

Approved Minutes

**IEEE P802.3cu 100 Gb/s and 400 Gb/s over  
SMF at 100 Gb/s per Wavelength Task Force**

Plenary Meeting

January 20, 2020

Geneva Switzerland

Prepared by Kenneth Jackson and Mark Nowell

# Table of Contents

[Table of Contents](#)

[IEEE P802.3cu 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force](#)

[Attendees](#)

# IEEE P802.3cu 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force – January 20, 2020

Prepared by Kenneth Jackson

Meeting convened at 9AM

Chaired by Mark Nowell.

Room introductions made

Chair reviewed agenda in [http://www.ieee802.org/3/cu/public/Jan20/agenda\\_3cu\\_01\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/agenda_3cu_01_0120.pdf)

## **Motion #1:**

Move to approve the agenda for the IEEE P802.3cu 100 Gb/s and 400 Gb/s Operation over Single-Mode Fiber at 100 Gb/s per Wavelength Task Force

- Moved by: Pavel Zivny
- Second by: Stephen Trowbridge

*Passed by voice with Piers Dawe objecting to the details of the agenda. Oral clarification given and accepted by dissenter.*

Minutes from the previous meeting (Hawaii) were posted shortly after the Nov 2019 Task Force Group meeting.

## **Motion #2:**

Move to approve the Nov 2019 minutes from the IEEE P802.3cu 100 Gb/s and 400 Gb/s Operation over Single-Mode Fiber at 100 Gb/s per Wavelength Task Force

- Moved by: Pavel Zivny
- Seconded by: Jim Young

*Approved by voice without opposition*

Chair reviewed Task Force Organization

Chair reminded participants to observe meeting decorum.

Chair reviewed the reflector and web information.

Task Force Private Area:

website: <http://www.ieee802.org/3/cu/private/index.html> UID = P802.3cu and pw provided.

Chair reviewed the ground rules for the meeting.

Photography and recording are not permitted.

Chair reviewed the attendance procedures.

Chair reminded participants to sign into the IEEE Attendance Tool and to sign the book.

Chair reviewed the IEEE structure.

Chair reviewed the Bylaws and Rules slides in -

[http://www.ieee802.org/3/cu/public/Jan20/agenda\\_3cu\\_01\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/agenda_3cu_01_0120.pdf)

Chair read the Guidelines for IEEE-SA Working Group meetings and Patent Policy.

Chair requested a call for patents (9:14AM). *None were raised.*

IEEE copyright policy slides were shown.

Chair reviewed participation in IEEE 802 Meetings.

Chair reviewed the IEEE 802.3 Standards Process---Task Force comment phase

No liaisons or communications

Chair mentioned Ad Hocs: [http://www.ieee802.org/3/cu/public/cu\\_adhoc/cu\\_archive/index.html](http://www.ieee802.org/3/cu/public/cu_adhoc/cu_archive/index.html)  
typically Wed @8am PT.

Ad Hoc Report: 2 ad hoc meetings held since Hawaii, 2 presentations

Task Force documentation, PAR CSD & objectives

Approved Objectives presented.

Timeline (adopted at last meeting)

Chair reviewed Goals for This Meeting

- Resolve comments received against D1.1
  - Review any technical contributions (including proposals aimed towards spec changes)
- Request approval at Thursday's 802.3 WG meeting to move to Working Group Ballot

Chair reviewed meeting logistics and meeting schedule for the day.

[http://www.ieee802.org/3/cu/public/Jan20/agenda\\_3cu\\_01\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/agenda_3cu_01_0120.pdf)

Future Meetings:

- March 2020, Plenary
  - Week of March 16, 2020. Atlanta, Ga.
- May 2020, Interim
  - Week of May 18, 2020. Pasadena, Ca
- July 2020, Plenary
  - Week of July 13, 2020, Montreal, Quebec
- Sept 2020 Interim
  - Week of Sept 21, 2020. Kansas City, Mo.

Anyone interested in hosting a meeting should contact the Chair or Steve Carlson.

### **Presentation #1: "Editorial Update" Gary Nicholl (Cisco)**

See [http://www.ieee802.org/3/cu/public/Jan20/nicholl\\_3cu\\_01\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/nicholl_3cu_01_0120.pdf)

- Team: Gary Nicholl (Chief Editor), David Lewis (Editor for optical clauses), Mark Kimber (Advisor and reviewer for optical clauses)
- D1.1 Task Force Review opened Nov 26, closed Dec 11
- 18 comments from 3 reviewers. One comment withdrawn
- Clauses 140 & 151 have the most comments
- Proposed responses posted 20th December 2019
- Goals for this meeting
  - Respond to all comments against Draft 1.1.
  - Generate Draft 1.2 (if necessary) for review by the Working Group during approval to move to WG ballot.
  - Pending WG ballot approval, generate Draft 2.0 for first WG ballot

### **Presentation #2: "P802.3cu D1.1 Comment Resolution Agenda", Gary Nicholl (Cisco)**

See [http://www.ieee802.org/3/cu/public/Jan20/nicholl\\_3cu\\_02\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/nicholl_3cu_02_0120.pdf)

- Outlined planned order for comment resolution

- No comments in the “bucket”.

**Presentation #3: “Tx Headroom Budget for 400GBASE-LR4-6”, R. Okabe (Fujitsu Optical Components, Ltd.)**

See [http://www.ieee802.org/3/cu/public/Jan20/okabe\\_3cu\\_01\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/okabe_3cu_01_0120.pdf)

- Proposes changing Tx OMA and Rx sensitivity by 0.4 dB (reduce OMA<sub>min</sub> by 0.4dB and decrease Rx sensitivity (make more sensitive) by 0.4dB)
- Plan to submit comment against D2.0

**Comment Resolution starts.**

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*Break*

**Presentation #4: “On guarding against overshoot and undershoot in standards using TDECQ measurement”, Pavel Zivny (Tektronix)**

See [http://www.ieee802.org/3/cu/public/Jan20/zivny\\_3cu\\_01\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/zivny_3cu_01_0120.pdf)

- This presentation addresses comments on adding overshoot specification assuming they are adopted (see Chris Cole’s presentation for background)
- Author suggest TDECQ does only little\* to evaluate the impact of the top of eye 3 or the bottom of the eye 1 on the SER
- Author proposes a technique to define an overshoot specification for a PAM4 optical signal

**Presentation #5: “802.3cu D1.1 PMD Spec Proposed Changes”, Chris Cole (II-VI)**

See [www.ieee802.org/3/cu/public/Jan20/cole\\_3cu\\_01b\\_0120.pdf](http://www.ieee802.org/3/cu/public/Jan20/cole_3cu_01b_0120.pdf)

- Author believes that current Tx specs do not properly address eye mask overshoot and recommends modifications.
- Author believes that Dispersion Penalty should also limit large negative dispersion values, i.e. TECQ>TDECQ. (Also, limit is missing the “(max)” qualifier.)
- 
- Author proposes changes to the Rx specifications (no changes to values, rather making the tables clearer): change receive sensitivity to normative from informative with a reference transmitter having a finite amount of impairments (TECQ<=1.4dB)
- Discussion suggests that if these changes are adopted, then DR is NOT interoperable with FR/LR.

Most of the comments contained multiple suggested changes and as a result multiple straw polls would have to be taken to resolve a single comment. Chair previewed straw polls that would be taken all together to provide direction to the editors regarding the closure of the comments. The straw poll results will provide the indication of consensus and be included in the comment response as appropriate

**Straw Poll #1:**

I would support adding a transmitter overshoot parameter for 100GBASE-FR1, 100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6 as proposed in cole\_01b\_0120:

Yes: 23

No: 6

**Straw Poll #2:**

I would support removing TDECQ-10Log(Ceq) for 100GBASE-FR1, 100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6 as proposed in cole\_01b\_0120.

Yes: 13

No: 11

**Straw Poll #3:**

I would support adding TECQ(max) for 100GBASE-FR1, 100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6 and with the values proposed in slides 24 and 27 of cole\_01a\_0120.

Yes: 24

No: 2

**Straw Poll #4:**

I would support adding a TDECQ-TECQ specification for 100GBASE-FR1, 100GBASE-LR1 and 400GBASE-FR4 and with the values proposed in slides 24 and 27 of cole\_01a\_0120, along with the additional changes proposed in slide 20 of cole\_01a\_0120.

Yes: 20

No: 2

**Straw Poll #5:**

I would support removing the equation reference entry for RS in Table 140-7 for 100GBASE-FR1 and 100GBASE-LR1, and in Table 151-8 for 400GBASE-FR4 and 400GBASE-LR4-6, and replacing it with the minimum value and associated footnote as proposed in cole\_01b\_0120.

Yes: 23

No: 0

**Straw Poll #6:**

I would support making RS normative for 100GBASE-FR1, 100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6 as proposed in cole\_01b\_0120.

Yes: 27

No: 0

*Coffee Break*

**Comment Resolution continues:**

#1, #8 --- Comments withdrawn

**Straw Poll #7:** (Show of hands, no count) Those in favor of re-opening the comment (#2, #9) involving the removal of TDECQ-10log(Ceq)? Chair determines clear majority of room raised their hand in opposition to re-open the comment.

Comment resolution closes

**Motion #4:** Move to

- Generate D1.2 from D1.1 and closed comments
  - Authorize the chair to submit D1.2 for consideration of moving to working group ballot
  - Moved by Gary Nicholl
  - Seconded by Chris Cole
- Y: 27 N: 3 Abstain: 6 *Motion Passes*

**Attendance Straw Polls**

- I will be attending the March meeting in Atlanta: 30
- I may be attending the March meeting in Atlanta: 4
  
- I will be attending the May meeting in Pasadena: 29
- I may be attending the May meeting in Pasadena: 8

**Motion #5:**

Motion to adjourn the meeting:

- Moved by Mike Dudek
- Seconded by John D'Ambrosia

*Motion passes by voice without opposition*

*Meeting adjourned ~*

**Attendees**

P802.3cu Task Force				20-Jan-20
Last Name	First Name	Employer	Affiliation	Monday
Braun	Ralf-Peter	Deutsche Telekom	Deutsche Telekom	x
Brooks	Paul	Viavi Solutions	Viavi Solutions	x
Bruckman	Leon	Toga Networks	Huawei	x
Calvin	John	Keysight Technologies	Keysight Technologies	x

Chen	C. C. David	Applied Optoelectronics	Applied Optoelectronics	X
Cole	Chris	II-VI Photonics	II-VI Photonics	X
D'Ambrosia	John	FutureWei, US Subsidiary of Huawei	FutureWei, US Subsidiary of Huawei	X
Dawe	Piers	Mellanox	Mellanox	X
DeAndrea	John	II-VI Photonics	II-VI Photonics	X
Dudek	Mike	Marvell Technologies	Marvell Technologies	X
Emsia	Ali	Tektronix	Tektronix	X
Erreygers	Jan	Commscope	Commscope	X
Estes	Dave	Spirent Communications	Spirent Communications	X
Ferretti	Vince	Corning	Corning	X
Ghiasi	Ali	Ghiasi Quantum	Ghiasi Quantum, Inphi	X
Gong	Zhigang	O-net	O-net	X
Guedes	Marcelo	Idea Electronic Systems	Idea Electronic Systems	X
Gustlin	Mark	Cisco	Cisco	X
He	Xiang	Huawei	Huawei	X
Healey	Adam	Broadcom Inc.	Broadcom Inc.	X
Ingham	Jonathan	Broadcom	Broadcom	X
Isono	Hideki	Fujitsu Optical Components	Fujitsu Optical Components	X
Issenhuth	Tom	Huawei	Huawei	X
Jackson	Ken	Sumitomo	Sumitomo	X
Kimber	Mark	Semtech	Semtech	X
Kukita	Hiroabi	Yamaichi Electronics	Yamaichi Electronics	X



LeCheminant	Greg	Keysight Technologies	Keysight Technologies	X
Lewis	Dave	Lumentum	Lumentum	X
Limin	Geng	Huawei	Huawei	X
Maki	Jeffery	Juniper Networks	Juniper Networks	X
Maniloff	Eric	Ciena	Ciena	X
Mi	Guangcan	Huawei	Huawei	X
Nakamoto	Edward	Spirent Communications	Spirent Communications	X
Nering	Ray	Cisco	Cisco	X
Nicholl	Shawn	Xilinx	Xilinx	X
Nowell	Mark	Cisco	Cisco	X
Ofelt	David	Juniper Networks	Juniper Networks	X
Ogawa	Daisuke	NTT Electronics	NTT Electronics	X
Palkert	Tom	Molex - MACOM	Molex - MACOM	X
Pham	Phong	US Conec	US Conec	X
Radhamohan	Rajesh	MaxLinear	MaxLinear	X
Ryo	Okabe	Fujitsu Optical Components	Fujitsu Optical Components	X
Sakai	Toshiaki	Socionext	Socionext	X
Schmitt	Matt	CableLabs	CableLabs	X
Sommers	Scott	Molex	Molex	X
Sorbara	Massimo	Global Foundries	Global Foundries	X
Sprague	Ted	Infinera	Infinera	X
Srivastava	Atul	NTT Electronics	NTT Electronics	X
Sun	Liyang	Huawei	Huawei	X

Takahara	Tomoo	Fujitsu	Fujitsu	x
Thompson	Geoff	Independent	Independent	x
Tracy	Nathan	TE Connectivity	TE Connectivity	x
Trowbridge	Steve	Nokia	Nokia	x
Wang	Ruoxo	Huawei	Huawei	x
Wang	Xinyuan	Huawei	Huawei	x
Welch	Brian	Cisco	Cisco	x
Xu	Yu	Huawei	Huawei	x
Young	James	Commscope	Commscope	x
Zivny	Pavel	Tektronix	Tektronix	x