802.3df D2.0
Comment Resolution

P802.3df editorial team
Introduction

- This slide package was assembled by the 802.3df editorial team to provide background and detailed resolutions to aid in comment resolution.
Cross-Clause, Part 1
Comment #55 pointed out the unusual wording in the IEC normative reference

"One fibre rows" is strange.

Check the reference and correct to "One fibre row" unless the reference does have this in its title.

PROPOSED ACCEPT IN PRINCIPLE.

The referenced standard is currently in draft state. The title in the referenced draft has recently been corrected to say "One fibre row".

Change "rows" to "row".

The current normative reference in D2.0 is

IEC 61754-7-4:2018, Fibre optic interconnecting devices and passive components—Fibre optic connector interfaces—Part 7-4: Type MPO connector family—One fibre rows 16 fibre wide.
Normative reference, Clause 1, 124, 167
Comment 55

In researching the correct wording of the normative reference, it was identified that the normative reference is still in a draft state and not publicly available.

To prevent the possibility of delaying the completion of 802.3df due to an unavailable normative reference, the editorial team decided to hijack the comment and remove the IEC reference and transition to an equivalent TIA reference.
In 124.11.3.3 replace

The MDI adapter or receptacle shall meet the dimensional specifications for interface 7-4-7: MPO adaptor interface – Opposed keyway configuration or interface 7-4-9: MPO active device receptacle, angled interface for 16 fibers, as defined in IEC 61754-7-4. The plug terminating the optical fiber cabling shall meet the dimensional specifications of interface 7-4-1: MPO female plug, down-angled interface for 16 fibers, as defined in IEC 61754-7-4. The MPO-16 female plug connector and MDI are structurally similar to those depicted in Figure 124–7, but with an angled end facet, 16 fibers, an offset keyway, and different pin diameters and locations.

With

The MDI receptacle shall meet the dimensional specifications for designation FOCIS 18 A-1-0, or designation FOCIS 18 R-1x16-1-8-1-1-2, as defined in ANSI/TIA-604-18-A:2018. The plug terminating the optical fiber cabling shall meet the dimensional specifications of designation FOCIS 18 P-1x16-1-8-2-1-1, as defined in ANSI/TIA-604-18-A:2018. The MPO-16 female plug connector and MDI are structurally similar to those depicted in Figure 124–7, but with an angled end facet, 16 fibers, an offset keyway, and different pin diameters and locations.
CC: Normative reference, Clause 1, 124, 167
Comment 55

In 167.10.3.4 replace

For option B, the MDI adapter or receptacle shall meet the dimensional specifications for interface 7-4-7: MPO adaptor interface – Opposed keyway configuration or interface 7-4-9: MPO active device receptacle, angled interface for 16 fibers, as defined in IEC 61754-7-4. The plug terminating the optical fiber cabling shall meet the dimensional specifications of interface 7-4-1: MPO female plug, down-angled interface for 16 fibers, as defined in IEC 61754-7-4. The MPO female plug connector and MDI are structurally similar to those depicted in Figure 167-9, but with 16 fibers, an offset keyway, and with different pin diameter and locations. The MDI connection shall meet the interface performance specifications of IEC 63267-1 for performance grade Bm/1m.

With

For option B, the MDI receptacle shall meet the dimensional specifications for designation FOCIS 18 A-1-0, or designation FOCIS 18 R-1x16-1-8-1-2-2, as defined in ANSI/TIA-604-18-A:2018. The plug terminating the optical fiber cabling shall meet the dimensional specifications of designation FOCIS 18 P-1x16-1-8-2-2-1, as defined in ANSI/TIA-604-18-A:2018. The MPO female plug connector and MDI are structurally similar to those depicted in Figure 167-10, but with 16 fibers, an angled end facet, an offset keyway, and with different pin diameter and locations. The MDI connection shall meet the interface performance specifications of IEC 63267-1 for performance grade Bm/1m.
CC: Normative reference, Clause 1, 124, 167
Comment 55


Delete the IEC reference in subclause 1.3 of 802.3df D2.1.
Cross-Clause, Part 2
CC: Optical PMD definitions, Clause 1
Comments 73, 74, 75, 76, 77 (part 1)
1.4 Definitions

Insert the following new definition after 1.4.135 400GBASE-DR4:

1.4.135a 400GBASE-DR4-1: IEEE 802.3 Physical Layer specification for 400 Gb/s using 400GBASE-R encoding and 4-level pulse amplitude modulation over four lanes of single-mode fiber, with reach up to at least 2 km. (See IEEE Std 802.3, Clause 124.)

1.4.184b 800GBASE-DR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of single-mode fiber, with reach up to at least 500 m. (See IEEE Std 802.3, Clause 124.)

1.4.184c 800GBASE-DR8-2: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of single-mode fiber, with reach up to at least 2 km. (See IEEE Std 802.3, Clause 124.)

1.4.184d 800GBASE-SR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of multimode fiber, with reach up to at least 100 m. (See IEEE Std 802.3, Clause 167.)

1.4.184g 800GBASE-VR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of multimode fiber, with reach up to at least 50 m. (See IEEE Std 802.3, Clause 167.)
Change 1.4.135a from:
1.4.135a 400GBASE-DR4-2: IEEE 802.3 Physical Layer specification for 400 Gb/s using 400GBASE-R encoding and 4-level pulse amplitude modulation over four lanes of single-mode fiber, with reach up to at least 2 km. (See IEEE Std 802.3, Clause 124.)
To:
1.4.135a 400GBASE-DR4-2: IEEE 802.3 Physical Layer specification for 400 Gb/s using 400GBASE-R encoding with 4-level pulse amplitude modulation over four single-mode fibers, with reach up to at least 2 km. (See IEEE Std 802.3, Clause 124.)

Change 1.4.184b from:
1.4.184b 800GBASE-DR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of single-mode fiber, with reach up to at least 500 m. (See IEEE Std 802.3, Clause 124.)
To:
1.4.184b 800GBASE-DR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding with 4-level pulse amplitude modulation over eight single-mode fibers, with reach up to at least 500 m. (See IEEE Std 802.3, Clause 124.)

Change 1.4.184c from:
1.4.184c 800GBASE-DR8-2: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of single-mode fiber, with reach up to at least 2 km. (See IEEE Std 802.3, Clause 124.)
To:
1.4.184c 800GBASE-DR8-2: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding with 4-level pulse amplitude modulation over eight single-mode fibers, with reach up to at least 2 km. (See IEEE Std 802.3, Clause 124.)

Change 1.4.184f from:
1.4.184f 800GBASE-SR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of multimode fiber, with reach up to at least 100 m. (See IEEE Std 802.3, Clause 167.)
To:
1.4.184f 800GBASE-SR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding with 4-level pulse amplitude modulation over eight multimode fibers, with reach up to at least 100 m. (See IEEE Std 802.3, Clause 167.)

Change 1.4.184g from:
1.4.184g 800GBASE-VR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding and 4-level pulse amplitude modulation over eight lanes of multimode fiber, with reach up to at least 50 m. (See IEEE Std 802.3, Clause 167.)
To:
1.4.184g 800GBASE-VR8: IEEE 802.3 Physical Layer specification for 800 Gb/s using 800GBASE-R encoding with 4-level pulse amplitude modulation over eight multimode fibers, with reach up to at least 50 m. (See IEEE Std 802.3, Clause 167.)

Make similar changes to definitions for the following:
(802.3-2022, 802.3db-2022) for 200GBASE-SR4/DR4/VR2/SR2
(802.3-2022, 802.3db-2022) for 400GBASE-SR16/DR16/VR4/SR4

Implement with editorial license.
For 400GBASE-DR4 change:
400 Gb/s PHY using 400GBASE-R encoding over four lanes of single-mode fiber, with reach up to at least 500 m (see Clause 124)
To:
400 Gb/s PHY using 400GBASE-R encoding over four single-mode fibers, with reach up to at least 500 m (see Clause 124)

For 400GBASE-DR4-2 change:
400 Gb/s PHY using 400GBASE-R encoding over four lanes of single-mode fiber, with reach up to at least 2 km (see Clause 124)
To:
400 Gb/s PHY using 400GBASE-R encoding over four single-mode fibers, with reach up to at least 2 km (see Clause 124)

Make similar changes as follows:
Table 169-1 for 800GBASE-VR8/SR8/DR8/DR8-2.
Table 116-1 (802.3-2022, 802.3db-2022) for 200GBASE-SR4/DR4/VR2/SR2
Table 116-2 (802.3-2022, 802.3db-2022) for 400GBASE-SR16/SR8/SR4.2/DR4/VR4/DR4

Implement with editorial license.
### CC: Optical PMD definitions, Clauses 116 Comments 63, 64 (part 2)

From 802.3-2022...

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000BASE-ER</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of an electrical backbone (see Clause 127)</td>
</tr>
<tr>
<td>2000BASE-CR</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of multi-mode copper cable (see Clause 126)</td>
</tr>
<tr>
<td>2000BASE-SR</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of multi-mode fiber (see Clause 120)</td>
</tr>
<tr>
<td>2000BASE-DX</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of single-mode fiber, with reach up to at least 2 km (see Clause 122)</td>
</tr>
<tr>
<td>2000BASE-U</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of WDM lasers, on single-mode fiber, with reach up to at least 10 km (see Clause 122)</td>
</tr>
<tr>
<td>2000BASE-LR</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of WDM lasers on single-mode fiber, with reach up to at least 40 km (see Clause 122)</td>
</tr>
</tbody>
</table>

From 802.3db-2022...

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000BASE-ER</td>
<td>200 Gb/s PHY using 2000BASE-R encoding over four lanes of multi-mode fiber, with reach up to at least 100 m (see Clause 135)</td>
</tr>
<tr>
<td>4000BASE-SR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of single-mode fiber, with reach up to at least 100 m (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-DX</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of single-mode fiber, with reach up to at least 2 km (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-ER</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of WDM lasers, on single-mode fiber, with reach up to at least 3 km (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-UR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of WDM lasers, on single-mode fiber, with reach up to at least 6 km (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-LR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over four lanes of WDM lasers, on single-mode fiber, with reach up to at least 40 km (see Clause 150)</td>
</tr>
</tbody>
</table>

From 802.3df D2.0...

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000BASE-UR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over four lanes of multi-mode fiber, with reach up to at least 100 m (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-DR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of multi-mode fiber, with reach up to at least 100 m (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-UR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of single-mode fiber, with reach up to at least 2 km (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-DR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over eight lanes of single-mode fiber, with reach up to at least 6 km (see Clause 150)</td>
</tr>
<tr>
<td>4000BASE-LR</td>
<td>400 Gb/s PHY using 4000BASE-R encoding over four lanes of WDM lasers, on single-mode fiber, with reach up to at least 40 km (see Clause 150)</td>
</tr>
</tbody>
</table>
CC: MAU type definitions, Clause 30
Comments 78, 79, 80, 61, 62 (part 1)
CC: MAU type definitions, Clause 30
Comments 78, 79, 80, 61, 62 (part 2)

From 802.3df D2.0...

30.5 Layer management for medium attachment units (MAUs)

30.5.1 MAU managed object class

30.5.1.1 MAU attributes

30.5.1.1.2 MAU type

APPROPRIATE SYNTAX:

Change the 40GBASE-DR4 entry in “APPROPRIATE SYNTAX” in 30.5.1.1.2 as follows:

40GBASE-DR4 40GBASE-R PCS/PMA over 4 lane multimode fiber PMD with reach up to at least 100 m as specified in Clause 174

Insert the following new entry into “APPROPRIATE SYNTAX” in 30.5.1.1.2 after the entry for 40GBASE-DR4:

40GBASE-DR4-2 40GBASE-R PCS/PMA over 4 lane single mode fiber PMD with reach up to at least 3 km as specified in Clause 124

Insert the following new entries into “APPROPRIATE SYNTAX” in 30.5.1.1.2 as modified by IEEE Std 802.3-2022 as follows:

40GBASE-CR8 40GBASE-R PCS/PMA over 8 lane shielded balanced copper cable PMD as specified in Clause 162

40GBASE-DR8 40GBASE-R PCS/PMA over 8 lane single mode fiber PMD with reach up to at least 500 m as specified in Clause 124

40GBASE-DR8-2 40GBASE-R PCS/PMA over 8 lane single mode fiber PMD with reach up to at least 100 m as specified in Clause 124

40GBASE-ER8 40GBASE-R PCS/PMA over an electrical backbone PMD as specified in Clause 163

40GBASE-SR8 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD with reach up to at least 100 m as specified in Clause 167

40GBASE-ZR8 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD with reach up to at least 500 m as specified in Clause 167

From 802.3db-2022...

Insert the following new entry into “APPROPRIATE SYNTAX” in 30.5.1.1.2 after 40GBASE-R as follows:

40GBASE-CR4 40GBASE-R PCS/PMA over 4 lane multi mode fiber PMD with reach up to at least 100 m as specified in Clause 167

Insert the following new entry into “APPROPRIATE SYNTAX” in 30.5.1.1.2 after 40GBASE-SR4 as follows:

40GBASE-ER4 40GBASE-R PCS/PMA over 4 lane single mode fiber PMD with reach up to at least 2 km as specified in Clause 124

Insert the following new entry into “APPROPRIATE SYNTAX” in 30.5.1.1.2 as specified in Clause 124

40GBASE-ER4 40GBASE-R PCS/PMA over 4 lane single mode fiber PMD with reach up to at least 10 km as specified in Clause 124

Insert the following new entry into “APPROPRIATE SYNTAX” in 30.5.1.1.2 as modified by IEEE Std 802.3-2022 as follows:

40GBASE-CR4 40GBASE-R PCS/PMA over 4 lane twisted copper balanced cable PMD as specified in Clause 162

40GBASE-DR4 40GBASE-R PCS/PMA over 4 lane single mode fiber PMD as specified in Clause 124

40GBASE-FR4 40GBASE-R PCS/PMA over 4 WDM lane single mode fiber PMD with reach up to at least 5 km as specified in Clause 124

40GBASE-SR4 40GBASE-R PCS/PMA over an electrical backbone PMD as specified in Clause 163

40GBASE-ER4 200GBASE-R PCS/PMA over 4 lane single mode fiber PMD with reach up to at least 10 km as specified in Clause 124

40GBASE-ER4-M 40GBASE-R PCS/PMA over 4 lane single mode fiber PMD with reach up to at least 6 km as specified in Clause 124

40GBASE-ES4 40GBASE-R PCS/PMA over 8 lane single mode fiber PMD with reach up to at least 10 km as specified in Clause 124

40GBASE-SR4 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 124

40GBASE-SR4 200GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 161

40GBASE-SR4-M 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 162

40GBASE-SR4 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 124

40GBASE-SR4 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 167

40GBASE-SR4 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 127

40GBASE-SR4 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 124

40GBASE-SR4 40GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 167

40GBASE-SR4 200GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 161

40GBASE-SR4 200GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 162

40GBASE-SR4 200GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 163

40GBASE-SR4 200GBASE-R PCS/PMA over 8 lane multimode fiber PMD as specified in Clause 167

802.3a Integrated services MAU as specified in IEEE Std 802.3a-1995 (withdrawn)

From 802.3-2022...

May 23, 2023

IEEE P802.3df Task Force, May 2023
CC: MAU type definitions, Clause 30
Comments 78, 79, 80, 61, 62 (part 3)

For 800GBASE-SR8 change:
800GBASE-R PCS/PMA over 8-lane multimode fiber PMD with reach up to at least 100 m as specified in Clause 167
To:
800GBASE-R PCS/PMA over 8 multimode fibers PMD with reach up to at least 100 m as specified in Clause 167

For 800GBASE-VR8 change:
800GBASE-R PCS/PMA over 8-lane multimode fiber PMD with reach up to at least 50 m as specified in Clause 167
To:
800GBASE-R PCS/PMA over 8 multimode fibers PMD with reach up to at least 50 m as specified in Clause 167

For 800GBASE-DR8 change:
800GBASE-R PCS/PMA over 8-lane single-mode fiber PMD with reach up to at least 500 m as specified in Clause 124
To:
800GBASE-R PCS/PMA over 8 single-mode fibers PMD with reach up to at least 500 m as specified in Clause 124

For 800GBASE-DR8-2 change:
800GBASE-R PCS/PMA over 8-lane single-mode fiber PMD with reach up to at least 2 km as specified in Clause 124
To:
800GBASE-R PCS/PMA over 8 single-mode fibers PMD with reach up to at least 2 km as specified in Clause 124

For 400GBASE-DR4 change, with appropriate editorial markups:
400GBASE-R PCS/PMA over 4-lane single-mode fiber PMD with reach up to at least 500 m as specified in Clause 124
To:
400GBASE-R PCS/PMA over 4 single-mode fibers PMD with reach up to at least 500 m as specified in Clause 124

For 400GBASE-DR4-2 change, with appropriate editorial markups:
400GBASE-R PCS/PMA over 4-lane single-mode fiber PMD with reach up to at least 2 km as specified in Clause 124
To:
400GBASE-R PCS/PMA over 4 single-mode fibers PMD with reach up to at least 2 km as specified in Clause 124

Make similar changes for the following:
- 200GBASE-SR4/DR4/VR2/SR2
- 400GBASE-SR16/SR8/SR4.2/DR4/VR4/SR4

Also, it was noted that the definition for the 800GBASE-R PCS is missing in 30.5.1.1.2.

In 30.5.1.1.2 add the following definition:
“800GBASE-R Multi-lane PCS as specified in Clause 172 over undefined PMA/PMD”

Implement with editorial license
Clause 45
TX EQ register, Clause 45
Comment 16

This table is relevant only for AUI-C2C with 25 and 50 Gb/s per lane; 100 Gb/s per lane requires a different equalizer (e.g., 3 precursor taps). So, it is irrelevant for 802.3df.

This table is relevant only for AUI-C2C with 25 and 50 Gb/s per lane; 100 Gb/s per lane requires a different equalizer (e.g., 3 precursor taps). So, it is irrelevant for 802.3df.

The “-n” in the table title should be changed to specific numbers to exclude the 100 Gb/s per lane AUIs defined in 802.3ck. This requires maintenance action.
TX EQ register, Clause 45
Comments 57, 25, 26, 27, 28, 29

Addressed by comment #16

This comment and comments 26 through 29 are overtaken by comment #16 (text subject of these comments will be removed)

May 23, 2023
IEEE P802.3df Task Force, May 2023
Clause 171
800GMII Extender FEC degrade, Clause 171
Comment 99

171.2 DTE 800GXS Sublayer

The DTE 800GXS shall be identical in function to the 800GBASE-R PCS (see Clause 172) with the modified exception that the FEC degrade signaling is defined in 171.5. Figure 172–2 provides a functional block diagram.

171.3 PHY 800GXS Sublayer

The PHY 800GXS shall be identical in function to an 800GBASE-R PCS (see Clause 172) with the following exceptions:
— The PCS is inverted with the transmit function used for the receive direction and vice versa.
— The service interface signals are remapped as defined in 171.3.2 and 171.3.3.
— FEC degrade signaling is defined in 171.5 and 118.2.2.
Clause 172
Subclause organization, Clause 172
Comments 35, 37

To avoid having the single subclause 172.2.4.1.1, propose the following changes (see next slide for detailed view):

- Create 3 subclauses in 172.2.4.1, one for each of the functions described in the subclause:
  - 172.2.4.1.1 : Encode
  - 172.2.4.1.2 : Rate matching
  - 172.2.4.1.3 : Block distribution

- The stateless encoder definition including Table 172-1 will naturally belong in the Encode subclause 172.2.4.1.1
- The Rate matching and Block distribution subclauses will have the text currently in 172.2.4.1 that describes these functions (no changes to text needed)

To avoid the single subclause 172.2.5.8.1 by using the same procedure used for 172.2.4.1 (see next 2 slides):

- Create 3 subclauses in 172.2.5.8, one for each of the functions described in the subclause:
  - 172.2.5.8.1 : Block collection
  - 172.2.5.8.2 : Decode
  - 172.2.5.8.3 : Rate matching

- Follow similar procedure as the proposed response to comment # 35
Comment 35: Proposed 172.2.4.1 reorganization

172.2.4.1 Encode, rate matching, and block distribution

172.2.4.1.1 Encode
The transmit PCS generates 66-bit blocks based on the TXD<63:0> and TXC<7:0> signals received from the 800GMII as specified by the transmit state diagram shown in Figure 119–14 or by the stateless encoder specified in this subclause. One 800GMII data transfer is encoded into one 66-bit block. The contents of each 66-bit block are contained in a vector tx_coded<65:0>. tx_coded<1:0> contains the sync header and the remainder of the bits contain the payload.

An alternate method to that defined by the transmit state diagram shown in Figure 119–14 is specified in this subclause. The stateless encoder specified here is an alternate method to the transmit state diagram shown in Figure 119-14. This stateless encoder depends only on the current and preceding 72-bit 800GMII vectors. The encoder shall encode each 72-bit 800GMII vector (tx_raw) to a 66-bit block (tx_coded) according to the rules in Table 172–1. Constants LBLOCK_T and EBLOCK_T are defined in 119.2.6.2.1. Variables reset, tx_raw, and tx_coded are defined in 119.2.6.2.2. Functions T_TYPE and ENCODE, and the block types are defined in 119.2.6.2.3.

172.2.4.1.2 Rate matching
The transmit PCS may remove idle control characters or sequence ordered sets to compensate for the insertion of alignment markers. The transmit PCS may remove idle control characters or sequence ordered sets or may insert idle control characters to compensate for different clock domains on the 800GMII and the PMA service interface. See 119.2.3.5 and 119.2.3.8 for the deletion and insertion rules.

172.2.4.1.3 Block distribution
The 66-bit blocks are distributed to the two flows in an alternating fashion by the block distribution function such that the first 66-bit block is sent to flow 0, the second 66-bit block is sent to flow 1, the third 66-bit block is sent to flow 0, and subsequent 66-bit blocks continue the distribution procedure across the two flows.
Comment 37: Proposed 172.2.5.8 reorganization

172.2.5.8 Block collection, decode, and rate matching

172.2.5.8.1 Block collection

The block collection reverses the block distribution done in the transmitter (see 172.2.4.1.3) by combining the 66-bit blocks from the two flows in an alternating fashion to form a single stream of 66-bit blocks. The first 66-bit block after the alignment marker group from flow 0 shall be followed by the first 66-bit block after the alignment marker group from flow 1.

172.2.5.8.2 Decode

The receive PCS decodes 66-bit blocks to produce RXD<63:0> and RXC<7:0> for transmission to the 800GMII as specified by the receive state diagram shown in Figure 119–15 or by the stateless decoder specified in this subclause. One 800GMII data transfer is decoded from each 66-bit block.

An alternate method to that defined by the receive state diagram shown in Figure 119–15 is specified in this subclause. The stateless decoder specified here is as an alternate method to the receive state diagram shown in Figure 119-15. This stateless decoder depends only on the current and preceding 66-bit block. The decoder shall decode each 66-bit block (rx_coded) to a 72-bit 800GMII vector (rx_raw) according to the rules in Table 172–4. Constants LBLOCK_R and EBLOCK_R are defined in 119.2.6.2.1. Variables reset, rx_raw, and rx_coded are defined in 119.2.6.2.2. Functions R_TYPE and DECODE, and the block types are defined in 119.2.6.2.3.

172.2.5.8.3 Rate matching

The receive PCS may insert idle control characters to compensate for the deletion of alignment markers. The receive PCS may remove idle control characters or sequence ordered sets or may insert idle control characters to compensate for different clock domains on the PMA service interface and the 800GMII. See 119.2.3.5 and 119.2.3.8 for the deletion and insertion rules.
Clause 173
PMA bit multiplexing, Clause 173
Comment 6

Change 173.4.2.1 (page 232, line 12) from:
The bit-level multiplexing function is identical to that specified in 120.5.2, with the following exceptions:
To:
The restricted bit-level multiplexing function is identical to that specified in 120.5.2, with the following exceptions:

Change 173.4.2.2 (page 232, line 38) from:
The bit-level multiplexing function is identical to that specified in 120.5.2, with the following exceptions:
To:
The restricted bit-level multiplexing function is identical to that specified in 120.5.2, with the following exceptions:

Change 173.4.2.3 (page 233, line 4) from:
In both the transmit and receive directions, the bit-level multiplexing function is identical to that specified in 120.5.2, with the following exceptions:
To:
In both the transmit and receive directions, the restricted bit-level multiplexing function is identical to that specified in 120.5.2, with the following exceptions:

In 173.4 "Functions within the PMA" the text references the undefined term "restricted bit-multiplexing" and says to "see 173.4.2.1". However, the word "restricted" does not appear in 173.4.2.1 "32:8 PMA bit-level multiplexing".

Propose to update the text in 173.4.2.1 "32:8 PMA bit-level multiplexing". Replace "The multiplexing function has an additional constraint ..." with "This restricted bit-multiplexing function has an additional constraint ...

Similarly, propose to update the text in 173.4.2.2 "8:32 PMA bit-level multiplexing". Replace "The multiplexing function has an additional constraint ..." with "This restricted bit-multiplexing function has an additional constraint ...

Likewise, propose to update the text in 173.4.2.3 "8:8 PMA bit-level multiplexing". Replace "The 4 PCSs received on an input lane shall be mapped ..." with "This restricted bit-multiplexing function has an additional constraint that the 4 PCSs received on an input lane shall be mapped ...

Proposed Response: Response Status: O
PMA location, Clause 173 comment 68

173.1.4 text is replicated here:

A 32:8 PMA sublayer is required in a PHY or an 800GMII Extender and is located immediately below either the 800GBASE-R PCS sublayer or the DTE 800GXS sublayer, respectively.

An 8:32 PMA sublayer is required in an 800GMII Extender and is located immediately above the PHY 800GXS sublayer.

An 8:8 PMA sublayer is required in a PHY with one or two physical instantiations of the PMA service interface (800GAUI-8) or in an 800GMII Extender with two physical instantiations of the PMA service interface (800GAUI-8).

Update text of 173.1.4 (above) as follows (with editorial licence):

32:8 PMA is required as follows:
-- in an 800GBASE-R PHY immediately below the 800GBASE-R PCS and immediately above either an 800GAUI-8 or 800GBASE-8 PMD
-- in an 800GMII Extender immediately below the DTE 800GXS and immediately above an 800GAUI-8

8:32 PMA is required as follows:
-- in an 800GMII Extender, located immediately below an 800GAUI-8 and immediately above the PHY 800GXS

8:8 PMA is required as follows:
-- in an 800GMII Extender with two 800GAUI-8, located immediately between the two 800GAUI-8
-- in an 800GBASE-R PHY, located immediately below an 800GAUI-8 and immediately above either an 800GAUI-8 or 800GBASE-8 PMD

Some of the extra details are not too important for this generation, but once we add the 200 Gb/s per lane AUIs there will be some ambiguity.
Splitting the details makes it clear that that you might have an 8:8 and 32:8 in both the extender and the PHY.

Add three separate subclauses under 173.4, to contain the functional overview and block diagram for the three individual PMAs, 32:8 PMA, 8:32 PMA and 8:8 PMA.