

Proposed change to 400GBASE-SR4.2 specification

Re: Comment ID 29



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IEEE P802.3cm 400 Gb/s over Multimode Fiber Task Force
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Background

- 400GBASE-SR4.2 specifications are based on a quad 100G approach
- A large and growing installed base of 100G BiDi exists with very close optical component specifications
- An opportunity exists to make a slight modification to the 400GBASE-SR4.2 specification to ensure maximum component re-use between the two applications
 - Goals are lowered cost due to commonality and lowered cost due to common test criteria
- Comparison of the current 400GBASE-SR4.2 specification (Clause 150 D2.0) and 100G BiDi indicates small changes will drive consistency:
 - To enable re-use of 400GBASE-SR4.2 Tx components in a 100G BiDi Tx, recommend to raise the Tx optical power specifications of 400GBASE-SR4.2 by 0.3 dB. This brings the Tx optical power specifications of 400GBASE-SR4.2 and 100G BiDi into alignment
 - Note that 400GBASE-SR4.2 Rx components are suitable for re-use in a 100G BiDi Rx without any specification change. The reason for this is that the Rx sensitivity specifications of 400GBASE-SR4.2 are slightly more demanding than those of 100G BiDi

Current proposal (in comment ID 29)

- In Table 150-7, change “Average launch power, each lane (min)” from -6.5 dBm to -6.2 dBm
- In Table 150-7, change “Outer Optical Modulation Amplitude ($\text{OMA}_{\text{outer}}$), each lane (min)” from -4.5 dBm to -4.2 dBm
- In Table 150-7, change “ $\text{OMA}_{\text{outer}} - \text{TDECQ}$, each lane (min)” from -5.9 dBm to -5.6 dBm
- In Table 150-8, change “Average receive power, each lane (min)” from -8.5 dBm to -8.2 dBm
- In Table 150-9, change “Power budget (for max TDECQ)” from 6.6 dB to 6.9 dB
- In Table 150-9, add a row “Allocation to allow component re-use in PMDs defined outside 802.3” with a value of 0.3 dB for all cable types

Comments

- The goals of the proposal are to maximize component re-use and to reconcile the component specifications and test methodology
- The proposal is a Tx change only; no change to the Rx sensitivity requirements is required
- If the proposal is adopted, expect lowered cost and negligible impact to yield
- There are comments on D2.0 arguing for a larger allocation for MN & MPN penalty for 400GBASE-SR4.2 than the current allocation of 0.1 dB. The proposal can be treated as synergistic with these comments
- The following modified proposal (slide 6) could be used to meet the goals of comment ID 29 and also the comments (IDs 12, 38 and 39) requesting a larger allocation for MN & MPN penalty
 - Note that in the modified proposal the 0.3 dB change is classified as unallocated margin, but we could support it being allocated to MN & MPN penalty

Modified proposal (for potential use in a final resolution to comment IDs 12, 29, 38 and 39)

- In Table 150-7, change “Average launch power, each lane (min)” from -6.5 dBm to -6.2 dBm
- In Table 150-7, change “Outer Optical Modulation Amplitude ($\text{OMA}_{\text{outer}}$), each lane (min)” from -4.5 dBm to -4.2 dBm
- In Table 150-7, change “ $\text{OMA}_{\text{outer}} - \text{TDECQ}$, each lane (min)” from -5.9 dBm to -5.6 dBm
- In Table 150-8, change “Average receive power, each lane (min)” from -8.5 dBm to -8.2 dBm
- In Table 150-9, change “Power budget (for max TDECQ)” from 6.6 dB to 6.9 dB
- In Table 150-9, add a row “Unallocated margin” with a value of 0.3 dB for all cable types