycles for working group ballots.

Motion #19: Adopt the timeline on page 1 of chalupsky_01_0714.pdf, as the IEEE P802.3bq project timeline, with license to the Chair to adjust the end date to align with IEEE SA committee calendars.
M: George Zimmerman
S: Pete Cibula
Technical (>75%)
Y: 14 N: 0 A: 0
MOTION PASSES

Motion #20: Move that the P802.3bq Chair submit the following motion to the IEEE 802.3 Working Group:

- **Move that IEEE 802.3 approve the text in IEEE_802d3_to_TIATR42_0714.pdf with editorial license granted to the Chair (or his appointed agent) as a liaison communication from the IEEE 802.3 Working Group to TIA TR42.**

M: Wayne Larsen
S: George Zimmerman
Y: 13 N: 0 A: 0
Technical (75%)
MOTION PASSES

OTHER ADMINISTRATIVE BUSINESS
The Chair then discussed future meetings and having completed the business of the meeting entertained a motion to adjourn.
Straw Poll on future meetings

I will be attending:

September 8-12, 2014 Interim, Brookstreet Hotel, near Ottawa (Kanata), Canada

Y: 12
N: 1
Maybe: 4

Adjournment
Motion #:21 To adjourn the meeting.
M: Pete Cibula S: Theo Brillhart
MOTION PASSES by voice without opposition
The Meeting was adjourned at 12:00PM, Wednesday, July 16, 2014.

Appendix A: Attendees at the IEEE P802.3bq 40G BASE-T Task Force Meeting, July 15-16, 2014

Total attended:	29		Daily # attended:	28	21
IEEE P802.3bq 40GBASE-T Task Force July 2014				**7/15/2014**	**7/16/2014**
Last Name	**First Name**	**Employer**	**Affiliation**	**TUESDAY**	**WEDNESDAY**
Abughazaleh	Shadi	Hubbell	Hubbell	x	x
Bliss	Will	Broadcom	Broadcom	x	
Brillart	Theo	Fluke Electronics	Fluke Electronics	x	x
Chalupsky	David	Intel	Intel	x	x
Cibula	Pete	Intel	Intel	x	x
DiMinico	Christopher	MC Communications	Panduit	x	
Dinh	Thuyen	Pulse Electronics	Pulse Electronics	x	
Donahue	Curtis	UNH - IOL	UNH - IOL		x
Flatman	Alan	LAN Technologies	LAN Technologies	x	x
Graba	Jim	Broadcom	Broadcom	x	
Hess	Dave	Cord Data	Cord Data	x	x
Jimenez	Andrew	Anixter Inc.	Anixter Inc.	x	x
Kashanan	Kumar	Cadence	Cadence	x	
Klempa	Mike	UNH-IOL	UNH-IOL	x	x
Lackner	Hans	QoSCom Gmbh	QoSCom Gmbh	x	
Larsen	Wayne	Commscope	Commscope	x	x
Lee	Arthur	Mediatek	Mediatek	x	x
Maguire	Valerie	Siemon	Siemon	x	x
Malkemus	James	General Cable	General Cable	x	
Poulsen	Jeffrey	Leviton	Leviton	x	x
Renteria	Victor	Belfuse Inc	Belfuse Inc	x	x
Scheidt	Paul	Altera Corp.	Altera Corp.	x	x
Shariff	Masood	Commscope	Commscope	x	x
Souvignier	Tom	Broadcom	Broadcom	x	x
Vaden	Sterling	Vaden Enterprises	Vaden Enterprises	x	
Vanderlaan	Paul	Berk-Tek LLC	Berk-Tek LLC	x	x
Wagner	Bob	Panduit Corp.	Panduit Corp.	x	x
Wu	Peter	Marvell	Marvell	x	x
Zimmerman	George	CME	Commscope, Aquantia	x	x