

Approved Minutes  
**IEEE P802.3bs 400 GbE Task Force**  
Plenary Meeting  
November 9 - 12, 2015  
Dallas, TX, USA

**Table of Contents**

Table of Contents.....	1
IEEE P802.3bs Task Force Meeting – November 9, 2015:.....	2
IEEE P802.3bs Task Force – November 10, 2015:.....	5
IEEE P802.3bs Logic Track Meeting – .....	5
IEEE P802.3bs Optics Track Meeting - .....	6
IEEE P802.3bs Electrical Interface Track -.....	6
IEEE P802.3bs Task Force – November 11, 2015:.....	8
IEEE P802.3bs Logic Track Meeting – .....	8
IEEE P802.3bs Optics Track Meeting - .....	8
IEEE P802.3bs Electrical Interface Track -.....	8
IEEE P802.3bs Task Force Meeting -.....	9
IEEE P802.3bs Task Force Meeting – November 12, 2015:.....	10

## **IEEE P802.3bs Task Force Meeting – November 9, 2015:**

*Prepared by John D'Ambrosia*

IEEE P802.3bs 400 Gb/s Task Force plenary meeting convened at 1:20pm, Monday, November 9, 2015, by John D'Ambrosia, IEEE P802.3bs Task Force Chair. Introductions were made.

Agenda & General Information

By – John D'Ambrosia

See -- [http://www.ieee802.org/3/bs/public/15\\_09/agenda\\_3bs\\_01c\\_0915.pdf](http://www.ieee802.org/3/bs/public/15_09/agenda_3bs_01c_0915.pdf)

Chair reviewed the agenda.

### **Motion #1:**

Move to approve the agenda

- Moved by: Steve Trowbridge
- Second by: Thananya Baldwin
- Pass by voice without opposition

Chair noted that photography and recording not allowed without permission.

Chair called for members of the press or individuals reporting publically on the meeting to identify themselves. No one responded.

Chair continued with the introductory presentation.

Chair reminded attendees to observe decorum rules.

Chair reminded attendees to sign the book and sign into the IEEE Attendance tool.

Goals:

- Respond to 261 Comments against D1.0
- 12 Technical Presentations
- Respond to OIF "Flex-E" Liaison
- Approve generation of D1.1

Chair displayed the reflector and web page information.

Chair noted that the draft, and any other content, is posted for Task Force review only, and neither the content nor access information should be copied or redistributed to others in violation of document copyrights.

Chair displays the Bylaws and Rules slides.

**IEEE Patent Policy:** Chair reviewed the Patent related slides on the 5 slides contained in the agenda. Chair calls for potentially essential patents. No one responded. Chair read the Guidelines for IEEE-SA meetings. No one responded.

**Chair advised the WG attendees that:**

- The IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
- Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
- There may be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.

The chair noted that the Sept 2015 Interim meeting minutes were posted after the meeting. No comments were received against the posted minutes.

**Motion #2:**

Move to approve the IEEE P802.3bs Sept 2015 Interim meeting minutes

- Moved by: Mark Gustlin
- Second by: Thananya Baldwin
- Pass by voice without opposition

Chair reviewed the ground rules.

Chair reviewed the IEEE 802.3 Standards process.

Chair reviewed the liaisons and communications. The 802.3 WG Chair had assigned a liaison from the OIF regarding Flex-Ethernet for 100GbE and 400GbE, to the 802.3bs Task Force to respond. The 802.3bs Chair noted that he had asked Steve Trowbridge to work on a presentation on initial thoughts regarding this issue. The chair assigned the generation of a proposed response to Mark Gustlin and the Logic Track, which will hear the presentation and work on the proposed response right after lunch on Tuesday.

Chair reviewed the plans for the week. It was noted that the Task Force would be breaking out into three tracks – logic, optics, and electrical interface.

**Presentation #1:**

Title: Chief Editor's Report

By: Pete Anslow

See [http://www.ieee802.org/3/bs/public/15\\_09/anslow\\_3bs\\_01\\_0915.pdf](http://www.ieee802.org/3/bs/public/15_09/anslow_3bs_01_0915.pdf)

It was noted that the track chairs would provide closing reports on Thursday morning. Any participants with any issues regarding decisions made during the track meetings, should bring these issues to the attention of the Task Force at the Thursday morning meeting.

Task Force comment review began.

Meeting Break – 3:04pm  
Meeting Reconvened – 3:20pm

Task Force Comment resolution continued

**Presentation #2:**

Title: TX Differential Precoder Simulation Results & Proposal for CDAUI-8 C2C

By: Raj Hegde

See [http://www.ieee802.org/3/bs/public/15\\_11/hegde\\_3bs\\_01a\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/hegde_3bs_01a_1115.pdf)

**Presentation #3:**

Title: Pre-FEC Signaling

By: Jeff Maki

See [http://www.ieee802.org/3/bs/public/15\\_11/maki\\_3bs\\_01a\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/maki_3bs_01a_1115.pdf)

Meeting break for night 5:03pm

## **IEEE P802.3bs Task Force – November 10, 2015:**

*Prepared by John D'Ambrosia*

### **IEEE P802.3bs Logic Track Meeting –**

*Prepared by Mark Gustlin*

Meeting called to order at 9:30am, chaired by Mark Gustlin.

Patent slides were shown, and call for patents made. No one stepped forward.

Comment resolution began.

### **Presentation #1 Logic (in support of Comment #28)**

Title: PCS Lane Forming

By: Mark Gustlin

See [http://www.ieee802.org/3/bs/public/15\\_11/gustlin\\_3bs\\_03\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/gustlin_3bs_03_1115.pdf)

Marked up Frame file -

[http://www.ieee802.org/3/bs/public/15\\_11/gustlin\\_3bs\\_02\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/gustlin_3bs_02_1115.pdf)

Meeting break at 10:13am

Reconvene at 10:21am

Comment resolution continued

Meeting break for lunch at 11:30am

Reconvene at 1pm

### **Presentation #2 Logic (in support of OIF FlexE Liaison)**

Title: OIF Flex Ethernet Liaison Statement Proposed Actions

By: Steve Trowbridge

See [http://www.ieee802.org/3/bs/public/15\\_11/trowbridge\\_3bs\\_01\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/trowbridge_3bs_01_1115.pdf)

Proposed liaison response (including feedback)

[http://www.ieee802.org/3/bs/public/15\\_11/trowbridge\\_3bs\\_02\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/trowbridge_3bs_02_1115.pdf)

Comment resolution continued

Break for day at 3pm

Items of note –

- Closed comment #28 (PCS lane forming) with a correction to the equation that was in gustlin\_3b3\_02\_1115.
- FEC bypass indication will come back, Jeff Slavick will work on slides for this.
- Comment #236 is closed but resolution could change depending on comment #45. #45 could also impact comment 56.

## **IEEE P802.3bs Optics Track Meeting -**

*Prepared by Pete Anslow*

Meeting called to order at 9:15am, chaired by Pete Anslow.

Chair asked if anyone was not familiar with the IEEE patent policy. There was no response.

Comment resolution started.

Break at 10:17 a.m. Resume at 10:40 a.m.

Comment resolution continued.

### **Presentation #1 Optics:**

Title: 400G-DR TBDs

By: Tom Palkert

See [http://www.ieee802.org/3/bs/public/15\\_11/palkert\\_3bs\\_01\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/palkert_3bs_01_1115.pdf)

Break for lunch at 11:52 a.m.

Resume at 1:21 p.m.

### **Presentation #2 Optics:**

Title: Development of an oscilloscope based TDP metric

By: Greg LeCheminant

See [http://www.ieee802.org/3/bs/public/15\\_11/lecheminant\\_3bs\\_01a\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/lecheminant_3bs_01a_1115.pdf)

Comment resolution continued.

Break at 2:58 p.m.

Resume at 3:24 p.m.

### **Presentation #3 Optics:**

Title: Considerations and discussion around an optimized link budget for 400GBASE-DR4

By: Gary Nicholl

See [http://www.ieee802.org/3/bs/public/15\\_11/traverso\\_3bs\\_01a\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/traverso_3bs_01a_1115.pdf)

Comment resolution continued.

Break for day at 4:50 p.m.

## **IEEE P802.3bs Electrical Interface Track -**

*Prepared by Andre Szczepanek*

Meeting convened at 8:05 a.m., chaired by Andre Szczepanek

Chair asked if anyone was not familiar with the IEEE patent policy. There was no response.

Comment resolution started.

**Presentation #1 Electrical:**

Title: Comment 45: CDAUI-8 chip-to-chip transmitter output jitter requirements

By: Adam Healey

See [http://www.ieee802.org/3/bs/public/15\\_11/healey\\_3bs\\_03\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/healey_3bs_03_1115.pdf)

Break at 10:10 a.m.

Resume at 10:30 a.m.

Comment resolution continued.

Break for lunch at 11:55 a.m.

Resume at 1:15 p.m.

Comment resolution continued.

Break at 3:10 p.m.

Resume at 3:30 p.m.

**Presentation #2 Electrical:**

Title: Comment 53: Channel Operating Margin (COM) for CDAUI-8 chip-to-chip interfaces

By: Adam Healey

See [http://www.ieee802.org/3/bs/public/15\\_11/healey\\_3bs\\_02\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/healey_3bs_02_1115.pdf)

Comment resolution continued.

**Presentation #3 Electrical:**

Title: C2M CDAUI-8: considerations and proposals on P802.3bs 400 Gb/s Ethernet draft

By: Marco Mazzini (presented by Upen Reddy Kareti)

See [http://www.ieee802.org/3/bs/public/15\\_11/mazzini\\_3bs\\_01\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/mazzini_3bs_01_1115.pdf)

Comment resolution continued.

Break for day at 5:45 p.m.

## **IEEE P802.3bs Task Force – November 11, 2015:**

*Prepared by John D'Ambrosia*

### **IEEE P802.3bs Logic Track Meeting –**

*Prepared by Mark Gustlin*

Started at 10am, chaired by Mark Gustlin

Patent slides were shown, and call for patents was made, no one stepped forward.

Time spend in open discussion regarding large open TBDs in the draft.

Adjourned at 11:20

### **IEEE P802.3bs Optics Track Meeting -**

*Prepared by Pete Anslow*

Meeting convened at 9:10 a.m., chaired by Pete Anslow

Chair asked if anyone was not familiar with the IEEE patent policy. There was no response.

Comment resolution continued.

Break at 10:15 a.m.

Resume at 10:23 a.m.

11:08 a.m. comment resolution completed.

General discussion on TDP/TDEC

Break for lunch at 11:50 a.m.

Resume at 1:25 p.m.

General discussion on TDP/TDEC continued

Break for day at 2:45 p.m.

### **IEEE P802.3bs Electrical Interface Track -**

*Prepared by Andre Szczepanek*

Meeting convened at 9:00 a.m., Andre Szczepanek.

Chair asked if anyone was not familiar with the IEEE patent policy. There was no response.

Comment resolution continued.

Break at 10:20 a.m.

Resume at 10:40 a.m.



Comment resolution completed

11:45 a.m. meeting broke.

**IEEE P802.3bs Task Force Meeting -**

*Prepared by John D'Ambrosia*

Chaired by Pete Anslow

Meeting convened at – 3:30pm

Comment Resolution on comments targeting Clause 45.

Mr. Anslow indicated he would create an interim “closed items” report and upload tonight for people to review for tomorrow’s meeting.

Mr. Anslow noted that there are some comments from separate tracks need to be reviewed by the Task Force for consistency.

Meeting broke for day at 4:25pm.

## **IEEE P802.3bs Task Force Meeting – November 12, 2015:**

*Prepared by John D'Ambrosia*

Meeting reconvened at 8:35

Patent slides shown.

Chair did call for patents, no one stepped forward.

### **Presentation #4:**

Title: Logic Track Closing Report

By: Mark Gustlin

See [http://www.ieee802.org/3/bs/public/15\\_11/gustlin\\_3bs\\_04\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/gustlin_3bs_04_1115.pdf)

Work on Clause 118 for CDMII Extender and CDXS will be focused after filling out TBDs in Clause 119

### **Presentation #5:**

Title: Electrical Interface Track Closing Report

By: Andre Szczepanek

See [http://www.ieee802.org/3/bs/public/15\\_11/szczepanek\\_3bs\\_02\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/szczepanek_3bs_02_1115.pdf)

Improved COM tool is being worked on

Action Item – Chair to work with Adam Healey to find a central location to store respective code for improved COM tool.

### **Presentation #6:**

Title: Optical Track Closing Report

By: Pete Anslow

See [http://www.ieee802.org/3/bs/public/15\\_11/anslow\\_3bs\\_03\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/anslow_3bs_03_1115.pdf)

Chief Editor indicated that he would proceed in the following manner during the continuation of the comment review

- close the remaining comments identified as common in anslow\_3bs\_01\_1115 that were not closed yet
- Review comments from issues observed by chief editor between the different track responses
- Ask individuals if there are any comments from the tracks that they may have been unable to attend that they would like reviewed.
- Ask individuals if there are any comments from the “bucket” list that they would like reviewed

Comment review continued.

Meeting broke @ 10:08am

Meeting reconvened @ 10:26am

Chief editor asked if there were any other comments that individuals wanted reviewed. Piers Dawe requested that Comments #219, #221, and #234 be reviewed.

Chief editor asked if there were any comments on the bucket list, that people wanted to discuss the comments. No one responded.

### **Motion #3**

- Move to:
  - Adopt remaining proposed responses to “bucket” comments detailed on Slide 14 of anslow\_3bs\_01\_1115.pdf
  - Generate Draft 1.1 for Task Force review from Draft 1.0 and closed comments
  - M: Pete Anslow
  - S: Andre Szczepanek
  - Technical ( $\geq 75\%$ )
  - Results: Approved by voice vote without objection.

### **Presentation #7:**

Title: Proposed response to OIF Liaison FlexE

By: Steve Trowbridge

See [http://www.ieee802.org/3/bs/public/15\\_11/trowbridge\\_3bs\\_02\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/trowbridge_3bs_02_1115.pdf)

### **Motion #4**

- Move that the IEEE P802.3bs 400 GbE Task Force approve the text in trowbridge\_3bs\_02\_1115.pdf with editorial license granted to the IEEE 802.3 WG Chair (or his appointed agent) as a liaison to OIF.
- M: Steve Trowbridge
- S: Mark Gustlin
- Technical ( $\geq 75\%$ )
- Result: Approved by voice vote without objection

Attendance polls:

- I will attend the IEEE 400 Gb/s meetings at the January Interim in Atlanta, GA, USA (week of Jan 18, 2016)
  - Y: 47 Maybe: 10 N: 6
- I will attend the IEEE 400 Gb/s meetings at the March Plenary in Macau, China (week of Mar 18, 2016)
  - Y: 36 Maybe: 19 N: 7

### **Presentation #8:**

Title: Chief Editor's Closing Report

By: Pete Anslow

See [http://www.ieee802.org/3/bs/public/15\\_11/anslow\\_3bs\\_04\\_1115.pdf](http://www.ieee802.org/3/bs/public/15_11/anslow_3bs_04_1115.pdf)

Chair discussed next meetings.

- See: <http://www.ieee802.org/3/interims/index.html>
- Jan 2016 Interim
  - Week of Jan 18
  - Atlanta, GA, USA
- Mar 2016 Plenary
  - Week of Mar 18
  - Macau China
- May 2016 Interim
  - Week of May 23
  - Location TBA
- July 2016 Plenary
  - Week of July 24
  - Location San Diego, CA, USA
- Sept 2016 Interim
  - Week of Sept 12
  - Location TBA
- Nov 2016 Plenary
  - Week of Nov 6
  - San Antonio, TX, USA

Chair asked ad hoc chairs to announce all calls next week, and that the meeting details would then be added to the ad hoc webpage.

**Motion #5**

Motion to adjourn

Moved by Steve Trowbridge

Second by Mark Gustlin

Motion approved by voice vote without opposition.

Meeting adjourned 11:20am.

## Attendees

IEEE P802.3bs 400GbE Task Force			11/9/2015	11/10/2015	11/11/2015	11/12/2015
Last Name	First Name	Employer / Affiliation	Monday	Tuesday	Wednesday	Thursday
Abbott	Justin	Semtech	x	x		
Andrewartha	Mike	Microsoft	x	x	x	x
Anslow	Pete	Ciena Corporation	x	x	x	x
Baden	Eric	Broadcom	x	x	x	x
Baldwin	Thananya	Ixia	x	x	x	
Bennett	Mike	3MG Consulting	x	x		x
Bhatt	Vipul	Inphi		x		x
Booth	Brad	Microsoft	x		x	
Bouda	Martin	Fujitsu	x	x	x	x
Braun	Ralf-Peter	Deutsche Telekom	x	x	x	
Brooks	Paul	Viavi Solutions	x	x		
Brown	Matt	Applied Micro	x	x	x	x
Butter	Adrian	Global Foundries	x	x	x	x
Chacon	Geoffrey	Hewlett Packard Enterprise	x	x	x	x
Chang	Jacky	Hewlett Packard Enterprise	x			
Chang	Xin	Huawei	x			
Cheng	Weiyang	Coriant	x	x	x	x
Cheng	Wheling	Ericsson	x	x	x	x
Chuang	Keng Hua	HP Networking	x	x	x	
Cole	Chris	Finisar	x	x	x	
D'Ambrosia	John	Independent	x	x	x	x
Dawe	Piers	Mellanox	x	x	x	x
Dudek	Mike	QLogic	x	x	x	x
Ewen	John	Global Foundries	x	x	x	x
Ghiasi	Ali	Ghiasi Quantum	x	x	x	x
Gong	Zhigang	D-Net	x			x
Gorshe	Steve	PMC_Sierra	x			x
Grow	Bob	RMG Consulting				x
Gustlin	Mark	Xilinx	x	x	x	x
Hall	Eric	Aurion		x		
Healey	Adam	Avago Technologies	x	x		x
Hegde	Raj	Broadcom	x	x		
Hidaka	Yasuo	Fujitsu Laboratories of America	x	x	x	x
Horner	Rita	Synopsys	x			x
Ingham	Jonathan	Avago Technologies				x
Ishibe	Kazuhiko	Anristu	x	x	x	x
Isono	Hideki	Fujitsu Ltd.	x	x	x	x
Issenhuth	Tom	Microsoft	x	x	x	x
Jackson	Kenneth	Sumitomo	x			x
Jimenez	Andrew	Anixter Inc.				x
Kareti	Upen Reddy	Cisco	x	x	x	x
Kawatsu	Yasuaki	Hitachi-Metals	x			x
Kelsen	Michael	Time Warner Cable	x	x		x
King	Jonathan	Finisar Corp.		x		x
Kolesar	Paul	CommScope	x	x		
Lackner	Hans	QoSCom				x
Lane	Brett	Panduit Corp.	x	x	x	

Lapak	Jeff	UNH-IOL	x			x
LeCheminant	Greg	Keysight Technologies		x	x	
Lewis	Dave	Lumentum	x	x	x	
Li	Mike	Altera	x	x	x	
Li	Shaohua	Brocade	x	x	x	x
Lingle, Jr.	Robert	OFS	x			
Liu	Zhenyu	Credo Semiconductor		x	x	x
Lyubomirsky	Ilya	Finisar				x
Maki	Jeffery	Juniper Networks	x	x	x	x
Malicoat	David	HP	x	x	x	
Malkman	Yonaton	Mellanox	x	x		x
Marris	Arthur	Cadence		x		x
Masuda	Takeo	OITDA	x	x	x	
Matoglu	Erdem	Amphenol		x		x
McDermott	Tom	Fujitsu	x	x	x	x
McDonough	John	NEC America		x	x	x
McSorley	Greg	Amphenol		x	x	x
Mei	Richard	Commscope	x			
Mellitz	Richard	Intel	x	x	x	x
Mooney	Paul	Spirent Communications	x	x	x	x
Moritake	Toshiyuki	JAE				x
Muir	Ron	JAE				x
Murray	Dale	Light Counting	x			x
Nadolny	Jim	Samtec	x			
Nicholl	Gary	Cisco	x	x	x	
Nowell	Mark	Cisco	x			
Ofelt	David	Juniper Networks	x	x	x	x
Ogura	Ichiro	Petra	x	x	x	x
Palkert	Tom	Luxtera	x	x	x	x
Park	Moon	OE Solutions	x			
Parthasarathay	Vasudevan	Broadcom		x		
Pepeljugoski	Petar	IBM	x	x	x	x
Pepper	Gerald	Ixia	x	x	x	
Pham	Phong	US Conec Ltd	x	x	x	x
Rabinovich	Rick	ALE	x	x	x	x
Ressl	Mike	Hitachi Cable America			x	x
Rotolo	Salvatore	STM Microelectronics	x	x	x	x
Sakai	Toshiaki	Socionext	x	x	x	x
Satake	Toshiaki	US Conec Ltd	x	x	x	x
Sayre	Edward	NESA		x	x	x
Shrikhande	Kapil	Dell		x	x	x
Slavick	Jeff	Avago Technologies	x	x	x	x
Sommers	Scott	Molex	x			
Sone	Yoshiaki	NTT			x	x
Stassar	Peter	Huawei	x	x	x	x
Sun	Phil	Credo Semiconductor	x	x	x	x
Swanson	Steve	Corning	x			
Sysak	Matthew	Intel	x	x	x	
Szczepanek	Andre	Inphi	x	x	x	x
Tailor	Bharat	Semtech Corp	x			
Takahara	Tomoo	Fujitsu Laboratories	x	x	x	x
Takahata	Kiyoto	NTT	x	x	x	x
Tamura	Kohichi	Oclaro Japan	x	x		

Teipen	Brian	ADVA Optical Networking	x	x	x	x
Tracy	Nathan	TE Connectivity	x	x		x
Trowbridge	Steve	Alcatel-Lucent	x	x	x	x
Twombly	Jeff	Credo Semiconductor	x	x	x	
Ulrichs	Ed	Source Photonics	x	x		x
Wang	Tongtong	Huawei	x	x	x	x
Wang	Xinyuan	Huawei	x	x		x
Welch	Brian	Luxtera	x		x	
Wertheim	Oded	Mellanox	x	x	x	x
White	Martin	Cavium	x	x	x	x
Xu	Qing	Belden	x	x	x	x
Xu	Yu	Huawei	x			x
Zambell	Andrew	FCI	x	x		
Zivny	Pavel	Tektronix	x	x	x	
Zhao	Wenyu	CAICT		x	x	x
Joo	BheomSoom	ETRI	x	x	x	
Tlalka	Marek	Macom	x	x	x	x
Stephens	Jeremy	Intel	x	x		
Horrmege	Bernd	Phoenix Contact	x			
Zhang	Huang	Applied Optoelectronics	x	x	x	x
Chen	David	Applied Optoelectronics	x	x	x	x
Simms	Bill	Nvidia	x	x	x	
Murata	Koichi	GigOptix	x	x	x	
Lin	Zhenyu	Credo Semiconductor	x			
Desai	Samir	Skorprios	x			
Xu	Yang	Commscope	x	x	x	
Beaudon	Denis	Texas Instruments	x		x	
Dillard	John	Microsemi	x	x	x	x
Pham	Nam	IBM		x		
Orlik	Philip	Mitsubishi Electronic Research Labs			x	
Zhang	Jim	Meri			x	
Perezaranda	Ruben	KDPOF			x	
Goetefried	Volker	Avago Technologies			x	