Cl **1** *SC* **1.4.35b** *P* **23** *L* **9** # I-50

Dawe, Piers J G NVIDIA

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

What the Clause 153 SC-FEC sublayer does is much the same as what the Clause 50 WAN Interface Sublayer does: it takes a 64B/66B encoded stream and puts it in a telecoms style wrapper. The SC-FEC is quite different to the "KR4" or "KP4" FEC. Also, this PHY uses a telecoms style clock domain on the line. It doesn't work by "using 100GBASE-R encoding". While it may carry a 64B/66B stream, what it actually uses is SC-FEC framing, and is significantly different to all in-force BASE-R (or BASE-P) PHYs.

SuggestedRemedy

Change "using 100GBASE-R encoding, DP-DQPSK modulation" to "using 100GBASE-R encoding, GMP mapping, SC-FEC framing, and DP-DQPSK modulation".
(If the group is ashamed of using all those things, it could change how the PHY works, but that would be more disruptive.)

Response *Response Status* **U**

REJECT.

The commentor has not demonstrated how changing it would improve the quality of the draft. The same comment was submitted as technical, not required in D2.0, comment 139 (see https://www.ieee802.org/3/ct/comments/D2P0/8023ct_D2p0_comments_final_by_clause.pdf, page 5) and the working group modified the wording to the current definition.

Cl **1** *SC* **1.4.237b** *P* **23** *L* **35** # R3-5

Dawe, Piers J G NVIDIA

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

As D3.0 comment 87, D3.1 comment 82 and D3.2 comment 13 pointed out, and as 154.5.1 and 154.11 say, TP2 is not at the PHY/MDI. It is important that readers are not misled so that transmitter testing is done correctly for all optical transmitters, at TP2.

SuggestedRemedy

Quick fix but not consistent with other optical clauses: change:
The transmission path from a transmitting DWDM PHY (TP2) to a receiving DWDM PHY (TP3)
to:
The transmission path from TP2 after a transmitting DWDM PHY to a receiving DWDM PHY (TP3)
and in 154.11, change:
The 100GBASE-ZR PMD is coupled to the DWDM black link medium at the MDI, being the interface between the PMD and the medium. At the transmitter output the MDI coincides with TP2 and at the receiver input with TP3, as shown in Figure 154-2.
to:
The 100GBASE-ZR PMD is coupled to a patch cord at the MDI then to the DWDM black link medium at TP2. At the transmitter output the MDI is before TP2 and at the receiver input the MDI coincides with TP3, as shown in Figure 154-2.
and in 154A.4, change:
where the PMDs at TP2 and TP3 are connected...
to:
where the PMDs are connected...
Better fix: make the "DWDM channel" consistent with the "DWDM black link medium" in 154.11, the "medium" in 154.1, the "channel" as in so many optical clauses, e.g. Figure 38-7, Fiber optic cabling model or Figure 151-7, Fiber optic cabling model, and with "link segment" (see 1.4.309), so that it extends from MDI to MDI - fixing 1.4.237b, 154.11 and 154A.4 another way.

Response *Response Status* **U**

REJECT.
The use of TP2 and TP3 in definitions has been discussed at length during the review of comments on D3.2 with relation to comment R2-13, for which the resolution was:

REJECT.
As noted by the commenter this same change was proposed in D3.0 comment 87 and 3.1 comment 82. In both cases the wording of the definition was modified but the use of TP2 and TP3 was maintained. As consistent with existing IEEE language, the draft states the optical transmit signal is defined at the output end of a single-mode fiber patch cord TP2)" and "the optical receive signal is defined at the output of the fiber optic cabling (TP3) at the MDI" so the supporting medium which in this case is a DWDM channel, has to be from TP2 to TP3.

Furthermore the proposed modifications will not improve the quality of the draft.

Discussion on the use of TP2 and TP3 was discussed during the IEEE P802.3ct Terminology (Part II) ad hoc meetings, documented at https://www.ieee802.org/3/ct/public/adhoc/index.html.

Cl **1** *SC* **1.4.237b** *P* **23** *L* **35** # R2-13

Dawe, Piers J G NVIDIA

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

As D3.0 comment 87 and D3.1 comment 82 pointed out, the path between PMDs is not from TP2 to TP3 because TP2 is not at the PMD, so a transmitting DWDM PHY is not TP2 (even though a receiving DWDM PHY can be called TP3).
The path between PMDs is from MDI to MDI, or PMD to PMD, or transmitter to receiver, or PHY to PHY. As almost every optical clause says, "NOTE--Transmitter compliance testing is performed at TP2 as defined in 121.5.1, not at the MDI." If G.698.2 means that Ss is at Tx and Rs is at Rx, the DWDM channel is from MDI to MDI and TP2 is not relevant here, as well as being incorrect by 802.3. If G.698.2 means that there is something between Ss and Tx and between Rs and Rx, then TP3 is not relevant here.

SuggestedRemedy

Change "1.4.237b DWDM channel: DWDM channel: The transmission path from a transmitting DWDM PHY (TP2) to a receiving DWDM PHY (TP3). to "1.4.237b DWDM channel: DWDM channel: The transmission path from a transmitting DWDM PHY to a receiving DWDM PHY." or, following
Correct misuse of TP2 throughout the draft.

Response *Response Status* **U**

REJECT.

As noted by the commenter this same change was proposed in D3.0 comment 87 and D3.1 comment 82. In both cases the wording of the definition was modified but the use of TP2 and TP3 was maintained. As consistent with existing IEEE language, the draft states "the optical transmit signal is defined at the output end of a single-mode fiber patch cord (TP2)" and "the optical receive signal is defined at the output of the fiber optic cabling (TP3) at the MDI" so the supporting medium which in this case is a DWDM channel, has to be from TP2 to TP3.

Cl **153** *SC* **153.2.3.2.5** *P* **92** *L* **36** # R2-9

Dawe, Piers J G NVIDIA

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

The need for an example file containing an example SC-FEC codeword published at http://standards.ieee.org/downloads/802.3/ has not gone away, and before this project can complete, it needs to be reviewed. If reviewers do not agree on its correctness and consistency with the draft, one or both of draft and file would need to be re-issued and reviewed again.

SuggestedRemedy

Reinstate the text "NOTE-A file containing an example SC-FEC codeword is available at http://standards.ieee.org/downloads/802.3/.
Upload a draft file for review, e.g. in the P802.3ct web area, before or at the same time as the next draft.

Response *Response Status* **U**

REJECT.

The proposed change in the comment does not contain sufficient detail so that the CRG can understand the specific changes that would satisfy the commenter.

No file containing an example SC-FEC codeword has been submitted to the Task Force. Without a suitable file, the note should not be reinstated.

Cl **154** *SC* **154.7.2** *P* **111** *L* **25** # I-55

Dawe, Piers J G NVIDIA

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

This draft lacks a sensitivity or stressed sensitivity spec, but has a spec for receiver OSNR tolerance(193.6), defined in 154.8.16 by reference to G.698.2, where 7.4.3 defines it as at: worst EVM_RMS, IQ offset, optical return loss at point SS, receiver connector degradations and measurement tolerances, but excluding chromatic dispersion, non-linear effects, reflections from the optical path, PMD, PDL and optical crosstalk. This would need a great deal of interpretation to turn into an actual measurement, with too much opportunity for alternative choices and disagreement. 802.3 doesn't put measurement tolerances in parameter values like that; they are the measurer's problem not the standard's. Not specifying the receiver for tolerance to chromatic dispersion is contrary to all 802.3 SMF specs since 2002. Not having a specific stressed sensitivity spec is contrary to all 802.3 SMF specs since 1998. It is not clear that receiver OSNR tolerance(193.6) enforces the right receiver sensitivity for the unamplified link.

SuggestedRemedy

Add clear, specific receiver sensitivity criteria, addressing signal strength, sinusoidal jitter, EVM_RMS, IQ offset, chromatic dispersion, and for the amplified case, OSNR.
Make the unamplified case a "major option" if it's more onerous than the amplified case.
If it makes sense to specify tolerance to OSNR and some other things in one spec item, and chromatic dispersion and some others in another spec item, as G.698.2 does, do so.
Because this PMD has its own clock domain, the sinusoidal jitter won't be the usual amount.
Add associated PICS.

Response *Response Status* **U**

REJECT.
The comment does not provide a specific proposal or provide evidence that the suggested change will improve the quality of the draft.
Furthermore it is very similar to previously submitted comments #15 to D2.1 and #140 to D2.0 which were both rejected.

Straw poll: I support not making any changes to the draft based on this comment.

Y - 19
N - 5
A - 3

There was no consensus to make a change to the document at this time.

Cl **154** *SC* **154.9.19** *P* **120** *L* **42** # R2-18

Dawe, Piers J G NVIDIA

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

It is not clear what the reference receiver in Annex A of Recommendation ITU-T G.698.2 is. Annex A says "The reference receiver includes the following steps as defined in the EVM calculation in clause 7.2.12, except the first item: compensate for chromatic dispersion and differential group delay". This might mean that the first item "compensate for chromatic dispersion and differential group delay" is included in EVM but not in Annex A, or vice versa. If these are additional steps that are not defined in 7.2.12, where are they defined?

SuggestedRemedy

Define more clearly what the differences between 7.2.12 and Annex A are.

Response *Response Status* **U**

REJECT.
Even though the wording of Annex A in Recommendation ITU-T G.698.2 is somewhat different than common in IEEE 802.3 documents, it still is sufficient and adequate.
The definition of EVM in G.698.2 does not include compensating for effects of the optical path (and thus chromatic dispersion) while for the definition of "Maximum optical path OSNR penalty", for which the reference receiver in Annex A is specifically defined, it is necessary to compensate for the effects of the path.
The conditions for the defintion of "Optical path power penalty" in 154.9.19, are similar to the definition of "optical path OSNR penalty" and therefore the same reference receiver can be used.

Improving the text of G.698.2 is out of scope of IEEE 802.3.