

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

Cl **FM** SC **FM** P1 L1 # I-3

Hajduczenia, Marek Charter Communications

Comment Type **G** Comment Status **A**

MEC comment: update copyright year to 2022

*SuggestedRemedy*  
Per comment

Response Response Status **C**

ACCEPT.

Cl **FM** SC **FM** P3 L1 # I-28

Dawe, Piers J G NVIDIA

Comment Type **E** Comment Status **A** abstract

Take the newsy, advertising, descriptive and commercial words out of the abstract.  
"optical reach" is not defined.  
Here is a suggested modification. This could be used for the description on page 13 if they are to be the same.

*SuggestedRemedy*

This amendment to IEEE Std 802.3-202x defines Super-PON optical subscriber access networks, in the family of Ethernet passive optical networks (EPONs). Super-PON has a reach of up to 50 km and up to 1024 ONUs over a point-to-multipoint passive optical distribution network (ODN) through wavelength division multiplexing (WDM). A Super-PON optical distribution network (ODN) contains a passive wavelength router that determines the channels used by the ODN. This standard specifies the Super-PON Reconciliation Sublayer (RS), Physical Coding Sublayer (PCS), Physical Media Attachment (PMA) sublayer, and Physical Medium Dependent (PMD) sublayer at a MAC data rate of 10 Gb/s in the downstream direction and of 10 Gb/s or 2.5 Gb/s in the upstream direction.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Applied the following text of the abstract

"This amendment to IEEE Std 802.3-202x defines Super-PON optical subscriber access networks, in the family of Ethernet passive optical networks (EPONs). Super-PON has a reach of up to 50 km and up to 1024 ONUs over a point-to-multipoint passive optical distribution network (ODN) through wavelength division multiplexing (WDM). A Super-PON ODN contains a passive wavelength router that determines the channels used by the ODN. This standard specifies the Super-PON Reconciliation Sublayer (RS), Physical Coding Sublayer (PCS), Physical Media Attachment (PMA) sublayer, and Physical Medium Dependent (PMD) sublayer at a MAC data rate of 10 Gb/s in the downstream direction and of 10 Gb/s or 2.5 Gb/s in the upstream direction."

+ used the same text on page 13, line 3, where 802.3cs amendment is used.

Cl **FM** SC **FM** P11 L3 # I-27

Dawe, Piers J G NVIDIA

Comment Type **E** Comment Status **A**

Amendment:

*SuggestedRemedy*  
Amendment 3:

Response Response Status **C**

ACCEPT.

Cl **FM** SC **FM** P13 L3 # I-29

Dawe, Piers J G NVIDIA

Comment Type **E** Comment Status **A** abstract

This description of this amendment seems much longer than others, with more advertising and descriptive material. This is a standard: "customer" doesn't come into it. "optical reach" is not defined.

*SuggestedRemedy*

Condense this text to about half the length. Take out words such as expanded, customer and subscribers. Avoid "optical reach" unless the term is defined somewhere. See the suggestion for the abstract on page 3.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

See comment #I-28 for the resolution

Cl **FM** SC **FM** P20 L20 # I-2

Hajduczenia, Marek Charter Communications

Comment Type **G** Comment Status **A**

MEC comment: The text of "IMPORTANT NOTICE" paragraph can be removed. It is included in the latest boilerplate information.

*SuggestedRemedy*

Change per comment

Response Response Status **C**

ACCEPT.

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

Cl 0 SC 0 P37 L # I-21

DeSanti, Claudio

Dell

Comment Type E Comment Status A

In Figure 56-7a the "Black link" box should be "Super-PON Black link"

SuggestedRemedy

Change "Black link" to "Super-PON Black link"

Response Response Status C

ACCEPT.

Cl 1 SC 1.4 P21 L38 # I-18

Ran, Adeo

Cisco Systems, Inc.

Comment Type GR Comment Status A

The term Multipoint MAC Control and the abbreviation MPMC now appear in multiple clauses, but do not have definitions in clause 1.

SuggestedRemedy

In 1.4, add a definition of Multipoint MAC Control with reference to the relevant clauses (I assume clause 144 and 164.5).

In 1.4, add expansion of the abbreviation MPMC.

Response Response Status C

ACCEPT IN PRINCIPLE.

Added acronym to abbreviations in section 1.5 as MPMC multipoint mac control

Cl 1 SC 1.4.543a P21 L45 # I-30

Dawe, Piers J G

NVIDIA

Comment Type E Comment Status A

"PMDs that address networks": eh?

SuggestedRemedy

Change "PMDs that address" to ""PMDs for"?

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed "PMDs that address" to "PMDs for".

Cl 30 SC 30.5.1.1.2 P24 L13 # I-24

Grow, Robert

RMG Consulting

Comment Type E Comment Status R

Burst mode or burst-mode? The document is inconsistent. (P802.3 is aiming to make hyphenation consistent for "common-mode" and "differential-mode" neither of which I find in this document.) The hyphenated "burst-mode" is used in clauses 65 and 144 but "burst mode" is used in clauses: 4, 30, 60, 65, 75, 76, 100, 101, 141, 142, 148, and annexes 58A, 75A.

SuggestedRemedy

Absent a clear P802.3 usage, at least make P802.3cs consistent. Perhaps "burst mode" because of its dominance in 802.3.

Response Response Status C

REJECT.

The usage is consistent, i.e., "burst-mode" is a compound adjective and hyphenated. When used as a noun with adjective (e.g., operates in burst mode), it does not need a hyphen.

Cl 45 SC 45.2.1.27.1a P25 L38 # I-31

Dawe, Piers J G

NVIDIA

Comment Type E Comment Status A

45.2.1.27.1

SuggestedRemedy

45.2.1.27.1a

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.27.2 P27 L49 # I-6

Rannow, R K

IEEE member / Self Employed

Comment Type T Comment Status A

A PMA/PMD shall ignore writes to the PMA/PMD type selection bits that select PMA/PMD types it has not advertised.

Appears verbose and ambiguous.

SuggestedRemedy

A PMA/PMD shall ignore writes to the PMA/PMD type selection bits that select PMA/PMD types not advertised.

Response Response Status C

ACCEPT.

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

Cl 56 SC 56.1 P36 L # I-22

DeSanti, Claudio

Dell

Comment Type E Comment Status A

Verify the figure references in 56.1. The current text in 802.3 is:

"The relationships between these EFM elements and the ISO/IEC Open System Interconnection (OSI) reference model are shown in Figure 56–1 and Figure 56–2 for point-to-point topologies, Figure 56–3 for 1G-EPON topologies, Figure 56–4 for 10/10G-EPON topologies, Figure 56–5 for 10/1G-EPON topologies, Figure 56–6 for EPoC topologies, and Figure 56–7 for Nx25G-EPON topologies."

*SuggestedRemedy*

Update the references to figures as needed.

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed page 36, line 12 from "Figure 56–5a" to "Figure 56–7"

Cl 56 SC 56.1.2 P36 L33 # I-32

Dawe, Piers J G

NVIDIA

Comment Type E Comment Status A

Take out the newsy, advertising and commercial words. This is not necessarily the only amplified WDM PON in the world. "optical reach" is not defined.

*SuggestedRemedy*

Change:

Super-PON (i.e., amplified WDM PON) with a nominal MAC data rate of 10 Gb/s in the downstream direction and 10 Gb/s or 2.5 Gb/s in the upstream direction. Super-PON supports an increased optical reach of up to 50 km and an expanded customer coverage of up to 1024 subscribers over a point-to-multipoint passive optical distribution network (ODN) through wavelength division multiplexing (WDM). The Super-PON PMA and PCS sublayers are specified in Clause 164.

to

Super-PON (an amplified WDM PON) with a nominal MAC data rate of 10 Gb/s in the downstream direction and 10 Gb/s or 2.5 Gb/s in the upstream direction, with a reach of up to 50 km and up to 1024 ONUs over a point-to-multipoint passive optical distribution network (ODN) using wavelength division multiplexing (WDM). The Super-PON PMA and PCS sublayers are specified in Clause 164.

Response Response Status C

ACCEPT.

Cl 56 SC 56.1.2.1. P36 L # I-23

DeSanti, Claudio

Dell

Comment Type E Comment Status A

Verify the figure references in 56.1.2.1. The current text in 802.3 is:

"Every P2MP ODN topology consists of one Optical Line Terminal (OLT) and one or more ONUs, as shown in Figure 56–3, Figure 56–4, Figure 56–5, and Figure 56–7 for 1G-EPON, 10/10G-EPON, 10/1G-EPON, and Nx25G-EPON, respectively. One of several instances of the MPCP in the OLT communicates with the instance of the MPCP in the ONU. A pair of MPCPs that communicate between the OLT and ONU are a distinct and associated pair."

*SuggestedRemedy*

Update the references to figures as needed.

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed page 36, line 50 from "Figure 56–5a, and Figure 56-5b" to "Figure 56–5, and Figure 56–7"

Cl 164 SC 164 P41 L3 # I-17

Ran, Adeo

Cisco Systems, Inc.

Comment Type TR Comment Status A

The title of clause 164 suggests that it is limited to Physical layers and management parameters, but the content includes the MPMC which is within the data link layer (as shown in Figure 164-2, Figure 164-5, and Figure 164-11).

#### SuggestedRemedy

Change the title from "Physical Layers and management parameters for increased-reach point-to-multipoint Ethernet optical subscriber access (Super-PON)" to "Physical Layers, Multipoint MAC Control and management parameters for increased-reach point-to-multipoint Ethernet optical subscriber access (Super-PON)".

In the first sentence of 164.1 change "a set of physical layer specifications and management parameters" to "a set of specifications for physical layers, Multipoint MAC Control sublayer, and management parameters".

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed the title from "Physical Layers and management parameters for increased-reach point-to-multipoint Ethernet optical subscriber access (Super-PON)" to "Physical Layers, Multipoint MAC Control, and management parameters for increased-reach point-to-multipoint Ethernet optical subscriber access (Super-PON)".

In the first sentence of 164.1 changed "a set of physical layer specifications and management parameters" to "a set of specifications for physical layers, Multipoint MAC Control sublayer, and management parameters".

Cl 164 SC 164.1 P43 L51 # I-19

Ran, Adeo

Cisco Systems, Inc.

Comment Type E Comment Status A

In the legend of Figure 164-2, "MULTI-POINT" appears with a dash, although in 164.5 (and in clause 144, and elsewhere) it is "multipoint".  
Similarly in Figures 164-5, 164-8, 164-11, and 56-7a.

#### SuggestedRemedy

Delete the dash in the legend of all 5 figures.

Response Response Status C

ACCEPT.

Cl 164 SC 164.2.1.1 P43 L46 # I-20

Ran, Adeo

Cisco Systems, Inc.

Comment Type ER Comment Status R

Figure 164-2 has a hatched box above the legend with a nearby label saying "PMD described in 164.2". This label seems to be related to the hatched block denoting the PMD sublayer in the diagram, but it is not the PMD sublayer itself.

Such boxes are not typically included in similar diagrams across the standard; the location of the subclause in question is sufficiently emphasized by the hatch pattern in the block within diagram. The additional box near the legend is redundant and confusing.

The hatch pattern could be improved, as in Figure 164-7.

Similarly in Figure 164-5 and Figure 164-11 (where the label has "MPCP" instead of "MPMC", adding more confusion).

#### SuggestedRemedy

Delete the hatched box above the legend and the adjacent label.  
Consider highlighting the PMD blocks in the diagrams as done in Figure 164-7.

Apply similar changes in Figure 164-5 and Figure 164-11, highlighting the relevant sublayer blocks in each case (in Figure 164-11 these are the MPMC blocks, since there is no "MPCP" block).

Response Response Status C

REJECT.

The hatched box is used in the baseline standard document. No changes to the draft needed.

Cl 164 SC 164.2.4.1.1 P44 L41 # I-8

Ran, Adeo

Cisco Systems, Inc.

Comment Type E Comment Status A

The hierarchy of "Delay constraints" subclause below "PMD service interface" is odd, as it is not part of the service interface, and arguably not part of the PMD functional specifications either. It makes it difficult to find the delay constraints in the bookmarks.

The suggested remedy is to place it after 164.2.4 "PMD functional specifications", which would become 164.2.5. Other locations are possible, if the hierarchy makes sense.

#### SuggestedRemedy

Promote 164.2.4.1.1 "Delay constraints" upper in the hierarchy to 164.2.5, and rename it "PMD delay constraints".

Response Response Status C

ACCEPT.

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

CI 164 SC 164.2.4.1.1 P44 L43 # I-7

Ran, Adeel Cisco Systems, Inc.

Comment Type T Comment Status A

EQT is not an obvious term. It would help clarify if EQT was followed by a reference to its definition, "(see 1.4.313)", as done in 141.3.1.2.

## SuggestedRemedy

Append "(see 1.4.313)".

Response Response Status C

ACCEPT.

CI 164 SC 164.2.4.2 P46 L24 # I-33

Dawe, Piers J G NVIDIA

Comment Type E Comment Status A

Super-PON PMD Test Points

## SuggestedRemedy

Super-PON PMD test points  
Scrub the document for any more rogue capitals

Response Response Status C

ACCEPT.

CI 164 SC 164.2.6.1 P48 L46 # I-34

Dawe, Piers J G NVIDIA

Comment Type E Comment Status A

Many table cells seem to have too little left or right white space margin.

## SuggestedRemedy

Check the white space margin is correct, widen columns as appropriate.

Response Response Status C

ACCEPT.

CI 164 SC 164.2.6.2 P49 L37 # I-9

Ran, Adeel Cisco Systems, Inc.

Comment Type TR Comment Status A

For "Receiver OSNR tolerance" and "Minimum OSNR", dB (0.1 nm) is not a standard unit and its meaning is not clear.

The table footnote b clarifies that 0.1 nm is the wavelength range for the measurement, so it's part of the definition of the parameter, not a unit.

The unit should be "dB" for these rows.

Also in 164.2.8, Table 164–8.

## SuggestedRemedy

In Table 164–6 and in Table 164–8, for both "Receiver OSNR tolerance" and "Minimum OSNR", change unit to "dB".

Response Response Status C

ACCEPT.

CI 164 SC 164.2.7.1 P50 L17 # I-25

Grow, Robert RMG Consulting

Comment Type E Comment Status A

Side mode or side-mode? The document is inconsistent. Though P802.3 is inconsistent, SMSR side mode suppression ratio is what appears in 1.5.

## SuggestedRemedy

Use side mode throughout. (Also p. 52, I. 36.)

Response Response Status C

ACCEPT.

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

Cl 164 SC 164.2.7.1 P50 L 23 # I-10

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status R

Values for TDP in Table 164–7 are placed in different vertical alignment.

*SuggestedRemedy*

Format the table cells so that the values align.

Response Response Status C

REJECT.

This is intentional formatting. The value of 2.0 applies to "for -600 to +50 ps/nm residual CD," and value of 1.0 applies to "for -600 to +1020 ps/nm residual CD". This convention has been used in other IEEE Std 802.3 amendments.

No changes to the draft needed.

Cl 164 SC 164.2.9 P52 L 36 # I-13

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status A

This is a general comment on optical parameters: in most cases the parameters are defined with no difference between 10 Gb/s and 2.5 Gb/s (which both appear in Table 164–10) with references to clause 52. I have specific comments on two places where the signaling rate should affect the measurements; I suspect that there are other places where distinction should be made.

*SuggestedRemedy*

Consider any required exceptions for 2.5G transmitters and receivers in 164.2.9 and its subclauses.

Response Response Status C

ACCEPT IN PRINCIPLE.

The required exceptions have been considered and no changes to the draft are needed.

Cl 164 SC 164.2.9.6 P53 L 11 # I-11

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status A

The reference for RIN15OMA is 88.8.7.

Looking at 88.8.7, it refers back to 52.9.6 with a few exceptions related to the data rate being 25.78125 Gbd and for multi-lane PMDs. These exceptions do not apply to clause 164. The reader needs to go to 52.9.6 anyway for the full definitions.

Unless there is a reason I'm missing, 52.9.6 would be a better reference.

Also, the filter bandwidth for each mode should be specified.

*SuggestedRemedy*

Change from "See 88.8.7, with exception of the optical return loss value of 15 dB" to "RIN is defined by the measurement methodology of 52.9.6, with an optical return loss value of 15 dB. The measurement filter bandwidth is appropriately equal to the signaling rate (i.e., 10.3 GHz for 10 Gb/s and 2.6 GHz for 2.5 Gb/s)".

Response Response Status C

ACCEPT.

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

CI 164 SC 164.2.9.7 P53 L17 # I-12

Ran, Adeo

Cisco Systems, Inc.

Comment Type TR Comment Status A

"... and the test method shall be according to 158.8.7 for 10G signal, and according to 158.8.7 with bandwidth of scope filter response and jitter corner frequency of CRU at 1/4 those for 10G."

This phrasing is difficult to understand. Does the second part of the quoted sentence refer to 2.5G?

Also, 158.8.7 already refers to Figure 86-4, so there is no need to point to it again.

Also, the "shall" should not be on the test mode but on the result - as in 158.8.7: "The transmitter optical waveform of a port transmitting the test pattern specified in Table 158-11 shall meet specifications..."

#### SuggestedRemedy

Change the text from

"The required transmitter pulse shape characteristics for Super-PON PMDs are specified in the form of a mask of the transmitter eye diagram as shown in Figure 86-4 and the test method shall be according to 158.8.7 for 10G signal, and according to 158.8.7 with bandwidth of scope filter response and jitter corner frequency of CRU at 1/4 those for 10G" to

"The transmitter pulse shape characteristics for Super-PON PMDs at 10G shall meet the specifications of 158.8.7. For 2.5G PMDs the specifications are similar, except for the with bandwidth of scope filter response and the jitter corner frequency of the CRU,, which are 1/4 of the values for 10G".

Change PICS item OM6 accordingly.

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed the text from

"The required transmitter pulse shape characteristics for Super-PON PMDs are specified in the form of a mask of the transmitter eye diagram as shown in Figure 86-4 and the test method shall be according to 158.8.7 for 10G signal, and according to 158.8.7 with bandwidth of scope filter response and jitter corner frequency of CRU at 1/4 those for 10G" to

"The transmitter pulse shape characteristics for Super-PON PMDs at 10G shall meet the specifications of 158.8.7. For 2.5G PMDs the specifications are similar, except for the bandwidth of scope filter response and the jitter corner frequency of the CRU, which are 1/4 of the values for 10G".

Changed PICS item OM6 accordingly.

CI 164 SC 164.2.9.10 P53 L51 # I-14

Ran, Adeo

Cisco Systems, Inc.

Comment Type ER Comment Status A

"Ton is defined in 164.2.9.10.1 and has the value of less than or equal to 256 ns (defined in Table 164-7)"

I assume the value is measured, and it is required to be less than or equal to the limit.

Similarly on L54 and on P54 L11.

#### SuggestedRemedy

Change "has the value of less than" to "shall be less than" or "is less than", in 3 locations.

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed "has the value of less than" to "shall be less than" in 3 locations.

Added new PICS to address the new "shall" statements.

CI 164 SC 164.2.9.11.2 P55 L43 # I-15

Ran, Adeo

Cisco Systems, Inc.

Comment Type GR Comment Status A

"Specifically, the Trx\_settling time must be met in the following scenarios:"

"must" must not be used.

#### SuggestedRemedy

Change to "Specifically, the Trx\_settling requirement holds in the following scenarios:"

Response Response Status C

ACCEPT.

CI 164 SC 164.2.9.11.2 P55 L43 # I-26

Grow, Robert

RMG Consulting

Comment Type E Comment Status A

The word "must" is deprecated.

#### SuggestedRemedy

Rewrite to eliminate the word.

Response Response Status C

ACCEPT IN PRINCIPLE.

Comment resolved through #I-15

## Approved Responses

## IEEE P802.3cs D3.0 SuperPON Task Force Initial Sponsor ballot comments

Cl 164 SC 164.2.11.2 P58 L12 # I-16

Ran, Adeo

Cisco Systems, Inc.

Comment Type TR Comment Status A

"NOTE—Compliance testing is performed at TP2, TP3, TP6, and TP7 as defined in 164.2.4.2, not at the MDI."

This note is incorrect and misleading - receiver compliance testing is performed at the MDI. TP3 and TP7 are the outputs of the cable plant which coincide with the MDI in a deployed system, but not during receiver tests.

As shown in comment I-60 against 802.3dc D3.0, most of the similar comments in other clauses are specific to the transmitter. The remaining few will likely be corrected in 802.3dc. This clause should align with existing clauses.

*SuggestedRemedy*

Change to "NOTE—Transmitter compliance testing is performed at TP2 or TP6 as defined in 164.2.4.2, not at the MDI".

Response Response Status C

ACCEPT.

Cl 164 SC 164.3.1.2 P64 L16 # I-5

Rannow, R K

IEEE member / Self Employed

Comment Type T Comment Status A

both = and

Multiple instances of the term "both" which is verbose

*SuggestedRemedy*

Review the use of the term and remove most instances.

Response Response Status C

ACCEPT IN PRINCIPLE.

Removed all instances of "both" in combination with "and"

Cl 164 SC 164.5.1.3 P79 L33 # I-1

Hajduczenia, Marek

Charter Communications

Comment Type E Comment Status A

MEC comment: format of the note "Note - Super-PON does not use the Channel Control Protocol (CCP) defined for Nx25G-EPON." is not correct

*SuggestedRemedy*

Fix the NOTE formatting.

Response Response Status C

ACCEPT.

Cl 164A SC 164A.2.2 P97 L19 # I-4

Hajduczenia, Marek

Charter Communications

Comment Type E Comment Status A

MEC comment: there are five instances of the term "minimize". Consider changing to "reduce".

All instances are in the informative Annex 164A

*SuggestedRemedy*

Per comment

Response Response Status C

ACCEPT.

Cl 164B SC 164B P105 L6 # I-35

Dawe, Piers J G

NVIDIA

Comment Type E Comment Status A

As this annex says it's informative...

*SuggestedRemedy*

Should "Information about cabled fiber link attributes used for system design" be simplified to "Cabled fiber link attributes used for system design"

Response Response Status C

ACCEPT IN PRINCIPLE.

Changed

"Information about cabled fiber link attributes used for system design" to

"Cabled fiber link attributes used for system design"