Cl **FM** *SC* **FM** *P* **3** *L* **1** # 81

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

Missign text of abstract

SuggestedRemedy

Use the following text derived from 802.3av: "This amendment to IEEE Std 802.3-2015 extends Ethernet Passive Optical Networks (EPONs) operation to multiples of 25 Gb/s providing both symmetric and asymmetric operation for the following data rates (downstream / upstream): 25/10 Gb/s, 25/25 Gb/s, 50/25 Gb/s, and 50/50 Gb/s. This standard specifies the 25 Gb/s EPON Multip Point Reconciliation Sublayer (MPRS), 25GBASE-PR symmetric and 25/10GBASE-PR Physical Coding Sublayers (PCSs) and Physical Media Attachments (PMAs), and Physical Medium Dependent sublayers (PMDs) that support both symmetric and asymmetric data rates while maintaining complete backward compatibility with already deployed 10 Gb/s EPON equipment. Backward compatibility with deployed 1G-EPON is maintained for the specific case of 1G-EPON ONUs using narrow-band (20nm) DFB lasers. The EPON operation is defined for distances of at least 10 km and at least 20 km, and for split ratios of 1:16 and 1:32."

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **3** *L* **3** # 82

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

Missing keywords

SuggestedRemedy

Use the following keywords derived from 802.3av: "25 Gb/s Ethernet Passive Optical Networks (25G-EPON), 50 Gb/s Ethernet Passive Optical Networks (50G-EPON), forward error correction (FEC), Multi-Point MAC Control (MPMC), Physical Coding Sublayer (PCS), Physical Media Attachment (PMA), Physical Medium Dependent (PMD), PON, Point to Multipoint (P2MP), Multi Point Reconciliation Sublayer (MPRS)"

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 102

Harstead, Ed Nokia

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

In (new) Table for OLT PR30 transmit characteristics, 25GBASE-PR30-U column, add value for Extinction Ratio (min)

SuggestedRemedy

Per minutes_unapproved_3ca_0118.pdf, Motion #7: 8 dB

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 101

Harstead, Ed Nokia

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

In (new) Table for OLT PR30 transmit characteristics, 25GBASE-PR30-U column, add value for Average launch power (max).

SuggestedRemedy

Per minutes_unapproved_3ca_0118.pdf, Motion #7: 4.8 dBm

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 98

Harstead, Ed Nokia

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

Table for OLT PR30 receive characteristics is missing.

SuggestedRemedy

Add (blank) table

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 97
Harstead, Ed Nokia

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

Table for OLT PR30 transmit characteristics is missing.

SuggestedRemedy

Add (blank) table

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 104
Harstead, Ed Nokia

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

Per minutes_unapproved_3ca_1117.pdf, Motion 9, 100G has been dropped from our objectives, but still appears in PMD tables.

SuggestedRemedy

Remove all "100GBASE" type entries from Tables 141-11, 141-12, 141-14.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **4** *L* **32** # 105
Harstead, Ed Nokia

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

Table 141–6—Upstream channel wavelength assignments are missing values.

SuggestedRemedy

Per minutes_approved_3ca_0717.pdf and minutes_unapproved_3ca_0118.pdf, add these wavelengths: US0-B = 1270 +/- 10nm, US0-A = 1300 +/- 10 nm, US1 = 1320 ± 2nm

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **40** *L* **19** # 99
Harstead, Ed Nokia

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

25GBASE-PR30-U column, Average receive power, each channelc (min) is missing

SuggestedRemedy

Per minutes_unapproved_3ca_0118.pdf, Motion #7: -25.7 dBm

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **40** *L* **19** # 103
Harstead, Ed Nokia

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

Bit error ratio (max) a is missing

SuggestedRemedy

Value = 1e-2

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **40** *L* **21** # 100
Harstead, Ed Nokia

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

25GBASE-PR30-U column, Receive power, each channel (OMA) (max) is missing

SuggestedRemedy

Converting from -25.7 dBm @ER= 8 dB, add: -24.1 dBm

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.1.3** *P* **25** *L* **33** # 94
Remein, Duane Huawei Technologies

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

"25 Gb/s and above" how far above? 200 Gb/s? 400 Gb/s?
Same issue line 35.

SuggestedRemedy

Replace with "25 or 50 Gb/s"

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.3.1** *P* **29** *L* **37** # 93

Remein, Duane — Huawei Technologies

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

64B/66B at PMD does not exist, only 256B/257B.

SuggestedRemedy

Change all instances to 64B/66B in Clause 141 to 256B/257B.

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.7.15.1** *P* **43** *L* **36** # 95

Remein, Duane — Huawei Technologies

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

"Treceiver_settling is presented in Figure 141–3" but the figure is a test set-up not a presentation of this parameter.

SuggestedRemedy

Strike the sentence as it is clear from the first sentence of the next para (and the figure title) what the figure is about.

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.9** *P* **45** *L* **47** # 87

Parsons, Earl — CommScope

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

The complete IEC reference is IEC 60793-2-50 categories B1.1, B1.3 and B6_a.
"Category" is the proper term. Category B6_b fibers do not necessarily comply with the dispersion characteristics of B6_a and therefore can only be used for small fractions of the reach.
ITU-T G.652 covers only IEC categories B1.1 and B1.3. Also add ITU-T 657.A1 and A2 (they match IEC B6_a1 and _a2.)

SuggestedRemedy

Change this sentece to read:
The 100G-EPON fiber optic cabling shall meet the dispersion specifications defined in IEC 60793-2-50 categories B1.1, B1.3, and B6_a, ITU-T G.652, and ITU-T G.657, or the requirements of Table 141-15 where they differ.

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.9** *P* **45** *L* **47** # 88

Parsons, Earl — CommScope

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

This line refers to IEC 60793-2. The complete IEC reference is IEC 60793-2-50. This also occurs on page 46 line 15, page 46 line 25 (Table 141-15), and page 46 line 40.

SuggestedRemedy

In this clause change all instances of "IEC 60793-2" to "IEC 60793-2-50".

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.9.1** *P* **46** *L* **8** # 89

Parsons, Earl — CommScope

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

This section refers to insertion loss measurements. IEC prefers "Attenuation" above "Insertion loss". The name insertion loss comes from a specific measurement method in IEC 61300-3-4.

SuggestedRemedy

In this sentence, change "insertion loss" to "attenuation".

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.9.2** *P* **46** *L* **10** # 90

Parsons, Earl — CommScope

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

This line refers to IEC 61280-4-2:2000. There is a newer version published in 2014: IEC 61280-4-2:2014.

SuggestedRemedy

Change reference to IEC 61280-4-2:2000 to IEC 61280-4-2:2014

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.9.2** *P* **46** *L* **16** # 91

Parsons, Earl CommScope

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

We should add the IEC variant for the G657 fiber witch is Type B6. This also should be added on page 46 line 25 (table 141-15).

SuggestedRemedy

Change line 16-17 to:
IEC 60793–2-50 Type B1.1 (dispersion un–shifted SMF), Type B1.3 (low water peak SMF), and Type B6 (bend-insensitive SMF), ITU–T G.652 and ITU–T G.657 (bend–insensitive SMF).

Change line 25 to (table 141-15):
IEC 60793-2-50 B.1.1, B1.3 and B6 SMF, ITU–T G.652, G.657 SMF

Proposed Response *Response Status* **O**

Cl **141** *SC* **141.9.3** *P* **46** *L* **49** # 92

Parsons, Earl CommScope

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

We can also add reference IEC 61753-031-3 for splitters.

SuggestedRemedy

Add a reference to IEC 61753-031-3 to the ITU-T refence on this line.

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.2.2.6** *P* **57** *L* **28** # 106

Powell, Bill Nokia

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

TX PCS: Add new Precoding encoder sub-clause 142.2.2.2.6 to document TX differential encoding (precoding), per Motion 5 from the Orlando Nov. 2017 meeting:
"Move to adopt LDPC FEC in the downstream direction with PON-wide precoding (differential encoding). Precoding is mandatory for implementation but optional for use. The ONU shall autodetect precoding."

SuggestedRemedy

Proposed new sub-clause content in powell_3ca_1_0318 (will be uploaded/submitted before meeting starts)

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.3.1** *P* **57** *L* **38** # 107

Powell, Bill Nokia

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

RX PCS: Insert NEW Precoding decoder sub-clause 142.2.3.1 (moving other sub-clauses up one count) to add the differential decoder function, per Motion 5 from the Orlando Nov. 2017 meeting:
"Move to adopt LDPC FEC in the downstream direction with PON-wide precoding (differential encoding). Precoding is mandatory for implementation but optional for use. The ONU shall autodetect precoding."

SuggestedRemedy

Proposed new sub-clause content in powell_3ca_1_0318 (will be uploaded/submitted before meeting starts)

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.1.5** *P* **94** *L* **13** # 80

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

Consistent definitions of state diagram conventions for all new Clauses

SuggestedRemedy

Adopt text for State diagram conventions per hajduczenia_3ca_5_0318.pdf. Suggest the same text for MPRS (no location exists today) and PCS (142.1.1) subclauses as well. No need (likely) for similar text in PMD clause .

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.3** *P* **94** *L* **29** # 84

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

Discovery Processing is empty

SuggestedRemedy

Adopt proposed text for Discovery Processing per hajduczenia_3ca_2_0318.pdf. The text is derived for clause 77 with the following changes:
- Figure 144–11—Discovery handshake message exchange uses new DISCOVERY GATE MPCPDU and was updated to take advantage of all new parameters carried in MPCPDUs;
- Figure 144–12—Discovery Processing service interfaces (OLT, broadcast instance); Figure 144–13—Discovery Processing service interfaces (OLT, unicast instance); and Figure 144–14—Discovery Processing service interfaces (ONU) were updated to use new MPCPDUs and associated primitive definitions were extended to account for these
- all variables, constants, etc. referencing time_quanta were recalculated into EQ assuming 1EQ = 2.56ns;
- all message definitions were updated to match new MPCPDU structure
- all state diagrams were updated to match new MPCPDU structure, including explicit DISCOVERY GATE MPCPDU
Otherwise, even with envelopes, there is no functional difference in how Discovery Process behaves in NG-EPON at this time.
Outstanding items:
- update definitions of Sync Time (or better, point to where it is going to be defined in PCS Clause)
- where we process DISCOVERY GATE (within Figure 144–19—Discovery Processing ONU Registration state diagram or elsewhere) - my personal preference is to add a separate small SD in Discovery processing subclause to handle DISCOVERY GATE alone. Figure 144-19 is already very busy as is.
- missing references to PCS clause, once the structure is stabilized

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.4** *P* **94** *L* **31** # 85

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

Report Processing is empty

SuggestedRemedy

Adopt proposed text for Report Processing per hajduczenia_3ca_3_0318.pdf. This text was derived from Clause 77 with the following changes:
- updated primitive definitions in "Figure 144–20—Report Processing service interfaces"
- updated all definitions to use EQ instead of TQ (values were recalculated assuming 1 EQ = 2.56ns)
- "Figure 144–21—Report Processing state diagram at OLT" and "Figure 144–22—Report Processing state diagram at ONU" modified only in terms of parameters into primitives - the nature of the operation of individual state diagrams remains unchanged from Clause 77
No outstanding items at this time

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.5** *P* **94** *L* **33** # 86

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

Gate Processing is largely incomplete

SuggestedRemedy

Adopt proposed text for Gate Processing per hajduczenia_3ca_4_0318.pdf. This text was derived from Clause 77 and current draft D0.7, with the following changes:
- "Figure 144–23—Gate Processing service interface" was updated to use new primitives for granting GATE MPCPDU as defined in Clause 144 in D0.7
- opcode activation is for granting GATE only; no DISCOVERY GATE processing
- "Figure 144–24—Gate Processing state diagram at OLT" was derived from Clause 77 with necessary changes to accommodate new granting GATE structure per Clause 144; processing logic is otherwise unchanged
- "Figure 144–25—ONU GATE Reception Process state diagram" was derived from Clause 144, D0.7, with change to CHECK_STATE_TIME state (where individual GATE parameters are explicitly extracted from the GATE MPCPDU), PROCESS_GRANTS state (updates to match primitives), and transition condition out of WAIT_FOR_GATE, where condition was updated to use Opcode value rather than explicit primitive

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.7** *P* **100** *L* **43** # 83

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

MPCPDU structure and encoding is largely incomplete, missing portions of all MPCPDUs

SuggestedRemedy

Adopt proposed definitions of existing MPCPDUs per hajduczenia_3ca_1_0318.pdf. The following decisions are outstanding at this time:
- how ONU calculates the effective grant length and what is accounted for.
- current GATE MPCPDU structure shows individual grants (1-7) as optional, but there is no information on grant count, making parsing at the ONU more complicated - a suggestion would be add a grant count information (1 octet), which has sufficient space in the MPCPDU at this time
- pad size in REPORT MPCPDU should not be shown as 0...35 unless individual queue length entries are also optional

Proposed Response *Response Status* **O**

Cl **144** *SC* **144.3.7.3** *P* **105** *L* **47** # 96

Remein, Duane Huawei Technologies

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

Values description for bits 4, 5, and 6 is incorrect.

SuggestedRemedy

Replace with the following replacing 1 Gb/s with 10 Gb/s and 25 Gb/s where appropriate:
0 - 1 Gb/s registration is not attempted
1 - 1 Gb/s registration is attempted

Proposed Response *Response Status* **O**