

Unapproved Minutes
IEEE P802.3bj 100 Gb/s Backplane and Copper Cable Task Force
Interim Meeting
January 26-27, 2012
Newport Beach, California, USA

Prepared by David Chalupsky

IEEE P802.3bj Interim meeting convened at 8:05am, Thursday, January 26, 2012 by John D'Ambrosia, 802.3bj Chair.

Agenda & General Information

By – John D'Ambrosia

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/agenda_01a_0112.pdf

Chair outlined the agenda for the meeting.

- Introductions – Everyone introduced themselves and stated their affiliation.
- Chair reviewed the agenda.

Motion #1: Motion to approve the agenda

- Moved by Joel Goergen
- Second by Steve Trowbridge
- Approved by voice vote without objection.

Motion #2: Motion to approve the November 2011 minutes.

- Moved by Kent Lusted
- Second by Joel Goergen
- Approved by voice vote without opposition.

Chair continued with his introductory presentation

- Chair asked if there were any reporters in the room. No one responded.
- Chair reminded everyone that photographs or recordings are not allowed without permission.
- Chair gives instructions for recording attendance
- Ground Rules
- IEEE Structure, Bylaws & Rules
 - Chair read the Guidelines for IEEE-SA meetings

IEEE Patent Policy: Chair reads aloud the patent policy text contained in the agenda.

Chair calls for potentially essential patents. No response.

Chair gives overview of the 802.3 Standards Process. Reviews the project objectives and adopted timeline.

Chair announced that the 100GNGOPTX Study Group would be holding an adjacent / co-located interim meeting on Monday morning during the week of the March 2012 802 Plenary meeting intended for joint time between our Task Force and the SG to discuss issues common to both groups.

Chair noted that several presentations have been updated and have been posted to the web site.

Presentation #1

Title – Host Budget Consensus Building

By – Ryan Latchman

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/latchman_01_0112.pdf

Discussion – None. Chair thanked the presenter for leading consensus building activity.

Presentation #2

Title – IEEE 802.3bj Test Points and Parameters 100 Gb/s Copper Cable

By – Chris Di Minico

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/diminico_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Discussion of host trace loss/inch; BGA field affects, allocation of budget. Connector via included, but speaker noted that host device (BGA) via not budgeted. Request for bulk cable loss figure for 7m cable using NRZ: 6.3dB **ACTION ITEM: Provide updated presentation**

Presentation #3

Title – Discussion Regarding insertion Loss Variation

By – Joe Beers

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/beers_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. **ACTION ITEM: Add credit reference to page 3 (content from Kochuparambil) and provide updated presentation.** Noted that Cu roughness may vary between suppliers and in different geographies. Request to provide higher frequency characterization for temperature and moisture effects.

Break 10:00 to 10:15am

Presentation #4

Title – Proposal for Defining Material Loss

By – Elizabeth Kochuparambil

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/kochuparambil_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Request to provide the loss/inch information for additional materials. Adeel Ran requests to be listed as a supporter. Request to investigate tool for return loss variation as well.

Presentation #5

Title – PAM-N Tutorial Material

By – Ilya Lyubomirsky

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/cole_02a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Request to run simulations with submitted channel models & report bit/ baud/dimension for the different modulation schemes.

Presentation #6

Title – Design Process and Technical Thoughts on a Two Channel PHY Approach

By – Joel Goergen

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/goergen_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Break for lunch at 12:22 resume at 1:35.

Presentation #7

Title – Baseline Proposal for 100G Backplane Specification Using PAM-2

By – Mike Dudek

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/dudek_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Request to provide graph for insertion loss (in addition to the equation); **ACTION ITEM: presenter to send IL plot to the reflector prior to baseline adoption motion DONE**. Suggestion to look at other parameters (in addition to IL) for use with FEC.

Presentation #8

Title – Line Signaling Performance Comparison on Emerson Channel

By – Troy Beukema

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/meghelli_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Presentation #9

Title – Approach for Supporting Legacy Channels Per IEEE 802.3bj Objective

By – Jitendra Mohan

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/mohan_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Presentation #10

Title – 100G backplane PAM4 PHY encoding

By – Matt Brown

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/brown_01a_0112.pdf

Discussion – Speaker noted that updated presentation has been sent to the Chair. (Discussion deferred until after the 3:43pm break.) Clarifying questions were discussed regarding the material.

Break at 3:43 to 4:05

Presentation #11

Title – PAM4 digital receiver performance and feasibility

By – Vasu Parthasarathy

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/parthasarathy_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Presentation #12

Title – MLSD/DFE Based Transceivers with a Partially Terminated Trellis

By – Dariush Dabiri

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/dabiri_01b_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. **ACTION ITEM: Request to add label to X axis of graphs (dB of what?).**

Presentation #13

Title – Analog Receiver Performance Comparison of PAM-4 and PAM-2

By – Adee Ran

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/ran_01b_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. ACTION ITEM – send updated presentation **DONE**; ACTION ITEM: correlate results with NRZ contributors to close the gaps.

Presentation #14

Title – 100G Signaling Options over Backplane Classes

By – Hiroshi Takatori

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/takatori_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Presentation #15

Title – Two Markets, Two Channels, Two PHYs

By – Howard Frazier

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/frazier_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. ACTION ITEM: send updated slides as presented.

Presentation #16

Title – System Vendors: Thoughts on Two PHY Approach

By – Mark Nowell

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/nowell_01b_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. ACTION ITEM: send updated slides as presented.

Presentation #17

Title – 100Gb/s Backplane/PCB Ethernet Two Channel Model and Two PHY Proposal

By – Rich Mellitz

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/mellitz_01b_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Break for the day at 8:03pm

Friday, January 27, 2012

802.3bj interim meeting reconvened at 8:05am by John D'Ambrosia, IEEE P802.3bj Chair.

Agenda & General Information

By – John D'Ambrosia

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/agenda_01a_0112.pdf

- Chair reviews attendance recording procedures and agenda for the day.
- Chair asked if there were any reporters in the room. Pavel Zivny informed that he may be writing an article on test & measurement needs for 802.3bj interfaces. Chair advises that contents should report meeting outcome rather than blow-by-blow description of the discussion and should be published after the meeting minutes are posted publicly.
- Chair reviews attendance procedures, IEEE bylaws and rules links.
- **IEEE Patent Policy**: Chair displayed the patent policy text contained in the agenda. Chair calls for potentially essential patents. No one responded.

- Chair continues with Other Guidelines for IEEE WG Meetings

Presentation #18

Title – FEC Options

By – Mark Gustlin

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/gustlin_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Presentation #19

Title – MTTFPA Estimation for 100 Gb/s Backplane and Copper Cable

By – Roy Cideciyan

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/cideciyan_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Some disagreement on conclusions – Chair invites participants to work offline to build consensus and present results and next meeting.

Presentation #20

Title – Proposal for 802.3bj Auto-Negotiation

By – Arthur Marris

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/marris_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Discussion on relevance on autonegotiation to optics. Chair suggests this as a topic for joint 802.3bj/NG100GOPTXSG forums, as 802.3bj cannot make decisions for the optics SG.

Presentation #21

Title – Power Considerations for 100GBASE-KR4 PHY

By – Oren Sela

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/sela_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. **ACTION ITEM – Send updated slides as presented.**

Break at 10:23 resume at 10:40am

Presentation #22

Title – EEE Support for 100 Gb/s

By – Mark Gustlin

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/gustlin_02_0112.pdf

Discussion – Clarifying questions were discussed regarding the material.

Presentation #23

Title – Rapid Alignment Marker Performance

By – Pete Anslow

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/anslow_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. **ACTION ITEM – send updated presentation with presenter's name included.**

Presentation #24

Title – Options for EEE in 100G

By – Hugh Barrass

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/barrass_01a_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. **ACTION ITEM – send updated presentation with typo corrected.**

Break for lunch at 12:54, resume at 1:15pm

Presentation #25

Title – Signal Integrity specs: Proposal for baseline

By – Charles Moore

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/moore_01b_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. **ACTION ITEM – send updated slides as presented.** Chair encourages further offline work to build consensus.

Presentation #26

Title – Test Points and Fixtures for 802.3bj backplane

By – Pavel Zivny

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/zivny_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Further offline work on consensus building encouraged.

Presentation #27

Title – Editor's report

By – Adam Healey

See – http://grouper.ieee.org/groups/802/3/bj/public/jan12/healey_01_0112.pdf

Discussion – Clarifying questions were discussed regarding the material. Chair informed the group that D1.0 will start Task Force review.

Presentations concluded at 2:25pm.

Chair asks if there is any objection to him taking a photo of the group. No objection.

Proceed to discussion and motions.

Motion #3:

- Motion to support use of Algebraic Tool (found in <http://www.ieee802.org/3/bj/public/tools.html>) and material loss parameters (proposed in kochuparambil_01a_0112) for channel consensus building.
 - Moved by Beth Kochuparambil
 - Second: Howard Frazier
 - Technical ($\geq 75\%$)
- Yes: 48
- No: 14
- Abstain: 21

Motion Passes

Break at 2:54pm, resume 3:10pm.

Motion #4:

Move to adopt the baseline proposal described in slides 4-11 "diminico_01a_0112" for the first draft of 802.3bj. All table values are TBD.

- M: Chris DiMinico
- S: Mike Dudek
- Technical $\geq 75\%$
- Yes: 75 No: 0 Abstain: 10

Chair clarified with the mover that the "first draft" referred to in the motion is not D1.0.

Straw Poll #1:

I support the adoption of FEC for 100GBASE-CR4

Option 1: Optional

Yes: 49 No: 6

Option 2: Mandatory

Yes: 24 No: 21

Motion #5:

Replace the current backplane reach objective:

Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on "improved FR-4" (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.

With:

Define a 4-lane 100 Gb/s PHY for operation over backplane channels with an insertion loss of ≤ 33 dB at 7 GHz

Define a 4-lane 100 Gb/s PHY for operation over backplane channels with an insertion loss of ≤ 35 dB at 12.9 GHz

- M: Howard Frazier
- S: Rich Mellitz
- Technical $\geq 75\%$
- Yes: 44 No: 15 Abstain: 32
- Motion fails.

Motion #6:

Move to adopt dudek_01a_0112 as the baseline for a 100GbE backplane PHY (100GBASE-KR4)

- M: Mike Dudek
- S: Pravin Patel
- Technical $\geq 75\%$
- Yes: 25 No: 34 Abstain: 29
- Motion fails
- (Note that Motion #7 was made during discussion on #6. After #7 failed, vote on #6 occurred.)

Motion #7:

Motion to amend Motion #6: Move to adopt dudek_01a_0112 and brown_01a_0112 as the baseline for a dual mode 100GbE backplane PHY (100GBASE-KR4)

- M: Hugh Barrass
- S: Dan Dove
- Technical $\geq 75\%$
- Yes: 23 No: 42 Abstain: 20
- Motion fails

Motion #8:

Replace the current backplane reach objective:

Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on “improved FR-4” (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.

With:

Define a 4-lane 100 Gb/s PHY for operation over backplane channels with an insertion loss of ≤ 35 dB at 12.9 GHz

- M: Oren Sela
- S: Yonatan Malkiman
- Technical $\geq 75\%$
- Yes: No: Abstain:

No vote taken: Motion #9 is made during discussion on Motion #8. After Motion #9 is tabled, Motion #8 is withdrawn by Mover without objection.

Motion #9:

Move to amend motion #8:

Replace the current backplane reach objective:

Define a 4-lane 100 Gb/s backplane PHY for operation over links consistent with copper traces on “improved FR-4” (as defined by IEEE P802.3ap or better materials to be defined by the Task Force) with lengths up to at least 1m.

With:

Define a 4-lane 100 Gb/s PHY for operation over backplane channels with an insertion loss of ≤ 33 dB at 7 GHz

- M: Rich Mellitz
- S: Hugh Barrass
- Technical $\geq 75\%$
- Yes: No: Abstain:

No vote taken: Motion #10 is made during discussion on Motion #9.

Motion #10:

Motion to table motion #9

- M: Geoff Thompson
- S: Charles Moore
- Procedural $> 50\%$
- Yes: 23 No: 20
- Motion passes

Chair clarifies events for the audience: After Motion #10 tables #9, #8 is withdrawn and thus #9 becomes moot.

Chair reviews future meeting schedule.

Future Attendance Straw Polls

March 2012 Plenary

I ____ be attending

A) will be - 52

B) may be - 14

C) will not be - 6

May 2012 Interim
 I ___ be attending
 A) will be - 46
 B) may be - 15
 C) will not be - 3

Motion to adjourn by David Ofelt, second by Mike Dudek. Approved by voice without opposition
 Meeting adjourned at 5:00pm

Action Items:

Volunteer	Action	Date Assigned	Status
New Action Items, November 2011			
John D'Ambrosia	Reach out to test & measurement vendors for contributions on measurement techniques	11/7/2011	Done
John D'Ambrosia	Post updated version of dambrosia_02_1111.pdf	11/8/2011	Done
Mounir Meghelli	Provide update/correction to PAM 4 crosstalk in beukema_01_1111.pdf.	11/9/2011	pending
Mounir Meghelli	Post channel data used in beukema_01_1111.pdf	11/9/2011	pending
Roy Cideciyan	Send updated version of cediciyan_01a_1111.pdf	11/9/2011	Done Jan'12
Beth Kochuparambil	Provide updated tool with surface roughness, provide recommendation for benchmark loss/unit length metric based upon the adopted definition of improved FR-4; hold conference call	11/10/2011	DONE
New Action Items January 2012		Date Assigned	Status
Chris Di Minico	Provide updated slides as presented	1/26/2012	Done
Joe Beers	Add credit reference to page 3 (content from Kochuparambil) and provide updated presentation	1/26/2012	Done
Mike Dudek	Provide graph for insertion loss (in addition to the equation) for dudek_01 prior to motion for baseline adoption.	1/26/2012	Done- sent CEI-25G-LR IL plot
Dariusz Dabiri	Add labels to x axis of graphs (dB of what?) and send updated file.	1/26/2012	Done
Adee Ran	Provide updated slides as presented	1/26/2012	Done
Adee Ran	Correlate results with Patel/IBM reference, work with NRZ contributors to close the gaps.	1/26/2012	
Howard Frazier	Provide updated slides as presented	1/26/2012	Done
Mark Nowell	Provide updated slides as presented	1/26/2012	Done
Oren Sela	Provide updated slides as presented	1/27/2012	Done
Pete Anslow	Send updated slides with your name included	1/27/2012	Done
Hugh Barrass	Send updated slides with typo corrected	1/27/2012	Done
Charles Moore	Provide updated slides as presented	1/27/2012	Done

Attendee List

IEEE 802.3bj 100Gb/s Cu & BP TF, January 2012 Interim			1/26/2012	1/27/2012
Last Name	First Name	Affiliation	Thursday	Friday
Abbas	Ghani	Ericsson, UK	x	x
Ambrose	Tom	Emulex	x	x
Amleshi	Peerouz	Molex	x	
Anderson	Jon	Opnext	x	
Anslow	Pete	Ciena Corporation	x	x
Balasubramonian	Venugopal	Cortina Systems	x	
Baldwin	Thananya	Ixia	x	
Barnett	Barry	IBM	x	x
Barrass	Hugh	Cisco	x	x
Bates	Stephen	PMC Sierra	x	x
Beers	Joseph	Gold Circuit Electric	x	
Ben-Artsi	Liav	Marvell	x	x
Bennett	Mike	LBNL	x	x
Beukema	Troy	IBM	x	
Bhoja	Sudeep	Broadcom	x	
Bliss	Will	Broadcom	x	
Bolig	Matt	Netlogic Microsystems	x	
Brown	Matt	Applied Micro	x	
Bugg	Mark	Molex	x	x
Carroll	Martin	Verizon	x	
Chalupsky	David	Intel	x	x
Chang	Frank	Vitesse		x
Chang	Jacky	HP	x	x
Chen	Henry	Broadcom	x	x
Cheng	Wheling	Juniper Networks	x	x
Chou	Joseph	Realtek	x	x
Choudhury	G. Mabud	Commscope	x	
Cideciyan	Roy	IBM	x	x
Cole	Chris	Finisar	x	
Dabiri	Dariusz	Applied Micro	x	
D'Ambrosia	John	Dell	x	x
Dawe	Piers	IPtronics	x	x
DiMinico	Christopher	MC Communications/Leoni	x	x
Dove	Dan	HP		x
Dudek	Mike	QLogic	x	x
Ewen	John	IBM	x	x
Farhoodfar	Arash	Cortina Systems	x	x
Flatman	Alan	LAN Technologies	x	x
Ganga	Ilango	Intel	x	x
Ghiasi	Ali	Broadcom	x	x
Goergen	Joel	Cisco	x	
Gundubogula	Sudhakar	Marvell	x	x

IEEE 802.3bj 100Gb/s Cu & BP TF, January 2012 Interim			1/26/2012	1/27/2012
Last Name	First Name	Affiliation	Thursday	Friday
Gustlin	Mark	Xilinx	x	x
Hajduczenia	Marek	ZTE		x
Hamano	Hiroshi	Fujitsu Labs	x	x
Hatab	Ziad	Vitesse	x	x
Haverndann	Gert	Harting Electronics	x	x
Healey	Adam	LSI	x	x
Heath	Jeff	Linear Technology	x	x
Hidaka	Yasuo	Fujitsu Lab of America	x	x
Huang	Xi	Huawei	x	x
Irwin	Scott	MoSys Inc.	x	x
Ishida	Osamu	NTT	x	x
Isono	Hideki	Fujitsu Optical Components	x	x
Jiang	Hongtao	Broadcom	x	x
Kamali	Jalil	Xilinx	x	
Katz	Walter	Signal Integrity Software		x
Kipp	Scott	Brocade	x	
Kochuparambil	Elizabeth	Cisco Systems	x	x
Kono	Masashi	Hitachi	x	x
Langhammer	Martin	Altera	x	x
Latchman	Ryan	Mindspeed		x
Law	David	HP	x	x
Lawson	Matthew Todd	Cisco	x	x
LeCheminant	Greg	Agilent Technologies	x	x
Li	Mike	Altera	x	x
Lusted	Kent	Intel	x	x
Lyubomirsky	Ilya	Finisar	x	x
Maguire	Valerie	Siemon, TIA	x	x
Maki	Jeffery	Juniper Networks	x	x
Malkin	Moshe	PLX	x	x
Malkiman	Yonatan	Mellanox	x	x
Mallette	Edwin	Bright House Networks		x
Marris	Arthur	Cadence	x	x
McClellan	Brett	Marvell	x	x
McDonough	John	NEC America	x	x
Meghelli	Mounir	IBM	x	x
Meier	Wolfgang	Emerson Network Power EC	x	x
Mellitz	Richard	Intel	x	x
Misek	Brian	Avago Technologies	x	x
Moeller	Merrick	Amphenol	x	x
Mohan	Jitendra	National Semi	x	
Moore	Charles	Avago Technologies	x	x
Moorwood	Andy	Infinera Corp	x	x
Nagapudi	Venkatesh	Applied Micro	x	x

IEEE 802.3bj 100Gb/s Cu & BP TF, January 2012 Interim			1/26/2012	1/27/2012
Last Name	First Name	Affiliation	Thursday	Friday
Nicholl	Gary	Cisco	x	
Nolan	John	Qlogic	x	x
Nowell	Mark	Cisco	x	
Ofelt	David	Juniper Networks	x	x
Pakravan	Farhad	Huawei	x	x
Palkert	Tom	Xilinx, Luxtera, Molex	x	x
Parthasarathy	Vasudevan	Broadcom	x	
Patel	Pravin	IBM	x	x
Pepper	Gerald	Ixia	x	
Petrilla	John	Avago Technologies	x	
Pillar	Velu	Broadcom	x	x
Pivonka	Ed	Ideal	x	
Rabinovich	Rick	Alcatel-Lucent	x	x
Ran	Adee	Intel	x	x
Reches	Erez	Marvell	x	x
Ressler	Michael	Hitachi Cable America	x	x
Riani	Jamal	Marvell	x	
Rowe	David	Analog Devices Inc.	x	x
Salunke	Vineet	Cisco Systems	x	
Sambasivan	Sam	AT&T	x	
Sela	Oren	Mellanox	x	x
Seth	Siddharth	Inphi	x	
Shanbhag	Megha	TE Connectivity	x	x
Shang	Song	Semtech	x	
Shariff	Masood	Commscope	x	
Sommers	Scott	Molex	x	x
Sparrowhawk	Bryan	Leviton	x	
Sprague	Ted	Infinera	x	x
St. Peter	Matthew	Radisys	x	x
Stassar	Peter	Huawei	x	x
Stevens	Daniel	Fujitsu Semiconductor	x	x
Suzuki	Ken-Ichi	NTT		x
Szczepanek	Andre	Inphi	x	x
Takatori	Hiroshi	Futurewei	x	x
Tawa	Katsuhisa	Sumitomo	x	x
Thompson	Geoff	GraCaSI	x	x
Tracy	Nathan	Tyco Electronics	x	x
Trowbridge	Steve	Alcatel-Lucent	x	x
Vaden	Sterling	Optical Cable Corp.		x
Valliappan	Magesh	Broadcom	x	x
Vanderlaan	Paul	Nexans	x	x
Wang	Zhongfeng	Broadcom	x	
Wang	Xiaofeng	PMC Sierra	x	x

IEEE 802.3bj 100Gb/s Cu & BP TF, January 2012 Interim			1/26/2012	1/27/2012
Last Name	First Name	Affiliation	Thursday	Friday
Warren	David	HP	x	x
Way	Winston	Neophotonics	x	x
Wong	CK	FCI USA LLC	x	x
Woodruff	Bill	Aquantia	x	
Wu	Wendy	Netlogic	x	
Yan	Hang	Huawei Technology	x	x
Zimmerman	George	CME Consulting	x	
Zivny	Pavel	Tektronix	x	x