

IEEE 802.3db D1.1 100G, 200G, 400G Short Reach Fiber Task Force 2nd Task Force review comments

CI **FM** SC **FM** P**13** L**54** # **54**
 Dudek, Mike Marvell
 Comment Type **ER** Comment Status **D** Bucket
 The written page numbers are not matching the pdf page numbers. These comments are based on the pdf page number.
 SuggestedRemedy
 Fix the discrepancy.
 Proposed Response Response Status **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 Correct the inconsistencies in the page numbers.

CI **167** SC **167.7.2** P**40** L**10** # **15**
 Lewis, David Lumentum
 Comment Type **TR** Comment Status **D** Center wavelength in VR links
 The center wavelength (range) for -VRn should allow for nominal wavelengths between 850 nm and 940 nm with tolerance around those wavelengths. This will increase market potential by enabling receivers to work with different transmitters operating at different wavelengths.
 SuggestedRemedy
 Change "TBD" to "844 to 948".
 Proposed Response Response Status **W**
 Presentation from David Lewis.
 Note:
 (a) Photodetector must be sensitive to the range of proposed wavelengths.
 (b) A wide band AR coating on the photodetector is required to keep return loss small.

CI **167** SC **167.1** P**29** L**45** # **35**
 Nicholl, Gary Cisco
 Comment Type **TR** Comment Status **D**
 Table 167-2. 3db precedes 3ck in the amendment order according to the project timeline as indicated in the 802.3-2018 editorial database . 3ck does not exist as far as 3db is concerned, and so AUI interfaces being defined by 3ck (i.e 100GAUI-1 C2C and 100GAUI-1 C2M) should not be referenced.
 SuggestedRemedy
 Delete rows for 120F and 120G from Table 167-1.
 Proposed Response Response Status **W**
 PROPOSED REJECT.
 These interfaces were added after a comment was received on Draft 0.1.

CI **167** SC **167.1** P**30** L**20** # **36**
 Nicholl, Gary Cisco
 Comment Type **TR** Comment Status **D**
 Table 167-2. 3db precedes 3ck in the amendment order according to the project timeline as indicated in the 802.3-2018 editorial database . 3ck does not exist as far as 3db is concerned, and so AUI interfaces being defined by 3ck (i.e. 200GAUI-2 C2C, 200GAUI-2 C2M, 400GAUI-4 C2C and 400GAUI-4 C2M) should not be referenced.
 SuggestedRemedy
 Delete rows for 120F and 120G from Table 167-2.
 Proposed Response Response Status **W**
 PROPOSED REJECT.
 These interfaces were added after a comment was received on Draft 0.1.

CI **167** SC **167.7.1** P**39** L**15** # **13**
 Lewis, David Lumentum
 Comment Type **TR** Comment Status **D** enter wavelength for VR links
 The center wavelength (range) for -VRn should allow for nominal wavelengths between 850 nm and 940 nm with tolerance around those wavelengths. This will increase market potential and leverage the high volume manufacturing infrastructure currently supplying 3D sensing applications.
 SuggestedRemedy
 Change "TBD" to "844 to 948".
 Proposed Response Response Status **W**
 Upcoming Presentation from David Lewis.

As proposed, the center wavelength range raises the question of distinct identity for VR and SR links because the TDECQ reference response filter -3dBe bandwidth (4th order Bessel-Thomson) representing the fiber is not very different.

SR: 844 - 863 nm and Uw 0.65 nm Filter BW 18.0 GHz
 VR: 844 - 948 nm and Uw 0.65 nm Filter BW 20.7 GHz

Consider separate filters for the 850 and 940 nm VCSEL based links for VR.

VR: 844 - 868 nm and Uw 0.65 nm Filter BW 33.6 GHz
 VR: 9xx - 948 nm and Uw 0.65 nm Filter BW 20.7 GHz

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CI 167 SC 167.7.1 P39 L15 # 2

Dawe, Piers Nvidia
 Comment Type T Comment Status D enter wavelength for VR links

We should consider a wavelength range that allows the best laser bandwidth.

SuggestedRemedy

Consider a wider range of wavelengths for VR than the draft range for SR. This doesn't necessarily mean that the SRS signal need be slower, as laser speed and fibre bandwidth will net off.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

(a) Relaxing the wavelength range for VR is consistent with the goal of a low cost VR link relative to the SR link.

(b) In murty_3db_adhoc_01b_121720.pdf, the proposed range for VR is 842 - 868 nm, and for SR is 844 - 863 nm.

(c) Currently center wavelength is a TBD in D1.1 awaiting decision on inclusion of a 940 nm variant.

CI 167 SC 167.7.2 P40 L19 # 10

Tang, Yi Cisco Systems, Inc.
 Comment Type TR Comment Status D Receiver sensitivity

Raise minimum SECQ from 1.4dB to 1.8dB to allow additional margin for RX. Supporting presentation "tang_3db_adhoc_01a_062421.pdf" was reviewed by task force on 06/24.

SuggestedRemedy

All changes proposed are listed in the supporting presentation "tang_3db_adhoc_01a_062421.pdf".

Page 40, 167.7.2 Table 167-8:
 Average receiver power, each lane (min): -6.4dBm
 Stressed receiver sensitivity (OMAouter), each lane (max): -2dBm
 Receiver sensitivity (OMAouter), each lane (max): max(-4.6, SECQ - 6.4) dBm.
 Remove Editors' note c

Page 39, 167.7.1 Table 167-7:
 Average launch power, each lane (min): -4.6dBm
 Outer Optical Modulation Amplitude (OMAouter), each lane (min): -2.6dBm
 Remove Editors' note b
 Change note c to "Even if the TDECQ < 1.8dB"

Page 45, 167.8.12, Equation 167-1:
 $RS = \text{Max}(-4.6, \text{SECQ}-6.4) \text{ (dBm)}$
 Change Figure 167-4 accordingly to match modified equation 167-1

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Discuss following presentation.

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CI 167 SC 167.7.2 P40 L20 # 45

Nicholl, Gary Cisco
 Comment Type TR Comment Status D Receiver sensitivity

In 802.3cu we made "receiver sensitivity" normative and changed the way it is represented in the table (see 802.3cu-2021, Table 151-8 as an example).

SuggestedRemedy

Make the following changes to Table 167-8:

- Change the row "Receiver sensitivity (OMAouter), each lane (max)" to use the same format adopted by 802.3cu-2021. See 802.3cu-2021, Tab:e 151-8 as an example.

- Delete footnote e

Proposed Response Response Status W

PROPOSED REJECT.

(a) In Table 167-8, the receiver sensitivity is succinctly expressed as max (-5, SECQ - 6.4) [or as modified by comment #10 (Yi Tang)].

(b) Footnote e ("Receiver sensitivity is informative ...") in Table 167-8 can be removed pending resolution of comments 48 and 56.

CI 167 SC 167.7.2 P40 L38 # 46

Nicholl, Gary Cisco
 Comment Type TR Comment Status D Receiver sensitivity

802.3cu added a Figure to illustrate "Receiver sensitivity (OMAouter), each lane (max) versus TECQ" for the different PMDs. Note in defining receiver sensitivity 802.3cu switched to using TECQ rather than SECQ. I have submitted a separate comment against the 167.8.12 proposing to make the same change for 802.3db.

SuggestedRemedy

Add a figure (and associated text) following Table 167-8 to illustrate "Receiver sensitivity (OMAouter), each lane (max) versus TECQ" for the different PMDs. See 802.3cu-2021 Figure 151-4 as an example.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Figure for VR links can be generated after TBDs in the link budget are filled.

CI 167 SC 167.7.2 P40 L40 # 70

Ghiasi, Ali Ghiasi Quantum/Marvell
 Comment Type TR Comment Status D Center wavelength in VR links

We have not seen compelling enough advantage with 940 nm VCSELs, not to mention these high speed VCSELs are very different designs than 940 nm VCSELs from 3D sensing, the 940 nm VCSELs require InGaAs detector and not backward compatible with 200GBASE-SR4.

SuggestedRemedy

Change TBD with center wavelength of 840-860 nm

Proposed Response Response Status W

Decision will be based on the discussion following the presentation associated with comment 13 (David Lewis).

CI 167 SC 167.7.2 P51 L33 # 56

Dudek, Mike Marvell
 Comment Type TR Comment Status D Receiver sensitivity

With equalizing receivers it is possible to pass stressed receiver sensitivity while not being able to pass sensitivity and such a receiver would not be inter-operable with some TX's and channel combinations. For this reason 802.3cu made the sensitivity specification normative

SuggestedRemedy

Delete footnote "e". Also on page 56 line 44 delete "is informative and" and delete "The normative requirement for receivers is stressed receiver sensitivity." line 1 page 57. on line 45 page 45 change "should" to "shall".

Proposed Response Response Status W

PROPOSED ACCEPT.
 Comment 48 (Gary Nicholl) also recommends making receiver sensitivity normative.

CI 167 SC 167.7.3 P41 L27 # 47

Nicholl, Gary Cisco
 Comment Type TR Comment Status D Receiver sensitivity

802.3cu added several figures following the illustrative link budget table to illustrate the "Transmitter OMAouter each lane versus TDECQ and receiver sensitivity (OMAouter) each lane versus TECQ" for each PMD.

SuggestedRemedy

Add figures (and associated text) following Table 167-9 to illustrate "Transmitter OMAouter each lane versus TDECQ and receiver sensitivity (OMAouter) each lane versus TECQ" for the different PMDs. See 802.3cu-2021 Figure 151-5 as an example.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Figure for VR links can be generated after TBDs in the link budget are filled.

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CI 167 SC 167.8.5 P43 L29 # 65
 Palkert, Tom Macom
 Comment Type TR Comment Status D Center wavelength in VR links
 Need value for the bandwidth of the 2nd filter for VR
 SuggestedRemedy
 Replace TBD with value of 22 GHz
 Proposed Response Response Status W
 Decision will be based on the discussion following the presentation associated with comment 13 (David Lewis).

CI 167 SC 167.8.12 P45 L42 # 48
 Nicholl, Gary Cisco
 Comment Type TR Comment Status D Receiver sensitivity
 In 802.3cu we made "receiver sensitivity" a normative parameter and defined it based on TECQ rather than SECQ. We should make the same change 802.3db.
 SuggestedRemedy
 Update section 167.8.12 to make "receiver sensitivity" a normative paramter and defined based on TECQ rather than SECQ. Propose using the text of 802.3cu-2021, sub-clause 151.8.12 as a template.
 Proposed Response Response Status W
 PROPOSED ACCEPT.
 Comment 56 (Mike Dudek) also recommends making receiver sensitivity normative.

CI 167 SC 167.8.13 P46 L28 # 49
 Nicholl, Gary Cisco
 Comment Type TR Comment Status D Receiver sensitivity
 The first paragraph makes references to "121.8.10.1", "121.8.10.3" and "121.8.5.2" in 802.3-2018. These references do not exist in this specification. Perhaps the correct references should be "121.8.9.1", "121.8.9.3" and "121.8.9.2" in keeping with 802.3cd-2018, sub-clause 138.8.10 ?
 SuggestedRemedy
 Change "121.8.10.1" to "121.8.9.1"
 Change "121.8.10.3" to "121.8.9.3"
 Change "121.8.5.2" to "121.8.9.2"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 167 SC 167.8.13 P46 L46 # 50
 Nicholl, Gary Cisco
 Comment Type TR Comment Status D Receiver sensitivity
 Need to add another exception to the list to make it clear that the values of over/under-shoot and transmitter power excursion of the stressed receiver conformance test signal are within the limits specified in Table 167-7.
 SuggestedRemedy
 Add an additional exception to the list to state that the the values of over/under-shoot and transmitter power excursion of the stressed receiver conformance test signal are within the limits specified in Table 167-7. See 802.3cu-2021, sub-clause 151.8.13 as an example.

Proposed Response Response Status W
 PROPOSED ACCEPT.
 The exception to be added in section 167.8.13 will read
 "The values of overshoot/undershoot and transmitter power excursion of the stressed receiver conformance signal are within the limits specified in Table 167-7."

CI 167 SC 167.10.3.3 P52 L17 # 74
 Ghiasi, Ali Ghiasi Quantum/Marvell
 Comment Type TR Comment Status D
 Most customers have spoken in support of angled MPO connector due to performance issue which can be difficult to meet with PC MPO, introducing option B PC finish MPO MDI unlikely to have broad market potential and will fragment the market. There is also concern with plugging type A into Type B or vis versa.
 SuggestedRemedy
 Remove option B, but define the cable plant where both PC and APC are supported.
 Proposed Response Response Status W
 PROPOSED REJECT.
 Option B was included in case non-angled connectors are needed by large enterprise end users in the future.