Cl **140** *SC* **140.10a.1** *P* **59** *L* **12** # R2-1

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Comment Type **TR** *Comment Status* **D**

As pointed out in D3.0 comment 65 and D3.1 comment 12, a 100GBASE-FR1 or 100GBASE-LR1 transmitter is allowed to transmit a bad signal that a 100GBASE-DR receiver is not required to receive.
This breaks interoperability.
The over/under-shoot limit catches the worst of these bad signals but others pass that but fail the K limit for 100GBASE-DR.
These signals are bad even after the equalizer, and a 100GBASE-FR1 or 100GBASE-LR1 transmitter would be better than the worst allowed for 100GBASE-DR.
The response to D3.0 comment 65 did not provide an explanation for the rejection of the comment or for revision of the change proposed by the commenter. It did not address the failure of interoperability; it only said that in previous ballot and review processes, there were decisions to remove the K limit. See WG comments 20068 and 20062. But these comments and responses do not address interoperability between a 100GBASE-FR1 or 100GBASE-LR1 transmitter and a 100GBASE-DR receiver. The response to D3.1 comment 12 states the issue but still does not fix it.

SuggestedRemedy

Either:
As interoperability with 100GBASE-DR applies over much less than the full distance for 100GBASE-FR1 or 100GBASE-LR1,
and as it is expected that reasonable transmitters that pass the over/undershoot limit will have no problem meeting the spec proposed below,
and as there is no extra measurement needed:
In Table 140-6, for 100GBASE-FR1 and 100GBASE-LR1, insert a limit of 3.4 dB for TECQ - 10log10(Ceq) (max). Add note:
In this case, Ceq is derived from the TECQ analysis, not the TDECQ analysis (see 140.7.5a and 121.8.5.3).
or
Do as discussed in the previous meeting:
Change 140.10a.1 to:
The 100GBASE-FR1 and 100GBASE-DR PMDs can interoperate with each other provided that:
the fiber optic cabling (channel) characteristics for 100GBASE-DR (see 140.10 and Table 140-12) are met;
the 100GBASE-FR1 transmitter average power is greater than or equal to the value for average launch power average launch power (min) for 100GBASE-DR in Table 140-6; and for the 100GBASE-FR1 transmitter, TECQ - 10log10(Ceq) is less than or equal to 3.4 dB, where Ceq is derived from the TECQ analysis, not the TDECQ analysis (see 140.7.5a and 121.8.5.3).
and
Make equivalent changes in 140.10a.2 for 100GBASE-LR1.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment raises the potential of an interop issue between 100GBASE-FR1 or 100GBASE-LR1 and 100GBASE-DR (which was specified in a previous project and is outside the scope of the current project).

While there is no normative requirement for different PMDs to be interoperable, an expectation of interoperation (within certain constraints) exists within the user community. This is the purpose of the informative subclause 140.10a “Interoperation between 100GBASE-DR, 100GBASE-FR1, and 100GBASE-LR1”. It should be noted that the guidelines in this section make sure the baseline power requirements are met when inerconnecting two PMDs, but is not meant to guarantee interop.

For the new 100GBASE-FR1 and 100GBASE-LR1 PMDs defined in this project, there has been an update in the specification methodology which differs from some other PMDs (e.g. 100GBASE-DR) defined previously. As captured in the comment this change in the test methodology does open the theoretical possibility of an interop issue between an 100GBASE-FR1 or 100GBASE-LR1 transmitter and a 100GBASE-DR receiver (as these new transmitters are tested using a difference compliance methodology than the 100GBASE-DR transmitter), although no evidence was provided in the comment of an actual interop issue.

Both options in the suggested remedy (one normative and one informative) propose to address this potential issue by introducing a new parameter “TECQ - 10log10(Ceq)” that is not currently defined in the draft. The addition of this parameter to address the issue raised in the comment has been debated multiple times by the task force, and on each occasion there was no consensus to make the proposed change.

As the comment itself points out, any interop between the PMDs occurs over much less than the full distance of the 100GBASE-FR1 and 100GBASE-LR1 PMDs and as such, the PMDs will have additional margin which compensate for any minor discrepancies that might possibly arise due to the methodology differences. It is the consensus of the Task Force that the risk of interop issues between a 100GBASE-FR1 or 100GBASE-LR1 transmitter and a 100GBASE-DR receiver PMDs is negligible and as such no change to the draft is required.