802.3df D1.1
Comment Resolution

P802.3df editorial team
Introduction

- This slide package is put together by the 802.3df editorial team to provide background and detailed resolutions to aid in comment resolution.
Clause 167
Fiber optics cabling
Comments 13, 14, 116 (part 1)

- Three comments were received highlighting issues with the clause 167 “Characteristics of the fiber optic cabling and MDI” PICS table
  - Comments 13 , 14, and 116
## Fiber optics cabling

### Comments 13, 14, 116 (part 2)

### D1.1 167.11.4.6 PICS Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Subclauses</th>
<th>Value/Comment</th>
<th>Status</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC5</td>
<td>MDI layout for 400GBASE-VR4 and 400GBASE-SR4</td>
<td>167.10.3.1 a</td>
<td>Optical line assignments per Figure 167-8</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>OC5a</td>
<td>MDI layout for 100GBASE-LR4 and 100GBASE-SR4, option A</td>
<td>167.10.3.1 a</td>
<td>Optical line assignments per Figure 167-8a</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>OC5b</td>
<td>MDI layout for 100GBASE-VR4 and 100GBASE-SR4, option B</td>
<td>167.10.3.1 a</td>
<td>Optical line assignments per Figure 167-8a</td>
<td>Yes</td>
<td>N/A</td>
</tr>
<tr>
<td>OC6</td>
<td>MDI mating, 100GBASE-VR1 and 100GBASE-SR1, with single optical fiber connector</td>
<td>167.10.3.2</td>
<td>MDI optically mates with plug on the cable, performance grade Bus/2m</td>
<td>(VR1)</td>
<td>M</td>
</tr>
</tbody>
</table>

| OC15 | MDI requirements, with multifiber connector | 167.10.3.3 | Per IEC 6126-1, performance grade Bus/1m | INS and (VR1), SR1, VR2, SR2, VR4, or SR4, AF1M | Yes | N/A |
| OC16 | MDI mating, with multifiber connector | 167.10.3.4 | MDI optically mates with plug on the cable, performance grade Bus/2m | (VR1) or SR1, AF1M | Yes | N/A |
| OC17 | MDI dimensions, with multifiber connector | 167.10.3.4 | Per IEC 61745-7-1 interface 7-1-3, or interface 5-1-10 | (VR1) or SR1, AF1M | Yes | N/A |
| OC18 | MDI dimensions, with multifiber connector | 167.10.3.4 | Per IEC 61754-7-2 interfaces 7-2-3 or 7-2-10, or per ANSI/ETIA-606-1A designation FOCIS 18 A-1-0 or FOCIS 18 R-1:0-1-0-1-2-0 | (VR1) or SR1, AF1M | Yes | N/A |
| OC19 | Cabling connector dimensions, with multifiber connector | 167.10.3.4 | Per IEC 61754-7-2 interface 7-2-4 or ANSI/ETIA-606-1-A designation FOCIS 18 Poc-w16-1-0-2-0-2-0 | INS+ (VR1) or SR1, AF1M | Yes | N/A |
| OC20 | MDI requirements, with multifiber connector | 167.10.3.4 | Per IEC 61753-1 and IEC 61753-22-2, performance grade Bus/2m | INS+ (VR1) or SR1, AF1M | Yes | N/A |
Fiber optics cabling
Comments 13, 14, 116 (part 3)

Proposed D1.2 167.11.4.6 PICS Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Subclause</th>
<th>Value/Comment</th>
<th>Status</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC5</td>
<td>MDI layout for 400GBASE-XR4 and 40GBASE-SR4</td>
<td>167.10.3.1</td>
<td>Optical line assignments per Figure 167-8</td>
<td>VR4 or SR4:3M</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC5a</td>
<td>MDI layout for 400GBASE-XR4 and 40GBASE-SR4 option A</td>
<td>167.10.3.1a</td>
<td>Optical line assignments per Figure 167-8a</td>
<td>VR4 or SR4:3M</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC5b</td>
<td>MDI layout for 400GBASE-XR4 and 400GBASE-SR4 option B</td>
<td>167.10.3.1a</td>
<td>Optical line assignments per Figure 167-8a</td>
<td>VR4 or SR4:3M</td>
<td>N/A [ ]</td>
</tr>
<tr>
<td>OC6</td>
<td>MDI mating, 100GBASE-XR1 and 100GBASE-SR1, with duplex optical fiber connector</td>
<td>167.10.3.2</td>
<td>MDI optically mates with plug on the cabling, performance grade Bm/2m</td>
<td>VR1 or SR1:3M</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC6</td>
<td>MDI mating, 100GBASE-XR1 and 100GBASE-SR1, with duplex optical fiber connector</td>
<td>167.10.3.2</td>
<td>MDI optically mates with plug on the cabling, performance grade Bm/2m</td>
<td>VR1 or SR1:3M</td>
<td>N/A [ ]</td>
</tr>
<tr>
<td>OC15</td>
<td>MDI requirements, with multifiber connector</td>
<td>167.10.3.3</td>
<td>Per IEC 61267-1, performance grade Bm/1m</td>
<td>INS nu [VR1, SR1, VR2, SR2, VR4, or SR4]:AFM</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC16</td>
<td>MDI mating, with multifiber connector</td>
<td>167.10.3.4</td>
<td>MDI optically mates with plug on the cabling, performance grade Bm/2m</td>
<td>VR4 or SR4:AFM</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC17</td>
<td>MDI mating, with multifiber connector</td>
<td>167.10.3.4</td>
<td>MDI optically mates with plug on the cabling, performance grade Bm/2m</td>
<td>VR8 or SR8:AFM</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC18</td>
<td>MDI dimensions, with multifiber connector</td>
<td>167.10.3.4</td>
<td>Per IEC 61754-5-2 interface 7-3 or interface 7-3-1b</td>
<td>INS [VR8 or SR8]:AFM</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC19</td>
<td>MDI dimensions, with multifiber connector</td>
<td>167.10.3.4</td>
<td>Per IEC 61754-5-4 interface 7-4-7 or interface 7-4-9</td>
<td>INS [VR8 or SR8]:AFM</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>OC20</td>
<td>Cabling connector dimensions, with multifiber connector</td>
<td>167.10.3.4</td>
<td>Per IEC 61754-5-2 interface 7-2-4</td>
<td>INS [VR8 or SR8]:AFM</td>
<td>Yes [ ]</td>
</tr>
</tbody>
</table>
Fiber optics cabling
Comments 13, 14, 116 (part 4)

Proposed D1.2 PICS Table Updates

- The value/comments of OC16 through OC23 now align with the updated text in 167.10.3.4
- The use of !AFI for flat connectors and AFI for angled connectors is consistent with 802.3db-2022
- The resolution of comment #115 could affect the final PICS table

<table>
<thead>
<tr>
<th>OC14</th>
<th>MDI requirements, with multifiber connector</th>
<th>167.10.3.3</th>
<th>Per IEC 61753-1 and IEC 61753-022-2, performance grade Bm/2m</th>
<th>INS and (VR1, SR1, VR2, SR2, VR4, or SR4)!AFI/M</th>
<th>Yes [ ] N/A [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC15</td>
<td>MDI requirements, with multifiber connector</td>
<td>167.10.3.3</td>
<td>Per IEC 63267-1, performance grade Bm/1m</td>
<td>INS and (VR1, SR1, VR2, SR2, VR4, or SR4)!AFI/M</td>
<td>Yes [ ] N/A [ ]</td>
</tr>
</tbody>
</table>
Clause 173
PCSL Grouping
Comment #84

Comment Type: T  Comment Status: D
Adapt the PCSL (PCS lane) formatted signal to the appropriate number of abstract or physical lanes

Suggested Remedy:
Adapt the PCSL (PCS lane) formatted signal to the appropriate number and grouping of abstract or physical lanes

Proposed Response: W  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.
The constrained grouping of lanes is part of the "adapt" process and does not need to be listed as a detail here. Instead, this detail is specified in 173.4. The proposed change is not necessary.
However, the acronym PCSL is not properly introduced in this clause.
Change "PCSL (PCS lane)" to "PCS lane (PCS)."

Figure 173-1—8000BASE-R PMA relationship to the ISO/IEC Open Systems Interconnection (OSI) reference model and IEEE 802.3 Ethernet model

173.1.3 Summary of functions
The following is a summary of the principal functions implemented (when required) by the PMA in both the transmit and receive directions:

- Adapt the PCSL (PCS lane) formatted signal to the appropriate number of abstract or physical lanes
- Provide per input-line clock and data recovery
- Provide bit-level multiplexing

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PCS Grouping
Comment #87

Figure 173-3
(PMA Clause)

Figure 172-2
(PCS Clause)
Comment #85

In common cases (800GAUI-8) receive link status information may be used but isn't forwarded. “Provide receive link status information in the receive direction”: do we need another bullet, that when connected to a PHY XS, it provides link status information in the transmit (egress) direction?

Suggested Remedy

Per comment

Proposed Response  Response Status  W

PROPOSED REJECT.

The opening sentence in 173.1.3 states “The following is a summary of the principal functions implemented (when required) by the PMA in both the transmit and receive directions:
— Adapt the PCSL (PCS lane) formatted signal to the appropriate number of abstract or physical lanes
— Provide per input-lane clock and data recovery
— Provide bit-level multiplexing

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FEC Degrade
Comments 17, [55, 56], 59

Consensus View on how FEC degrade signaling should work
OTN mapper contribution to FEC degrade signaling is for ITU to decide, but LD, RD must be propagated whether or not the FEC decoder in the OTN mapper contributes to the accumulated LD status

LD and RD passed in AMs in AUI or Ethernet link, out-of-band to adjacent sublayer across MII
Drawback in description: PCS has different logic depending on whether it is directly below an RS or XS

Multiplexing rules
Comments [27, 89, 92] - (part 1)

- Three comments were received proposing additional PMA multiplexing constraints above and beyond what was agreed to in the adopted baseline: https://www.ieee802.org/3/df/public/22_10/22_1004/shrikhande_3df_01a_221004.pdf
- Comment #6 against Draft 1.0 made a similar proposal. Straw polls recorded in the response to comment #6 indicated favor for adopting the proposal but there were many that needed more information, and more consensus building was necessary.
- A new presentation provides more information on the problem (ran_3df_01_2301)
Multiplexing rules
Comments [27, 89, 92] - (part 2)

- Below is the final response to D1.0 comment #6, including the results of the straw poll.

REJECT.

The current text and constrained PCSL multiplexing requirement is consistent with the adopted baseline (see slides 17&18 in https://www.ieee802.org/3/df/public/22_10/22_1004/shrikhande_3df_01a_221004.pdf).

The following presentation was reviewed by the task force:

Based on straw polls #1 and #2 there is no consensus to make the proposed changes at this time. The commenter is encouraged to refine the proposal and build consensus.

Straw poll #1 (direction)
I would support the changes proposed on slides 10 in ran_3df_01a_2212.
Yes: 16
No: 6
Need more information: 27

Straw poll #2 (direction)
I would support the changes proposed on slides 11 in ran_3df_01a_2212.
Yes: 13
No: 6
Need more information: 33

Suggested remedy (modified) – part 1

173.4.2.1 32:8 PMA bit-level multiplexing
Change the second list item as shown:
- The multiplexing function has an additional constraint that each of the 8 output lanes contain two unique PCSLs from PMA client lanes \( i = 0 \) to \( 15 \) and followed by two unique PCSLs from PMA client lanes \( i = 16 \) to \( 31 \).

173.4.2.2 8:32 PMA bit-level multiplexing
Change the second list item as shown:
- The multiplexing function has an additional constraint that each of the 8 output lanes contain two unique PCSLs from service interface lanes \( i = 0 \) to \( 15 \) and followed by two unique PCSLs from service interface lanes \( i = 16 \) to \( 31 \).

Suggested remedy (modified) – part 2

173.4.2.3 8:8 PMA bit-level multiplexing
Change the second list item as shown:
- The 4 PCSLs received on any input lane shall be mapped together to an output lane such that the Gray-coded PAM4 symbol sequence on the output is identical to the Gray-coded PAM4 symbol sequence on the input (see 173.4.7.1). The order of PCSLs from an input lane does not have to be maintained on the output lane.