IEEE P802.3ct Task Force:
100 Gb/s over DWDM Systems

IEEE P802.3cw Task Force:
400 Gb/s over DWDM Systems

Status Report

John D'Ambrosia

Futurewei, U.S. Subsidiary of Huawei

IEEE 802 Sept 2020 Electronic Interim

Sept 24, 2020

IEEE P802.3ct Task Force Project information

Task Force Organization

- John D'Ambrosia, Chair, IEEE P802.3ct Task Force
- Editorial Team
  - Tom Issenhuth – Chief Editor
  - Peter Stassar – 100 GbE Optical PHY Clause
  - Steve Trowbridge - 100 GbE PCS/FEC/PMA Extender Clauses
- Task force web and reflector information
  - Reflector: http://www.ieee802.org/3/ct/reflector.html
  - Home page: http://www.ieee802.org/3/ct/index.html
- Project Documentation –
  - PAR : http://www.ieee802.org/3/ct/ProjDoc/P802.3ct_200215.pdf
  - *CSD*: http://www.ieee802.org/3/ct/ProjDoc/ec-18-0249-01-ACSD-p802-3ct.pdf
  - Objectives: http://www.ieee802.org/3/ct/ProjDoc/3ct_Objectives_190911.pdf
  - Timeline: http://www.ieee802.org/3/ct/ProjDoc/timeline_3ct_200121.pdf
- Ad Hoc page: http://www.ieee802.org/3/ct/public/adhoc/index.html

IEEE P802.3cw Task Force Project information

Task Force Organization

- John D'Ambrosia, Chair, IEEE P802.3ct Task Force
- Editorial Team
  - Tom Issenhuth – Chief Editor, 400 GbE Optical PHY Clause
  - David Lewis - 400 GbE PCS/PMA Clauses
- Task force web and reflector information
  - Reflector: http://www.ieee802.org/3/ct/reflector.html
  - Home page: http://www.ieee802.org/3/cw/index.html
- Project Documentation –
  - PAR : http://www.ieee802.org/3/cw/proj_doc/P802d3cw_PAR.pdf
  - *CSD*: https://mentor.ieee.org/802-ec/dcn/19/ec-19-0219-00-ACSD-p802-3cw.pdf
  - Objectives: http://www.ieee802.org/3/cw/proj_doc/3cw_Objectives_190911.pdf
  - Timeline: https://www.ieee802.org/3/cw/proj_doc/timeline_3cw_200402.pdf
- Ad Hoc page: http://www.ieee802.org/3/ct/public/adhoc/index.html

IEEE P802.3ct

Balloting Status

P802.3ct D2.1 working group review

- Opened on 8/13/20, Closed on 8/28/20
- 15 Comments Rx – TR:2 T:0 ER:1 E:12

	D2.1		
Voters	195		
Approve	104	97%	>= 75%
Disapprove	3		
Abstain	11	9%	< 30%
Returns	118	60%	> 50%

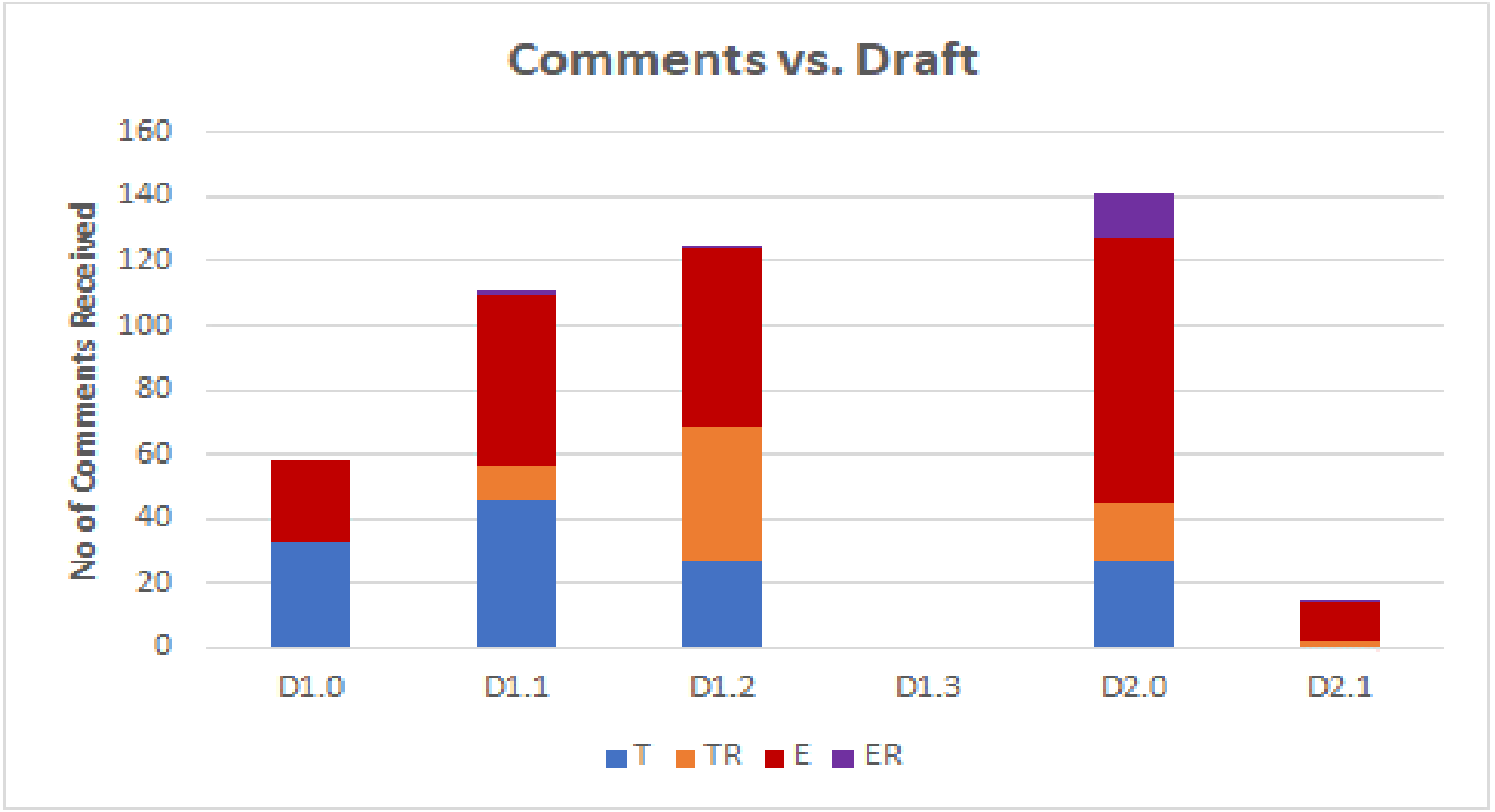
Description	Clause	TR	T	ER	E	Total
Front Matter	0				1	1
Introduction	1			1	2	3
Mgmt	45				1	1
Introduction 40/100	80					0
PCS	82					0
Inverse RS-FEC	152					0
100GBASE-ZR PMA	153				3	3
100GBASE-ZR PMD	154	2			5	7
Annex	A/83C/135A					0
Total Comments		2	0	1	12	15

Courtesy, Tom Issenhuth, IEEE P802.3ct Chief Editor

Status

- Sept 10, 2020 Interim Teleconference Meeting Motions
  - IEEE P802.3ct Motion #1: Approved by unanimous consent
    - Move that the IEEE P802.3ct Task Force:
      - Adopt proposed responses to remaining comments, noted as “bucket” on slide 7 of issenhuth_3ct_01_200910.pdf
      - Generate Draft 2.2 for WG Recirculation from D2.1 and closed comments
  - IEEE P802.3ct Motion #2: Approved by unanimous consent
    - Move that the IEEE 802.3 Working Group re-affirm the CSD responses in https://www.ieee802.org/3/ct/ProjDoc/ec-18-0249-01-ACSD-p802-3ct.pdf and request conditional approval to progress the IEEE P802.3ct draft to IEEE Standards Association ballot once the Working Group ballot process has been successfully completed.
- 2nd Recirculation Ballot (D2.2)
  - Opened – Friday 11 Sept 2020
  - Closes – Sat 26 Sept 2020

Comment Distribution History



Courtesy, Tom Issenhuth, IEEE P802.3ct Chief Editor

5 Unsatisfied Comments Against D2.0 / D2.1 (1 / 2)

➢ **Report** - https://www.ieee802.org/3/ct/comments/D2P1/8023ct_D2p1_comments_final_unsatisfied_by_ID.pdf

Cl 153 *SC* 153.2.3.2.4 *P*83 *L*20 # 2031

Slavick, Jeff Broadcom

Comment Type TR *Comment Status* R

No Annex which provides a sample FEC frame is provided like 91A and 119A

SuggestedRemedy

Add an Annex that provides a sample SC-FEC frame

Response *Response Status* U

REJECT.
Insufficient remedy proposed. Commenter is invited to submit proposed text for the type of Annex envisioned.
A challenge is that the FEC codewords for RS(528,514) is 5280 bits, and for RS(544,514) are 5440 bits, whereas a FEC codeword for SC-FEC is 261120 bits, so it is less clear that a text sequence of numeric values for a full FEC codeword is meaningful or useful for the reader in the form of text in the published standard.
While test vectors are known to exist for this FEC code, none are currently published in a place where they can be referenced.
G.709.2, which is referenced, provides significant detail on the structure of the code, the way the block interleavers work, and the permutation factor tables.
Commentor is invited to submit an alternate form eg a test vector file or code to generate the test vectors that can be published separate from this standard.

Cl 152 *SC* 152.6 *P*72 *L*15 # 2067

Marris, Arthur Cadence Design Systems

Comment Type TR *Comment Status* R

Insert IFEC enable functionality that is currently specified in IEEE Draft P802.3ck/D1.2

SuggestedRemedy

Incoroporate the 802.3ck modifications to 152.6 and 45.2.1.186aa in 802.3ct. Also make it so IFEC is enabled by setting the variable to one (not zero) "When the IFEC_Enable variable is set to one, the Inverse RS-FEC sublayer performs the transmit function as specified in 152.5.2 and the receive function as specified in 152.5.3. When the variable is set to a zero, the transmit and receive functions are disabled, and the Inverse RS-FEC sublayer is bypassed,"

Response *Response Status* U

REJECT.
P802.3ct is ahead of P802.3ck in the process, and will likely be approved first.
In the context of P802.3ck, clause 152 IFEC would always be back-to-back with clause 161 interleaved FEC, and both sublayers would be enabled or disable as a pair. In the context of P802.3ct, there is no case where the Inverse RS-FEC sublayer can ever be (or ever needs to be) disabled, and in fact this would make no sense as this would feed the RS(544) format directly to the clause 153 SC-FEC sublayer. P802.3ck can add this configurability to the mechanism produced by P802.3ct when needed.

Cl 154 *SC* 154.8.16 *P*112 *L*46 # 20140

Dawe, Piers Nvidia

Comment Type TR *Comment Status* R

While G.698.2 gives the concept of receiver OSNR tolerance and says what's in and what's out, it is normal in Ethernet optical PMD specifications to have a more specific definition "Stressed receiver sensitivity" to avoid ambiguity and give an example of how one might actually assure that a receiver complies. I don't see why this PMD should not need it too. Writing the stressed receiver sensitivity section can be painful because it makes one clarify what one means - it's where the rubber hits the road.

SuggestedRemedy

Add a stressed receiver sensitivity section, following other clauses

Response *Response Status* U

REJECT.
The commenter has not demonstrated that the current specification is broken or incomplete and not demonstrated that adding a definition and specification of "stressed receiver sensitivity" would improve the quality of the draft.

Furthermore the remedy does not contain a specific proposal to modify the draft in such a way that it would improve it on the basis of evidence provided.

The commenter is invited to develop a detailed proposal for stressed receiver sensitivity with evidence that adding such a requirement will improve the quality of the draft.

5 Unsatisfied Comments Against D2.0 / D2.1 (2 / 2)

➢ **Report** - https://www.ieee802.org/3/ct/comments/D2P1/8023ct_D2p1_comments_final_unsatisfied_by_ID.pdf

Cl **154** *SC* **154.7.3** *P* **111** *L* **45** # 11

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R**

802.3 writes interoperability specifications. The definitions of transmitter, receiver and channel must each be independently complete enough so that any compliant transmitter, receiver and channel will interoperate. The transmitter and receiver have specified power ranges; the channel must have specifications that control the loss or gain for compliant transmitted signals so that the power window at TP3 is met. In G.698.2, 7.4.1 Maximum and minimum mean input power "This parameter (together with the maximum and minimum mean channel output power) also places a requirement on the maximum and minimum channel insertion loss (or gain) of the black link." Here, with the three pieces specified separately, channel loss/gain spec has got lost.

SuggestedRemedy

Add specifications to Table 154-10 so that a black link will deliver the right power at TP3. Different for amplified and non-amplified cases.

Response *Response Status* **U**

REJECT.

The commenter apparently disagrees with how the concept of a black link is specified in the draft. The requested power levels are shown in Table 154-9.
Furthermore the proposed remedy does not contain a specific proposal to modify the draft in such a way that it would improve it on the basis of evidence provided.

There was no support that an issue has been demonstrated with the draft.

Cl **154** *SC* **154.8.12** *P* **114** *L* **34** # 15

Dawe, Piers Nvidia

Comment Type **TR** *Comment Status* **R**

With regard to D2.0 comment 140, stressed sensitivity: two ways forward are: add a traditional WDM stressed sensitivity (extreme input power, chromatic dispersion, adjacent channel and SJ) with EVM and OSNR, or follow G.698.2 where extreme chromatic dispersion and OSNR, jitter are in separate specifications, while e.g. EVM are in both.

SuggestedRemedy

In 154.8.12, 154.8.13 and 154.8.16, write out clearly what impairments are included and what aren't; give an indication of how such a measurement could be done, with a block diagram. Include the appropriate SJ (see 121.8.9.4 for an example, but the parameters will be different here), but preferably with 5 or 6 spot frequencies instead of a mask (see Table 120E-6 for an example).

Response *Response Status* **U**

REJECT.
This is a similar comment as rejected comment #140 to D2.0. The response to previous comment stated "Furthermore the remedy does not contain a specific proposal to modify the draft in such a way that it would improve it on the basis of evidence provided.
The commenter is invited to develop a detailed proposal for stressed receiver sensitivity. With evidence that adding such a requirement will improve the quality of the draft." The comment does not provide a specific proposal or provide evidence the suggested change will improve the quality of the draft.

Moving Forward

- 2nd Recirculation Ballot (D2.2)
  - Opened – Friday 11 Sept 2020
  - Closes – Sat 26 Sept 2020
- Joint Task Force Interim Teleconference
  - See Schedule - https://www.ieee802.org/3/ct/public/tf_interim/index.html
- Interim Teleconference – 01- Oct 2020, 10:00am to 12:00pm ET
  - Part of the agenda for this meeting will be directed towards considering and resolving any comments submitted during the 2nd Recirculation ballot of IEEE P802.3ct D2.2. [Note – this is a teleconference meeting only; there will be no in-person meeting.]
  - Please note that this teleconference meeting may be cancelled if:
    - No comments are submitted against D2.2; and
    - No other business for the IEEE P802.3ct / P802.3cw Task Forces to consider.

WG Motion #1

Move that the IEEE 802.3 Working Group re-affirm the CSD responses in https://www.ieee802.org/3/ct/ProjDoc/ec-18-0249-01-ACSD-p802-3ct.pdf and request conditional approval to progress the IEEE P802.3ct draft to IEEE Standards Association ballot.

- M: D'Ambrosia
- S: Issenhuth
- Technical (>=75%)
- Results: A: 108 D: 1 A:7
- Motion Passes

IEEE P802.3CW

WG Motion - Liaison to OIF

Move that the IEEE 802.3 Working Group approve:

- IEEE_802d3_to_ITU_OIF_3cw_0920_draft4.pdf

with editorial license granted to the Chair (or his appointed agent) as liaison communications from the IEEE 802.3 Working Group to OIF

(Note – ITU was not removed from the file name)

- M: D'Ambrosia
- S: Issenhuth
- Technical (>=75%)
- Results: Motion Passes by unanimous consent

Questions?

Thank you!