Cl **00** *SC* *P* *L* # 1159

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The current draft and existing Clause 64 allows for a legacy 1G ONU to use any LLID other than 0x7FFF, and for a 10G ONU to use any value other than 0x7FFE.

We should consider creating a set of control LLIDs that can be used for registration of multiple speeds and possibly other purposes. This set of LLIDs will be set aside and not used except for specified purposes. The top two LLIDs are already being used, so it makes sense to continue in this manner. A range of 0x7FFF - 0x7F00 is suggested. The larger question is where this is specified and how to make it applicable to EPON, as well.

SuggestedRemedy

Add table to draft and text that reserves all LLIDs from 0x7FFF - 0x7F00. These LLIDs cannot be assigned to unicast links and are reserved for broadcast, discovery...

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 1127

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

Editors Note style
Covers Clause 1, 30, 45, 56 and 92

SuggestedRemedy

Conform to style in 3av_0804_remein_1.pdf

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 1133

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

Need to rationalize paragraph styles for Constants, Variables, Functions, Messages and Counters.

SuggestedRemedy

Make proposal

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **00** *L* **0** # 1110

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

General editorial comment:
When referring to complete clauses, Clause XX should be used
When referring to subclauses, Subclause XX.YY.ZZ.. should be used

SuggestedRemedy

Global alignment for all altered clauses (91,91A,92,93). Leave existing clauses the way they are.
Change all references like "see 56.543.3.2" to "see Subclause 56.543.3.2". In certain cases omission of the word "subclause" causes confuson. It can be avoided.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.2** *P* **2** *L* **8** # 1071

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Since the binary notation is confusing I guess everyone, I would suggest to add a new section with the explanation of the binary representation of the hex values.

SuggestedRemedy

Replace subclause 1.2 with the contents of the file 3av_0804_hajduczenia_5.pdf.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **2** *L* **15** # 1069

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Revision of the 10GBASE-PR PMD definition. The reach seems to include only the 20 dB ChIL PMDs.

SuggestedRemedy

Change the existing definition of the 10GBASE-PR PMD to:
"10GBASE-PR:IEEE 802.3 Physical Layer specification for a symmetric, 10 Gb/s downstream and 10 Gb/s upstream, point-to-multipoint link over one single-mode optical fiber, with a reach of at least 10 km and the split of at least 1:16. (See IEEE 802.3 Clause 91, Clause 92 and Clause 93)."

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **2** *L* **21** # 1070

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Revision of the 10GBASE-PRX PMD definition. The reach seems to include only the 20 dB ChIL PMDs.

SuggestedRemedy

Change the existing definition of the 10GBASE-PRX PMD to:
"10GBASE-PRX:IEEE 802.3 Physical Layer specification for a asymmetric, 10 Gb/s downstream and 1 Gb/s upstream, point-to-multipoint link over one single-mode optical fiber, with a reach of at least 10 km and the split of at least 1:16. (See IEEE 802.3 Clause 64, Clause 91, Clause 92 and Clause 93)."

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.5** *P* **2** *L* **38** # 1068

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

An acronym OSI is used heavily in all clauses. Perhaps it is time to put it actually in the list of acronyms.

SuggestedRemedy

Insert a new abbreviation in the list:
"OSI - Open Systems Interconnection"

Proposed Response *Response Status* **O**

Cl **30** *SC* *P* **4** *L* **1** # 1209

Mandin, Jeff PMC Sierra

Comment Type **ER** *Comment Status* **X**

Comment 817 (management text) was not applied to draft 1.2

SuggestedRemedy

Apply comment 817 and incorporate the text 3av_0803_mandin_2.pdf as indicated

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **6** *L* **17** # 1072

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Clause 92 does not describe 10GBASE-R BER monitor but rather 10GBASE-PR / 10/1GBASE-PRX BER monitor

SuggestedRemedy

Change the references to 10GBASE-R to 10GBASE-PR / 10/1GBASE-PRX.
Changes included in 45.2.3 and 45.2.3.29

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.29** *P* **6** *L* **28** # 1073

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Lines 28 and 33 are affected in the said clause.
There is nothing like 10GEPON - there is 10G-EPON as accepted in #971 from March meeting.

SuggestedRemedy

Replace "10GEPON" with "10G-EPON"

Proposed Response *Response Status* **O**

Cl **56** *SC* **56** *P* **1** *L* **1** # 1074

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Contribution to Clause 56

SuggestedRemedy

Replace Clause 56 with the contents of the file 3av_0804_hajduczenia_6.pdf

Proposed Response *Response Status* **O**

Cl **56** *SC* **56.1** *P* **8** *L* **24** # 1128

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

56.1 Overview
Paragraph startging with "EFM is extended in Clause 91 and Clause 92 by the addition of 10G-EPON. 10G-EPON ..."

SuggestedRemedy

Paragraph should be underlined.

Proposed Response *Response Status* **O**

Cl **91** *SC* **7** *P* **30** *L* **42** # 1221

Ryan, Hirth Teknovus

Comment Type **E** *Comment Status* **X**

Table 91-17 belongs with Figure 91-6, 91-7.

SuggestedRemedy

Move table 91-17 between Figure 91-7 and table 91-14.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91** *P* **9** *L* **7** # 1136

Remein, Duane Alcatel-Lucent

Comment Type **ER** *Comment Status* **X**

Editors Note style
Covers Clause 91, 91A and 93.

SuggestedRemedy

Conform to style in 3av_0804_remein_1.pdf

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.1.2** *P* **10** *L* **5** # 1093

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

the "point-to-multipoint" is already defined on page 9. Use P2MP acronym instead

SuggestedRemedy

Change "Support subscriber access networks using point–to–multipoint topologies on optical fiber." to "Support subscriber access networks using P2MP topologies on optical fiber."

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.1.3** *P* **10** *L* **25** # 1094

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Subclause 91.1.3 seems to consist of two subsections i.e. part which defines the power budget classes and part which discusses the power budgets. Why not separate the power budte classes and power budgets from each other for simpler referencing ?

SuggestedRemedy

Create a new subclause 91.1.4 with the title "Power Budgets" after line 23 ("ratio of at least 1:32 and the distance of at least 20 km"). Insert lines 27 - 43 to new subclause 91.1.4.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.1.3** *P* **4** *L* **12** # 110705

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **D** *Deferred to Tokyo*

Language revision

SuggestedRemedy

Change "Each power budget class is represented by PRX-type power budget and PR-type power budget." to "Each power budget class comprises a PRX-type power budget and a PR-type power budget."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **91** *SC* **91.1.4** *P* **11** *L* **8** # 1095

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-1 is affected.
Title of the table suggests that power budget classes are presented, yet the included data presents power budgets (PR10, PR20 etc.).
Strike out the word "classes" from table caption

SuggestedRemedy

Strike out the word "classes" from the caption of Table 91-1

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.10.1** *P* **32** *L* **11** # 1106

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The Note "The 1:16 or 1:32 optical splitter may be replaced by a " is not precise since in the 91.1.2 we state clearly that it is at least 1:16 or 1:32 ...

SuggestedRemedy

Change "The 1:16 or 1:32 optical splitter may be replaced by a " to "The single optical splitter presented in Figure 91-6 may be replaced by a "

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.10.3** *P* **33** *L* **2** # 1126

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

91.10.3 Optical fiber connection
Typo "OLT MID and the ONU MID is not defined"

SuggestedRemedy

Replace with "OLT MDI and the ONU MDI is not defined"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.11.3** *P* **35** *L* **11** # 1205

Hamano, Hiroshi Fujitsu Labs.

Comment Type **T** *Comment Status* **X**

In the table, Value/Comment for each PMD Item/Feature is still defined in 'distance and split ratio'. This is not consistent with the definition of the power budget classes in 91.1.3., which was revised in March meeting on comments #702-704.

SuggestedRemedy

Each value in the table should be defined in 'channel insertion loss'.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2** *P* **11** *L* **38** # 1099

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The text on the symmetric / asymmetric ONU / OLT PMDs is ill suited in this place. It should be located after introduction of the U-type and D-type PMDs and merged with the U-type and D-type PMD description.

SuggestedRemedy

Replace subclause 91.2 with the subclause 91.2 included in 3av_0804_hajduczenia_1.pdf.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2** *P* **11** *L* **50** # 1096

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

There is a quotation mark before the words "On the other hand, the ONU PMD"

SuggestedRemedy

Remove the redundant quotation mark before the words "On the other hand, the ONU PMD"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2** *P* **12** *L* **1** # 1139
Remein, Duane Alcatel-Lucent

Comment Type **T** *Comment Status* **X**

91.2 PMD Types Figure 91–1 & Figure 91–2 disagree with Figure 92–1 and Figure 92–12

SuggestedRemedy

Rationalize figures (use 92-1 and 91-2).

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2** *P* **12** *L* **51** # 1097
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Figure 91-1 and Figure 91-2 are affected.
The caption of both Figures includes the term "Open Systems Interconnection (OSI)".
Since the term is repeated over and over again in all PMD clauses, it would be suggested to put the OSI acronym in the section 1.4 and change the captions to read:
Figure 91-1 "Relationship of 10 Gb/s symmetric P2MP PMD to the ISO/IEC OSI reference model and the IEEE 802.3 CSMA/CD LAN model"
Figure 91-2 "Relationship of 10/1 Gb/s asymmetric P2MP PMD to the ISO/IEC OSI reference model and the IEEE 802.3 CSMA/CD LAN model"

SuggestedRemedy

Put the OSI acronym in the section 1.4 and change the captions to read:
Figure 91-1 "Relationship of 10 Gb/s symmetric P2MP PMD to the ISO/IEC OSI reference model and the IEEE 802.3 CSMA/CD LAN model"
Figure 91-2 "Relationship of 10/1 Gb/s asymmetric P2MP PMD to the ISO/IEC OSI reference model and the IEEE 802.3 CSMA/CD LAN model"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2** *P* **14** *L* **5** # 1098
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Two examples of PMDs are given. Perhaps the second one could be an ONU PMD example for asymmetric power budget, just to have more clarity on what is used in the clause.

SuggestedRemedy

Change "10GBASE-PR-D2" to "10/1GBASE-PRX-U3".

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2** *P* **5** *L* **30** # 110642
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **D** *Deferred to Tokyo*

Language revision

SuggestedRemedy

Change "from each of U-type PMDs" to "from all U-type PMDs"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **91** *SC* **91.2** *P* **5** *L* **32** # 110839
Ryan, Hirth Teknovus

Comment Type **E** *Comment Status* **D** *Deferred to Tokyo*

"Clause 91 defines several D-type and several U-type PMDs."The word "several" is vague and unnecessary.

SuggestedRemedy

"Clause 91 defines D-type and U-type PMDs."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **91** *SC* **91.2.1.1** *P* **14** *L* **41** # 1100
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Replication of PMD definitions.
Due to the introduction of U-type and D-type PMDs as well as their subtypes, i.e. symmetric / asymmetric U/D-type PMDs, it is not necessary to say: "asymmetric ONU (U–type) PMDs" - it is enough to say "asymmetric U–type PMDs".

SuggestedRemedy

Change "asymmetric ONU (U–type) PMDs" to "asymmetric U–type PMDs"
Change "symmetric ONU (U–type) PMDs" to "symmetric U–type PMDs"
Change "asymmetric OLT (D–type) PMDs" to "asymmetric D–type PMDs"
Change "symmetric OLT (D–type) PMDs" to "symmetric D–type PMDs"
Glocal search and replace in clause 91 after subclause 91.2.1.1 (inclusive)

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2.1.1** *P* **14** *L* **44** # 1101

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-2 is affected. Table 91-2 caption is not precise.

SuggestedRemedy

Change "PMD – power budget mapping for asymmetric PRX–type devices" to "PMD – power budget mapping for asymmetric PRX-type power budgets"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.2.1.1** *P* **8** *L* **26** # 110780

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **D** *Deferred to Tokyo*

Clarification: add phrase "the complementary".

Also in 91.2.1.2

SuggestedRemedy

Replace
"The asymmetric power budgets are created by combining asymmetric ONU PMDs (...) with asymmetric OLT PMDs (...) as presented in Table 91-2"
with
"The asymmetric power budgets are created by combining asymmetric ONU PMDs (...) with the complementary asymmetric OLT PMDs (...) as presented in Table 91-2"

And Replace
"The symmetric power budgets are created by combining symmetric ONU PMDs (...) with symmetric OLT PMDs (...) as presented in Table 91-3."
with
"The symmetric power budgets are created by combining symmetric ONU PMDs (...) with the complementary symmetric OLT PMDs (...) as presented in Table 91-3."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Was Proposed Accept
Changed to AIP - chage to
"Table 91-2 illustrates recommended parings of asymmetric ONU PMDs (.) with asymmetric OLT PMDs (.) to achieve the power budgets as shown in Table 91-1."
and
"Table 91-3 illustrates recommended parings of symmetric ONU PMDs (.) with symmetric OLT PMDs (.) to achieve the required power budgets as shown in Table 91-1."

Cl **91** *SC* **91.2.1.2** *P* **15** *L* **6** # 1102

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-3 is affected. Table 91-3 caption is not precise.

SuggestedRemedy

Change "PMD – power budget mapping for symmetric PR–type devices" to "PMD – power budget mapping for symmetric PR-type power budgets"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3** *P* **15** *L* **19** # 1103

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The sentence is not precise since it is not defined which PMDs make part of 10GBASE-PR and 10GBASE-PRX type PMDs.

SuggestedRemedy

Change "The 10GBASE–PR and 10/1GBASE–PRX type PMDs perform the transmit and receive functions that convey data between the PMD service interface and the MDI." to "The U-type and D-type PMDs perform the transmit and receive functions that convey data between the PMD service interface and the MDI."

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.1** *P* **15** *L* **24** # 1104

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Language revision - simplification.

SuggestedRemedy

Change "by the PMDs defined in Clause 91" to "by Clause 91 PMDs"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.1** *P* **15** *L* **28** # 1107

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Since we introduced the symmetric/asymmetric U/D type PMDs and as such should be used, the generic definitions like 10/1GBASE-PRX-D should be avoided. List of proposed changes is included in the Suggested Remedy

SuggestedRemedy

Change "10/1GBASE-PRX-D PMD" to "asymmetric D-type PMD"
Change "10/1GBASE-PRX-U PMD" to "asymmetric U-type PMD"
Change "10GBASE-PR-D PMD" to "symmetric D-type PMD"
Change "10GBASE-PR-U PMD" to "symmetric U-type PMD"
Change "10GBASE-PR PMD" to "symmetric U-type and D-type PMD"
Global search and replace starting from Subclause 91.3.1

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.1.2** *P* **16** *L* **3** # 1212

Jiang, Jessica Salira System, Inc

Comment Type **E** *Comment Status* **X**

This sentence means that Clause 92 PMA will also send 1.25GBd signal and is inconsistent with Figure 91-2 which indicates 1.25GBd will be taken care of by Clause 65 PMA.

SuggestedRemedy

The Clause 92 or the Clause 65 PMA continuously send the appropriate streams of bits to the PMD for transmission on the medium, ...

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.1.2** *P* **16** *L* **5** # 1108

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Unnecessary repetition of the definitions.
U-type is the same as ONU
D-type is the same as OLT

SuggestedRemedy

Change "symmetric ONU (U–type)" to "symmetric U–type"
Change "symmetric OLT (D–type)" to "symmetric D–type"
Change "asymmetric ONU (U–type)" to "asymmetric U–type"
Change "asymmetric OLT (D–type)" to "asymmetric D–type"
Global search and replace starting from subclause 91.3.1.2

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.1.3** *P* **16** *L* **16** # 1213

Jiang, Jessica Salira System, Inc

Comment Type **E** *Comment Status* **X**

This sentence means that Clause 92 PMA will also send 1.25GBd signal and is inconsistent with Figure 91-2 which indicates 1.25GBd will be taken care of by Clause 65 PMA.

SuggestedRemedy

The PMD continuously sends a stream of bits to the Clause 92 or the Clause 65 PMA corresponding to the signals received from the MDI, ...

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.2** *P* **16** *L* **49** # 1111

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Figure 91-6 includes 8 TPs anot not 4. The text must be aligned respectively.

SuggestedRemedy

Replace contents of subclause 91.3.2 with the text included in 3av_0804_hajduczenia_2.pdf

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.2** *P* **17** *L* **24** # 1105

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Figure 91-3 seems to indicate that there are only 16 ONUs in the system. It is not consistent with the PAR.

SuggestedRemedy

Change "ONU PMD #16" to "ONU PMD #n"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.2** *P* **17** *L* **8** # 1137

Remein, Duane Alcatel-Lucent

Comment Type **T** *Comment Status* **X**

Figure 91–3—10GBASE–PR and 10/1GBASE–PRX block diagram seems to have grown in complexity.

SuggestedRemedy

Remove duplicate test points (such as TP1/RP4) so that each point only has one reference starting with TP1 at OLT and moving to TP6 in the downstream direction. For the upstream dirction label ONU PMA to PMD as "TP8" and OLT PMD to PMA as "TP7". Make appropriate changes in referencing text as necessary.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.5.1** *P* **18** *L* **10** # 1112

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The sentence is not precise since it is not defined which PMDs make part of 10GBASE-PR and 10GBASE-PRX type PMDs.

SuggestedRemedy

Change "for 10GBASE–PR and 10/1GBASE–PRX type" to "for Clause 91"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.5.2 (?)** *P* *L* # 1218

Farmer, Jim Wave7 Optics

Comment Type **T** *Comment Status* **X**

Per recent email thread, there is concern regarding the dead time between upstream transmissions from different ONUs.

SuggestedRemedy

Provide an optional control that can be implemented for 10 Gb/s OLTs, that sends a reset signal to the optics. The signal is asserted after the end of one transmission is detected. It is de-asserted immediately before the next ONU's transmission is expected at the OLT.

Unfortunately we cannot be at the Apri meeting, but we will be at the May meeting, and we can explain our thoughts then.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.5.3** *P* **18** *L* **29** # 1113

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Table 91-4 is affected. Language simplification

SuggestedRemedy

Change "PR and PRX type" to "Clause 91"
Global search and replace in Clause 91.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.3.5.3** *P* **18** *L* **30** # 1114

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Table 91-4 is affected.

SuggestedRemedy

Change the size of the second column to match the size of the third column.
It would be best to set all the columns to the same size to avoid breaking the words between the lines.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4** *P* **19** *L* **1** # 1066

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The PMD tables in 91.4 and 91.5 include the parameter called "Receiver sensitivity (max)" which is currently not included in the channel link model.

SuggestedRemedy

Update the channel link model by adding parameter "Receiver sensitivity (max)" in dBm and uW.
See 3av_0804_linkmodel_v2_3.xls for details on proposed changes

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4** *P* **19** *L* **1** # 1115

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Subclause 91.4 title does not need to mention all the PMDs over again.

SuggestedRemedy

Change "PMD to MDI optical specifications for 10GBASE–PR–D1, 10GBASE–PR–D2, 10GBASE–PR–D3, 10/1GBASE–PRX–D1, 10/1GBASE–PRX–D2 and 10/1GBASE–PRX–D3 (OLT PMDs)." to "PMD to MDI optical specifications for symmetric and asymmetric D-type PMDs."

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4** *P* **19** *L* **9** # 1116

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Language revision - simplify the text

SuggestedRemedy

Change "The operating ranges for PR10, PR20, PR30 power budget classes are defined in Table 91–1. The operating ranges for PRX10, PRX20, PRX30 power budget classes are defined in Table 91–1" to "The operating ranges for PR10, PR20, PR30, PRX10, PRX20 and PRX30 power budgets are defined in Table 91–1."

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.1** *P* **19** *L* **28** # 1117

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Remove the sentence "While it is not required, it is expected that PMD transmitters of Clause 91 will use lasers, and amongst them, 10G transmitters and transmitters in the 1574 – 1600 nm range will use single longitudinal mode lasers" - we decided to drop it from other tables. This one should go as well.

SuggestedRemedy

Remove the sentence "While it is not required, it is expected that PMD transmitters of Clause 91 will use lasers, and amongst them, 10G transmitters and transmitters in the 1574 – 1600 nm range will use single longitudinal mode lasers". The specs do not prohibit the use of MMF LDs should such meet the specifications provided in the PMD clauses.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.1** *P* **19** *L* **44** # 1119

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-5 is affected.
The "Average launch power of OFF transmitter (max)" value is not consistent for all tables, even though it was discussed that the same value would be used ...

SuggestedRemedy

Change the "Average launch power of OFF transmitter (max)" to "-45 dBm" in Table 91-5. Compare with Table 91-8 and 91-9.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.1** *P* **19** *L* **50** # 1120

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-5 is affected.
The "Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}" could be reused for 10G ONU transmitter defined in Table 91-8.

SuggestedRemedy

Change "Transmitter eye mask definition {X1, X2, Y1, Y2, Y3}" in Table 91-8 to "Transmitter eye mask definition {X1, X2, X3, Y1, Y2, Y3}". Change "TBD" in Table 91-8 to "{0.25, 0.40, 0.45, 0.25, 0.28, 0.40}" as used in Table 91-5. The 10G transmitters in the ONU and the OLT can use the same eye mask.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.1** *P* **20** *L* **18** # 1062

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

Figure 91-4 is affected
Change the shading in the figure for the two regions to have the same shading. Otherwise, it is confusing.

SuggestedRemedy

Figure 91-4 is affected
Change the shading in the figure for the two regions to have the same shading. Otherwise, it is confusing.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.2** *P* **20** *L* **54** # 1207

Hamano, Hiroshi Fujitsu Labs.

Comment Type **T** *Comment Status* **X**

Damage threshold in 10GE-PON no longer guarantees the TX-RX back-to-back direct connection without damage, in contrast to 802.3 precedents. This technical objective change should be notified to the reader/user to avoid troubles and confusion.

SuggestedRemedy

Notification should be added not only in the footnote but also in the main body text, as follows,
'Damage threshold included in Table 91-6 and Table 91-7 does not guarantee direct ONU-OLT connection, which may result in damage of the receiver. If direct ONU-OLT connection is necessary, optical attenuators and/or equivalent loss components should be inserted to decrease receive power below damage threshold.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.2** *P* **21** *L* **25** # 1208

Hamano, Hiroshi Fujitsu Labs.

Comment Type **T** *Comment Status* **X**

Treceiver_settling (max) for 10G upstream is not specified yet.

SuggestedRemedy

Treceiver_settling (max) should be specified as 800ns.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.2** *P* **22** *L* **16** # 1065

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-7 is affected.
Incorrect value in the PMD table, parameter "Receiver sensitivity OMA (max)", value in uW is wrong.

SuggestedRemedy

Replace parameter "Receiver sensitivity OMA (max)", value in uW from 1.05 to 1.26.
Check in 3av_0804_linkmodel_v2_3_power_budgets.xls

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.4.2** *P* **22** *L* **25** # 1061

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Parameter "Treceiver_settling (max)" was equipped with a different footnote in Clause 60. Should we use the same footnote as in Clause 60 for 10/1GBASE-PRX-U3 Rx ?

SuggestedRemedy

Remove the footnote for "Treceiver_settling (max)" following the current status of Clause 60 in 802.3ay D2.2.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.5** *P* **23** *L* **1** # 1118

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Subclause 91.5 title does not need to mention all the PMDs over again.

SuggestedRemedy

Change "PMD to MDI optical specifications for 10GBASE–PR–U1, 10GBASE–PR–U3, 10/1GBASE–PRX–U1, 10/1GBASE–PRX–U2 and 10/1GBASE–PRX–U3 (ONU PMDs)" to "PMD to MDI optical specifications for symmetric and asymmetric U-type PMDs."

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.5.2** *P* **25** *L* **33** # 1204

Hamano, Hiroshi Fujitsu Labs.

Comment Type **T** *Comment Status* **X**

Damage threshold in 10GE-PON no longer guarantees the TX-RX back-to-back direct connection without damage, in contrast to 802.3 precedents. This technical objective change should be notified to the reader/user to avoid troubles and confusion.
See my comment on SC.91.4.2 P.20 L.54.

SuggestedRemedy

Notification should be added not only in the footnote but also in the main body text, as follows,
'Damage threshold included in Table 91-11 does not guarantee direct ONU-OLT connection, which may result in damage of the receiver. If direct ONU-OLT connection is necessary, optical attenuators and/or equivalent loss components should be inserted to decrease receive power below damage threshold.'

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.5.2** *P* **25** *L* **50** # 1063

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Parameter "Signal detect threshold (min)" in Table 91-11 is not consistent with the values indicated in Tables 91-6 and 91-7.

SuggestedRemedy

Change "-44 dBm" in Table 91-11 for parameter "Signal detect threshold (min)" to "-45 dBm" as discussed at March meeting.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.5.2** *P* **26** *L* **10** # 1121

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Parameter "Treceiver_settling (max)" for ONU RX is superfluous. Remove the row with the parameter "Treceiver_settling (max)" from Table 91-11.

SuggestedRemedy

Parameter "Treceiver_settling (max)" for ONU RX is superfluous. Remove the row with the parameter "Treceiver_settling (max)" from Table 91-11.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.5.2** *P* **26** *L* **7** # 1064

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Table 91-11 is affected.
Incorrect value in the PMD table, parameter "Receiver sensitivity OMA (max)", value in uW is wrong for both columns

SuggestedRemedy

Replace parameter "Receiver sensitivity OMA (max)", value in uW from 79.33 to 19.55 and 24.22 to 3.10. Check in 3av_0804_linkmodel_v2_3_power_budgets.xls

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.6** *P* **27** *L* **20** # 1067

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Tables 91-12 and 91-13 are affected
The power budget values quoted in the table are incorrect i.e. the quoted available power budget is smaller than the sum of allocated transmission penalties and the maximum channel insertion loss.
Allocation for penalties for PR10, PR20 and PR30 US channels is incorrect (see Tables 91-12) - it is stated as 1.5 while it was agreed it was 3.0.
Allocation for penalties for PRX10, PRX20 and PRX30 DS channels is incorret (see Tables 91-13) - it is stated as 1 while it was agreed it was 1.5
It would be nice to add a new row to the channel link model with the calculation of the total power budget available for the given link.

SuggestedRemedy

Change the values of the power budgets in Tables 91-12 and 91-13 as presented in 3av_0804_hajduczenia_7.pdf.
Change the values of the allocation for penalties in Tables 91-12 and 91-13 as presented in 3av_0804_hajduczenia_7.pdf
Add row to the channel link model as presented in 3av_0804_linkmodel_v2_3.xls.

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.8.2** *P* **31** *L* **11** # 1206

Hamano, Hiroshi Fujitsu Labs.

Comment Type **T** *Comment Status* **X**

Penalty definition was revised in Table 91-12, 91-13, from 'Path penalty' to 'TDP'. Penalty description should also be revised.

SuggestedRemedy

The revised text was made just keeping the current text version, and adding some change following 60.7.2 approach, as follows,

'The Clause 91 receivers are required to tolerate a path penalty, not exceeding 1 dB to account for total degradations due to reflections, intersymbol interference, mode partition noise, laser chirp and detuning of the central wavelength, including chromatic dispersion penalty. All the transmitter types specified in Clause 91 produce less than 1 dB of optical path penalty over the PON plant. An increase in the optical path penalty is acceptable, provided that any increase in optical path penalty over 1 dB is compensated by an increase of the minimum transmitted launch power, or an increase of the minimum receiver sensitivity.
The path penalty is a component of transmitter and dispersion penalty (TDP) which is specified in Table 91-5, Table 91-8, Table 91-9 and described in 58.7.9.'

Proposed Response *Response Status* **O**

Cl **91** *SC* **Figure 91-3** *P* **17** *L* **7** # 1214

Jiang, Jessica Salira System, Inc

Comment Type **ER** *Comment Status* **X**

Service interface naming, TP1 to TP8 are not match with wording. Based on current naming convention, TP1- TP4 are for down stream and TP5 -TP8 are for upstream.

It seems that using TP1-TP8 also cause confusion easily for some people. How about adding a letter D/U on TP1-TP4 to distinguish downstream and upstream, e.g., using TP1D-TP4D for down stream and TP1U-TP4U for upstream?

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **91** *SC* **Figure 91-3** *P* **17** *L* **8** # 1225

Ryan, Hirth Teknovus

Comment Type **T** *Comment Status* **X**

TP6 and TP7 are not shown on the diagram and should be added. The difference in 10GBase-PR and 10GBase-PRX TP naming (1-4 downstream/1-4 upstream, and 1-8 round trip) Figure 91-3 is confusing. I propose refering to Figure 60-2 for 10Gbase-PRX and only show test points for 10GBase-PR in Figure 91-3.

SuggestedRemedy

Title of Figure 91-3 change to :10GBASE-PR block diagram

add text: Refer to Figure 60-2 for 10G/1GBASE-PRX.

remove references to TP1-4

add TP1-8

Proposed Response *Response Status* **O**

Cl **91** *SC* **Table 91-11** *P* **25** *L* **35** # 1215

Jiang, Jessica Salira System, Inc

Comment Type **T** *Comment Status* **X**

Missing Damage threshold.

SuggestedRemedy

change "Damage threshold(max)" value for column 2 to "0 dBm"

Proposed Response *Response Status* **O**

Cl **91** *SC* **Table 91-11** *P* **25** *L* **35** # 1216

Jiang, Jessica Salira System, Inc

Comment Type **T** *Comment Status* **X**

Missing Damage threshold for column 3

SuggestedRemedy

change value of "Damage threshold (max)" for column 3 to -3 dBm

Proposed Response *Response Status* **O**

Cl **91** *SC* **Table 91-6** *P* **21** *L* **1** # 1217
Jiang, Jessica Salira System, Inc

Comment Type **TR** *Comment Status* **X**

Damage threshold for 10GBASE-PR-D2 and 10GBASE-PR-D3 is too low, raise them to -3 dBm.

SuggestedRemedy

change the value of Damage threshold (max) for column 3 and 4 to "-3 dBm"

Proposed Response *Response Status* **O**

Cl **91A** *SC* *P* **43** *L* **1** # 1200
Kramer, Glen Teknovus, Inc.

Comment Type **T** *Comment Status* **X**

The annex 91A includes material relevant to clauses 91, 92, and 93. This annex appears out of place when inserted after clause 91. Clauses 91, 92, and 93 should appear before the annex.

Alse see comment labelled KRA01

SuggestedRemedy

Break annex 91A into three parts and insert each part as an Informative Subclause in the corresponding clause, as below:

91A.2 goes into clause 92.
91A.3 goes into clause 91
91A.4 goes into clause 93
91A.5 goes into clause 91

Introduction (91A.1) can be added to each new subclause.

Proposed Response *Response Status* **O**

Cl **91A** *SC* **2.3** *P* **45** *L* **23** # 1226
Ryan, Hirth Teknovus

Comment Type **T** *Comment Status* **X**

10Gbps upstream uses 1265nm.

SuggestedRemedy

"10/1Gb/s @1310nm" should be changes to "10/1Gb/s @1310/1265nm"

Proposed Response *Response Status* **O**

Cl **91A** *SC* **3.2** *P* **46** *L* **35** # 1222
Ryan, Hirth Teknovus

Comment Type **E** *Comment Status* **X**

typo "multiplexign"

SuggestedRemedy

multiplexing

Proposed Response *Response Status* **O**

Cl **91A** *SC* **91A** *P* **43** *L* **1** # 1075
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Several changes to Clause 91A need to be done:
- editorial (language, denominations etc.)
- add a figure with the wavelength allocation scheme for all EPON versions, all power budgets etc.
- clarify the description of the dualrate burst mode OLT receiver

SuggestedRemedy

Raplace current Clause 91A with the text included in 3av_0804_hajduczenia_3.pdf. Markup version of proposed changed against Clause 91A (D1.2) is presented in 3av_0804_hajduczenia_4.pdf.

Proposed Response *Response Status* **O**

Cl **91A** *SC* **91A.5** *P* **48** *L* **27** # 1197
Kramer, Glen Teknovus, Inc.

Comment Type **T** *Comment Status* **X**

Subclause title in incorrect.

SuggestedRemedy

Should be :"Dual-rate operation"

Proposed Response *Response Status* **O**

Cl **92** *SC* *P* **82** *L* **54** # 1134

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

Figure 92–20—ONU data decoder state diagram
and
Figure 92–21—ONU data decoder state diagram
should be moved to subclause 92.3.3.6.8

SuggestedRemedy

move figures

Proposed Response *Response Status* **O**

Cl **92** *SC* **91.1.2.3.3.2** *P* **58** *L* **42** # 1192

Kramer, Glen Teknovus, Inc.

Comment Type **E** *Comment Status* **X**

"This section supersedes the stipulations of subclause 65.1.3.3.2."

This is implied for every other section that does not explicitly refers to another section.

SuggestedRemedy

Remove sentence "This section supersedes the stipulations of subclause 65.1.3.3.2."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92** *P* *L* # 1130

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

Various cross references missing "@@" tag. Many to c65.

SuggestedRemedy

Add "@@" where needed.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92** *P* **51** *L* **1** # 1078

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

A list of tiny editorial changes to the draft D1.2

SuggestedRemedy

page 54, line 3 - space missing after "in"
page 54, line 7 - replace "of OLT" with "in OLT"
page 54, line 4 & 5 - remove derundant acronyms, they are included in 1.4
page 54, line 49 - change "For 10G" to "In 10G"
page 54, line 50 - change "bytes" to "data".
page 58, line 22 - there are two dots at the end of the sentence
page 62, line 20 - double brackets with no purpose
page 62, line 45 - missing comma after "(255"
page 63, line 1 - Inconsistency in the use of "xx-byte" terms. Sometimes You use it with dash and sometimes with no dash ... align to one format and use it consistently
page 68, line 20 - comma missing after "delimiter"
page 68, line 20 - comma missing after "OLT"
page 68, section 92.2.2.8 - inconsistent use of dash in the xx-bit variable types. Please align. Formating in 92.2.2.8.1 is not consistent with the formating in 92.2.2.8.2 - see how the lines are broken and right shifted.
page 68, section 92.2.2.8 - all the tdb values should be @@TBD@@ to facilitate search and replace in the future

Proposed Response *Response Status* **O**

Cl **92** *SC* **92** *P* **51** *L* **25** # 1077

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

The text "This clause describes functions for use in a 10GBASE-PR and 10/1GBASE-PRX point-to-multipoint (P2MP) networks. This is an optical multipoint network that connects multiple DTEs using a single shared fiber." is confusing

SuggestedRemedy

Change to "This Clause describes the Reconciliation Sublayer (RS) and Physical Coding Sublayer (PCS) / Physical Media Attachment (PMA) used with Clause 91 PMDs. The functions defined herein are used in PR and PRX type P2MP networks, where a passive, optical network plant connected multiple DTEs using a single shared fiber."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.1** *P* **51** *L* **33** # 1198

Kramer, Glen Teknovus, Inc.

Comment Type **T** *Comment Status* **X**

Label: KRA01 (for comment crossreferncing)

Subclause 92.1.1 needs additional text to explain the concepts of symmetric and assymetric operations.

SuggestedRemedy

Insert the text and figures from subclause 91A.2 just before section 92.1.1.1

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.1.1** *P* **54** *L* **7** # 1174

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The behavior for a 10G RS defined in 66.2.2 is not ideal for a PON. It makes no sense for the OLT, which operates in unidirectional mode, to replace IPG with Remote Fault. Such remote fault codes would be received by every 10G ONU on the PON. Asymmetric ONUs would not be able to do anything with these messages, since there is no way for the 10G RS receiver to control the 1G RS transmitter. It makes no sense for symmetric ONUs to act on the Remote Fault codes, since there is no unique identification and control over the ONU transmitter is already managed by the OLT.

The suggestion is that the 10G-EPON RS for both ONU and OLT ignores reception of Local and Remote fault sequences and never transmits Remote fault sequences. Depending on the method chosen by the group, specific text can be crafted.

Furthermore, Clause 66 contains a number of requirements for 10 Gb/s RS that are based on the unidirectional ability. These requirements override the functionality described in Clause 46. Clause 92 is also overriding requirements of Clause 46, but now it seems it also must override some of the requirements of Clause 66.

SuggestedRemedy

There seem to be three options:
A. Open and modify Clause 66 for 10G-EPON support
B. Add text to 92 which overrides 66 which overrides 46
C. Allow 10G ONU to set unidirectional_enable variable.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.1.1** *P* **54** *L* **9** # 1079

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

At the ONU, there is only ONE MAC - the line contains a mistake.

SuggestedRemedy

Change "At the ONU, MACs are" to "At the ONU, MAC is"

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2** *P* **54** *L* **44** # 1199

Kramer, Glen Teknovus, Inc.

Comment Type **T** *Comment Status* **X**

In 10G-EPON, PLS_CARRIER.Indication is not mapped to XGMII CRS signal, but rather is generated locally in the RS. Draft 1.2 is inaccurate in several places.

SuggestedRemedy

1) change the title of the subclause 92.1.2.2 to "Generation of PLS_CARRIER.Indication primitive"
2) on line 49, replace CRS with "PLS_CARRIER.Indication primitive"
3) delete subsection 92.1.2.2.1 and the text inside.
4) page 55, line 30: remove alias CRS
5) In Figure 92-3 replace CRS with CARRIER_STATUS

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2** *P* **54** *L* **46** # 1152

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

This paragraph is somewhat confusing to read. The middle sentence talking about the XGMII interface seems out of place in this subclause. Also, there is no CRS signal on the XGMII.

SuggestedRemedy

Replace paragraph with "The XGMII structure is discussed in Clause 46.1.6, and Figure 46-2 depicts a schematic view of the RS inputs and outputs. As discussed in Clause 46.1.7.3, the PLS_CARRIER.indicate primitive is not used for 10 Gb/s operation. However, 10G-EPON operation extends the 10 Gb/s RS by using the PLS_CARRIER.indicate primitive to defer the MAC between frames in order to allow the PCS to insert FEC parity octets."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.1** *P* **54** *L* **44** # 1153

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The way the numbering works, it jumps directly from GMII structure to mapping of a primitive in the XGMII structure. Additional information and renumbering may make things clearer.

SuggestedRemedy

92.1.2 GMII Structure

See Clause 35.

92.1.3 XGMII Structure

The XGMII structure is discussed in Clause 46.1.6, and Figure 46-2 depicts a schematic view of the RS inputs and outputs.

92.1.4 Mapping of XGMII signals to PLS service primitives

Except as noted below, the mapping of the signals provided at the XGMII to the PLS service primitives is defined in 46.1.7.

As discussed in Clause 46.1.7.3, the PLS_CARRIER.indicate primitive is not used for 10 Gb/s operation. However, 10G-EPON operation extends the 10 Gb/s RS by using the PLS_CARRIER.indicate primitive to defer the MAC between frames in order to allow the PCS to insert FEC parity octets

92.1.4.1 Mapping of PLS_CARRIER.indicate

92.1.4.1.1 Function

Map the primitive PLS_CARRIER.indication to the CARRIER_STATUS parameter generated by the Reconciliation Sublayer.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.1** *P* **54** *L* **54** # 1154

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

There is no CRS signal on the XGMII.

SuggestedRemedy

Replace with "Map the primitive PLS_CARRIER.indication to the CARRIER_STATUS parameter generated by the Reconciliation Sublayer."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.3** *P* **55** *L* **15** # 1080

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The sentence is not very clear what is meant ...
"This occurs when the PCS layer is transmitting a packet and is extended by the amount of time that is required to insert parity information for FEC overhead."
What is extended in here ?

SuggestedRemedy

Change "This occurs when the PCS layer is transmitting a packet and is extended by the amount of time that is required to insert parity information for FEC overhead." to "This occurs when the PCS layer is transmitting a packet and the transmission time needs to be extended by the amount of time that is required to insert parity information for FEC overhead."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.3** *P* **55** *L* **16** # 1201

Kramer, Glen Teknovus, Inc.

Comment Type **T** *Comment Status* **X**

In case of multiple MACs attached to the RS, PLS_CARRIER.Indication should be asserted to all MACs simultaneoulsy, or else IPG will not be increased between frames sent by different MACs.

SuggestedRemedy

Replace sentence (this is repition)

"This occurs when the PCS layer is transmitting a packet and is extended by the amount of time that is required to insert parity information for FEC overhead."

with

"To ensure that enough time is inserted between frames transmitted by different MACs, the PLS_CARRIER.Indication primitive is generated simultaneously for all MACs bound the the XGMII transmit channel."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.4** *P* **55** *L* **24** # 1155

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

Although the state diagram will advance at the clock rate, each state explicitly has an exit condition assigned with it. There is no more "Unless otherwise stated..."

SuggestedRemedy

Remove this sentence.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* *L* # 1138

Remein, Duane Alcatel-Lucent

Comment Type **T** *Comment Status* **X**

92.1.2.2.5 Variables and counters
byte_cnt no longer used

SuggestedRemedy

Removed "byte_cnt = number of bytes (idle + data) transmitted"

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* **55** *L* **33** # 1156

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The tx_cnt counter no longer updates at the rate of TX_CLK, but only when entering the UPDATE state, which is gated by the new_col variable.

SuggestedRemedy

Remove second sentence.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* **55** *L* **37** # 1083

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The definition of the parity_cnt variable is confusing. It says now "A count of the number of parity bytes (in units of columns) to be inserted by the PCS.". Someone not versed in the 802.3av TF proceedings might misinterpret it.

SuggestedRemedy

Change "A count of the number of parity bytes (in units of columns) to be inserted by the PCS." to "This variable counts the amount of parity data to be inserted by the PCS. This variable is expressed in the units of XGMII transfer columns, where one XGMII transfer column = 4 bytes."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* **55** *L* **39** # 1081

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Remove byte_cnt variable - it is no longer used.
Remove Editors' Note #2

SuggestedRemedy

Remove byte_cnt variable - it is no longer used.
Remove Editors' Note #2

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* **55** *L* **45** # 1084

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The definition of the block_size variable is confusing. It says now "The size, in columns, of an FEC codeword". Someone not versed in the 802.3av TF proceedings might misinterpret it.
Additionally, I believe the value of the variable is wrong. We use RS(255,223), where the FEC data is 224 bytes long = 56 XGMII transfer columns and not 54 like in the draft.

SuggestedRemedy

Change "The size, in columns, of an FEC codeword" to "This variable represents the size of the FEC codeword, expressed in expressed in the units of XGMII transfer columns, where one XGMII transfer column = 4 bytes."
Change the value of ths variable block_size from 54 to 56 (224 bytes).

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* **55** *L* **50** # 1082

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The definition of the parity_ratio variable is confusing. It says now "The number of parity bytes (in units of columns) to be inserted for every FEC codeword.". Someone not versed in the 802.3av TF proceedings might misinterpret it.

SuggestedRemedy

Change "The number of parity bytes (in units of columns) to be inserted for every FEC codeword." to "The number of parity data to be inserted at the end of the given FEC codeword. This variable is expressed in the units of XGMII transfer columns, where one XGMII transfer column = 4 bytes."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.5** *P* **55** *L* **51** # 1085

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Variable new_col does not have any values assigned, even though from the state machine it is clear it is a boolean

SuggestedRemedy

Add "Value: TRUE if a new column is available for transmission, FALSE otherwise" to the new_col variable definition.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.2.6** *P* **57** *L* **32** # 1141

Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

This comment applies to Figure 92-3. When printed out, the -- in the DELAY state looks like a single symbol. Even when viewing the pdf, you need to zoom in quite a bit to see it clearly. However, it is easy to see the same text in 92.1.2.2.4.

SuggestedRemedy

Replace with parity_cnt = parity_cnt - 1 or equivalent (perhaps use a different font or make similar to DELETE_IDLE state in Figure 92-11). If removed, you can also remove the convention in 92.1.2.2.4.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.1** *P* **58** *L* **5** # 1158

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

If we inherit the variable definitions from Clause 65, than an unregistered ONU will use an LLID of 0x7FFF.

SuggestedRemedy

The variables of 65.1.3.1 are inherited except as shown below.

logical_link_id
Value: 15 bits
This variable shall be set to the broadcast value of 0x7FFE for the unregistered ONU MAC. Enabled OLT MACs may use any value for this variable. Registered ONU MACs may use any value other than 0x7FFE for this variable.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.3** *P* **58** *L* **13** # 1161

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

In 65.1.3.3, Table 65-2 shows the Preamble/SFD replacement mapping for the receiver. This table does not apply to 10G.

SuggestedRemedy

State that this table is not applicable or create new table for 10G.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.3.1** *P* **58** *L* **22** # 1129

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

92.1.2.3.3.1 SLD duplicate period.

SuggestedRemedy

remove extra period after "the SLD are passed without modification. See Table 92–1."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.3.1** *P* **58** *L* **24** # 1160

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

In Clause 65, the Preamble/SFD replacement mapping table is shown and referenced in 65.1.3.2, which is the Transmit section. Since the table has been modified and has different footnotes, it makes sense to put it in the same section in Clause 92 and state that it overrides the Clause 65 table.

SuggestedRemedy

Move Table 92-1 into 92.1.2.3.2. Replace text in 92.1.2.3.2 with "The transmit function is described in 65.1.3.2 except as noted below in Table 92-1, which shows the replacement mapping for 10G-EPON."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.3.1** *P* **58** *L* **36** # 1142

Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

This comment applies to Table 92-1 and the comment at the end of the CRC8 row. With the new table, there are no longer byte offsets listed. Adding another column to the table would likely make it more confusing. If it doesn't fit nicely, you may want to add a new footnote.

SuggestedRemedy

Replace with "The 8 bit CRC calculated over column 0 lane 2 through column 1 lane 2."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.3.1** *P* **58** *L* **37** # 1157

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

This comment applies to Table 92-1. The two footnotes on the table are incorrect, as they refer to the 8-bit GMII interface and not the 32-bit XGMII interface.

SuggestedRemedy

a. mode maps to TXD[15], logical_link_id[14] maps to TXD[14], logical_link_id[8] maps to TXD[8].

b. logical_link_id[7] maps to TXD[23], logical_link_id[0] maps to TXD[16].

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.1.2.3.3.1** *P* **58** *L* **37** # 1086

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The footnote to this table seems to be a copy paste from Clause 65 since GMII TXD is referred and not XGMII. A single XGMII transfer has 32 bits <31:0>, thus LLID[15:8] will be located in TXD <23:16> and LLID [7:0] - TXD <15:8>

SuggestedRemedy

Change the text of the footnote to read as follows:
a) mode maps to TXD<23>, logical_link_id[14] maps to TXD<22>, logical_link_id[8] maps to TXD<16>
b) blogical_link_id[7] maps to TXD<15>, logical_link_id[0] maps to TXD<8>

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2** *P* **59** *L* **24** # 1203

Kramer, Glen Teknovus, Inc.

Comment Type **TR** *Comment Status* **X**

Section 92.2 only describes functions in PR PCS and completely ignores PRX PCS. There should be some text that explains that PRX PCS is simply a clever combination of PR and PX types.

SuggestedRemedy

Add the text and figures in 3av_0804_kramer_1.pdf as the introduction subclause 92.2.1

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2** *P* **59** *L* **24** # 1193
Kramer, Glen Teknovus, Inc.

Comment Type **E** *Comment Status* **X**

Title does not read right.

SuggestedRemedy

Remove "for 64B/66B and FEC"

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.1** *P* **59** *L* **29** # 1162
Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

FEC is not being used to increase the optical link budget, it is being used to meet the optical link budget.

SuggestedRemedy

Replace sentence with "This subclause also specifies a forward error correction (FEC) mechanism to meet the optical link budget."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.1** *P* **60** *L* # 1194
Kramer, Glen Teknovus, Inc.

Comment Type **E** *Comment Status* **X**

Figures 92-4 and 92-5

Don't use DS and US.

SuggestedRemedy

replace DS with "downstream path"
replace US with "upstream path"

For both figures, keep OLT on the left and ONU on the right, and change direction of arrows for the upstream path figure.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2** *P* **61** *L* **46** # 1195
Kramer, Glen Teknovus, Inc.

Comment Type **E** *Comment Status* **X**

Incorrect subclause title

SuggestedRemedy

Should be 10GBASE-PR

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2** *P* **61** *L* **47** # 1143
Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

The subclause title is not correct. This portion of the clause is relevant for 10Gb/s transmitters only. A 10GBASE-PRX-D1/D2/D3 transmitter also needs to follow these subclauses, so I don't feel great about just saying 10GBASE-PR.

SuggestedRemedy

Change to 10GBASE-PR.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.1** *P* **61** *L* **51** # 1147
Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

Empty subclause.

SuggestedRemedy

Remove or possibly add note saying what type of text is wanted for this section.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.1** *P* **61** *L* **51** # 1202
Kramer, Glen Teknovus, Inc.

Comment Type **T** *Comment Status* **X**

Subclause 92.2.2.1 already exists as 92.2.2.6

SuggestedRemedy

delete subclause 92.2.2.1

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.2** *P* **62** *L* **1** # 1196
Kramer, Glen Teknovus, Inc.

Comment Type **E** *Comment Status* **X**

It is extremely inconvenient to introduce a function in one place and have a corresponding state machine 11 pages later.

SuggestedRemedy

Move state machine in Fig 92-11 and all associated variables, constants, messages to subclause 92.2.2.2.

Move state machine in Fig 92-12 and all associated variables, constants, messages to the end of subclause 92.2.2.6.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.2** *P* **62** *L* **4** # 1176
Daido, Fumio Sumitomo Electric Ind

Comment Type **T** *Comment Status* **X**

The lane 4 doesn't exist. The lane number should be from lane 0 to lane 3.

SuggestedRemedy

Change
"If the start control code is in lane 4, the burst will be shifted to align
the start to lane 0."
To
"If the start control code is in lane 0 of column 1, the burst will be shifted to align the start to lane 0 of column 0."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.2** *P* **62** *L* **4** # 1076
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

The text refers to lane 4 in XGMII, while XGMII has lanes numbered 0 ... 3.

SuggestedRemedy

Change "lane 4" to "lane 3".

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.1** *P* **62** *L* **33** # 1087
Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

I believe the formulas are hard to read due to their decreased size versus the main text.

SuggestedRemedy

Align the font size in the formulas with the font size in the main text. Right now they are much smaller (2 point at least)

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.2** *P* **62** *L* **52** # 1131
Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

92.2.2.5.2 Parity Calculation
"in Figure 92-6. The 64B/66B encoder ... " Figure 92-6 should be hyperlinked.

SuggestedRemedy

add hyperlink.
Check all figure references & fix as necessary.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.2** *P* **62** *L* **54** # 1088

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

A head bit is referred to, yet 64B/66B frames have no header bits but syn header bits. Be consistent with the decription

SuggestedRemedy

Change "i.e. header" to "i.e. sync header"

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.2** *P* **64** *L* **1** # 1132

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

92.2.2.5.2 Parity Calculation
Figure 92–6—PCS Receive bit ordering shodl be moved to subclause 92.2.3 10GBASE-PR Receivers

SuggestedRemedy

move figure

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.2** *P* **64** *L* **21** # 1124

Geng, Dongyu Huawei Technologies

Comment Type **T** *Comment Status* **X**

The first sync header (sync header <0>) should be generated here based on Read_outbuffer(i) in page 77.

SuggestedRemedy

insert the rectangle for sync header <0> at the front of the rectangle for sync header <1> at line 21 in the figure .

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.2** *P* **64** *L* **28** # 1177

Daido, Fumio Sumitomo Electric Ind

Comment Type **T** *Comment Status* **X**

The 29 "0" padding in Figure 92-6 should be prepended before RS decoder input.

SuggestedRemedy

The box of [29 "0" padding] is moved to the left of the box of [65B block 1] in the row of the "FEC frame".

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.3** *P* **66** *L* **33** # 1122

Feng, Dongning Huawei Technologies

Comment Type **T** *Comment Status* **X**

Since the lock state machine at the reciever end is looking for 00 11 11 00 for the four parity blocks. The sync header pattern for the 4 parity blocks should first be given out at the transimission side.

SuggestedRemedy

Change the text to the following,

"As shown in Figure 92-10, after the Reed-Solomon codeword has been computed, the FEC encoder constructs the transmittable FEC frame with the original sequence of 27 66-bit blocks (including the redundant sync bit, but not including the 29 "0" padding bits). The FEC encoder prepends a 2 bit sync header to each group of 64 parity bits to construct a properly formed 66 bit codeword, according to the predefined sync header pattern for the four 64-bit parity blocks: 00 11 11 00. Finally the four 66-bit parity blocks are appended following the 27 66-bit data blocks and transmitted to the PMA."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.5.3** *P* **66** *L* **35** # 1089

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

I think the refence to Figuge 92-10 is incorrect here

SuggestedRemedy

Figure 92-8 is probably referenced ...

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.6** *P* **67** *L* **43** # 1090

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

I think the refence to Figuge 92-10 is incorrect here

SuggestedRemedy

Figure 92-9 is probably referenced ...

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8** *P* **68** *L* **30** # 1091

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **X**

The variable naming nomenclature is not consistent with the remaining sections of this Clause.

SuggestedRemedy

Compare with 92.1.2.2.5 and align consistently (probably changing in 92.1.2.2.5 will be easier = less work to be done)

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.1** *P* **68** *L* **44** # 1163

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

Value for FecRatio is incorrect. The ratio should be 4 parity vectors for every 27 data vectors.

SuggestedRemedy

Replace with 27.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.1** *P* **68** *L* **50** # 1164

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

Each control block of type C contains 8 control characters. If it is required to see two of these blocks, then it means you need to see at least 16 control characters between frames. In fact, the first control block following the final data block will be of type T and will contain part of the interpacket gap. The combination of a T-block and a single C-block should form the minimum ipg that we are looking for.

SuggestedRemedy

Change value to 1.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.1** *P* **69** *L* **39** # 1125

Geng, Dongyu Huawei Technologies

Comment Type **T** *Comment Status* **X**

the number of payload blocks in an FEC codeword should be 27

SuggestedRemedy

change "payload size (28)" to "payload size (27)"

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.1** *P* **69** *L* **7** # 1165

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The value of SYNC_LENGTH was not removed according to comments against D1.1. In actuality, this should not be a constant, since the value of syncTime can vary and cannot be known by the standard. This parameter should be moved to the variables section.

SuggestedRemedy

Move to variables section with the following changes.

SYNC_LENGTH
TYPE: 16-bit unsigned
Required number of sync blocks per burst. The value of this variable is derived from the syncTime parameter passed from the OLT to the ONU. See @@93.3.3.2@@ for details.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.2** *P* **69** *L* **30** # 1167

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The following variables are counters and should be moved to the counters subclause 92.2.2.8.5: IdleBlockCount, ProtectedBlockCount, UnprotectedBlockCount, SyncBlockCount. In addition, the default values can be removed.

SuggestedRemedy

Move the four counters into 92.2.2.8.5.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.2** *P* **70** *L* **1** # 1166

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The reference to laserOnTime is incorrect. It may not be necessary to specify a default value.

SuggestedRemedy

Change 93.3.5.1 to 93.3.3.2. Remove default value.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.3** *P* **70** *L* **40** # 1145

Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Replace ReceiveNextB with ReceiveNextBlock.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.4** *P* **71** *L* **3** # 1171

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

State diagram variables/counters/... not near relevant state diagrams.

The DECODER_UNITDATA.indication and DUDI alias are only used in Figure 92-15, which is not talked about here. This message should be moved to the appropriate section in 92.2.3.6.

The same applies to the IdleCount, VectorCount, ExcessIdleCount, FrameReadyCount, and RxVectorCount counters.

The same applies to the NextVector, PrevVector, rx_raw_in<71:0>, and rx_raw_out<71:0> variables.

SuggestedRemedy

Move all mentioned items to appropriate place in 92.2.3.6.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.6** *P* **71** *L* **34** # 1170

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The sentence at the top of page 73 should be moved to page 71. If the new OLT state diagram is added, a sentence about that should also be placed here. Finally, the references to 92.2.4.8 are incorrect.

SuggestedRemedy

Replace text with "The ONU shall implement the Alignment and Idle Deletion function depicted in Figure 92-XX and the Data Detector as depicted in Figure 92-XX, including compliance with the associated state variables as specified in subclause 92.2.2.8. The OLT Idle Deletion function shall be implemented by the OLT as depicted in Figure 92-XX, including compliance with the associated state variables as specified in subclause 92.2.2.8."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.6** *P* **72** *L* **1** # 1169

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

Figure 92-11 is needed for the ONU. Currently, there is no figure that shows similar behavior for the OLT. To keep things clean, a separate diagram should be shown for the OLT that removes the start adjustment.

SuggestedRemedy

Insert figure as shown in 3av_0804_lynskey_1.pdf for Figure 92-XX OLT Idle Deletion State Diagram.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.2.8.6** *P* **72** *L* **23** # 1168

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

This comment is against FIgure 92-11. There is an error in the exit condition from CLASSIFY_VECTOR to SEND_IDLE.

You can have a condition where IdleCount > MinIpg AND DelCount > 0.
At the same time, it is possible for VectorCount < FecRatio to be true.

If this happens, it is unclear whether you go into SEND_IDLE or DELETE_IDLE state. To go into the SEND_IDLE state, it probably doesn't need to evaluate the value of VectorCount, and instead should evaluate the value of DelCount.

SuggestedRemedy

Remove "(VectorCount < FecRatio)" from the transition and replace with "(DelCount = 0)".

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.3** *P* **73** *L* **4** # 1092

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **T** *Comment Status* **X**

Since it is not mentioned anywhere in this clause, it would be worthwhile to include a statement in the introduction what is considered 10GBASE-PR and 10/1GBASE-PRX i.e. which PMDs are included in these classes. Clause 91 does not introduce this concept.

SuggestedRemedy

Add a statement to the introduction to Clause 92 e.g. "In the remainder of Clause 92, the following terms will be used:
- 10GBASE-PR - to refer to a group of PMDs including 10GBASE-PR-D1, 10GBASE-PR-D2, 10GBASE-PR-D3, 10GBASE-PR-U1, 10GBASE-PR-U3;
- 10/1GBASE-PRX - to refer to a group of PMDs including 10/1GBASE-PRX-D1, 10/1GBASE-PRX-D2, 10/1GBASE-PRX-D3, 10/1GBASE-PRX-U1, 10/1GBASE-PRX-U2, 10/1GBASE-PRX-U3;"
Alternatively, the terms PR-type PMDs and PRX-type PMDs could be used if necessary

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.3.1** *P* **73** *L* **6** # 1210

Mandin, Jeff PMC Sierra

Comment Type **TR** *Comment Status* **X**

There is currently no description of how the OLT PCS detects the end of the 10G burst.

SuggestedRemedy

1. There must be a synchronization FSM for the OLT receiver - presumably based on the downstream version (with incorporation of the correlator search)

2. There must also be a process (integrated or separate from the OLT synchronization FSM) for detection of orderly end-of-burst. Explanatory slides and evaluation of alternatives for end-of-burst detection is found in 3av_0804_mandin_2.pdf

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.3.2** *P* **73** *L* **45** # 1123

Feng, Dongning Huawei Technologies

Comment Type **T** *Comment Status* **X**

It could be an option for FEC decode to report FEC decode failures to the PCS layer.

SuggestedRemedy

Change the text to
"The FEC decoder provides an option to indicate uncorrectable frame (due to an excess of symbols containing errors) to PCS layer. If this option is set to be true, the FEC decoder will check for the value of decode_failures. If the variable decode_failures is set to be 1, then all sync headers for the received payload blocks of the FEC codeword to take a value of {SH.0,SH.1} = 00. However, the data blocks are nevertheless passed to the descrambler to maintain descrambling synchronization."

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.3.5** *P* **313** *L* **11** # 110838

Ryan, Hirth Teknovus

Comment Type **T** *Comment Status* **D** *Deferred to Tokyo*

"FEC Codewords with Parity" would better be described as "802.3 frame with FEC parity codewords".

SuggestedRemedy

change text to:"802.3 frame with FEC parity codewords"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Changed from "E" to "T"
In Figure 92-7
Change
"802.3 frame"
to
"802.3 frame with FEC parity"

Change
"FEC Codewords with Parity"
to
"802.3 frame with FEC parity"

Glen to provide updated figure.

Cl **92** *SC* **92.2.3.5** *P* **313** *L* **18** # 110667

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **E** *Comment Status* **D** *Deferred to Tokyo*

Language revision

SuggestedRemedy

Change "The ONU burst transmission begins with a synchronization pattern 0x55 (binary 0101à) which facilitates receiver clock recovery and gain control at the OLT. To facilitate FEC codeword synchronization the ONU transmits a 66-bit BURST_DELIMITER (see Figure 92û7). When received at the OLT the delimiter allows FEC codeword alignment of the incoming data stream, even in the presence of bit errors. The BURST_DELIMITER is followed by one IDLE block which is used to synchronize the descrambler and one IDLE block to provide IPG at the OLT. These two IDLE blocks are part of the FEC codeword." to "The ONU burst transmission begins with a synchronization pattern 0x55 (binary 0101à), which facilitates receiver clock recovery and gain control at the OLT. To facilitate FEC codeword synchronization, the ONU transmits a 66-bit long BURST_DELIMITER pattern (see Figure 92û7). When received at the OLT, the BURST_DELIMITER pattern allows for FEC codeword alignment for the incoming data stream, even in the presence of bit errors. The BURST_DELIMITER pattern is followed by one IDLE control character, which is used to synchronize the descrambler and another IDLE control character to provide IPG at the OLT. These two IDLE control characters constitute part of the FEC codeword."
Additional comments: What is the purpose of the second IDLE character - it is not mentioned. BURST_DELIMITER pattern is not depicted anywhere in Figure 92-7 - I know it is SOD but it is not visible anywhere ...

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change to:
"The ONU burst transmission begins with a synchronization pattern 0x55 (binary 0101à), which facilitates receiver clock recovery and gain control at the OLT. To facilitate FEC codeword synchronization, the ONU transmits a 66-bit BURST_DELIMITER (see Figure 92û7). When received at the OLT, the BURST_DELIMITER allows for FEC codeword alignment on the incoming data stream, even in the presence of bit errors. The BURST_DELIMITER is followed by one IDLE control character which is used to synchronize the descrambler and a second IDLE control character to provide IPG at the OLT. These two IDLE control characters are part of the FEC codeword."

Cl **92** *SC* **92.2.3.6.8** *P* **82** *L* **50** # 1146

Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

Incorrect figure title for Figure 92-16. A change to Figure 92-15 is also suggested.

SuggestedRemedy

Figure 92-15 PCS Write to queue
Figure 92-16 PCS Read from queue / Insert IDLE

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.2.4** *P* **317** *L* **41** # 110994

Kozaki, Seiji Mitsubishi Electric

Comment Type **T** *Comment Status* **D** *Deferred to Tokyo*

The function replacing uncorrectable blocks with /E/ blocks should not be mandatory. The reason is as follow. In case that there are 2 or 3 Mac frames in the uncorrectable block and the errors are concentrated at only one frame, the other frame(s) might be forward correctly.

SuggestedRemedy

Change the sentence of "The data blocks of the frame must then be replaced by /E/ blocks before being passed to the PCS." into "The data blocks of the frame might then be replaced by /E/ blocks before being passed to the PCS. The replacing function is optional"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Also see 994, 1036, 1032, 1039 & 832 [FEC Decode]

Comment deferred pending additional quantifiable input from Author and Task Force on impact of this change (both pro and con).

Cl **92** *SC* **92.2.4.2** *P* **317** *L* **38** # 111039

Effenberger, Frank Huawei Technologies,

Comment Type **T** *Comment Status* **D** *Deferred to Tokyo*

The text currently reads
If the FEC decoder determines that the frame is not correctable (due to an excess of symbols containing
errors), the data blocks are nevertheless passed to the descrambler to maintain descrambling synchronization. The data blocks of the frame must then be replaced by /E/ blocks before being passed to the PCS.

Our Comments:
46.3.3.1 Response to error indications by the XGMII If, during frame reception (i.e., when DATA_VALID_STATUS = DATA_VALID), a control character other than a Terminate control character is signaled on a received lane, the RS shall ensure that the MAC will detect a FrameCheckError in that frame. This requirement may be met by incorporating a function in the RS that produces a received frame data sequence delivered to the MAC sublayer that is guaranteed to not yield a valid CRC result, as specified by the frame check sequence algorithm (see 3.2.8). This data sequence may be produced by substituting data delivered to the MAC. The RS generates eight PLS_DATA.indication primitive for each Error control character received within a frame, and may generate eight PLS_DATA.indication primitives to ensure FrameCheckError when a control character other than Terminate causes the end of the frame.

Clause 46.3.3.1 states that errors should be guaranteed not to pass the CRC in MAC. Instead of doing nothing when the FEC decoder has signaled a decode failure. It should report this so that error will not be able to pass to the MAC.

SuggestedRemedy

If the FEC decoder determines that the frame is not correctable (due to an excess of symbols containing
errors), the data blocks are nevertheless passed to the descrambler to maintain descrambling synchronization. The FEC decoder module shall set the sync header of every block within the uncorrectable codeword to be 11.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Also see 994, 1036, 1032, 1039 & 832 [FEC Decode]
Impact to state diagram(s)?

Cl **92** *SC* **92.2.4.2** *P* **317** *L* **40** # 110822

Mandin, Jeff PMC Sierra

Comment Type **T** *Comment Status* **D** *Deferred to Tokyo*

The FEC decoder should replace received sync headers with invalid values when it needs to trigger reception of an error code (rather than replacing the data directly).

SuggestedRemedy

Change:

"The data blocks of the frame must then be replaced by /E/ blocks before being passed to the PCS."

to:

"The sync headers of the data blocks carried in the frame are then be replaced with the invalid '00' value before being passed to the PCS."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Also see 994, 1036, 1032, 1039 & 832 [FEC Decode]

Cl **92** *SC* **92.2.5.3** *P* **66** *L* **35** # 1144

Lynskey, Eric Teknovus

Comment Type **E** *Comment Status* **X**

Incorrect figure reference. Reference to Figure 92-10 should be pointing someplace else, possibly Figure 92-7.

SuggestedRemedy

Replace with Figure 92-7.

Proposed Response *Response Status* **O**

Cl **92** *SC* **92.3.1.1** *P* **84** *L* **5** # 1172

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

PMD_SIGNAL.request primitive should be added. The text provided follows the format of 65.3.1.1.

SuggestedRemedy

In addition to the primitives of Clause 51, the following primitive is defined:
PMD_SIGNAL.request(tx_enable)
This primitive controls PMD emission of light. It is generated by the PCS's data detector (see 92.2.2.8.4) and the effect of its receipt is defined in 91.3.1.4. This primitive is received from the PCS and passed in timely fashion and without modification to the PMD. It takes the following parameter:
tx_enable The tx_enable parameter can take one of two values, ON or OFF.

Proposed Response *Response Status* **O**

Cl **92** *SC* **Annex 92A** *P* **51** *L* **1** # 1211

Mandin, Jeff PMC Sierra

Comment Type **TR** *Comment Status* **X**

There should be test vectors for the RS(255, 223) algorithm and related logic.

SuggestedRemedy

Adopt 3av_0804_mandin_1.pdf as an informative annex.

Thanks to all who participated in the adhoc: Fumio Daido, Frank Effenberger, Dongning Feng, Ryan Hirth, Seiji Kozaki, Raymond Leung

Proposed Response *Response Status* **O**

Cl **92** *SC* **Figure 92-6** *P* **64** *L* **50** # 1224

Ryan, Hirth Teknovus

Comment Type **E** *Comment Status* **X**

Figure 92-6 refers to Receive bit order. This belongs in section 92.2.3.2 for 10GBASE-PR receivers.

SuggestedRemedy

Move Figure 92-6 to page 73 line 35.

Proposed Response *Response Status* **O**

Cl **92** *SC* **Figure 92-8** *P* **66** *L* **11** # 1223

Ryan, Hirth Teknovus

Comment Type **E** *Comment Status* **X**

Figure does not match 3av_0803_hirth_2.pdf.

SuggestedRemedy

at S15 D210 should be D202.

before S8 bit "5" should be "6" in D210.

remover block 218 at left of diagram.

Proposed Response *Response Status* **O**

Cl **93** *SC* **93** *P* **91** *L* **1** # 1109

Hajduczenia, Marek Nokia Siemens Networ

Comment Type **TR** *Comment Status* **X**

Clause 93 and Clause 64 contain a lot of repetetive material and can be condensed into a single clause with 2 annexes, as described in detail in the Suggested Remedy.

SuggestedRemedy

Remove Clause 93.
Replace Clause 64 with the contents of 3av_0804_hajduczenia_8.pdf, 3av_0804_hajduczenia_9.pdf and 3av_0804_hajduczenia_10.pdf. List of general changes:
- clause 64 was cleaned from all data rate dependent definitions (any values in ns were converted into time_quanta units)
- definitions of the MPCPDUs were extended with the optional fields (GATE, REGISTER_REQ and REGISTER MPCPDUs) - the extended fields will be tranmitted as zeros in the case of 1 G EPONs
- extended the Discovery Process description and figure 64-14 to reflect the necessary changes in the Discovery Process, due to the existence of optional fields
- extended the state machines in the Discovery Processing section, including parsing for new optional fields
- added a new function GetLaserTime, which is defined in Clause 64 and specified in Annex 64A for 1G and Annex 64B for 10G EPONs
- created Annex 64A and Annex 64B for 1 and 10G EPONs, respectively, both are normative and contain definitions for individual elements of the MPCP framework different between 1G and 10G EPONs.

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.2.2.1** *P* **101** *L* **42** # 1151

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

For 10G-EPON, the tailGuard value should also contain minimum IPG.
tailGuard = preamble + SFD + DA + SA + Length/Type + FCS + IPG
The minimum IPG can vary from 9 bytes to 15 bytes, but an average of 12 is proposed for the equation.

SuggestedRemedy

Change to "This constant holds the value used to reserve space at the end of the upstream transmission at the ONU in addition to the sie of last MAC service data unit (m_sdu) in units of octets. Space is reserved for the MAC overheads including: preamble, SFD, DA, SA, Length/Type, FCS, and minimum inter-packet gap. The sizes of the above listed MAC overhead items are described in Clause 3.1.1. The size of the minimum IPG is described in Annex 4A.4.2.
TYPE: integer
VALUE: 39

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.2.2.4** *P* **104** *L* **35** # 1173

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

FEC Overhead function is incorrect. As it is currently written, the overhead will accumulate between frames. If there is a large gap between two frames, then the localTime - prevTime value will be large. There is no need to take this amount of time into consideration when calculating the overhead. See 3av_0804_lynskey_3.pdf.

SuggestedRemedy

Adopt FEC_Overhead function as described on slide 8 of 3av_0804_lynskey_3.pdf.

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.2.2.7** *P* **109** *L* **41** # 1150

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

This comment is against Figure 93-12. The length parameter passed to the FEC_Overhead function is not defined.

SuggestedRemedy

Replace FEC_Overhead(length + tailGuard) with FEC_Overhead(sizeof(data_tx) + tailGuard).

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.2.3** *P* **112** *L* **13** # 1140

Remein, Duane Alcatel-Lucent

Comment Type **T** *Comment Status* **X**

93.3.2.3 Multicast and single copy broadcast support
Changed wording from "frame" to "multiple" invalid in D1.2
"In the downstream direction, the PON is a broadcast medium. In order to make use of this capability for forwarding broadcast frames from the OLT to multiple recipients without multiple duplication for each ONU, the SCB support is introduced."

SuggestedRemedy

Change back to "frame"

"In the downstream direction, the PON is a broadcast medium. In order to make use of this capability for forwarding broadcast frames from the OLT to multiple recipients without frame duplication for each ONU, the SCB support is introduced."

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.3** *P* **114** *L* **18** # 1135

Remein, Duane Alcatel-Lucent

Comment Type **E** *Comment Status* **X**

93.3.3 Discovery Processing
Typo
"shall notify the OLT on the laser on / off times"
^^

SuggestedRemedy

replace with
"shall notify the OLT of the laser on/off times"

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.4.6** *P* **127** *L* **34** # 1220

Uematsu, Kiyoshi OKI

Comment Type **E** *Comment Status* **X**

Numbering of Fig.93-23 and Fig.93-24 in description is incorrect.

SuggestedRemedy

Renumber to Fig.93-24 and Fig.93-25

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.5.1** *P* **129** *L* **23** # 1148

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

The value of discoveryGrantLength needs to be updated for 10G. The value should contain the length of the REGISTER_REQ + preamble + minimum IPG. This should be 64 + 8 + 12 = 84 bytes. For 10G-EPON, this is 4.2 time_quanta. If you round this up, you get a length of 5 time_quanta.

SuggestedRemedy

Change discoveryGrantLength value to 0x05 time_quanta.

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.5.2** *P* **42** *L* **5** # 110977

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **D** *Deferred to Tokyo*

When going through the state machine in figure 93-29, the currentGrant.discovery subfield is examined. What sets this subfield? If it is tied directly to the discovery flag, then something needs to be added that also ties this to the discovery information field found in the discovery GATE. Otherwise, an unregistered ONU could falsely believe it is in a discovery window by setting the insideDiscoveryWindow variable to TRUE during a window it has no chance of registering in.

In Figure 93-22, the ONU enters the REGISTERING state and waits for a window after it has received a MA_CONTROL.request message. This message does not contain the laserOn, laserOff, pendingGrants, and discoveryInformation parameters, as these are added in later. However, once the ONU enters the REGISTER_REQUEST state, it will transmit a frame.

If, instead, the currentGrant.discovery parameter is somehow set by a combination of looking at the received discovery flag and the received discovery information, then there should not be any problems. The ONU will look at the different parameters and determine whether or not to set this and attempt a registration.

SuggestedRemedy

If the currentGrant.discovery parameter is somehow set by a combination of looking at the received discovery flag and the received discovery information, then there should not be any problems and no remedy is suggested. If this is not the case, then it needs to be fixed so that the ONU evaluates the discovery information and the discovery flag. I'm not sure of the best way to do this.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The State PARSE_GATE will have to examine the incoming GATE and if it happens to be a discovery GATE, the discovery parameter will be set to TRUE only if the GATE is indeed Discovery and the ONU may answer in the given Discovery Window.
Change
if(discovery = true)
syncTime ? data_rx[104:119]
to
if(discovery = true)
 if (confirmDiscovery(data_rx[120:135]) = true)
  syncTime ? data_rx[104:119]
 else
  discovery = false
  syncTime ? 0
Add definiton of the "confirmDiscovery" function as follows:
"confirmDiscovery(data)
This functon is used to check whether the current Discovery Window is open for the given ONU (TRUE) or not (FALSE). For 1000 Mb/s ONUs, this function always returns TRUE. For 10 Gb/s ONUs, this function operates as follows: @@TBD@@."

Cl **93** *SC* **93.3.5.6** *P* **135** *L* **18** # 1149

Lynskey, Eric Teknovus

Comment Type **T** *Comment Status* **X**

This comment is against Figure 93-29. If the new FEC_Overhead equation and values of discoveryGrantLength are adopted, then FEC_Overhead(discoveryGrantLength * tqSize) will return a value of 0. There is no reason to keep this around if the state diagram is only for 10G. The value of maxDelay will be the same whether or not FEC is enabled.

SuggestedRemedy

In RANDOM_WAIT state of Figure 93-29, remove the if(fecEnabled = true) clause.

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.6.1** *P* **138** *L* **3** # 1219

Uematsu, Kiyoshi OKI

Comment Type **T** *Comment Status* **X**

Order of definition for the fields does not match with Fig. 93-31ÅD
a) Opcode. The opcode for the GATE MPCPDU is 00-02.
.
.
.
g) Pad/Reserved. This is an empty field that is transmitted as zeros, and ignored on reception when constructing a complying MPCP protocol implementation. The size of this field depends on the used Grant #n Length/Start Time entry-pairs as well as the presence of the Sync Time and Discovery Information fields, and varies in length from 13 - 39 accordingly.

SuggestedRemedy

It should be rearranged in proper order to match with Fig.93-31.

Proposed Response *Response Status* **O**

Cl **93** *SC* **93.3.6.2** *P* **139** *L* **19** # 1175

Lynskey, Eric Teknovus

Comment Type **TR** *Comment Status* **X**

Issues arise when using the existing REPORT format for 10G upstream. In particular, when multiple priorities or queue sets are present, there is no good mechanism to aggregate requested bandwidth. Each priority needs to calculate its own overhead, and you end up with a lot of wasted bandwidth. A new mechanism for reporting is proposed. See 3av_0804_lynskey_2.pdf for details.

SuggestedRemedy

Add new REPORT message as shown on slides 9 and 10 of 3av_0804_lynskey_2.pdf.

Proposed Response *Response Status* **O**

Cl **99** *SC* *P* *L* # 1191

Kramer, Glen Teknovus, Inc.

Comment Type **E** *Comment Status* **X**

Include Frontmatter in the draft being commented.

SuggestedRemedy

Include Frontmatter. Update WG officers

Proposed Response *Response Status* **O**