

CI 45 SC 45.2.1.4 P 34 L 38 # 3647
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status R EZ

Reserved registers were aligned under 802.3bx D3.0 - please align per i-51
(http://www.ieee802.org/3/bx/comments/P8023-D3p0-Comments_Final_byCIs.pdf)

SuggestedRemedy

Change "Reserved for future speeds" to "Reserved"

Response Response Status U

REJECT.

The comment response for referenced i-51 only states "Change the two instances of "reserved for future use" to "reserved" and does not include changing "Reserved for future speeds" Draft 3.2 of 802.3bx still includes "Reserved for future speeds" in this table row as do several other tables in CI 45 outside the scope of 802.3bn. Perhaps a maintance request should be entered by the commentor.

CI 45 SC 45.2.1.132.4 P 39 L 43 # 3663
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status R

"These bits are a reflection of the variable" - I would suggest to follow the recently received comment on D1.5 of 802.3bp
(http://www.ieee802.org/3/bp/comments/8023bp_D15_approved.pdf, comment 24) and change "These bits" to "Bits 1.1901.6:4"

SuggestedRemedy

Apply the same type of changes everywhere where "these bits", "the bits", "this bit" is still in use in Clause 45 to make these references explicit

Response Response Status U

REJECT.

The bits are clearly identified in the beginning sentence of the paragraph "Bits 1.1901.11:7 indicate". "These bits" later in the paragraph clearly refers to the same bits.

CI 101 SC 101.4.3.10.1 P 220 L 22 # 3670
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status R Soc

USNcp definition indicates it is a 4 bit value, yet only 3 bits are really used. What is the point of reserving additional MSB here?

SuggestedRemedy

Given that these are *state diagram* variables, and not registers, we should not really care about how many bits these have. It would be much more consistent to define it as an 8-bit unsigned integer and then apply individual values as follows:

7 = 768 samples

6 = 640 samples

5 = reserved

4 = 512 samples

3 = reserved

2 = 384 samples

1 = reserved

0 = 256 samples

Bit assignment here does not matter at all, and allows you to add future values as needed, without playing around with bits and reserved values. I understand this is the way it is done in DOCSIS, but it is unnecessary and adds complexity in definitions of variables in state diagrams.

There are also other variables defined in the very same way without any need.

Response Response Status U

REJECT.

See email Nov 11

The four bit values allows future expansion if needed.

Clearly an enumeration is just as clear as mapping values. Commonality with DOCSIS may add some small value. The objective is not to make it easy to generate the standard but easy to implement. Furthermore changing this to an 8 bit integer would break the register mapping in CI 45 forcing the MANUAL renumbering of all registers after 1907 and possibly introducing errors in the standard in the process.

Passed by voice without opposition

For (reject):

Against (change variable name):

Abstain:

CI 45 SC 45.2.7a.2.1 P 59 L 35 # 3700
Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R**

"See the variable definition for interpretation of individual bits" - this is not the correct way to approach it - definitions of registers should be self-standing and not rely on cross-reference elsewhere. Details of where and why individual values are set are not important in Clause 45.

SuggestedRemedy

Remove "See the variable definition for interpretation of individual bits" in 45.2.7a.2.1, 45.2.7a.2.2, 45.2.7a.2.3, and 45.2.7a.2.4

Add the following definition in Table 45-211c, in Description for 12.1.15:12, under "Modulation profile for subcarrier 7"

15 14 13 12

1 1 1 1 = Excluded subcarrier

1 1 1 0 = 16384-QAM

1 1 0 1 = 8192-QAM

1 1 0 0 = 4096-QAM

1 0 1 1 = 2048-QAM

1 0 1 0 = 1024-QAM

1 0 0 1 = 512-QAM

1 0 0 0 = 256-QAM

0 1 1 1 = 128-QAM

0 1 1 0 = 64-QAM

0 1 0 1 = 32-QAM

0 1 0 0 = 16-QAM

0 0 1 1 = 8-QAM

0 0 1 0 = QPSK

0 0 0 1 = BPSK

0 0 0 0 = null

Repeat bit assignment in 12.1.11:8, 12.1.7:4, and 12.1.3:0 in the same fashion.

Similar changes in 45.2.7a.3 and subclauses.

Response Response Status **U**

REJECT.

The Task Force removed the enum so as not to duplicate this information which may lead to inconsistencies and ambiguity.

On the contrary CI 45 is optional in its entirety. All normative information is contained in the variable definition.

CI 103 SC 103.2.2.1 P 304 L 47 # 3723
Hajduczenia, Marek Bright House Network

Comment Type **ER** Comment Status **R**

"This constant is defined in 64.2.2.1 and is 16 ns." - if you already point to definition elsewhere, that is all you need - do not copy value

SuggestedRemedy

Change to "This constant is defined in 64.2.2.1." or just copy whole definition from 64.2.2.1 without reference. The first approach is preferred.

Similar change to definitions of: localTime, data_rx, data_tx, grantStart, IdleGapCount, newRTT, m_sdu_rx, m_sdu_tx, OctetsRequired, and others in Clause 103, where you both define it locally and reference it back to Clause 64/77. A reference is sufficient - a full definition is a click away.

Response Response Status **U**

REJECT.

The intention here was to provide the reader with additional information on the constant and not force him/her to follow the cross reference, especially one to another section of the standard (something the commenter has pointed out is objectionable). The language used is intentionally non-normative as the referenced definition is normative.

CI 103 SC 103.2.1 P 301 L 49 # 3749
Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R**

"The principles of Multipoint MAC Control is the same as those described in 77.2.1 for EPON." - either you define Clause 103 as delta from Clause 77 for EPoC, or you define it as standalone, and reference Clause 77 as little as possible. Now it is neither

SuggestedRemedy

Discuss in TF and decide whether Clause 103 is supposed to be standalone relative to Clause 77 (and then content in 103.2.1 needs to be replicated from Clause 77) or just a delta from Clause 77 (then a lot of text is not needed, e.g., 103.1.4, 103.1.5, etc. could be removed with pointers to Clause 77)

My personal opinion is that the second approach (delta) would be simpler to maintain, but might be harder to read. The first approach creates cleaner specification, but creates a complete copy of Clause 77 where changes specific to EPoC are very few and far between.

Response Response Status **U**

REJECT.

The Task Force has decided that CI 103 is a delta clause to CI 77. This was already discussed by the TF and it was decided the delta approach would be best (and yes it is easier to maintain).

CI 103 SC 103.2.2.3 P 306 L 21 # 3754
 Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R**

Very cofnusing definition of packet_initiate_delay variable - first we provide its definition and then say it is defined elsewhere - which is it then ?

SuggestedRemedy

Decide whether the variable packet_initiate_delay is defined in here in 103.2.2.3 (and then remove any references to 77.2.2.3) or it is defined through reference to 77.2.2.3 (and then local definition is not needed)

Response Response Status **U**

REJECT.

The intent here is to make the clause easier to understand for those familiar with EPON. The wording used here is specifically non-normative as the rulling definition is that being adopted from CI 77. However, the commenter has noted before that it is poor form to expect a reader to constantly shift back and forth between different clauses, especially when they are in different Sections of the Standard, thus the initial definition in CI 103 includes the definition and a ref back to the def in CI 64 or 77 whereas subsequent defintions in CI 103 only the initial def in CI 103. Should the TF wish to reconsider this strategy this change would be in order
 Also see Cmt# 3746

Passed by voice without opposition
 For (reject):
 Against (change variable name):
 Abstain:

CI 103 SC 103.3.3.1 P 317 L 26 # 3764
 Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R** rfOn/OffTime, Soc

"This variable holds the time required to terminate the RF and is included for consistency with Clause 77."

What does it even mean? Something is passed through an interface and it is not even needed? If the same interface was to be reused, it was modified already, since discoveryInformation was removed anyway.

SuggestedRemedy

Remove rOffTime, rfOnTime definitions in 103.3.3.1 (not needed) and remove it from all primitives (apparently not needed at all).

Similarly, it is not clear why "syncTime" is being used if it is zero for EPoC - just assign zero explicitly rather than create a variable and then assign zero to it !!!!

Response Response Status **U**

REJECT.

rOffTime occurs 25 times and rfOffTime occurs 25 times in the draft. In addition there are the phrases "RF On Time" and "RF Off Time". syncTime occurs 6 times. It is felt by the TF that maintaining consistency with CI 77 SD's out weights the need to simplify the SD's in the Draft. The TF may wish to reconsider this position.

CI 103 SC 103.3.3.5 P 319 L 4 # 3765
 Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R** rfOn/OffTime, Soc

"sync_time: The time interval required to stabilize the receiver at the CLT." - but before it was stated that sync_time is not needed (and defined only for compatibility with EPON, whatever it means)

SuggestedRemedy

Remove sync_time parameter from MA_CONTROL.request(DA, GATE, discovery, start, length, discovery_length, sync_time) primitive, respective MPCPDUs and state diagrams in 103.3.3.6

Response Response Status **U**

REJECT.

See Cmt# 3764

Cl 103 SC 103.3.3.5 P 319 L 27 # 3766
 Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R** rfOn/OffTime, Soc
 But before it was stated that rfOnTime / rfOffTime do not have really any meaning in EPoC.

SuggestedRemedy

Remove rfOnTime / rfOffTime from primitives
 MA_CONTROL.request(DA,REGISTER_REQ,status,rfOnTime,rfOffTime) and
 MA_CONTROL.indication(REGISTER_REQ, status, flags, pending_grants, RTT,
 rfOnTime, rfOffTime) and MA_CONTROL.request(DA, REGISTER, LLID, status,
 pending_grants, rfOnTime, rfOffTime) as well as from respective MPCPDUs

Response Response Status **U**
 REJECT.
 See Cmt# 3764

Cl 100 SC 100 P 77 L 1 # 4165
 Dawe, Piers Mellanox

Comment Type **ER** Comment Status **R**
 802.3 orders the clauses down the stack of sublayers, not up.

SuggestedRemedy

Swap clauses 100, PMD, and 101, RS/PCS/PMA.

Response Response Status **U**
 REJECT.
 There is precedence in prior EFM: Clause 60 "PMD" is before Clause 65 "RS, PCS, PMA
 1000BASE-X" and Clause 75 "PMD 10GBASE-PR/PRX " is before Clause 76 "RS/ PCS,
 PMA 10G-EPON".

Cl 103 SC P L # 4168
 Dawe, Piers Mellanox

Comment Type **TR** Comment Status **R**
 PAR says:
 It also extends the operation of Ethernet Passive Optical Networks (EPON) protocols, such
 as MultiPoint Control Protocol (MPCP)...

5C says:
 EPoC will reuse the MAC Control and OAM as defined in the current IEEE Std 802.3 for
 EPON, with minimal augmentation if necessary, while developing new PHY specifications.

Objectives say:
 Maintain compatibility with 1G-EPON and 10G-EPON, as currently defined in IEEE Std.
 802.3 with minimal augmentation to MPCP and/or OAM if needed to support the new
 PHY.

Yet I see a whole new clause 103 that defines another MPMC from the ground up. That's
 not what the project promised.

SuggestedRemedy

Combine clauses 77 and 103. Use technology-neutral variable names rather than names
 like "laserOffTime" and "fecOffsetC".

Response Response Status **U**
 REJECT.

The Task Force believes the addition of Cl 103 is consistent the projects PAR, 5C &
 objectives as quoted by the commenter and with previous EPON project deliverables
 whose PAR, 5C and Objectives included similar wording to create a standalone clause for
 MPCP. Furthermore that Task Force believes the risk of breaking something in Cl 77
 outweighs the burden of the addition of Cl 103.

P802.3ah created Cl 64. Multipoint MAC Control
 PAR Scope: Define 802.3 Media Access Control (MAC) parameters and minimal
 augmentation of the MAC operation, physical layer
 specifications, and management parameters for the transfer of 802.3 format frames in
 subscriber access networks at operating speeds within the scope of the current IEEE Std
 802.3 and approved new projects
 Technical Feasibility: "... The proposed project will, to the extent possible, re-use
 specifications developed by
 other standards bodies and develop new specifications in accordance with the
 rigorous standards of proof applied to 802.3 projects. ..."

Objectives:
 "Support subscriber access network topologies:
 - Point to multipoint on optical fiber ..."

Provide a family of physical layer specifications:

- ...
- PHY for PON, >= 10km, 1000Mbps, single SM fiber, >= 1:16,
- PHY for PON, >= 20km, 1000Mbps, single SM fiber, >= 1:16

- ..."

P802.3av created CI 77. Multipoint MAC Control for 10G-EPON

PAR Scope: The scope of this project is to amend IEEE Std 802.3 to add physical layer specifications and management parameters for symmetric and/or asymmetric operation at 10 Gb/s on point-to-multipoint passive optical networks.

Vote:

For (keep CI 103):

Against (combine 103 & 77):

Abstain:

Technical Feasibility: "... This project reuses the Ethernet point-to-multipoint and point-to-point technologies that proved to be stable and credible. The project will extend burst mode technology to 10Gb/s.

..."

Objectives:

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

Provide physical layer specifications:

- PHY for PON, 10 Gbps downstream/1 Gbps upstream, single SM fiber
- PHY for PON, 10 Gbps downstream/10 Gbps upstream, single SM fiber

CI 100	SC 100.2.10.2	P 111	L 17	# 4171
Dawe, Piers		Mellanox		

Comment Type **TR** Comment Status **A**

"The required level for CLT upstream post-FEC error ratio is defined for AWGN as less than or equal to 10⁻⁶ frame loss ratio with 1500 byte Ethernet MAC packets." and "100.2.12.2 CNU receiver capabilities

The required level for CNU downstream post-FEC error ratio shall be less than or equal to 10⁻⁶ frame loss ratio when operating at a CNR as shown in Table 100-15, under input load and channel conditions as follows with 1500 byte Ethernet packets.":

this is the PMD clause. The PMD doesn't contain the FEC: what does the PMD have to do to satisfy this condition?

Suggested Remedy

Define PMD spec.

Response **Response Status U**

ACCEPT IN PRINCIPLE.

"The required level for CLT upstream post-FEC error ratio is defined for AWGN as less than or equal to 10⁻⁶ frame loss ratio with 1500 byte Ethernet MAC packets. This section describes the conditions at which the CLT is required to meet this error ratio."

To:

"The required level for CLT upstream post-FEC error ratio is defined for AWGN as less than or equal to 10⁻⁶ frame loss ratio with 1500 byte Ethernet MAC packets. This section describes the conditions at which the PMD, PMA, PCS in conjunction are required to meet this error ratio. "

CI 103 SC 103.2.2.1 P 297 L 47 # 4248
 Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **R** Discussed

No changes to time_quantum as defined in 64.2.2.1

SuggestedRemedy

Change "This constant is defined in 64.2.2.1 and is 16 ns." to "See 64.2.2.1."
 Similarly, for other variables which are taken over from Clause 64/77, do not copy the text over into this clause - it is a mayhem later on for maintenance) but only reference them. If you're trying to do a completely independent clause, then do not reference back to Clause 64/77

Response Response Status **U**

REJECT.
 This was discussed in the TF and it was agreed that, for variables defined in CI 64/77 we would reference the normative definition and provide an informative (no "shall") explanation to avoid making the reader swap back and forth between sections of the standard.

CI 100 SC 100.2.10.2 P 101 L 16 # 4307
 Dawe, Piers Mellanox

Comment Type **TR** Comment Status **A** Discussed

Was resolution to TR comment 4171 implemented? I see that the resolution to T comment 3910 deletes the fix made by the resolution to 4171, which says change to "This section describes the conditions at which the PMD, PMA, PCS in conjunction are required to meet this error ratio".

SuggestedRemedy

Insert "This section describes the conditions at which the PMD, PMA, PCS in conjunction are required to meet this error ratio", or better,
 "This section describes the conditions at which the CLT PMD when connected to a compliant PMA and PCS is required to meet this frame loss ratio", and change subclause title to "CLT receiver error ratio performance in AWGN channel". Similarly for CNU receiver.

Response Response Status **W**

ACCEPT IN PRINCIPLE.
 1) Select the "or better" and insert as the first sentence of paragraph on Page 101, Line 17. "This section describes the conditions at which the CLT PMD when connected to a compliant PMA and PCS is required to meet this frame loss ratio." Do similar for Page 104 Line 5.
 2) Comment 3883 against D2.0 changed the title of 100.2.12.2 to "CNU error performance in AWGN channel" to remove the word "rate". Suggest doing the same for title of 10.2.10.2 and removing "ratio" to be consistent.

CI 100 SC 100.2.10.2 P 100 L 21 # 4308
 Dawe, Piers Mellanox

Comment Type **TR** Comment Status **A** discussed

Was resolution to TR comment 4167 implemented? I see that the resolution to T comment 3910 deletes the fix made by the resolution to 4167.

SuggestedRemedy

Change "post-FEC frame loss ratio of 10-6 with 1500 byte MAC packets" to "less than or equal to 10-6 frame loss ratio both with both 64-byte and 2000-byte Ethernet frames". Similarly in 100.2.12.2.
 Also, revise "Large bursts consisting of several 1500 byte MAC packets." in each list to agree - or put the "both 64-byte and 2000-byte Ethernet frames" in the lists only.
 Be consistent with base document: MAC packets or Ethernet frames?

Response Response Status **W**

ACCEPT IN PRINCIPLE.
 Thanks for catching this, it looks like 3910 interfered with the AIP from comment 4167.

Change: update draft as per remedy. Use "Ethernet frames".

Cl 100 SC 100.2.10.2 P 100 L 25 # 4309
 Dawe, Piers Mellanox

Comment Type TR Comment Status R Tuesday, discussed

This is still very indirect as a requirement on the PMD. Compare:

95.1.1 Bit error ratio

The bit error ratio (BER) shall be less than 5×10^{-5} provided that the error statistics are sufficiently random that this results in a frame loss ratio (see 1.4.223) of less than 6.2×10^{-10} for 64-octet frames with minimum interpacket gap when processed according to Clause 91.

If the error statistics are not sufficiently random to meet this requirement, then the BER shall be less than that required to give a frame loss ratio of less than 6.2×10^{-10} for 64-octet frames with minimum interpacket gap when processed according to Clause 91.

SuggestedRemedy

Please add some guidance as to what the PMD itself is expected to do, e.g. an error ratio for the OFDM/OFDMA time domain samples at the PMA service interface. Even if this is qualified (e.g. "sufficiently random") as above it would still give the reader a starting point.

Response Response Status W

REJECT.

Inside the receive direction PMD everything is inside the time domain (pre FFT) and all signal processing is done in the time domain, where there are no relevant statistics related to error ratios. All decoding and error performance is in the frequency domain (post FFT) in the PMA. Even SNR evaluation (using equalized modulation error ratio MER) can only be done immediately after processing by the FFT when analyzing the QAM symbol in each decoded OFDM/A subcarrier. Note for EPoC, the PMD receiver is essentially a pre-amp (with slope correction and assuming wideband conversion), an AGC, and an A/D converter that produces the time domain samples delivered across the PMD service interface.

Cl 01 SC 1.4.331 P 29 L 16 # 4320
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A P2MP def
There are issues with the new definition of P2MP

SuggestedRemedy

Change "connected to a number end stations" to "connected to a number of end stations"
Strike statement: "Frames transit the network between the central station and the end stations and do not transit directly from end station to end station." - we do not restrict ONU/CNU to ONU/CNU communication, if one desired to deploy links between them - these are outside of the scope of our definitions.

Response Response Status U

ACCEPT IN PRINCIPLE.
Include the "of" in the 1st sentence.
Do not strike the phrase regarding end station to end station communications, because this restriction is essential to describing the logical topology of a P2MP network as part of the 802.3 MAC domain architecture.

Cl 30 SC 30.3.5.1.3 P 32 L 10 # 4322
Hajduczenia, Marek Bright House Network

Comment Type TR Comment Status A OLT/CLT
Changes to 30.3.5.1.3 make no sense - Clause 103 does not define OLT and ONU

SuggestedRemedy

Enumeration for aMPCPMODE should be extended to include CLT and CNU
Then behavior description "An interface that can provide the Multipoint MAC Control sublayer functions specified in Clause 64 and Clause 77 operates as an OLT when this attribute has the enumeration "OLT".
When this attribute has the enumeration "ONU", the interface acts as an ONU."
should be augmented to read as follows:
An interface that can provide the Multipoint MAC Control sublayer functions specified in Clause 64 and Clause 77 operates as an OLT when this attribute has the enumeration "OLT".
An interface that can provide the Multipoint MAC Control sublayer functions specified in Clause 103 operates as an CLT when this attribute has the enumeration "CLT".
When this attribute has the enumeration "CNU", the interface acts as an CNU.

Response Response Status W

ACCEPT IN PRINCIPLE.
Also see #4335
Change to:
"A read-only value that identifies the operational mode of the Multipoint MAC Control sublayer. An interface that can provide the Multipoint MAC Control sublayer functions specified in Clause 64<strike>, or</strike> Clause 77 <u>, or Clause 103. When </u><strike> operates as an OLT when</strike> this attribute has the enumeration "OLT"<u>, the interface acts as an OLT</u>. When this attribute has the enumeration "ONU", the interface acts as an ONU. <u>When this attribute has the enumeration "CLT", the interface acts as a CLT. When this attribute has the enumeration "CNU", the interface acts as a CNU.</u>";

Cl 100 SC 100.3.6.2 P 110 L 20 # 4325
 Hajduczenia, Marek Bright House Network

Comment Type **TR** Comment Status **A**

Per "3.2.7 MAC Client Data field", "Ethernet implementations shall support at least one of three maximum MAC Client Data field sizes defined as follows", but it does not guarantee that envelope frame is supported. Is it implied that EPoC requires the support of envelope frames?

SuggestedRemedy

Add statement on what types of frames are required by EPoC, or alternatively list all possible frame sizes supports by 3.2.7
 Similar change on line 34 would be required
 Similar changes in 100.3.7.2 as well

Response Response Status **U**

ACCEPT IN PRINCIPLE.

Summary of AIP:

1) restructure to move all conditions into the dashed list,
 2) amend 100.3.6.2 and 100.3.7.2 text to cross reference appropriate CL 4A subclauses, these in turn reference 3.2.7, the CL 4A references in turn reference 4A.2.7.1 for maxEnvelopeFrameSize (which is 2000 bytes). This is to move explicit frame sizes out of CL100 and reference the places where they are specified for the Ethernet standard.

+++++

Clause 100.3.6.2, Page 110

Line 20, change the entire paragraph preceding the dashed list to read:

"The CLT shall achieve a received frame loss ratio of less than or equal to 10⁶ under the following input load and channel conditions:

Line , insert new dashed list line after "Input power.." line:.

"- Received signal having a CNR greater than or equal to that shown in Table 100-13."

Line 34, change "- Large bursts consisting of both 64-byte and 2000-byte Ethernet frames."

To "- Large bursts consisting of frames of any allowed sizes, including bursts consisting only of minimum size frames (4A.2.3.2.4) and bursts consisting only of maximum size frames (4A.2.4.2)."

Clause 100.3.7.2, Page 113

Line 10, change the entire paragraph preceding the dashed list to read:

"The CNU shall achieve a received frame loss ratio of less than or equal to 10⁶ under the following input load and channel conditions:

Line 27 , insert new dashed list line after "Average power.." line:

"- Received signal having a CNR greater than or equal to that shown in Table 100-15."

Line 30, change "- Large bursts consisting of both 64-byte and 2000-byte Ethernet frames."

To "- Large bursts consisting of frames of any allowed sizes, including bursts consisting only of minimum size frames (4A.2.3.2.4) and bursts consisting only of maximum size frames (4A.2.4.2)."