

Approved Minutes

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

Plenary Meeting

November 11-12, 2019

Waikoloa Village, HI

Prepared by Kenneth Jackson and Mark Nowell

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IEEE P802.3cu 100 Gb/s and 400 Gb/s over SMF at 100 Gb/s per Wavelength Task Force – November 11, 2019

Prepared by Kenneth Jackson

Meeting convened at 1PM

Chaired by Mark Nowell.

Room introductions made

Chair reviewed agenda in http://www.ieee802.org/3/cu/public/Nov19/agenda_3cu_01_1119.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: Stephen Trowbridge
- Second by: Ray Nering

Passed by voice without opposition

Minutes from previous meeting (Indianapolis) were posted shortly after the Sep 2019 Task Force Group meeting. Some typos had been identified previously.

Motion #2:

Move to approve the Sept 2019 v3 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: Dave Lewis
- Seconded by: Mark Kimber

Approved by voice without opposition

Chair reviewed Task Force Organization

Chair reminded participants to observe meeting decorum.

Chair reviewed the reflector and web information.

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/Nov19/agenda_3cu_01a_1119.pdf

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

Chair requested a call for patents (1:11PM). *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, D1.0 adopted last meeting.

No liaisons or communications

Chair mentioned Ad Hocs.

Ad Hoc Report: 3 ad hoc meetings held since Indianapolis mtg, 5 presentations

Task Force documentation, PAR CSD & objectives

Documentation update: modified objective noted

Approved Objectives presented.

Timeline Discussion (2 options presented, motion later)

Chair reviewed Goals for This Meeting

- Resolve comments received against D1.0
 - Review any technical contributions (including proposals aimed towards spec changes)
- Consider any contributions on nomenclature (to be handled outside the comment process)
- Adopt a Task Force timeline

Chair reviewed meeting logistics and meeting schedule for the day.

http://www.ieee802.org/3/cu/public/Nov19/agenda_3cu_01_1119.pdf

Late presentation submitted for consideration by Peter Stassar. No objections from the room to hearing that presentation.

Future Meetings:

- January 2020 Interim
 - Week of January 20, 2020 -- Geneva, Switzerland
- 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

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/Nov19/nicholl_3cu_01_1119.pdf

- Team: Gary Nicholl (Chief Editor), David Lewis (Editor for optical clauses), Mark Kimber (Advisor and reviewer for optical clauses)
- 1.0 Task Force Review closed Oct. 29
- 22 comments from 7 reviewers. One comment withdrawn (total = 21)
- Clauses 140 & 151 have the most comments

Comment Agenda shown http://www.ieee802.org/3/cu/public/Nov19/nicholl_3cu_02_1119.pdf

5 comments in the “bucket”. Task Force asked to review and let Mark, Ken or Gary know if any comments should be pulled out for specific review..

Presentation #2: “802.3 SMF PMD Nomenclature Proposal with Application to 400GBASE-LR4”, Chris Cole (II-VI)

See http://www.ieee802.org/3/cu/public/Nov19/cole_3cu_01a_1119.pdf

- Reviewed nomenclature for other standards bodies
- Proposed “400GBASE-LR4-6” which is the remedy suggested by comment #20

- Questions of clarification.

Presentation #3: “Nomenclature of 4X100 Gb/s optical PHY for lengths up to at least 6km”, Yu Xu (Huawei)

See http://www.ieee802.org/3/cu/public/Nov19/wang_3cu_01_1119.pdf

- End-user feedback requested a designator that was different than simply “LR4”
- Agreed with Chris Cole proposal contained in cole_3cu_01a_1119.pdf.

Motion #3:

Move to adopt the updated nomenclature of 400GBASE-LR4-6 as proposed by cole_3cu_01a_1119

- Moved by: Chris Cole
- Seconded by: Yu Xu
- Y: 33 N: 0 Abstain: 2

Motion Passes

Presentation #4: “Select SMF & Link Specifications Review”, Chris Cole (II-VI)

See http://www.ieee802.org/3/cu/public/Nov19/cole_3cu_02a_1119.pdf

- Observations of various parameters, models used in existing IEEE specs: SMF model, fiber dispersion, fiber loss, how penalties are added, BER and its impact on margin
- No action, no formal proposal.

Break

Comment Resolution begins: Gary Nicholl presiding

Presentation: “802.3cu D1p0 proposed editing to 100GBASE-FR1/LR1 and 400GBASE-FR4/LR4 PMDs”, Brian Welch (Cisco)

See http://www.ieee802.org/3/cu/public/Nov19/welch_3cu_01a_1119.pdf

- Comments and proposed changes about:
 - Delta between Average launch power (min), Outer Optical Modulation Amplitude (OMA_{outer}) (min) ---allow for infinite ER (comments #9, #10)
 - Allocation for DGD penalties --round down vs. round up. (comment #8, #12)
 - Compatibility between 100GBASE-FR1 and 100GBASE-LR1 (comments #13, #14). -- push up max Rx levels in FR so that interop is achieved with “zero” additional loss, showed measurements indicating no saturation issues observed
 - Average power of OFF transmitters (comment #11) ---inconsistency between 100G and 400G.

Comment resolution continues

All comments resolved except for the remaining 2 associated with TDECQ-SECQ topic.

Break for the day -- start at 8:30 am

Tuesday, Nov 12, 8:30AM

Mark Nowell presiding

Chair reminded participants of attendance procedures (log in to IMAT and sign the attendance book)

Chairperson discussed agenda for the day:

- Listen to presentations related to TDECQ-SECQ
- Chairperson also mentioned that editorial team has determined that three comments should be reopened from yesterday due to inconsistencies in between them and other comment resolutions in the optical parameter tables.
- Task Force asked if there was any opposition to reopening comments #5, #6, and #9. No opposition raised.

Presentation: “Usage of SECQ and its definition Related to comment #7”, Peter Stassar (Huawei)

See http://www.ieee802.org/3/cu/public/Nov19/stassar_3cu_02_1119.pdf

- Discussion of how SECQ can be used (defined) as part of the transmit quality parameter, TDECQ-SECQ.
- Existing published standards state that SECQ is TDECQ without fiber

Discussion: Methodology is correct but strict definition of SECQ involves the DUT receiver. Also, comment regarding the value of 2.5dB should be confirmed (re-visited)

Presentation: “Clarification of proposal for value of TDECQ – SECQ Related to comment #7. Updated with usage of SECQ”, Peter Stassar (Huawei)

See http://www.ieee802.org/3/cu/public/Nov19/stassar_3cu_01a_1119.pdf

- This presentation provides further background to justify the new parameter, TDECQ-SECQ, and also includes a proposal to replace “TBD” with a value of 2.5 dB

Discussion: Caution urged when using the term “SECQ” to describe TDECQ at zero fiber length. Appears to be consensus by the audience that regardless of the term, there is a need to limit the dispersion penalty.

Presentation: “802.3cu D1p0 TDECQ-SECQ considerations in support of comment #15”, Brian Welch (Cisco)

See http://www.ieee802.org/3/cu/public/Nov19/welch_3cu_02a_1119.pdf

- This presentation previously presented at an ad hoc call
- This presentation questions whether or not TDECQ-SECQ is able to discriminate against transmitters with excessive dispersion penalty.
- The authors also question whether this parameter is redundant with TDECQ-10log(Ceq)

Discussion: An objection raised that 10log(Ceq) isn't a direct measure of a transmitter quality.

Straw Poll #1:

For 400GBASE-LR4-6, I would prefer to:

- a. Remove the TDECQ - SECQ parameter
- b. Replace the TBD with 2.5dB as the value for TDECQ-SECQ

A: 9 B: 16

Comment Resolution:

Two comments removed from the “bucket” #21 & #22 (editorial).

Break

Comment Resolution (con't):

Resolve the TDECQ-SECQ comments #15, #7

Address previous comments to provide editorial clarity

#15 -- straw poll #1 taken. Result rejected this comment

#7 -- straw poll #1 taken. Result accepted this comment. But also introduce definition of new term "TECQ" with editorial license. (see comment resolution file)

Reopened comment #5.

- Added additional item to change receive power (OMAouter) (max) from 4.7dBm to 4.2dBm

Reopened comment #6.

- Change the max loss values to 4.9dB in the LR1 to FR1 direction and to 5.1dB in the FR1 to LR1 direction. Additionally in Table 140-15, change max loss values to 3.9dB and 4.5dB (see comment resolution file)

Reopened comment #9.

See comment resolution file for details.

Motion #4:

Move to:

- Accept the proposed responses to any unresolved comments listed in 8023cu_D10_comment_proposed_responses_bucket_list.pdf
- Generate Draft 1.1 from Draft 1.0 and closed comments
- Authorize the chair to pre-submit D1.1 for consideration of moving to working group ballot

- Moved by: Gary Nicholl
- Seconded by: Peter Stassar

Y: 31 N: 0 Abstain: 4 *Motion Passes*

Motion #5:

Move to adopt the P802.3cu timeline per slide 31 of agenda_3cu_01a_1119

- Moved by: Ray Nering
- Seconded by: Stephen Trowbridge

Passed by voice without opposition.

Attendance Straw Polls

- I will be attending in January in Geneva: 19
- I may be attending in January in Geneva: 10

- I will be attending in March in Atlanta: 20
- I may be attending in March in Atlanta: 13

Motion #6:

Motion to adjourn the meeting:

- Moved by Stephen Trowbridge
- Seconded by Massimo Sorbara

Motion passes by voice without opposition

Meeting adjourned ~11:15pm

Attendees

P802.3cu Task Force				11-Nov-19	12-Nov-19
Last Name	First Name	Employer	Affiliation	Monday	Tuesday
Abbott	John	Corning	Corning	x	x
Brooks	Paul	Viavi Solutions	Viavi Solutions		x
Bruckman	Leon	Toga Networks	Huawei	x	x
Chang	Frank	Source Photonics	Source Photonics	x	x
Chen	C. C. David	Applied Optoelectronics	Applied Optoelectronics	x	x
Choudhury	G. Mabud	OFS	OFS		x
Coffey	Joseph	Commscope	Commscope		x
Cole	Chris	II-VI	II-VI	x	x
Ferretti	Vince	Corning	Corning	x	
Gorshe	Steve	microchip	microchip		x
Hutchinson	Jeff	Ranovus	Ranovus	x	
Isono	Hideki	Fujitsu Optical Components	Fujitsu Optical Components	x	x
Issenhuth	Tom	Huawei	Huawei	x	x
Jackson	Ken	Sumitomo	Sumitomo	x	x

Kolesar	Paul	CME Consulting	CommScope		x
Lewis	Dave	Lumentum	Lumentum	x	x
Lingle, Jr.	Robert	OFS	OFS	x	x
Liu	Hai-Feng	HG_Genuine	HG_Genuine	x	x
Maki	Jeffery	Juniper Networks	Juniper Networks	x	x
Maniloff	Eric	Ciena	Ciena	x	x
Marques	Flavio	Furukawa	Furukawa		x
Murty	Ramana	Broadcom	Broadcom	x	x
Nering	Ray	Cisco	Cisco	x	x
Nicholl	Gary	Cisco	Cisco	x	x
Nowell	Mark	Cisco	Cisco	x	x
Ogawa	Daisuke	NTT Electronics	NTT Electronics	x	
Okabe	Ryo	Fujitsu Optical Components	Fujitsu Optical Components	x	x
Parsons	Earl	Commscope	Commscope		x
Pimpinella	Rick	Panduit Corp.	Panduit Corp.	x	
Pittala	Fabio	Huawei	Huawei	x	x
Song	Chen	ZTE	ZTE	x	x
Sorbara	Massimo	Global Foundries	Global Foundries	x	x
Srivastava	Atul	NTT Electronics	NTT Electronics	x	
Stassar	Peter	Huawei	Huawei	x	x
Swanson	Steve	Corning	Corning	x	
Takahara	Tomoo	Fujitsu	Fujitsu	x	x
Tan	Kan	Tektronix	Tektronix	x	x
Terada	Masaru	OFS	OFS	x	x

Trowbridge	Steve	Nokia	Nokia	x	x
Ulrichs	Ed	Source Photonics	Source Photonics	x	x
Wang	Roy	HPE	HPE		x
Welch	Brian	Cisco	Cisco	x	x
Xu	Yu	Huawei	Huawei	x	x
Young	Adrian	Leviton	Leviton		x
Zhang	Kevin	Renesas	Renesas		x
Zivny	Pavel	Tektronix	Tektronix	x	