Cl **00** SC P L # **99001**

Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **R** *D2.0 #837*

Fundamental structural issue.
With the addition of a minimum of at least 562 pages of D 2.0 of EFM to the existing 802.3 document, the IEEE 802.3 document will become overly large. At this point, I find it extremely time consuming to scan the existing 802.3 document for consistency with the new draft sections. With so much bulk, we run an increased risk of approving a document that may not be up to our past level of quality.
The material that is generated by future Task Forces will only exacerbate this situation.

SuggestedRemedy

Move EFM into a new separate 802.3 document that addresses an Ethernet for service providers and/or access networks.

Proposed Response *Response Status* **U**

REJECT.

The draft in its current form satisfies the PAR and 5 Criteria for the project, which call for an amendment to IEEE Std 802.3, formatted as a set of clauses. The suggested remedy would not satisfy the PAR and 5 Criteria.

The page count for this draft is not extraordinary in comparison to other recent projects in 802.3. As an example, IEEE Draft P802.3ae/D5.0 had a page count of 540 pages when it was approved by the sponsor ballot group and the IEEE-SA Standards Board.

It is expected that the IEEE publications staff will elect to publish EFM as the fifth volume of a future edition of IEEE Std 802.3, which will make it easy for the document reader to select the relevant specification.

For further information regarding document restructuring, see the file:

http://www.ieee802.org/3/efm/public/sep03/frazier_1_0903.pdf

Cl **00** SC P L # **99002**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #951*

I have a problem with the use of the term "loopback" for the diagnostic return path being proposed for the OAM sublayer. The potential for confusion of this new path with the existing half-duplex DO to DI loopback path and its associated term of "loopback" is great. The term "loopback" has been an accepted label for this function at least since the drafting of FOIRL (ref: 9.9.2.1) in 1987.

SuggestedRemedy

Pick another terminology.

Proposed Response *Response Status* **U**

ACCEPT.

The term "loopback", as used within Clause 57, is used in reference to a remote loopback of frames. Occasionally, the word "loopback" is improperly used without being preceded by the word "remote". See for example Figure 57-3 at line 20 on page 138. This figure title should be changed to read "OAM remote loopback". If the term "OAM remote loopback" is used consistently, this should provide an adequate differentiation from the loopback defined in earlier clauses.

Note that this problem was actually introduced in 802.3ae,

see for example Figure 45-2.

Cl **00** *SC* *P* *L* # **99003**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **R** *D2.0 #952*

What is being proposed in many places throughout this draft is not a peer network. To introduce such a foreign concept into a document where the implicit and explicit notion of peer relationships is so thoroughly infused throughout the existing document is likely to cause (a) significant confusion and (b) significant errors.

SuggestedRemedy

Move non-peer proposals to a new and separate document that can thoroughly, explicitly and unambigiously embrace the concept of Ethernet Services over asymetrical infrastructure.

Proposed Response *Response Status* **U**

REJECT.

The suggested remedy is ambiguous. What are "the non-peer proposals"? What is the "new and separate document"?

The draft in its current form satisfies the PAR and 5 Criteria for the project, which call for an amendment to IEEE Std 802.3, formatted as a set of clauses. The suggested remedy would not satisfy the PAR and 5 Criteria.

While there are asymetric physical layer specifications in the draft, the services provided to the MAC Client are provided in the same fashion as the base standard. The peer relationship between MAC Clients described in the base standard is preserved.

Previous projects introduced physical layers with asymetric behavior and characteristics.

For further information regarding document restructuring, see the file:

http://www.ieee802.org/3/efm/public/sep03/frazier_1_0903.pdf

Cl **00** *SC* *P* *L* # **99000**

Parsons, Glenn — Nortel Networks

Comment Type **TR** *Comment Status* **R** *D2.0 #1167*

Amalgamation of these numerous seemingly unrelated clauses into the 802.3 standard is unrealistic. That is, using 'Ethernet' to bind all these clauses together stretches the meaning of Ethernet beyond what was originally intended and also restricts how much can be changed to add new functionality.

SuggestedRemedy

Rework this draft to be a stand-alone standard for 'access' or 'carrier' Ethernet. This would primarily affect the ammendments to clauses of 802.3. This draft would then, for example, have its own clause 4 with 'obsolete' material removed and new functions added. The existing 802.3 standard could then be termed as 'legacy' or 'enterprise' Ethernet.

Proposed Response *Response Status* **U**

REJECT.

The draft in its current form satisfies the PAR and 5 Criteria for the project, which call for an amendment to IEEE Std 802.3, formatted as a set of clauses. The suggested remedy would not satisfy the PAR and 5 Criteria.

Numerous prior projects performed amendments to the base standard. The scope of the changes described in the draft is consistent with past practice. With regard to the specific example given in the suggested remedy, the combination of physical layers described in the draft makes full use of the behavior and interfaces described in Clause 4, therefore nothing in Clause 4 can be considered "obsolete".

For further information regarding document restructuring, see the file:

http://www.ieee802.org/3/efm/public/sep03/frazier_1_0903.pdf

Cl **00** *SC* *P* *L* # **527**

Thompson, Geoffrey — Nortel Networks

Comment Type **TR** *Comment Status* **D**

Regarding response to my D2.0 comment 952
I consider the rejection to be non-responsive in the question as to what consititutes the "non-peer proposals". The answer to this is obvious to all informed participants in the 802.3 WG. Further, additional detail was provided in my D2.0 comment #975 as well as (for example) the text which sets this forth:
30.5.1.1.15 aPhySide
ATTRIBUTE
APPROPRIATE SYNTAX:
An ENUMERATED value that has one of the following entries:
subscriber subscriber mode of operation
office office mode of operation

SuggestedRemedy

Implement my original requests

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The commenter refers to a behavior of a physical layer to justify the claim that IEEE Draft P802.3ah/D2.1 contains "non-peer" proposals. This is misleading. IEEE Std 802.3 contains numerous precedents for physical layers that have different characteristics at each end of the link. See for instance the MDI and MDI-X port appearance in Clause 14. As previously asserted in the response to comment 975 from D2.0:

While there are asymetric physical layer specifications in the draft, the services provided to the MAC Client are provided in the same fashion as the base standard. The peer relationship between MAC Clients described in the base standard is preserved.

Cl **00** *SC* *P* *L* **1** # **99004**

Grow, Robert — Intel

Comment Type **TR** *Comment Status* **A** *D2.0 #596*

Per recent changes, we should begin including the front matter in the draft by Sponsor Ballot.

SuggestedRemedy

This is classified as a TR to assure it is implemented prior to Sponsor Ballot. The 802.3ah Editor-in-Chief will receive an appropriately edited copy of the front matter proposed for 802.3aj publication from the WG Chair at Ancona.

Proposed Response *Response Status* **U**

ACCEPT.

Will include when the source file is provided by the 802.3 WG Chair.

Cl **00** *SC* *P* **24** *L* **51** # **99005**

Booth, Brad — Intel

Comment Type **TR** *Comment Status* **A** *D2.0 #562*

The Unidirectional OAM Enable bit use is not only required for OAM but is also required for an OLT to operate correctly.

SuggestedRemedy

Change throughout the specification the name of Unidirectional OAM Enable to Forced Transmit. Change mr_unidirectional_oam_enable to mr_forced_tx.

Change in Table 22-7 and 22.2.4.1.12.
Change in 24.2.3.2; strike OAMPDU in 24.2.4.2 on page 31, line 44; change in 24.3.4.5 and in Figure 24-16.
Change in 36.2.5.1.3; 36.2.5.2.1.
Change in 46.3.4; 46.3.4.2; 46.3.4.3.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Refer to resolution of 1053.

Cl **00** *SC* **0** *P* **1** *L* **1** # **99006**

James, David — JGG

Comment Type **TR** *Comment Status* **R** *D2.0 #436*

A uniform notation for register, fields, state-machine names, functions, and constants is needed. Following is recommended:
thisResetRegister -- lower case, run-together, italics
thatField -- lower case, run-together, italics
THIS_CONSTANT -- upper case with underscore word separators
THAT_ENUMERATED_VALUE
ThisFunction() -- Start caps, run-together, italics
ThisStateMachine -- Start caps, run-together
that_parameter -- service primitive parameter, underscore separators

SuggestedRemedy

1) Accept this convention or _clearly_ define your own
(spaces in names are not allowed)
2) Describe this in some notation clause, if possible, or simply in the draft foreward (if not possible).
3) The Chief Editor should enforce this convention.

Proposed Response *Response Status* **U**

REJECT.

Cl **00** *SC* **00** *P* **1** *L* # **34**

David, James JGG

Comment Type **E** *Comment Status* **D**

Excess capitalization.

SuggestedRemedy

Only capitalize first word of sentence/heading or proper nouns.
Applicable throughout.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done before the IEEE-SA ballot on draft 3.0

Cl **00** *SC* **00** *P* **1** *L* **8** # **22**

David, James JGG

Comment Type **E** *Comment Status* **D**

Many problems with headings are only discovered in the TOC,
such as alpha ==> a, or line wraps.

SuggestedRemedy

Include an automatic-generated 2-level TOC.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done before the IEEE-SA ballot on draft 3.0

Cl **00** *SC* **22.2.4.1** *P* **18** *L* **45** # **35**

David, James JGG

Comment Type **E** *Comment Status* **D**

Inconsistent usage of R/W, as column heading and entry

SuggestedRemedy

When used as an entry, change R/W ==> RW
(throughout)

Proposed Response *Response Status* **O**

Cl **00** *SC* **4.2.3.2.2** *P* *L* # **509**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 956
The response is adequate for my purposes in this particular instance.
TR #956 can be marked off as satisfied

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **4.2.7.2** *P* *L* # **510**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 957
The response is adequate for my purposes in this particular instance.
TR #957 can be marked off as satisfied

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **4.2.8** *P* *L* # **511**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 958
The response is adequate for my purposes in this particular instance.
TR #958 can be marked off as satisfied

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **4.4.2** *P* *L* # **512**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 959
The response is adequate for my purposes in this particular instance.
TR #959 can be marked off as satisfied

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **4.4.2** *P* *L* # **514**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 961
The response is adequate for my purposes in this particular instance.
TR #961 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **4.4.2** *P* *L* # **513**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 960
The response is adequate for my purposes in this particular instance.
TR #960 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **45.2.1** *P* **81** *L* **23** # **99007**

Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1258*

The existing registers need to be dealt with. Registers 1.0, 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6 are defined as general registers. Therefore, they will apply to 10PASS-TS and 10PASS-TL devices. Text must be added to the existing subclauses to clarify how they are applied to the new PMDs.

SuggestedRemedy

Provide the necessary information.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add text as suggested:

1.0 -- speed selection bits 13 & 6: add little table in each bit field:

13 6
----
1 1 -- bits 5:2 select speed
0 x -- Unspecified
x 0 -- Unspecified

keep the same language as found in 45.3.1.1.3 - 802.3ae

-- bits 5:2, add one row in table for 10PASS-TS and 2BASE-TL (speed variable, with a pointer to the PMA/PMD select registers for each PMA/PMD) (use the 00001 codepoint)

1.1 -- this register applies to 10B/2P. Mention that local fault information is elaborated on for 10PASS-TS and 2BASE-TL with pointer to these registers

1.2:3 -- this register applies unchanged to 10P/2B

1.4 -- add two rows to the table refering to 10PASS-TS and 2BASE-TL

1.5:6 -- remove individual tables and text for registers 5 and 6 in each individual MMD. Add a global table and text right after Table 45-1, with explanitory text. Change all references in Clause 45 from the individual reg 5,6 tables and text to the global table. Also, add the rows corresponding to the tone table and Link Partner PMA/PMD MMDs to the global table.

Furthermore:

Remove bits 15,14 and 1 from Table 45-3 and the associated text. This, along with comment 327 removes this register completely.

Remove bits 15:13 from Table 45-4 and the associated text.

Cl **00** *SC* **45.2.1.14** *P* **85** *L* **5** # **99008**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1260*

This comment applies to all counters that span 2 registers. A mechanism needs to be defined to ensure that the two counters are read with consistant values. Otherwise, the upper counter could roll between the reading of the two values and the manager would get an incorrect value for the two register quantity.

Also, these are each 2 registers, not 1. A register is one 16-bit addressable entity. Change the text to match that.

SuggestedRemedy

Define the mechanism. One method is to say that the most significant counter should be read first. When the most significant counter is read, the value in the least significant counter is held in a latch and the latched value rather than the current value of the counter is returned on a read of the least signficant register.

Also, why aren't these counters clear on read and hold at all FFs? Is the assumption that they can't roll. If so, what is the time calculated for a 32 bit roll over?

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

As per the comment, change text for all "multi-word" registers to show that they are indeed separate 16-bit registers.

The mechanism for reading 32-bit counters is already defined globally for Clause 45 (replacing, as a service to humanity, the individual descriptions on a per register basis). See 45.2 amendments in 802.3ah Draft 2.0 (page 80, line 46).

Add text so that when the Most sig. 16 bits are read, the value of the lower 16 is latched, and the register contents are cleared to all zeros. This creates "clear on read" counters.

remove current edits to the WIS MMD 32-bit counters and add an additional note "NOTE - These counters do not follow the behavior described in 45.2"

Cl **00** *SC* **45.2.1.33** *P* **82** *L* **52** # **36**

David, James — JGG

Comment Type **E** *Comment Status* **D**

Bad table format; bottom line should be very thin.

SuggestedRemedy

Work with IEEE to fix the template and description of use.
(many others also...)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4** *P* *L* # **508**

Thompson, Geoffrey — Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 955

SuggestedRemedy

D2.0 Resolution (Reject) Accepted by balloter

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4** *P* *L* # **507**

Thompson, Geoffrey — Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 954
Draft not updated according to accepted resolution.

SuggestedRemedy

Re-edit to accepted resolution rather than the proposed resolution.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Please refer to resolution of comment 954 per decision of the TF

Cl **01** *SC* **1.4** *P* **11** *L* **36** # **170**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

2BASE-TL is specified in Clause 61 and 63.
Wrong cross reference

SuggestedRemedy

correct cross reference

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4** *P* **11** *L* **38** # **44**

David, James JGG

Comment Type **E** *Comment Status* **D**

Excess capitalization.

SuggestedRemedy

Aggregation group ==> aggregation group
Bandplan ==> bandplan
Coupled Power Ratio ==> coupled power ratio
Grant ==> grant
Logical Link Identifier ==> logical link identifier
...
(only proper nouns to be capitalized)

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done in preperation of D3.0

Cl **01** *SC* **1.4** *P* **11** *L* **49** # **427**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

Bad grammer, add a verb to sentence.

SuggestedRemedy

which end of a link "is" closer

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done in preperation of D3.0

Cl **01** *SC* **1.4** *P* **11** *L* **7** # **404**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

This definition needs revision or qualification, as 'segment' can mean PON on clause 67. '1.4.159 link segment: The point-to-point full-duplex medium connection between two and only two Medium Dependent Interfaces (MDIs).'

SuggestedRemedy

?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Could the commenter suggest a remedy

Cl **01** *SC* **1.4** *P* **12** *L* **52** # **334**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Need to add a definition for "unit interval". This is trickier to write than it seems: need to cover e.g. Manchester code and/or multilane and/or multilevel transmission formats. For info: http://www.atis.org/tg2k/ has "unit interval: In isochronous transmission, the longest interval of which the theoretical durations of the significant intervals of a signal are all whole multiples." Can anyone improve on my attempt below?

SuggestedRemedy

Add 'unit interval' to the definitions list 1.4: 'A period of time, usually allocated for the transmission of one symbol on one channel; the inverse of the modulation rate.'

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **12** *L* **54** # **428**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

Bad grammer, add a verb to sentence.

SuggestedRemedy

which end of a link "is" closer

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done in preperation of D3.0

Cl **01** *SC* **1.5** *P* **13** *L* **16** # **16**

David, James JGG

Comment Type **E** *Comment Status* **D**

Excess capitalization.

SuggestedRemedy

Central Office ==> central office
Discrete Multi-Tone ==> discrete multi-tone
...
Forward Error Correction
...
(only proper nouns to be capitalized)

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done in preperation of D3.0

Cl **01** *SC* **1.5** *P* **13** *L* **33** # **99075**

James, David JGG

Comment Type **TR** *Comment Status* **R** *D2.0 #400*

Define VDSL.

SuggestedRemedy

1) Add term for VDSL
2) Spell out that term when used below:

VTU-O VDSL transceiver unit - CO side (10PASS-TS-O)
^^^^
VTU-R VDSL transceiver unit - CPE side (10PASS-TS-R)
^^^^

Proposed Response *Response Status* **U**

REJECT.

The abbreviations have been removed from the draft.

Cl **01** *SC* **1.5** *P* **13** *L* **53** # **130**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Missing abbreviation: UPBO

SuggestedRemedy

Add abbreviation:
UPBO: Upstream power back-off

Also update Table 45-24, which uses the abbreviation USPBO.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **22** *SC* **22.2.2.1.7** *P* *L* # **522**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 972
The response is adequate for my purposes in this particular instance.
TR #972 can be marked off as satisfied.

(I am having great difficulty reviewing the changes in the draft.
The version labeled 8023ahD2_1_DIFF.pdf seems to not show the complete differences. In particular in this clause the deleted text is not shown. This makes it exceedingly difficult to track the changes put into the text. It also makes it difficult to determine what is in scope for commenting.)

SuggestedRemedy

Show all changes between drafts in underline blue for inserts and blue strikeout for deletions. Black stikeouot and underline would be reservered for the changes to be made against 802.3.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Removing all deleted text is consistent with prior projects (10G). There are no plans to show deleted text in future drafts.

Cl **22** *SC* **22.2.2.1.7** *P* *L* # **521**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 968
The response is adequate for my purposes in this particular instance.
TR #968 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.1.7** *P* *L* # **519**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 970
The response is adequate for my purposes in this particular instance.
TR #970 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.1.7** *P* *L* # **520**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 969
The response is adequate for my purposes in this particular instance.
TR #969 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.1.7** *P* *L* # **523**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 971
The response is adequate for my purposes in this particular instance.
TR #971 can be marked off as satisfied.

(I am having great difficulty reviewing the changes in the draft.
The version labeled 8023ahD2_1_DIFF.pdf seems to not show the complete differences. In particular in this clause the deleted text is not shown. This makes it exceedingly difficult to track the changes put into the text. It also makes it difficult to determine what is in scope for commenting.)

SuggestedRemedy

Show all changes between drafts in underline blue for inserts and blue strikeout for deletions. Black stikeouot and underline would be reservered for the changes to be made against 802.3.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Removing all deleted text is consistent with prior projects (10G). There are no plans to show deleted text in future drafts.

Cl **22** *SC* **22.2.4** *P* **23** *L* **34** # **99018**

James, David JGG

Comment Type **TR** *Comment Status* **R** *D2.0 #403*

The register name and description hare hopelessly merged, confusing this reading and following uses of register names.

SuggestedRemedy

1) Split the "Register name" into two columns, one for name and one for descrption.
2) Use run-together no-space words for register names, such as:
pseControlRegister or
PseControlRegister or
pse_control_register
(listed in my order of preference)
3) Adopt a uniform convention for register names throughout the draft.

Proposed Response *Response Status* **U**

REJECT.

This is an existing table that is having some lines added to it. It would be out of scope to make such a change as you're suggesting. Each register is described in the text. The table is not the proper location for a description.

Cl **22** *SC* **22.2.4.1** *P* *L* # **515**

Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 963
The response is adequate for my purposes in this particular instance.
TR #963 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.4.1** *P* **18** *L* **19** # **481**

Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Leave the spelling of the word Auto-Negotiation as it was.

SuggestedRemedy

Change auto-negotiation back to Auto-Negotiation in 0.12 and 0.9 to keep the naming consistent with the register bit definitions.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Will incorporate this change as an editorial correction to the sponsor ballot draft.

Cl **22** *SC* **22.2.4.1** *P* **18** *L* **45** # **17**

David, James JGG

Comment Type **E** *Comment Status* **D**

Inconsistent usage of R/W, as column heading and entry

SuggestedRemedy

When used as an entry, change R/W ==> RW
(throughout)

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This affects more than just the tables that are being changed by EFM.

Cl **22** *SC* **22.2.4.1** *P* **24** *L* **1** # **99019**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #963*

Leave Table 22-7 in Legacy as prime reference

SuggestedRemedy

Carrier Grade refers to Legacy cl 6 master reference, or there is a block reserved in Legacy for CG & the details are in CG.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution to comment #952

Cl **22** *SC* **22.2.4.1.12** *P* **19** *L* **11** # **483**

Booth, Brad Intel

Comment Type **TR** *Comment Status* **D**

Register bit definitions make reference to a variable called link_status, yet link_status is not defined in Clause 22 and has multiple definitions throughout 802.3.

SuggestedRemedy

Change the definitions from "on the value of link_status" to "on the value of Link Status (bit 1.2)". In 22.2.4.2.8, change end of paragraph to read "only when the Link Status (bit 1.2) is one."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This bit uses a latching function so does not fit the requirement. It is true that the term link_status is not appropriate for all PHYs, in particular the 1000BASE-X PHY from Clause 36.

Replace all instances of "regardless of link_status" or "regardless of the value of link_status" with "regardless of whether the PHY has determined that a valid link has been established".

Replace all instances of "link_status=TRUE" with "the PHY has determined that a valid link has been established".

Replace all instances of "dependent on the value of link_status" with "dependent on whether the PHY has determined that a valid link has been established"

Cl **22** *SC* **22.2.4.1.12** *P* **19** *L* **18** # **482**

Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Second paragraph should proceed the first paragraph as it defines whether or not this bit is even used. The second paragraph could also be shortened to make the explanation better.

SuggestedRemedy

Move second paragraph to the beginning of subclause and change to read:
If a PHY reports via bit 1.7 that it lacks the ability to encode and transmit data from the media independent interface regardless of the value of link_status, the PHY shall return a value of zero in bit 0.1, and any attempt to write to bit 0.1 shall be ignored.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

There is nothing technically wrong with this text. If this is a real concern to the submitter, he is urged to re-submit in sponsor ballot.

Cl **22** *SC* **22.2.4.1.12** *P* **19** *L* **25** # **546**

Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **D**

Criterion 'device is a 1000BASE-PX PHY' is too simple. A 1000BASE-PX-D must be able to transmit grants before receiving idles to allow the ONUs to start. An ONU, unless it's the only ONU on a PON, should never transmit with bad received signal status. I suppose the second point could be made in 22.2.4.2.8.

SuggestedRemedy

Rewrite after consulting PON experts.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Replace both instances of 1000BASE-PX with 1000BASE-PX-D in this paragraph and the instances in PICS entries MF40 & MF41.

Cl **22** *SC* **22.2.4.1.12** *P* **19** *L* **9** # **516**

Thompson, Geoffrey Nortel Networks

Comment Type **TR** *Comment Status* **D**

I am having great difficulty reviewing the changes in the draft.
The version labeled 8023ahD2_1_DIFF.pdf seems to not show the complete differences. In particular in this clause the deleted text is not shown. This makes it exceedingly difficult to track the changes put into the text. It also makes it difficult to determine what is in scope for commenting.

SuggestedRemedy

Show all changes between drafts in underline blue for inserts and blue strikeout for deletions. Black stikeouot and underline would be reservered for the changes to be made against 802.3.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Removing all deleted text is consistent with prior projects (10G). There are no plans to show deleted text in future drafts.

Cl **22** *SC* **22.2.4.1.12** *P* **24** *L* **51** # **99020**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #964*

Delete as option in Legacy

SuggestedRemedy

Insert into Carrier Grade

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See resolution to comment #952

Cl **22** *SC* **22.2.4.2** *P* **26** *L* **3** # **99021**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #965*

Leave Table 22-8 in Legacy as prime reference

SuggestedRemedy

Carrier Grade refers to Legacy cl 6 master reference, or there is a block reserved in Legacy for CG & the details are in CG.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See resolution to comment #952

Cl **22** *SC* **22.2.4.2.8** *P* **19** *L* **36** # **518**

Thompson, Geoffrey Nortel Networks

Comment Type **TR** *Comment Status* **D**

Bit 1.7 label was changed from "Unidirectional OAM Ability" in D2.0 to "Unidirectional Ability" in D2.1.

I object to the change.
I object to the fact that the change was not labeled as a change.

This is not a satisfactory resolution to my D2.0 comment #966

SuggestedRemedy

Show all changes between drafts as changes.
Undo this particular change.
Implement the original remedy in D2.0 #966

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is a reiteration of comment 966 and is rejected for the same reasons.

Cl **22** *SC* **22.2.4.2.8** *P* **27** *L* **3** # **99022**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #966*

Delete as option in Legacy

SuggestedRemedy

Insert into Carrier Grade

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See resolution to comment #952

Cl **22** *SC* **22.2.4.3** *P* **20** *L* **24** # **517**

Thompson, Geoffrey — Nortel Networks

Comment Type **TR** *Comment Status* **D**

Bit 1.7 label was changed from "Unidirectional OAM Ability" in D2.0 to "Unidirectional Ability" in D2.1.

I object to the change.
I object to the fact that the change was not labeled as a change

SuggestedRemedy

Show all changes between drafts as changes.
Undo this particular change.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is a reiteration of comment 966 and is rejected for the same reasons. The change doesn't show up since there is only deleted text and deleted text differences are noted.

Cl **22** *SC* **22.7.3.4** *P* **23** *L* **8** # **18**

David, James — JGG

Comment Type **E** *Comment Status* **D**

Notation is very confusing:
0.12 = 0

Not with my mathematics anyway.

SuggestedRemedy

Express this better.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This affects more than just the PICS that are being added by EFM.

Cl **30** *SC* **: 30.5.1.1.17** *P* **45** *L* **35** # **310**

Beili, Edward — Actelis Networks

Comment Type **T** *Comment Status* **D**

The SNR value is in dB/0.25, which is less than current accuracy in SNR measurement by the PMD.
Note also that corresponding Clause 45 register is already in dB (see Table 45-12, page 76).

SuggestedRemedy

List SNR value in dB.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.12** *P* **51** *L* **50** # **15**

Messenger, John — ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

30.11.1.1.12 and 13 (aOamRemoteVendorIdDeviceNumber and aOamRemoteVendorIdVersion) both reflect objects which no longer correspond to fields in the OAM.

SuggestedRemedy

Suggest deleting these objects and replacing them with one object called aOamRemoteVendorSpecificInfo, corresponding to the object defined in table 57-11 (Vendor Specific Information). I am no expert, but perhaps a syntax of BIT STRING [SIZE(32)]. BEHAVIOUR DEFINED AS "A string of 32 bits corresponding to the Vendor Specific Information field (table 57-11) of the most recently received OAMPDU. This value is updated on reception..." (remaining text taken from existing 30.11.1.1.11).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.31** *P* **57** *L* **2** # **5**

Martin, David — Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Symbols field and Event Running Total field (c.f. clause 57.5.3.1 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the transmitted Errored Symbols field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.33** *P* **57** *L* **33** # **6**

Martin, David — Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Frames field and Event Running Total field (c.f. clause 57.5.3.2 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the transmitted Errored Frames field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.35** *P* **58** *L* **9** # **7**
Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Frames field and Event Running Total field (c.f. clause 57.5.3.3 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the transmitted Errored Frames field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.37** *P* **58** *L* **38** # **9**
Martin, David Nortel Networks

Comment Type **E** *Comment Status* **D**

Missing word

SuggestedRemedy

Should read:
"…represents the Errored Frame Second Summary Window field"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.37** *P* **58** *L* **39** # **10**
Martin, David Nortel Networks

Comment Type **E** *Comment Status* **D**

Missing word

SuggestedRemedy

Should read:
"…represents the Errored Frame Second Summary Threshold field"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.37** *P* **58** *L* **40** # **8**
Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Frame Second Summary field and Event Running Total field (c.f. clause 57.5.3.4 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the transmitted Errored Frame Second Summary field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.38** *P* **59** *L* **3** # **11**
Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Symbols field and Event Running Total field (c.f. clause 57.5.3.1 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the received Errored Symbols field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.39** *P* **59** *L* **26** # **12**
Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Frames field and Event Running Total field (c.f. clause 57.5.3.2 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the received Errored Frames field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.40** *P* **59** *L* **49** # **13**
Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Frames field and Event Running Total field (c.f. clause 57.5.3.3 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the received Errored Frames field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.11.1.1.41** *P* **60** *L* **18** # **14**
Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Errored Frame Second Summary field and Event Running Total field (c.f. clause 57.5.3.4 f, h) are not captured here.

SuggestedRemedy

Add two INTEGERS for the received Errored Frame Second Summary field and Event Running Total field.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.2.2.1** *P* **29** *L* **38** # **429**
Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

For the text description of managed object oResourceTypeID, there is a reference to PHY Identifier (22.2.4.3.1). There should also be a reference to Clause 45.

SuggestedRemedy

Add reference to clause 45.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is on text that is unchanged by IEEE P802.3ah is therefore out of scope. This text is only provided to assist the reviewer so that they do not need to open multiple documents to check the resultant text of this subclause after the IEEE P802.3ah changes have been incorporated.

Cl **30** *SC* **30.3.1.20** *P* **45** *L* **44** # **99033**
Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #971*

Remove change. It is unnecessary as:
there are no new "modes" proposed for 1.4 that I find
A PON needs this counter because it is a "A mode of operation ... in which DTEs contend for access to a shared medium. (ref 1.4.139)

SuggestedRemedy

Remove change

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

As described in subclause 61.1.4.1.1 'Summary of MAC-PHY Rate Matching specification', the 2BASE-TL/10PASS-TS PCS matches the MAC's rate of data transmission to the transmission data rate of the medium, if slower, through the use of deference function as defined in 4.2.3.2.1.

This Rate Matching function can cause excessive deferrals which will result in the excessive deferral counter being incremented as reported in the aFramesWithExcessDeferral attribute. Hence as with full duplex operation, the contents are also undefined when operating with a 2BASE-TL or 10PASS-TS PHY.

Based on accepting that references to any new MAC mode should be removed (comment #972) the last sentence of 30.3.1.1.20 should be changed to read 'The contents of this attribute are undefined for MAC entities operating in full duplex mode and also when connected to a PHY utilizing the MAC-PHY Rate Matching defined in 61.1.4.1.1.;'

Note: Commenter thinks this is okay but wants this to be review in detail during the re-circulation.

Cl **30** *SC* **30.3.2.1.2** *P* **35** *L* **26** # **547**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Clause 36 is no longer the only 1000BASE-X PCS/PMA. Do we need new aPhyTypes for clause 66.2 PCS? It doesn't seem sufficiently different. Similarly for 100BASE-X.

SuggestedRemedy

Change 'Clause 24' to 'Clause 24 or subclause 66.1', change 'Clause 36' to 'Clause 36 or subclause 66.2' , here and in 30.3.2.1.3. Similarly in 30.5.1.1.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

While the differences are small, a Clause 24 PCS will not support a Subscriber Access 100Mb/s PHY such as 100BASE-BX without the 66.1 additions.

Define two new PCS types, 'Clause 24/66.1 Subscriber access 100BASE-X' and 'Clause 36/66.2 Subscriber access 1000BASE-X'.

Cl **30** *SC* **30.3.2.1.5** *P* *L* # **524**
Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 973
The response is adequate for my purposes in this particular instance.
TR #973 can be marked off as satisfied.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.3.5** *P* *L* # **525**
Thompson, Geoffrey Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 974
I can't figure out what happened here. Maybe David can explain it to me

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

In response to comment 974 subclause 30.2.3 was updated to include two new objects, the oMPCP object and the oPAUSEEntity object. The oMACControlFunctionEntity, which didn't exist, was removed from 30.2.3. Figure 30-3 was also updated to show both the oMPCP object and the oPAUSEEntity object with the oMACControlFunctionEntity object removed.

Cl **30** *SC* **30.3.5** *P* **48** *L* **27** # **99034**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #974*

No provision for subclause in preceeding material in this clause, e.g. 30.2.2.1, 30.2.3

SuggestedRemedy

Remove all of 30.3.5

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Subclause 30.2.2.1 and 30.2.3 were not updated as these don't show the existing instance of oMACControlFunctionEntity, the oPAUSEEntity object. See subclause 30.3.4 'PAUSE entity managed object class'.

On further consideration this doesn't seem correct and subclause 30.2.2.1 and 30.2.3 will be updated to include the oMPCP object as well as the oPAUSEEntity object however subclause 30.3.5 will not be removed.

Cl **30** *SC* **30.5.1.1.12** *P* *L* # **526**

Thompson, Geoffrey — Nortel Networks

Comment Type **T** *Comment Status* **D**

RE: D2.0 Comment 976
TR #976 can be changed to T.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.12** *P* **43** *L* **29** # **431**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

The text about aPCSCodingViolation says "data reception with errors". This text thus includes PMA errors, PCS CRC errors, excludes the cases where the loop agg function discards frames/fragments, etc. in the aPCSCodingViolation count.

This text does not include the case where loop agg is available, enabled, operational, and a user needs to count aPCSCodingViolation on a per link basis.

SuggestedRemedy

Add a Clause 61 specific counter for aPCSCodingViolation, and use counter for values.
In Clause 30, provide index from 0 to 31 to access wire pair specific counter. Include case for no loop agg.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Need to discuss MAU/PHY management vs PMI management.

Cl **30** *SC* **30.5.1.1.12** *P* **43** *L* **33** # **549**

Dawe, Piers — Agilent

Comment Type **TR** *Comment Status* **D**

This counter needs more careful consideration.
25 000 000 counts per second (1/5 line rate!) is too fast for 100 Mb/s implementations.
Maximum increment rate is defined for 100 Mb/s but not for 1000 Mb/s. Maybe not defining is better, but there's an inconsistency to be cleared up.

SuggestedRemedy

If you want to tune the maximum counter rate to the line rate, then line rate/1000 or line rate/10000 is reasonable. If you want to keep maximum counter rate same across different speeds, then would need to say what 'maximum increment rate' means.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The increment rate for 100Mb/s will be conformed and the text updated accordingly.

In regard to providing increment rates for different speeds, the existing standard already states in subclause 30.2.1 Introduction (see IEEE Std 802.3ae-2002):

When a counter has a maximum increment rate speci?ed at one speed of operation, and that counter is appropriate to a higher speed of operation, then the maximum increment rate at that higher speed of operation is

maximum increment rate specified x (higher speed of operation in Mb/s / specified speed of operation in Mb/s)

unless otherwise indicated.

Cl **30** *SC* **30.5.1.1.12** *P* **43** *L* **38** # **551**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

Missing spaces

SuggestedRemedy

100 Mb/s, 1000 Mb/s

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.13** *P* **43** *L* **48** # **550**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

Considering the FEC block length, 25 000 000 counts per second (1/50 line rate!) is too fast for 1000 Mb/s implementations.

SuggestedRemedy

Work out what's reasonable and use that limit. Also for 30.5.1.1.14.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #549.

Cl **30** *SC* **30.5.1.1.13** *P* **55** *L* **37** # **99035**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **R** *D2.0 #976*

This counter is redundant to the existing counter defined in 30.3.2.1.5, aSymbolErrorDuringCarrier. Further, it is difficult to read and implement as it operates at (almost) data bit rate. Operating at this speed and its resultant potential for large counts with low meaning is contrary to the established philosophy of 802.3 Layer Management.

SuggestedRemedy

Remove proposed counter and use the existing one to capture the required information.

Proposed Response *Response Status* **U**

REJECT.

The aPCSCodingViolation counter was added in support of the OAM Link Monitoring objective to provide a more accurate measure of the link error rate.

This counter is not a duplicate of aSymbolErrorDuringCarrier since the aSymbolErrorDuringCarrier counter will only increment once regardless of the number of symbol errors during a packet, the aPCSCodingViolation will be incremented once for each symbol error during a packet.

In respect to the increment rate it is no faster than the current subclause 30.5.1.1.11 aIdleErrorCount which is supported by both 100BASE-T2 and 1000BASE-T and can therefore increment at symbol rate for these PHYs as well.

Y: 7
N: 0
A: 0

Cl **30** *SC* **30.5.1.1.16** *P* **44** *L* **27** # **309**

Beili, Edward — Actelis Networks

Comment Type **TR** *Comment Status* **D**

aPHYCurrentStatus parameter values defined describe an individual PMA/PMD (PMI) status, not suited to be called PHY in case of PMI aggregation. In addition Initialization states are not reflected. Also a similar object is needed per PMA/PMD.

SuggestedRemedy

Leave values that make sense in aggregated PMI case. i.e.
noDefect - no defect
noPmiAssigned - no PMIs assigned in case of PMI aggregation

lossOfFraming - one or more PMIs in the aggregation group indicate Loss of Framing
lossOfSignal - one or more PMIs in the aggregation group indicate Loss of Signal
lossOfPower - one or more PMIs in the aggregation group indicate Loss of Power
lossOfSignalQuality - one or more PMIs in the aggregation group indicate Loss of Signal Quality
lossOfLink - one or more PMIs in the aggregation group indicate Loss of Link
dataInitFailure - data initialization failure
configInitFailure - configuration initialization failure
noPeerPmiPresent - one or more PMIs in the aggregation group indicate no peer PMI present
lossOfPMASyncWord - one or more PMIs in the aggregation group indicate Loss of PMA Synchronization word
snrMarginViolation - one or more PMIs in the aggregation group indicate SNR Margin Violation
loopAttenuationViolation - one or more PMIs in the aggregation group indicate Loop Attenuation Violation

Specify a similar object for PMA/PMD: aPMICurrentStatus.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Need to discuss MAU/PHY management vs PMI management.

Cl **30** *SC* **30.5.1.1.16** *P* **44** *L* **33** # **121**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

Entries 1-9 seem to be adapted from the IETF MIB for VDSL (draft-ietf-adslmib-vdsl-12.txt). The descriptions in Clause 30 are insufficient to understand how the value of the attribute should be set. Suggest to (a) better describe the entries, in accordance with the IETF MIB for VDSL, or (b) replace them by entries that correspond to the states in Figure 62-4.

Note that conditions "configInitFailure" and "protocolInitFailure" should never occur in 10PASS-TS systems; they are therefore not present in the list proposed by the suggested remedy.

SuggestedRemedy

Remedy (a):
Replace entries 1-9 with:
-noDefect: There are no defects on the line
-lossOfFraming: 10PASS-TS failure due to not receiving a valid frame
-lossOfSignal: 10PASS-TS failure due to not receiving signal
-lossOfPower: 10PASS-TS failure due to loss of power
-lossOfSignalQuality: Loss of Signal Quality is declared when the Noise Margin falls below the Minimum Noise Margin, or the bit error ratio exceeds 10^-7
-lossOfLink: 10PASS-TS failure due to inability to link with peer 10PASS-TS PHY. Set whenever the transceiver is in the WARM_START state.
-dataInitFailure: 10PASS-TS failure during initialization due to bit errors corrupting startup exchange data
-noPeerVtuPresent: 10PASS-TS failure during initialization due to no activation sequence detected from peer 10PASS-TS PHY

Remedy (b):
Replace entries 1-9 with:
-powerOff: initial state, intended for service installation and modification
-initializating: link activation (cold start, warm start) in progress
-steadyStateTransmission: link activation process is completed
-lossOfSync: transmission frame synchronization loss has occurred
-powerDown: state achieved after guided power removal, power failure, or QUIET deactivation

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remedy b) will be used with enumerations that correspond to the states in Figure 62-4 used in this attribute.

Cl **30** *SC* **30.5.1.1.16** *P* **44** *L* **35** # **432**
Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

Missing text associated with lossOfSignal.

SuggestedRemedy

Add text to line as "lossOfSignal loss Of Signal"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.16** *P* **44** *L* **35** # **307**
Beili, Edward Actelis Networks

Comment Type **E** *Comment Status* **D**

The word "signal" is missed in the description of LossOfSignal.

SuggestedRemedy

Describe it as "loss of signal".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.16** *P* **44** *L* **41** # **308**
Beili, Edward Actelis Networks

Comment Type **T** *Comment Status* **D**

Term VTU is used in "noPeerVtuPresent" value of aPHYCurrentStatus. This is a VDSL only specific term defined in ITU-T G.991.3 as "VDSL Transceiver Unit" yet it is applied to 2BASE-TL Phy's as well. Note that SHDSL spec (G.991.2) has a similar term STU - "SHDSL Transceiver Unit".

SuggestedRemedy

Replace VTU with XTU (defined in ITU-T G.995.1 as "xDSL Transceiver Unit"). Add term XTU to the abbreviations.
Alternatively rename "noPeerVtuPresent" to "noPeerPmdPresent" or "noPeerPmiPresent" to make it sound more IEEE-ish.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will rename "noPeerVtuPresent" to be "noPeerPMIPresent".

Cl **30** *SC* **30.5.1.1.16** *P* **44** *L* **48** # **120**
Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Behaviour specification of aPhyCurrentStatus references non-existing subclause 62.3.4.5.1.

SuggestedRemedy

For 10PASS-TS, the text should reference the "Link state and timing diagram" in 62.3.4.8.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.18** *P* **45** *L* **15** # **412**
kimpe, marc adtran

Comment Type **T** *Comment Status* **D**

A 2BASE-TL PHY can also operate using settings that do not constitute a profile. In order to avoid potential confusion, the aProfileSelect register should have a setting that says: no profile selected.

SuggestedRemedy

Add the followigng sentence at the end of the current behaviour text.

"A value of zero means that the 2BASE-TL operation is defined via the clause 45 register settings (table 45.28 & 45.29) rather than a specific profile."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.2** *P* **41** *L* **4** # **548**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

10Km

SuggestedRemedy

10 km (or 20 km), 5 occurrences. Also in Annex 30B.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.2** *P* **55** *L* **24** # **99036**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **R** *D2.0 #975*

Defines ends of an asymmetrical network rather than peer.

SuggestedRemedy

Move asymmetrical proposals to a new and separate document that can thoroughly, explicitly and unambigiously embrace the concept of Ethernet Services over asymetrical infrastructure.

Proposed Response *Response Status* **W**

REJECT.
See comments #952, #837 & #1167.

For further information regarding document restructuring, see the file:

http://www.ieee802.org/3/efm/public/sep03/frazier_1_0903.pdf

Cl **30** *SC* **30.5.1.1.20** *P* **45** *L* **33** # **552**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

100 000Kbit/s

SuggestedRemedy

100 000 kb/s and similarly , here and in 30.5.1.1.21

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.20** *P* **45** *L* **33** # **123**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

Values greater than 100 should not be allowed for the attribute aPayloadRateProfileUpstream.
Values of 200 and 140 should be allowed for the attribute aPayloadRateProfileDownstream.

SuggestedRemedy

Swap syntax descriptions of aPayloadRateProfileUpstream and aPayloadRateProfileDownstream, to make values consistent with those defined in Annex 62A.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.25** *P* **52** *L* **46** # **313**

Beili, Edward — Actelis Networks

Comment Type **TR** *Comment Status* **D**

The behavior description of aPAFAdminState is not detailed enough.

SuggestedRemedy

Replace with the following text:
"Administrative (desired) state of the PAF.
When 'disabled', PMI Aggregation will not be performed by the PCS.
When 'enabled', PAF will be performed by the PCS when the link is Up, even on a single PMD, if PAF is supported.
PCS ports incapable of supporting PAF shall return a value of 'disabled'. Attempts to 'enable' such port shall be ignored.

Changing PAFAdminState is a traffic disruptive operation and as such shall be done when the link is Down. Attempts to change this object shall be ignored if the link is Up or Initializing.

If a Clause 45 MDIO Interface to the PCS is present, then this attribute will map to the PAF enable bit in the 10P/2B capability register"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.26** *P* **47** *L* **20** # **433**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

The text "PMI[1]" for aLocalPMIAvailable is out of sync with Clause 61. Clause 61 in all of its figures shows the count sequence as "0 to 31" vs "1 to 32", thus the first PMI is [0]

SuggestedRemedy

Change index from "PMI[1]" to "PMI[0]".
Also applies to aLocalPMIAggregrate, aRemotePMIAvailable, and aRemotePMIAggregrate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.4** *P* **42** *L* **2** # **323**

Beili, Edward — Actelis Networks

Comment Type **T** *Comment Status* **D**

The aMediaAvailable values are not detailed enough with respect to 2B/10P Phy's.

SuggestedRemedy

Add description for Unknown value (2B/10P Initializing).
Add ReadyForHandshake or Ready status - at least one PMI is available and is ready for handshake.
Detail that Available for 2B/10P is at least one PMI is available and Up.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.4** *P* **43** *L* **1** # **430**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

Text only mentions what to do with the enumeration "available" when loop agg is available, enabled, and operational.
The text needs to also include the conditions of:
1. loop agg available but not enabled
2. loop agg is not available.

SuggestedRemedy

Add text about loop agg not available
Add text about loop agg available but not enabled.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The term "aggregation group" on page 43, line 2 is probably what is confusing. "Available" does not really have anything to do with aggregation, but instead means that a complete PHY (PCS-PMA-PMD) is operationally linked.

Change the sentence to read:

...the enumeration 'available' maps to the condition where at the PCS and at least one PMI are operationally linked, the enumeration 'not available' maps to the condition where the PCS or no PMIs are operationally linked.

Cl **30** *SC* **Table 30-1b** *P* **42** *L* **22** # **99037**

James, David — JGG

Comment Type **TR** *Comment Status* **A** *D2.0 #417*

Table should not have a clear bottom row; that looks funny.
In some cases, this is due to starting with a buggy IEEE table format.

SuggestedRemedy

Change to get bottom-of-row "very thin" line, here and throughout.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

It is not clear what the correct style is here since the existing published base standard IEEE Std 802.3-2002 on page 91 Table 23-4 uses this format. Will confirm with IEEE staff editor what the correct style to be used here is.

Cl **30B** *SC* **30B.2** *P* **147** *L* **27** # **456**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

Clause 61 has a rate control.

SuggestedRemedy

Add text for EFM, Cu, 10P/2B.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Clause 61 rate control is performed by the MAC being placed in Half-duplex mode and the PHY asserting CRS. This mode is therefore not related to the aRateControlConfig attribute which controls the Clause 4 MAC enforced rate control only.

Note also that the FEC rate control option was also removed from Clause 4 in D2.1 therefore this enumeration should now be removed from IEEE P802.3ah as there is now no longer any change needed to it.

Cl **45** *SC* *P* **72** *L* **10** # **444**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Missing period at end of sentence.
Also p73 line 23.
Also p73 line 54.

SuggestedRemedy

Add.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **83** *L* **17** # **99049**

James, David JGG

Comment Type **TR** *Comment Status* **R** *D2.0 #440*

The column title conflicts with the enumerated value name.

SuggestedRemedy

In rows after title, change:
R/W ==> RW
This is also consistent with enumerated value names of all caps.

Proposed Response *Response Status* **U**

REJECT.

R/W has been inherited from C22 and 802.3ae-2002 C45.

Cl **45** *SC* *P* **92** *L* **47** # **452**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

Subclause title refers to 3.x.12, s/b to 3.x.11,

SuggestedRemedy

Change.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **39** *P* **71** *L* **39** # **443**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Since the PMA type is uniquely selected per (min-numbered) Table 45-5 per previous comment, there is no need to identify the port type in Table 45-6.

SuggestedRemedy

Line up is link up. Remove all reference to port type. The alpha-beta interface provides no unique signal for link up per port type.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

61.2.3.2.1 a/b Data Flow: reference G.993.1 section 7.1.1 provides a signal to the PCS as to which port type is active.

Cl **45** *SC* **45** *P* **63** *L* **1** # **435**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

The change to Clause 30.5.1.1.12 for aPCSCodingViolation has an inherent fault. The proposed text for aPCSCodingViolation will count as coding violations:
1. errors received from the lower layer,
2. PCS CRC errors, and
3. will not count the per link coding violations errors when loop agg discards the frame (due to a coding violation) and sends up a garbage frame.

SuggestedRemedy

Keep the clause 45 specific coding violation counter, with proper Clause 30 attributes for per wire pair counts. Include case for when loop agg is not present.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45** *P* **63** *L* **1** # **434**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Resolution of D2.0 comment #1237 (page 237 in final comments) was that bits for PCS link status were to be added to transmit path for local device and to receive path for link partner. This commenter can not find such assignments. They seem to be completely missing.

SuggestedRemedy

Add ability to transport local device PCS link status to link partner on transmit path.
Add ability to transport link partner PCS link status to local device on receive path.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

45.2.3.31 in D2.1: "10P/2B TPS-TC indications register" contains the local and remote information about PCS state. (PCS out of sync and PCS freewheeling)

Clause 61 provides the mechanism for sending the above information across the a/b interface and across the link. To express any other remote information in Clause 45, Clauses 61, 62 and 63 would need modification to provide transport.

Cl **45** *SC* **45** *P* **67** *L* **15** # **542**

Cravens, George — Mindspeed

Comment Type **TR** *Comment Status* **D**

Register address assignments should be available for working group review. Having the address assignments reviewed for the first time at sponsor ballot is unacceptable, as the change is substantial.

SuggestedRemedy

Number the register addresses.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

It's about time. You win.

Cl **45** *SC* **45** *P* **80** *L* **4** # **99050**

Grow, Robert — Intel

Comment Type **TR** *Comment Status* **A** *D2.0 #620*

The Working Group chair considers the assignment of registers as substantive, and will require WG recirculation prior to progressing the draft to Sponsor Ballot.

SuggestedRemedy

Assign the numbers before the "last" recirculation.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Include register assignments in the initial Sponsor Ballot draft.

The WG Chair agrees with the response, but chooses not to sign off at this time so that the comment may serve as a reminder to the editor to perform this task.

Cl **45** *SC* **45** *P* **80** *L* **8** # **99051**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **R** *D2.0 #1256*

We didn't withhold register addresses on the registers in the initial clause 45. It seems pointless to do so now since, if we are consistent with the rest of the clause, the registers will be numbered in order as they appear in the table and the order of the subclauses will be the same as the order in the table. To do otherwise would be unfriendly to the reader. Unless the plan is to scramble the registers in the table and their corresponding subclauses before sponsor ballot, one can therefore determine the register addresses by looking at the order in the table.

We have made mistakes in register numbering before and we need to have the numbers inserted so they can be checked and rechecked.

SuggestedRemedy

Assign the addresses.

Proposed Response *Response Status* **U**

REJECT.

See the response to comment #620.

These register addresses will be assigned in the initial Sponsor Ballot draft.

Cl **45** *SC* **45.2** *P* **64** *L* **27** # **19**

David, James — JGG

Comment Type **E** *Comment Status* **D**

Excessive capitalization

SuggestedRemedy

MDIO Interface Registers ==> MDIO interface registers

...

Only capitalize first word of heading/sentence or proper nouns.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2** *P* **64** *L* **33** # **436**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D** *mmds*

With just 2 projects using Clause 45, 11 out of the 32 sets or 34% for MMD addresses have been used. MMD 7 for the Link Partner PMA/PMD uses just 17 registers out of the 32,768 available or 0.00052%. This balance between use of MMD addresses and MMD registers is not good.

SuggestedRemedy

Move registers used by MMD 7 into the PMA register set. This should be rather easy to do.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2** *P* **65** *L* **22** # **485**

Booth, Brad Intel

Comment Type **TR** *Comment Status* **D** *mmds*

In comment #569 of D2.0, I suggested merging the link partner and tone table MMDs into the PMA/PMD MMD. I decided to use this comment to supercede that one. I'm willing to let the tone table be a separate MMD, but I'd prefer that we follow precedence and have the local device and link partner PMA/PMD registers in one MMD, especially considering there are some link partner registers in the PMA/PMD MMD.

SuggestedRemedy

Merge 45.2.7 into 45.2.1. Precedence was local device register followed by link partner register, but considering the number of registers, this could be done as local device registers followed by link partner registers.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Merge 45.2.7 into 45.2.1:

Add the remote copy as the next register after the local copy.

This has two advantages: 1) the register tables and descriptions will make more sense if they are next to each other. 2) The MMD can grow to add more registers in the future (local and remote) without changing having to skip from large blocks of local and remote registers.

Cl **45** *SC* **45.2** *P* **66** *L* **1** # **437**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

Text references a MMD 13, which does not exist

SuggestedRemedy

Replace with intended reference.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

should be 29.

Cl **45** *SC* **45.2** *P* **66** *L* **4** # **269**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Meaning of sentence beginning with 'When read as a one ...' not clear.

SuggestedRemedy

Clarify meaning of sentence. E.g. shorter sentences

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

How about:

"Bits read as a one in this register indicate which MMDs are instantiated the same package as the MMD being accessed."

Cl **45** *SC* **45.2** *P* **66** *L* **6** # **171**

Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Bit 0 is not unique.

SuggestedRemedy

Change to bit 5.0

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See also 437

Cl **45** *SC* **45.2** *P* **66** *L* **7** # **172**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Bit 13 not unique

SuggestedRemedy

Change to bit 6.13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2** *P* **66** *L* **8** # **173**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

MMD#13 not defined

SuggestedRemedy

Change MMD#13 to register #13 (see clause 22.2.4)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

should be "MMD #29"

see also 437

Cl **45** *SC* **45.2** *P* **80** *L* **28** # **99052**

Booth, Brad — Intel

Comment Type **TR** *Comment Status* **R** *D2.0 #569*

The 10PASS-TS and R-PMA/PMD are not separately manageable devices, but are instead part of the PMA/PMD manageable devices.

SuggestedRemedy

Roll the 10PASS-T tone table and R-PMA/PMD registers into the PMA/PMD section of the clause. Hint: put the tone table after the R-PMA/PMD. Delete the edit on pg 80, line 31. Move edit on pg 80, line 36 to be a note for Table 45-2. Delete edits from Table 45-1. Add R-PMA/PMD registers to Table 45-2 starting at 1.52. Add tone table registers to Table 45-2 starting at 1.64. Renumber 45.2.99 to be 45.2.1.51. Renumber 45.2.98 to be 45.2.1.52. Add reserved bits to Table 45-2 in the gaps.

Proposed Response *Response Status* **U**

REJECT.

Vote in the OAM STF Meeting:
Reject: 6
Opposed: 0
Abstain: 2

Even though the tone table and R-PMA/PMD are not separately managable, placing them in their own MMDs makes a lot of sense.

For the R-PMA/PMD registers, this allows the register addresses for the remote to match with those in the local. Also, since the parameters being accessed actually _do_ exist in a separately manageable device, use of a separate MMD is appropriate. See also the response to comment 1227.

The tone table is a huge block of registers that may actually grow in future versions of the standard as MCM technology improves. Placing the tone table into it's own MMD gives it room. Further, placing the tone table in the middle of the PMA/PMD registers consumes a large block, after which any future PMA/PMD registers would need to reside. Growing the tone table may then involve splitting it into two MMDs anyway. Also, keeping this unique functionality in it's own MMD makes more sense than mixing it with registers for generic functionality. With this in mind, it seems to make more sense to give the tone table its own MMD.

Cl **45** *SC* **45.2** *P* **80** *L* **34** # **99053**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1227*

R-PMA/PMD is a confusing name. This is especially true since 10GBASE-R is a name of a 10 Gig PHY so it looks like a name for the PMA/PMD used with that PHY family.

Also far too many references are made to this new concept before it is explained what a remote PMA/PMD is.

SuggestedRemedy

Change the name to something else such as Remote-PMA/PMD

Add a figure and explanation of the concept to 45.1 or 45.2.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

R-PMA/PMD becomes Link Partner PMA/PMD.

The individual MMDs are not described specifically in 45.2 Rather than explain the Link Partner PMA/PMD twice, add a cross ref in 45.2 to the explanation in 45.2.99.

Add a figure to 45.2.99. The figure depicts the MMD stack as in Figure 45-1 with the remote MMD stack next to it. Show that the Link Partner PMA/PMD MMD sits parallel to the PMA/PMD MMD.

Cl **45** *SC* **45.2.1** *P* **69** *L* **1** # **262**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

"Insert the following new registers, descriptions and tables after 45.2.1.10:" does not fit here

SuggestedRemedy

remove or move to correct position in text

Proposed Response *Response Status* **W**

PROPOSED REJECT.

These are editing instructions and appear throughout the clause.

Cl **45** *SC* **45.2.1** *P* **81** *L* **27** # **99054**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1257*

This replaces a row covering 32 752 registers with rows for less than 25 registers. What happened to the rest of the registers?

This comment also applies to 45.2.3 page 104 ine 5.

SuggestedRemedy

Add a row to the table for the reserved registers.

Proposed Response *Response Status* **U**

ACCEPT.

Cl **45** *SC* **45.2.1** *P* **81** *L* **37** # **99055**

Booth, Brad — Intel

Comment Type **TR** *Comment Status* **R** *D2.0 #572*

Number the registers.

SuggestedRemedy

Numbering for the registers should start at 1.32 and increment from there. This will not overlap on the 10G register space that goes to 1.15, plus permit other 10G registers to fit in more smoothly if required.

Proposed Response *Response Status* **U**

REJECT.

See response to comment 620

Cl **45** *SC* **45.2.1.1** *P* **69** *L* **47** # **438**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Text uses 5 bits for a 4 bit value.

SuggestedRemedy

Replace 5 bit value "00001" with 4 bit value "0001"
Also on p66, line 45.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Paragraph is going away.

page 66, line 45 seems correct.

See comment #496

Cl **45** *SC* **45.2.1.1** *P* **69** *L* **5** # **263**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong table number

SuggestedRemedy

replace "45-4" with "45-3"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

see 487

Cl **45** *SC* **45.2.1.1** *P* **69** *L* **5** # **487**

Booth, Brad — Intel

Comment Type **TR** *Comment Status* **D**

Incorrect edit instructions or edit markers in Tables 45-4 and 45-5.

SuggestedRemedy

Change to read:
Change Table 45-3 to Table 45-4.
Need to underline the inserted text in the table.

Add edit instruction prior to 45.2.1.2.1 that states:
Change Table 45-4 to be Table 45-5.

For D2.1 Table 45-5, change to read:
Change Table 45-5 to Table 45-6.
Need to underline the inserted test in the table.

Change "Delete Table 45-6." instruction to read "Delete Table 45-6."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.1.3** *P* **69** *L* **46** # **486**

Booth, Brad — Intel

Comment Type **E** *Comment Status* **D**

The paragraph is unnecessary and confusing relative to existing text. Current text in 802.3ae sufficiently explains the use of these bits.

SuggestedRemedy

Remove the paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.11** *P* **71** *L* **37** # **319**

Beili, Edward — Actelis Networks

Comment Type **TR** *Comment Status* **D** *misfile*

Before starting a Discovery operation on a particular PMA/PMD it would be nice if one could determine if there's a handshake capable partner on the other end instead of just trying to read/write something and timing out after 255 sec. Need a way to differentiate between a Cut-line (Down) and Down-but-detecting-remote-handshake-tones (Ready).

SuggestedRemedy

Add another bit to PMA/PMD link status in Table 45-6. Explanation that "Down" value means LOS (no link partner). Add "Ready" value, meaning the link is down but handshake capable link partner exists (detecting remote handshake tones).
Add another bit to Discovery operation register in table 45-7. Add a value of "Not Ready" meaning that there's no link partner (cut-line), or link is Up or Initializing. Change explanation in 45.2.1.12.1 accordingly.
Add "Ready" value in 30.5.1.1.4 aMediaAvailable with explanation that one or more 2B/10P PMIs are ready for Handshake.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Attention to Clause 30 as well.

Cl **45** *SC* **45.2.1.11.1** *P* **71** *L* **47** # **175**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Following sentence "After the PMA/PMD is operationally linked to the remote PHY, the PHY shall set these bits to indicate the PMA/PMD mode that has achieved link." makes not sense.

SuggestedRemedy

Change last part of above sentence to "The PMA/PMD is UP".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to read:

"After the PMA/PMD is linked to the remote PHY, the PHY shall set these bits to indicate the PMA/PMD port type that is linked."

Cl **45** *SC* **45.2.1.12** *P* **72** *L* **1** # **264**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

"unique register for each PCS" is wrong.

SuggestedRemedy

replace PCS by PMA, or (preferred !), remove complete paragraph (here and in several different places). An example for availability and connectivity for PMA/PMD and PCS registers can be given somewhere in the introduction. This applies also to similar paragraphs 45.2.1.13 (aggregation discovery code register), 45.2.1.14 (link partner PMI aggregate control register), 45.2.1.15 (currently remote aggregate data, to be changed)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace PCS with PMA as per the suggested remedy. There's no good place in the introduction for this matter. A more general description appears in clause 61.

Cl **45** *SC* **45.2.1.12.1** *P* **84** *L* **53** # **99056**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1259*

A write that sets the PMD to an unadvertised type is meaning less and should not be allowed to succeed.

SuggestedRemedy

A PMD may ignore... should be
"A PMD shall ignore"

Proposed Response *Response Status* **U**

ACCEPT.

Cl **45** *SC* **45.2.1.12.2** *P* **73** *L* **11** # **445**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

Specification should be very specific. Text "should" is not specific.

SuggestedRemedy

Change "should" to "shall".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.12.2** *P* **73** *L* **11** # **176**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

In "If PAF is not supported, these bits should read as zero." the result is only 1 bit.

SuggestedRemedy

Change "these bits" to "this bit"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.13** *P* **73** *L* **25** # **265**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D** *tables*

wrong tables are referenced

SuggestedRemedy

replace "table 61-41" by "table 61-39" and "table 61-111" by "table 61-134"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

The table references will be updated as part of comment 488

Cl **45** *SC* **45.2.1.14** *P* **73** *L* **54** # **446**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D** *tables*

Bad cross-reference. Reference to table 45-7 should be to 45-9, which will be renumbered.

SuggestedRemedy

Correct all table references.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

The table references will be updated as part of comment 488

Cl **45** SC **45.2.1.14** P **73** L **54** # **177**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D** *tables*
Wrong cross ref

SuggestedRemedy
Table 45-9 is the right one

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

The table references will be updated as part of comment 488

Cl **45** SC **45.2.1.14** P **73** L **54** # **266**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D** *tables*
wrong table is referenced

SuggestedRemedy
replace "table 45-7" by "table 45-9"

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

The table references will be updated as part of comment 488

Cl **45** SC **45.2.1.14.1** P **74** L **19** # **267**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
"The PMI_aggregate_register is not a Clause 45 object, but a variable of the PMI Aggregation PCS function on “-R” ports." is Copy-Paste-relict and does not apply here.

SuggestedRemedy
Remove.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **45** SC **45.2.1.14.2** P **74** L **54** # **178**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
Operation is only defined by 1 bit.

SuggestedRemedy
Replace "these bits" with "this bit"

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **45** SC **45.2.1.15** P **75** L **5** # **179**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D** *tables*
Wrong cross ref

SuggestedRemedy
Table 45-10 is correct cross ref

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

The table references will be updated as part of comment 488

Cl **45** SC **45.2.1.16** P **75** L **23** # **270**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
Poor grammar

SuggestedRemedy
remove 'be'

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **45** SC **45.2.1.2** P **69** L **50** # **268**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
wrong register name: in 802.3ae the register name is "PMA/PMD status 1 register"

SuggestedRemedy
replace "PMA/PMD status register" by "PMA/PMD status 1 register"

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.21.1** *P* **77** *L* **31** # **314**

Beili, Edward — Actelis Networks

Comment Type **T** *Comment Status* **D**

When PMD is unable to measure the Electrical Length the returned value is all ones (0xFFFF).
It is also unclear if the 0 length can be returned, which wouldn't make a lot of sense.
No upper bound is given, so no error checking can be done (e.g. 65km would surely be a mistake)

SuggestedRemedy

Specify that Electrical Length should be rounded up to the nearest integer, thus 1 meter is the minimum number.
Specify that max Length is 1024 meters (10 bits)
Specify that a value of 0 is returned when the PMD is unable to estimate the Electrical Length.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Max length should be at least 7km, so allow 13 bits.
Zero length is possible in certain test situations, so 0xFFFF should indicate unable to determine.

Cl **45** *SC* **45.2.1.22** *P* **77** *L* **39** # **271**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Chnage position of Subclause 45.2.1.22

SuggestedRemedy

Move it before Subclause 45.2.1.18

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove 45.2.1.22 and place the text instead inside 45.2.1.29. This avoids the need for an awkward fourth level subclause that doesn't describe a register.

The subclause in question is actually a holdover from when the document contained both SCM and MCM registers, 45.2.1.22 was there to delineate the start of the MCM section.

Cl **45** *SC* **45.2.1.23** *P* **89** *L* **49** # **99057**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1262*

This appears to be two registers not 1.

Comment also applies to 45.2.1.20, 45.2.1.26, 45.2.1.27 andother places.

SuggestedRemedy

Change the text so that one register address is one register in all of Clause 45. A 32-bit quantity is two registers.

Proposed Response *Response Status* **U**

ACCEPT.

Cl **45** *SC* **45.2.1.23.1** *P* **78** *L* **14** # **447**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Text "Bits 15:7" needs to match register assignments

SuggestedRemedy

Change text from "Bits 15:7" to "Bits 7:0"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See 272

Cl **45** *SC* **45.2.1.23.1** *P* **78** *L* **14** # **272**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Bit positions not correct

SuggestedRemedy

Change to bits 7:0

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.26** *P* **79** *L* **13** # **20**

David, James JGG

Comment Type **E** *Comment Status* **D** *mmds*

Ambiguous usage of abbreviations.

SuggestedRemedy

1) Below the table, list meaning of O and R.
2) Below the heading, change R/W ==> RW

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

1) These definitions to be added as part of the explanitory text resulting in the merger of MMD #7 and MMD #1.

2) Reject. 802.3ah clause 45 is following the convention started in 802.3-2002 clause 22 and 802.3ae clause 45

Cl **45** *SC* **45.2.1.27** *P* **90** *L* **52** # **99058**

Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1263*

There is no reason to pack the values this way and we avoided doing this in creating the original register definitions. There are two instances here of a less than 16 bit value crossing registers.

Also, note that there is a typo in PSD level as the register value begins 2.x rather than 1.x.

SuggestedRemedy

Redefine so that a whole value is in a single register unless the value requires more than 16 bits.

Also fix the typo on PSD level.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Cl **45** *SC* **45.2.1.32** *P* **82** *L* **9** # **122**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

In Table 45-26, signal names are identical to those in Table 45-27. This does not comply to the naming convention of T1.424. Specifically, the letter 'f' at the beginning of the name of a management primitive designates a condition at the 'far end'. To avoid confusion, drop the 'f' from the names of primitives that reflect a local condition.

SuggestedRemedy

Replace:
Flpr -> lpr
Fpo -> po
Flos -> los
Ffec-f -> fec-f
Febe-f -> be-f
Ffec-s -> fec-s
Febe-f -> be-s

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.33** *P* **82** *L* **52** # **21**

David, James JGG

Comment Type **E** *Comment Status* **D**

Bad table format; bottom line should be very thin.

SuggestedRemedy

Work with IEEE to fix the template and description of use.
(many others also...)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.35** *P* **84** *L* **30** # **413**

kimpe, marc adtran

Comment Type **T** *Comment Status* **D** *shdsl*

The current wording of 45.2.1.35 states that "The 2B PMD parameters registers set the transmission parameters for the PMD. When the link is initialized or reset, these parameters shall be used by the PHY transmitter". A 2-BASE-TL will rarely know a priori on which length and loop configuration it is operating, hence there is no way to know which data rate a given loop will support.
We propose to add extra bits to the PMD register that will allow a provider to select a priori one or more allowed profiles to run or to allow the PMD to pick the higher rate regardless of profile. If one or more profiles are selected, then the PHY is only allowed to come out in the profile with the highest data rate allowed by the loop otherwise the PHY will come out in the highest data rate that the loop will allow.

SuggestedRemedy

Extend the 2B PMD parameter register by 6 bits.

bit 1: a value of 1 means that the 2BASE-TL PHY picks the highest rate that the loop supports and overides any profiles specified in bits 2 to 6. A value of 0 means that the 2 BASE-TL PHY is only allowed to come in data mode under one of the profile selected by bits 2 to 6. If multiple profiles are allowed, the PHY will come up with the profile allowing the highest data rate over the loop the PHY is connected to.
bit 2: a value of 1 means that profile 1 (annex A) or 6 (annex B) is allowed
bit 3: a value of 1 means that profile 2 (annex A) or 7 (annex B) is allowed
bit 4: a value of 1 means that profile 3 (annex A) or 8 (annex B) is allowed
bit 5: a value of 1 means that profile 4 (annex A) or 9 (annex B) is allowed
bit 6: a value of 1 means that profile 5 (annex A) or 10 (annex B) is allowed

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.35** *P* **84** *L* **40** # **321**

Beili, Edward Actelis Networks

Comment Type **TR** *Comment Status* **D** *shdsl*

Currently defined 2B Data Rate register allows one to specify only fixed data rate administrative values. Current operating data rate of a particular PMD is unknown, especially if the Data Rate register is overwritten since last activation.
In addition no meanings are given if one desires to use line probing.

SuggestedRemedy

Add Operating Data Rate status register per PMD, showing current Data Rate during normal operation or max data rate achieved during line probing.
Replace 2B Data Rate register with 3-tuple: "2B Min Data Rate" and "2B Max Data Rate" registers (similar to 10P) and "2B Data Rate step", see 61.3.8.7.4 for possible values.
Add a register specifying whether the PMD parameters specified in the 2B Control register are for line probing or activation. Alternatively add "Pre-Activate link partner parameters" register in Table 45-103.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add a register that sets bits to indicate which profile is operating. For the rest of the comment, impliment 413 instead.

Cl **45** *SC* **45.2.1.4** *P* **70** *L* **27** # **320**

Beili, Edward Actelis Networks

Comment Type **E** *Comment Status* **D**

Typo: in 2BASE-TL capable register description "at" is used instead of "as".

SuggestedRemedy

Replace "at" with "as".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.40** *P* **85** *L* **36** # **181**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

'loss of sync seconds' not defined in 63.2.2.2

SuggestedRemedy

Use correct name 'LOSW'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.6** *P* **70** *L* **45** # **439**
Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

There are 2 of Table 45-5

SuggestedRemedy

Renumber tables and correct all references.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See 487

Cl **45** *SC* **45.2.1.6** *P* **71** *L* **1** # **488**
Booth, Brad Intel

Comment Type **TR** *Comment Status* **D** *tables*

Duplicate table number. This clause really needs to be properly numbered and proper editing instructions should be inserted as there is nothing to indicate the correct numbering of tables and subclauses (and possibly figures).

SuggestedRemedy

I know I commented about this in D2.0, but considering that there is a duplicate table number in D2.1, I believe that this highlights the complexity of the problem. Considering that there will be an addition of subclauses and renumbering of tables and figures required, plus all the required editing instructions, I believe that it would be in the Task Force's best interest to address this issue now. Delaying until Sponsor ballot is likely to make Clause 45 the tall pole in the tent.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

As with the register numbers, add the final table numbers and editing instructions throughout the clause.

Cl **45** *SC* **45.2.1.6.1** *P* **70** *L* **50** # **174**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Term status register not appropriate.
Speeds are defined in PMA/PMD speed ability register.

SuggestedRemedy

Replace status register with PMA/PMD speed ability register

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.6.2** *P* **71** *L* **20** # **326**
Beili, Edward Actelis Networks

Comment Type **TR** *Comment Status* **D** *disc*

When link is forced down there's no way of telling the partner to shut up completely for some predefined time or immediately start with the handshake tones.

SuggestedRemedy

Add a new value in PMA/PMD link control and link control status to allow to force complete silence for a period of time specified in yet another register.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Not sure we need this feature. Requires STF discussion.

Cl **45** *SC* **45.2.2.16** *P* **98** *L* **12** # **99059**
Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1264*

Note that these section numbers are not right. The referenced sections are 45.2.2.14 and 45.2.2.15.

The primary issue is that these changes are not correct. WIS used a valid method to define counters that span two registers. There is no reason to change the existing text and the change creates the problem that the two reads may not return consitent values.

Also, these are not in scope for .3ah.

SuggestedRemedy

Delete the changes to 45.2.2

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Fix the typo.

Please see response to comment 1260. Also, see 45.2 in Draft 2.0, page 80, line 46.

Cl **45** *SC* **45.2.3** *P* **104** *L* **14** # **99060**
Booth, Brad Intel

Comment Type **TR** *Comment Status* **R** *D2.0 #574*

Number the registers.

SuggestedRemedy

Start the numbering at 3.64.

Proposed Response *Response Status* **U**

REJECT.

See response to 620.

Cl **45** *SC* **45.2.3** *P* **81** *L* **23** # **99061**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1267*

The existing registers need to be dealt with. Registers 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.14, and 3.15 are defined as general registers. Therefore, they will apply to 10PASS-T and 10PASS-T devices. Text must be added to the existing subclauses to clarify how they are applied to the new PCS's.

SuggestedRemedy

Provide the necessary information.

Proposed Response *Response Status* **U**

ACCEPT.

See 1084

Cl **45** *SC* **45.2.3.1** *P* **89** *L* **44** # **489**

Booth, Brad — Intel

Comment Type **TR** *Comment Status* **D**

Incorrect editing instruction.

SuggestedRemedy

Replace is used a lot throughout the document. Editing instructions are: change, insert, and delete. This editing instruction is a cut and paste error as Table 45-4 applies to the PMA/PMD, not the PCS which is Table 45-30.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Editing instruction should read:

"Change Table 45-4 to read:"

Cl **45** *SC* **45.2.3.1.4** *P* **90** *L* **33** # **448**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Text uses 5 bits for a 4 bit value.

SuggestedRemedy

Replace 5 bit value "00001" with 4 bit value "0001"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.17** *P* **91** *L* **33** # **182**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Definition of register not clear. Does it count code violations from all aggregated links or just from one?

cross ref to TC_coding_error is missing

SuggestedRemedy

Add a note that clarifies the use (suggested: coding violation of all links belonging to PCS).

Ad missing xref

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Behavior as suggested.

Cl **45** *SC* **45.2.3.17** *P* **91** *L* **46** # **451**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D** *disc*

Coding violation now applies only to Clause 61.

SuggestedRemedy

Remove reference to clause 24 and clause 36. Keep the coding violation counter.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

If this is true, remove the register completely, since it was only added in the first place for the benefit of Clauses 24 and 36.

Cl **45** *SC* **45.2.3.18** *P* **92** *L* **10** # **322**

Beili, Edward — Actelis Networks

Comment Type **TR** *Comment Status* **D**

How do two -O ports, connected to each other resolve which one is going to be -R? Can they even exchange G.HS messages? Currently no mechanism defined.

SuggestedRemedy

Make sure G.HS supports -O vs. -O handshake exchange.
Add "Remote CO supported", "Remote CPE Supported" "Remote port sub-type select" registers in Table 45-204. Specify exact HS message format and exchange sequence (Both start with C-SILENCE tones? …). Should we do Auto-negotiation? This stuff should probably be done before Discovery, as discovery would try to set-if-clear on the link partner which is a CO etc.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The way it works in this draft is the -R PMA/PMD must be specified in advance. The PMA/PMD can then signal to the PCS what port type is active over the a/b interface.

Cl **45** *SC* **45.2.3.18.4** *P* **92** *L* **44** # **274**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Naming of "PAF_supported" has changed

SuggestedRemedy

Change to "PAF_available"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.18.5** *P* **92** *L* **47** # **275**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Wrong bit number in headline

SuggestedRemedy

Change bit 12 to bit 11

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.18.5** *P* **92** *L* **51** # **183**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Remote PAF support will be exchanged during discovery operation.
No need to do PMI aggregation register access to find out, whether PAF is supported.

SuggestedRemedy

Replace PMI aggregation register access with remote discovery operation

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.2.2** *P* **90** *L* **46** # **449**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

The added text is confusing

SuggestedRemedy

Use same text as in 10 Gig. Refer to signals as "latching low"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.2.2** *P* **90** *L* **47** # **273**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong cross ref

SuggestedRemedy

replace with 61.2.3.3.5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.21** *P* **94** *L* **33** # **184**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Definition of example ambigious.

SuggestedRemedy

Add number of MII interfaces for this package (1 MII).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.22** *P* **95** *L* **5** # **185**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Wrong cross ref

SuggestedRemedy

Replace by 61.2.3.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.30** *P* **97** *L* **47** # **276**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Information that this counter counts CRC errors from different links is missing

SuggestedRemedy

Add a note

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.6** *P* **100** *L* **1** # **454**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D** *mmds*

The tone table size is excessive. The size can be reduced by use of indirect addresses. Assign a register to hold the index of the desired tone. Three registers can then hold the tone parameters. This reduces the table size from 12,290 to 4. With this reduced size, the tone table can then be moved into the 1.x PMA register set and a MMD address can be reclaimed

SuggestedRemedy

Reduce tone table size by use of indirect address. Then move tone table into 1.x PMA register set.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This is a really good idea. Do this:

1) remove the tone table MMD

2) Add the "10P tone table entry registers" (Table 45-100 in D2.1) to MMD #1 after the "10P tone control action register". Copy relevant explanitory text from 45.2.6 to the appropriate place in MMD #1.

3) Add a new 16-bit register "10P tone select". The number written to this register corresponds the tone who's status can then be read in the "10P tone table entry registers".

4) Add text describing special behavior to the MMD access method that allows the STA to sequentially read the status of multiple tones with a minimum of MDIO operations:

When the last register in the "10P tone table entry registers" (1.x+3) is read, the value in the "10P tone select" register shall be incremented. The MDIO "post read increment address" pointer to the next MDIO address shall be set to x (ie, back to the start of the "10P tone table entry registers") See 45.3 in 802.3ae-2002.

This allows the user to write the start tone in the "10P tone select" register, and then start reading each tone's data using multiple "post-read increment address" MDIO operations. After the first tone's data is read, the next post-read increment address" MDIO operation will then automatically read the next tone in the table.

Cl **45** *SC* **45.2.7** *P* **102** *L* **1** # **455**
Tom Mathey Independent

Comment Type **T** *Comment Status* **D** *mmds*

As there are only 17 registers in the Link Partner PMA register set, move to PMA 1.x. This will free up a MMD address.

SuggestedRemedy

Move Link Partner PMA register set to PMA 1.x.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See also

Cl **45** *SC* **45.2.7.1** *P* **105** *L* **26** # **277**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Table 45-103: 'activate' command obsolete
(E.g. change of 2B line qualitiy thresholds will be set with 'send' command by respective EOC message immediately)

SuggestedRemedy

remove 'activate' command in control register

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.98** *P* **99** *L* **1** # **99062**
Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1265*

This clause defines device 6 so it should be inserted after DTE XS. Such a change is also much less disruptive. Other clauses reference existing clause 45 subclauses so the suggested renumbering would ripple all through the standard.

SuggestedRemedy

This subclause should be 45.2.6 Similarly 45.2.99 should be 45.2.7.

Proposed Response *Response Status* **U**

ACCEPT.

Make the appropriate changes to insert the MMDs in subclauses 45.2.6 and 45.2.7

Cl **45** *SC* **45.2.98** *P* **99** *L* **17** # **99063**
Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1266*

Need to say that the rest of the registers are reserved.

SuggestedRemedy

Add the statement.

Proposed Response *Response Status* **U**

ACCEPT.

Cl **45** *SC* **Table 45-101** *P* **103** *L* **47** # **187**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Register name 'loss of sync seconds counter' not appropriate.

SuggestedRemedy

Change to 'LOSW' register

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-10** *P* **75** *L* **8** # **180**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

'remote aggregate data' is not 48 bits wide, but 32 bits.
The real register name is 'link partner PMI aggregate data register'.

SuggestedRemedy

Correct bit width and naming of register.
All references to this register have to be changed accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-101** *P* **103** *L* **28** # **186**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D** *mmds*

Clause 45 usually assigns address 0 to control register and address 1 to status register.

SuggestedRemedy

Assign address 7.0 to control register and address 7.1 to status register.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

These control and status registers will be moved to their own registers, in the proper order, in MMD #1

Cl **45** *SC* **Table 45-2** *P* **66** *L* **28** # **260**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

m.5.15:6 is wrong

SuggestedRemedy

use m.5.15:8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-206** *P* **94** *L* **11** # **453**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Table 45-206 is not in sync with Clause 61. In Clause 61, every figure starts its indexes from 0 to upper limit.

SuggestedRemedy

Revise table 45-206 to have index start from count 0.
Same for Table 45-207.
Any place else ??

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-3** *P* **67** *L* **22** # **261**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

register names inconsistent

SuggestedRemedy

change "link partner aggregate data" to "link partner PMI aggregate data"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-5** *P* **71** *L* **1** # **441**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

The (mis-numbered) table 45-5 uses text LT and NT, which have been eliminated per D2.0 comment #67 "Replace LT with the -O STA. Resolution does not state what to replace NT with.

SuggestedRemedy

Replace LT with -O STA and NT with (perhaps) -R STA.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Use "-O" and "-R". The use of STA is innapropriate.

Cl **45** *SC* **Table 45-5** *P* **71** *L* **10** # **442**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

Text for PMA type selection states "preferred". This is not a standards way of specification.

SuggestedRemedy

Provide a list, 8 bits, of PMA port type selection with one bit per PMA type.
Provide a single bit to select between CO and CPE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add descriptive text, something like:

Value of 010 may be set in "-R" subtype PMA/PMD's that advertise both 2BASE-TL and 10PASS-TS capability in the PMA/PMD speed ability register. The PMA/PMD type of the "-R" is set upon link initialization by the "-O".

Values of 011 and 100 may set in "-O" subtype PMA/PMD's that advertise both 2BASE-TL and 10PASS-TS capability in the PMA/PMD speed ability register. These values indicate whether the "-R" should be set 2BASE-TL or 10PASS-TS respectively. If the "-R" is not capable of the "preferred" mode, the "-R" may behave as 10PASS-TS or 2BASE-TL respectively.

Create bits in the status register that indicate which subtypes the PMA/PMD supports.

Create bits in the control register that select which subtype the PMA/PMD should operate as.

Cl **45** *SC* **Table 45-5** *P* **71** *L* **6** # **440**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Resolution of comment D2.0 #291 defined PMA type selection as 8 bits. Present text maintains type selection as 3 bits.

SuggestedRemedy

Expand port type selection to 8 bits with a single bit assigned per (future) type.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Expand to 8 bits, but maintain the bit packing to allow the most future flexibility. ie, don't encode as "one hot"

Cl **45** *SC* **Table 45-5** *P* **91** *L* **13** # **450**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Present text requires a PCS to be able to support both types of PMAs, specifically both CRCs. If a PCS is integrated with a specific PMA port type, with no capability for the other type, then the PCS must report via 3.4.1 that it can not support its chosen port type as it does not support the CRC.

SuggestedRemedy

Just as for the PMA, reserve 8 bits for support of port type. Use 2 bits to match the undesired quantity of unique CRCs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Split the port types in table 45-202 and 45-5.

Cl **45B** *SC* *P* **549** *L* **06** # **484**

Booth, Brad Intel

Comment Type **TR** *Comment Status* **D**

The grouping of this annex with Clause 45 seems strange considering that Clause 45 makes absolutely no reference to Annex 45B, but Clause 22 does.

SuggestedRemedy

Renumber the annex to be Annex 22D. In Clause 22, change references to 45B to 22D.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In addition, the following changes will be made:

PLAIN/front matter/p. 6/ln 10: Change "Annex 45B" to "Annex 22D", two places

PLAIN/22.2.4.3.11/p. 22/ln 9: Change "Annex 45B" to "Annex 22D"

PLAIN/22.2.4.3.12/p. 22/ln 31: Change "Annex 45B" to "Annex 22D"

Cl **45B** *SC* **45B.1** *P* **550** *L* **16** # **472**

Adam Healey Agere Systems

Comment Type **T** *Comment Status* **D**

What is the recommended behavior when the DEVAD value written for the Address Function is not the same as the DEVAD value write for the Read/Write function? The procedure states that the same value should be written in both cases, but there is no recommendation on how to handle this error condition. It is unclear why the DEVAD field needs to be interpreted for any function other than the Address function.

SuggestedRemedy

State that DEVAD field is ignored when Function is not equal to 00.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In 45B.1, bullet c) below:

"To register 13, write the Function field to 01 (Data, no post increment) and DEVAD field to the same Device Address value for the desired MMD;"

will be re-written as follows:

"To register 13, write the Function field to 01 (Data, no post increment). The DEVAD field is ignored when Function is not equal to 00."

Cl **45B** *SC* **45B.4** *P* **549** *L* **01** # **409**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Maybe this annex is a good place to mention access to clause 22 registers through clause 45 interface - 45 sort of hints at it but needs clarification. Also could add text to 45.2 to clarify.

SuggestedRemedy

Per comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See comment #484, which renumbers Annex 45B to Annex 22D. The renamed Annex 22D focused on the mechanism to access Clause 45 MMD's via the Clause 22 interface.

In D2.1, the 'Clause 22 Extension' device address was added to Table 45-1. It is anticipated that D2.1 comments will add the appropriate bits/text to explain the usage of this new device address.

Cl **45B** *SC* **45B.4** *P* **551** *L* **32** # **408**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Need to mention that cl.22 and cl.45 voltage levels differ.

SuggestedRemedy

Could copy text about voltage level translators from 802.3ae.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

45B.4 bullet c) shown below:

"PHYs accessible via the Clause 22 access mechanism can coexist on the same bus with PHYs accessible via the Clause 45 access mechanism, even with identical PHY Address values due to the different ST (start of frame) encodings of the frame structures;"

will be changed to:

"PHYs accessible via the Clause 22 access mechanism can coexist on the same bus with PHYs accessible via the Clause 45 access mechanism, even with identical PHY Address values due to the different ST (start of frame) encodings of the frame structures (see 45A.3 and 45A.4, which discusses the need for protocol aware voltage translators for this type of coexistence);"

Cl **56** *SC* **56.1** *P* **158** *L* **12** # **490**
Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

New sentence about 100BASE-LX10 makes no sense. Although it may be true that it fills a market gap, the sentence adds no relevant information.

SuggestedRemedy

Delete sentence.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

At the time of EFM publication the argument can be made that 100BASE-LX10 fills a market gap since there are many 100BASE-FX over SMF fiber claims that exists. Nonetheless, the editor is not an authority on marketing so if the balloter has a convincing argument he is encouraged to presnet it at the TF.

Cl **56** *SC* **56.1** *P* **158** *L* **17** # **491**
Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Font size in Figure 56-1 for the LAN CSMA/CD layers is too large.

SuggestedRemedy

Decrease font size.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done before the IEEE-SA ballot on draft 3.0

Cl **56** *SC* **56.1** *P* **158** *L* **28** # **335**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

This diagram shows a common reconciliation sublayer across the speeds. It would appear that at least 100M (clause 22) and 1G (clause 35) are different.

SuggestedRemedy

Show horizontally separate reconciliation sublayers as appropriate, like fig 1-1.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The RS sublayer is defined in a specific clause for each PMD. The diagram makes no claim of consistancy between the PMDs, it simply conveys the OSI architecture.

Cl **56** *SC* **56.1** *P* **158** *L* **49-54** # **62**

Shimon Muller Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**

This paragraph strongly implies that half-duplex operation in the MAC is an absolute requirement for 10PASS-TS and 2BASE-TL. Also, it does not adequately address the new requirement for half-duplex operation in the MAC for EPONs.

SuggestedRemedy

Change the paragraph to read as follows:
"An important characteristic of EFM is that only full duplex links are supported. The timing constraints of the CSMA/CD protocol make it impractical to build subscriber access networks of reasonable extent. To perform MAC-PCS rate matching for 10PASS-TS and 2BASE-TL, the MAC may be configured in the half duplex mode to enable the use of carrier sense by the PCS (Clause 61) to defer transmission by the MAC. Also, for P2MP network topologies the MAC must be configured in the half duplex mode in order to be able to enforce the required minimum inter-packet gap (IPG) on the medium. All the PHYs defined for EFM perform simultaneous transmission and reception of frames, allowing for full duplex communication at the MAC sublayer to be accomplished by the rapid exchange of frames."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

If there is a change in the duplex usage of P2MP this section will be updated accordingly

Cl **56** *SC* **56.1** *P* **158** *L* **51** # **492**

Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

The second paragraph is a little confusing. There is no statement about what rate the MAC is operating.

SuggestedRemedy

Insert "100 Mb/s," before "half duplex mode".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1** *P* **158** *L* **53** # **336**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Which PHYs are full duplex?

SuggestedRemedy

Insert '58, 59 and' before '61 through 63'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **56** *SC* **56.1.2** *P* **159** *L* **46-48** # **63**

Shimon Muller Sun Microsystems, Inc

Comment Type **E** *Comment Status* **D**

Style.

SuggestedRemedy

Change the second sentence in this paragraph to read as follows:
"The P2MP PHYs use the 1000BASE-X Physical Coding Sublayer (PCS), the Physical Medium Attachment (PMA) sublayer defined in Clause 65, and an optional FEC sublayer defined in Clause 65."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.2** *P* **169** *L* **44** # **99076**

Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **R** *D2.0 #835*

Both this paragraph and Fig 56-2 above it are misleading in that they do not detail that P2MP is NOT a peer to peer relationship between the OLT and the ONU. Cl 2 clearly states peer to peer so cl 56 needs to point out the difference in this overview.

SuggestedRemedy

Add text to define that P2MP is an exception to the peer to peer relationship.

Proposed Response *Response Status* **U**

REJECT.
P2MP as described in the draft does in fact provide a peer to
peer relationship at the MAC Client interface, therefore it would be incorrect to define that it is an exception.

Cl **56** *SC* **56.1.3** *P* **160** *L* **26** # **338**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

100BASE-LX10 isn't called "extended" at present. Actually, it isn't called "laser" either.

SuggestedRemedy

Delete those words, leaving "(long wavelength)". Delete all the other "laser"s in this and next paragraph. Consider deleting the "laser"s from third paragraph also.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **56** *SC* **56.1.3** *P* **160** *L* **34** # **339**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

At this point we also need to point out that 1000BASE-LX and 1000BASE-LX10 are interoperable.

SuggestedRemedy

Add sentence "1000BASE-LX10 is interoperable with 1000BASE-LX on single-mode and multi-mode fiber, and offers greater reach than 1000BASE-LX on single-mode fiber."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.3** *P* **160** *L* **41** # **340**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

There are interoperability possibilities between 1000BASE-PX20-U and 1000BASE-PX10-D.

SuggestedRemedy

Add a sentence mentioning them. Add a reference to further detail in clause 60 if needed.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Aoecific ranges of interoperability should be mentioned in the optics clause as appropriate

Cl **56** *SC* **56.1.3** *P* **160** *L* **48** # **493**
Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Misspelling of signaling.

SuggestedRemedy

Change signalling to signaling.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.3** *P* **162** *L* **14** # **132**
Beck, Michael Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

Table 56-2 should show that OAM is optional for 2BASE-TL and 10PASS-TS, as specified in 61.1.4.1.4.

SuggestedRemedy

Add an 'O' (Optional) in column '57 / OAM', in rows '2BASE-TL' and '10PASS-TS'.
Move footnote 'b' up to the first occurrence of the symbol 'O'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **56.1.3** *P* **162** *L* **7** # **341**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

This table is very welcome. It needs to show the alternative RSs and PCS/PMAs to which some of these PMDs may be connected.

SuggestedRemedy

Add further columns for clause 22, 24, 35 and 36.
To make room, may have to split into separate electrical and optical tables. Also make mention in the text, which RS the electrical signaling systems use.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The table sufficiently conveys the information for each PMD

Cl **56** *SC* **56.1.3** *P* **321** *L* **50** # **193**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D** *) Clause 56 by EFMCu Editor*

Optional support of clause 57 OAM in clause 56 missing

SuggestedRemedy

clause 56 shall be updated accordingly (table 56-2 page 162 OAM support for 2BASE-TL and 10PASS-TS)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See also comment #132.

Cl **56** *SC* **56.1.4** *P* **162** *L* **38** # **529**

Brand, Richard — Nortel Networks

Comment Type **TR** *Comment Status* **D**

I continue to maintain my previous position with a "reject" vote, by stating,
delete "subscriber access networks to Ethernet" and replace with
"point to point and emulated point to point draft IEEE 802.3 links." as per 57.1.5.1
or create new document specific to SP networks

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Please refer to previous comment resolution

Cl **56** *SC* **56.1.4** *P* **171** *L* **50** # **99077**

Brand, Richard — Nortel Networks

Comment Type **TR** *Comment Status* **R** *D2.0 #840*

Although one of the objectives of 802.3ah is to define OAM for subscriber access networks, the wording used here is not correct.

SuggestedRemedy

Change text (line 51) to delete "subscriber access networks to Ethernet" and replace with
"point to point and emulated point to point to IEEE 802.3 links." as per 57.1.5.1
or
create new document specific to SP networks

Proposed Response *Response Status* **U**

REJECT.

Refer to responses to 837 and 952.

For further information regarding document restructuring, see the file:

http://www.ieee802.org/3/efm/public/sep03/frazier_1_0903.pdf

Cl **56** *SC* **Table 56-1** *P* **161** *L* **52** # **188**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Table footnote (d) contains wrong cross ref.

SuggestedRemedy

Replace Annex62B with Annex63B

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **56** *SC* **Table 56-2** *P* **163** *L* **14** # **189**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Optional OAM support as defined in clause 57 for 2BASE-TL and 10PASS-TS (defined in clause 61.1.4.1.4) missing

SuggestedRemedy

Add optional support of OAM to 2BASE-TL and 10PASS-TS

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* *P* *L* # **61**

Braga, Aldobino — UNH-IOL

Comment Type **E** *Comment Status* **D**

Reserved fields are not consistent. Some indicate what to do on TX and RX, some don't.

SuggestedRemedy

Personally I think "reserved" by itself is enough to indicate to the reader that the value should not be used (TX as 0, Ignored on RX).

But if it has to be spelled out, I would like to see all instances of the word "reserved" with respect to bits, fields, and code values to consistently say transmitted as 0, ignored on reception.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* *P* *L* # **60**

Braga, Aldobino — UNH-IOL

Comment Type **E** *Comment Status* **D**

Comment 593 was accepted in the last review, but wasn't implemented in this draft.

SuggestedRemedy

Please clean up the Variable Containers/Descriptors copy and paste PICS error.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The OAM Editor has reviewed this draft more times than he cares to admit. <sigh> Still, no excuse for not being able to read :)

See D2.0 comment #593 for more information. The following changes will be made:

PLAIN/p.215 ln. 13 - Change "Descriptor" to "Container"

PLAIN/p.215 ln. 16 - Change "Descriptor" to "Container"

Cl **57** *SC* *P* **200** *L* **17** # **99038**

James, David JGG

Comment Type **TR** *Comment Status* **A** *RAC D2.0 #468*

Illegal and ill-advised OUI usage. All new identifier uses based on the OUI are required to use the EUI-64 unique identifier format. Relying on the owner of the OUI to properly administer Data/Pad values uniquely does not (in practice, speaking an as IEEE/RAC member) work.

SuggestedRemedy

Change illustration on right to include OUI plus 5-byte extension, forming an EUI-64 value.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See response to comment #1155.

Cl **57** *SC* **57** *P* **174** *L* **09** # **99039**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #980*

What set of documented requirements is being satisfied by OAM?
The only justification that I can find is the vague "The OAM described in this clause provides data link layer mechanisms that complement applications that may reside in higher layers." (emphasis added).
There is no reference to any particular application, set of applications, documented set of requirements for such applications or protocol/interface to any such thing as an "OAM client". There is no definition of an OAM Client or what standard defines the requirements, interfaces or interoperability parameters for such a client. If such a client is speculated for the future, then there is not even documentation of a commitment for such a project by a standards group.

SuggestedRemedy

Delete OAM for lack of a defined standards based
interface
customer
set of requirements
Or provide appropriate justification/references/information

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Adequate justification has been provided as evidenced by the liaison from ITU-T SG 13 indicating their willingness to adopt the OAM client interface and endorsement of the functions provided by the OAM sublayer.

OAM STF will continue responding to liaison/communication statements to seek feedback on OAM. These will be sent to T1, MEF and 802.1.

- - -

Per the commenter's suggestion to provide appropriate justification, references and information, the following is provided:

The recent ITU-T liaison contains the following excerpts, which indicate their endorsement and intended use of OAM as currently defined and architected.

Under "Requirements for Maintenance Entities" (Section 9):

A requirement is "ETY link connection OAM based on IEEE 802.3ah" (see P15, L7 or so).

So as to whether other organizations have reviewed it, find it useful, and will use it, I think that ITU making it a REQUIREMENT in their document should calm that fear.

Under "General requirements for Ethernet OAM Functions " (Section 8):

Some requirements, but not the full set, and why these are satisfied by 802.3ah OAM include:

- (#1) on demand and continuous connectivity checking (OAM Information TLVs and Variable Requests satisfy this)
- (#3) defect notification (OAM critical link events and TLV-based link events satisfy this). They also list defect correction as a requirement, but we're not in the topology maintenance business.
- (#4) customers don't detect own problems (event notification from CPE-CO satisfy this)
- (#5) detecting the following anomolies: loss of connectivity, lost frames, errored frames (events or status for all of these) - also ask for topology problems, but thats not our business
- (#6) Ethernet OAM on same path as Ethernet data (e.g. do in data flow, not preamble, like we're doing)
- (#8) OAM functions simple and auto configuring (OAM discovery helps address this)
- (#9) OAM optional (all management optional in 802.3)
- (#10) backward compatible (e.g. frames not preamble)
- (#14) connectivity checking not dependent on customer traffic (e.g. OAM running anyway)

Note that they have other requirements not applicable to us (topology, layering, etc.), but we fit very well into these requirements.

Finally, in "Required OAM functions", they list many that we help satisfy:
- continuous connectivity checking
- loopback
- discovery
- performance monitoring

And some that are out of our scope
- alarm suppression
- path trace
- survivability (protection switching)

But there are none that are within our scope that we do not perform. It doesn't seem like we're missing anything.

Cl **57** *SC* **57.1.1** *P* **166** *L* **06** # **506**

Thompson, Geoffrey — Nortel Networks

Comment Type **E** *Comment Status* **D**

RE: D2.0 Comment 951
Accepted remedy is not fully implemented.
I find 9 instances of "remote loopback" that are not "OAM remote loopback".
(I counted 13 instances in D2.0 vs. the 9 in D2.1)
I find even more additional instances of "loopback" that are not "remote loopback".

SuggestedRemedy

Make all instances of "loopback" or "remote loopback" be "OAM remote loopback" via the search and replace mechanism to complete implementation of the remedy.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

All of the occurrences of "loopback" without the prefix "OAM remote" will be listed here, followed by the editor's proposed changes, if any:

(Note: this references the PLAIN version)

1) p.166, ln. 6 : "remote loopback" - This is the introductory section and "remote loopback" seems fine here.

2) p.166, ln. 34: "Remote Loopback" - This is copied verbatim from the TF objectives and seems fine.

3) p.166, ln. 35: "data link layer frame-level loopback mode." - This will be changed to "data link layer frame-level loopback mode, which is controlled remotely." It does not seem appropriate to include "OAM" here.

4) p.169, ln. 37: "Loopback Control OAMPDU" - This is the name of one of the OAMPDUs. The OAM STF did not discuss changing the name of PDU in Portonovo. No other occurrences of "Loopback Control OAMPDU" will be listed here.

5) p.172, ln. 51: "(LBF is an abbreviation for Loopback frame)." - This usage seems fine.

6) p.173, ln. 13 (Figure 57-3): "loopback frames" - This is a descriptive label distinguishing OAMPDUs, MAC client frames, and frames being looped back. This seems fine.

7) p.173, ln. 28 (Figure 57-3): "Passes loopback frames to Multiplexer" - This text describes one of the internal service interfaces. This seems fine.

8) p.175, ln. 41: "should not respond to loopback commands" - This will be changed to "should not respond to OAM remote loopback commands".

9) p.177, ln. 3: "OAM provides an optional data link layer frame-level loopback mode, which is controlled remotely." - This seems fine.

10) p.177, ln. 3: "Remote loopback" - This will be changed to "OAM remote loopback".

11) p.177, ln. 6: "after loopback frames have been sent to the remote DTE." - This seems fine. We don't want to imply that there are *special* frames sent only during loopback operation.

12) p.177, ln. 7: - See #14.

13) p.177, ln. 36: "remote loopback" - This will be changed to "OAM remote loopback".

14) p.177, ln. 38: "Enable Remote Loopback" - This will be changed to Enable OAM Remote Loopback". Also, the complementary command, "Disable Remote Loopback" will be changed as well.

15) p.177, ln. 45: "in loopback mode," - This will be changed to "OAM remote loopback mode,".

16) p.177, ln. 45: "loopback command" - This will be changed to OAM remote loopback command." Other occurrences of loopback command will also be changed.

17) p.178, ln. 4: "loopback mode" - This will be changed to "OAM remote loopback mode". 2x on this line.

18) p.178, ln. 42: "Depending upon the remote DTE's implementation of loopback," - This will be changed to "
Depending upon the remote DTE's implementation of OAM remote loopback,"

19) p.178, ln. 46: "loopback frames" - This seems fine. Again, don't want to imply *special* OAM remote loopback frames here.

20) p.178, ln. 48: "rate at which to send frames during loopback." - This will be changed to "rate at which to send frames during OAM remote loopback."

21) p.178, ln. 51: "Loopback frames that are discarded" - This seems fine. See #19.

22) p.179, ln. 47: "loopback frames from the Parser," - This seems fine. See #19.

23) p.179, ln. 49: "loopback frames from the Parser," - This seems fine. See #19.

24) p.188, ln. 43: "RX_LOOPBACK" - Name of a state. Seems fine. Other occurrences of RX_LOOPBACK are ignored.

25) p.189, ln. 25: "received loopback frame is passed" - This seemd fine. See #19.

26) p.195, ln. 4: "remote DTE's loopback state." - This will be changed to "remote DTE's OAM remote loopback state."

27) p.198, ln. 39: "Loopback Support" - This will be changed to OAM Remote Loopback Support". Other occurrences will also be changed.

28) p.208, ln. 18: "Remote Loopback" - This will be changed to "OAM Remote Loopback".

Cl **57** *SC* **57.1.4** *P* **167** *L* **16** # **528**

Thompson, Geoffrey Nortel Networks

Comment Type **TR** *Comment Status* **D**

Layer diagram is incorrect and inconsistent with (for example) the layer diagram in Fig 60-1.
The sublayer above OAM should be "LLC or other MAC Client"
The OAM sub-layer is not at the top of the Data Link Layer.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Figure 57-1 will be changed as follows:

Add sublayer above OAM, which reads:
"LLC or other MAC client"

Dashed line showing top of Data Link Layer will now point above the 'LLC or other MAC client' sublayer.

Cl **57** *SC* **57.2.10.3** *P* **176** *L* **33** # **530**

Brand, Richard — Nortel Networks

Comment Type **TR** *Comment Status* **D**

When a Critical link event (from the Flags field) occurs, an OAMPDU is sent immediately. The OAM Client generates an OAM_CTL.request with the corresponding Critical link event parameter set (i.e. either local_link_status, or local_dying_gasp, or local_critical_event) to request the OAM sublayer to send an Information OAMPDU with the corresponding Critical link event indication set in the Flags field. Any subsequently transmitted OAMPDU of any type will also have the Flags field set appropriately for the duration of the Critical link event. But that description is spread across clause 57.2.5.3.2 page 171 lines 40-49, and clause 57.2.10.3 page 176 lines 32-35. And I can't point to where the 'sent immediately, not subject to the 10 OAMPDUs per second speed limit' aspect is described in the text.

SuggestedRemedy

Add the following text to page 176 line 33, in between the first and second sentences:
"The OAM sublayer shall respond by immediately sending an Information OAMPDU with the corresponding Critical link event Flag bit set or cleared. The relationships between the OAM_CTL.request parameters and the Critical link event Flag bits are:
local_link_status : Link fault
local_dying_gasp : Dying gasp
local_critical_event : Critical event"
Add the following text to page 176 line 35 after the last word: "of any type."
Add the following text to clause 57.2.5.3.2 page 171 line 41 after the first sentence:
"When set, the local_link_status parameter will cause the OAM sublayer entity to transmit an Information OAMPDU with the Link Fault bit of the Flags field set.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #1.

Cl **57** *SC* **57.2.10.3** *P* **176** *L* **33** # **1**

Martin, David — Nortel Networks

Comment Type **T** *Comment Status* **D**

When a Critical link event (from the Flags field) occurs, an OAMPDU is sent immediately. The OAM Client generates an OAM_CTL.request with the corresponding Critical link event parameter set (i.e. either local_link_status, or local_dying_gasp, or local_critical_event) to request the OAM sublayer to send an Information OAMPDU with the corresponding Critical link event indication set in the Flags field. Any subsequently transmitted OAMPDU of any type will also have the Flags field set appropriately for the duration of the Critical link event. At least that's my understanding (if not correct then Full Stop). But that description is spread across clause 57.2.5.3.2 page 171 lines 40-49, and clause 57.2.10.3 page 176 lines 32-35. And I can't point to where the 'sent immediately, not subject to the 10 OAMPDUs per second speed limit' aspect is described in the text.

SuggestedRemedy

Add the following text to page 176 line 33, in between the first and second sentences:
"The OAM sublayer shall respond by immediately sending an Information OAMPDU with the corresponding Critical link event Flag bit set or cleared. The relationships between the OAM_CTL.request parameters and the Critical link event Flag bits are:
local_link_status : Link fault
local_dying_gasp : Dying gasp
local_critical_event : Critical event"
Add the following text to page 176 line 35 after the last word: "of any type."
Add the following text to clause 57.2.5.3.2 page 171 line 41 after the first sentence:
"When set, the local_link_status parameter will cause the OAM sublayer entity to transmit an Information OAMPDU with the Link Fault bit of the Flags field set."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

57.2.10.3 bullet a) is carefully worded as follows: "The OAM sublayer shall respond to critical link events by setting or clearing the appropriate bits within the Flags field on any subsequently generated OAMPDUs."

Reason? The OAM STF does not want to mandate the sending of an OAMPDU when a critical link event occurs. Why? In the case of a power failure, equipment vendors do not want a requirement to implement some sort of battery in their device to guarantee the transmission of an OAMPDU. Rather, the signaling mechanism is fully specified within the draft standard to allow such a frame to be sent, if possible. In 57.2.10.3, the term "on any subsequently generated OAMPDUs" means "if any happen to be sent." It does not imply a guaranteed transmission.

The Multiplexer state diagram shown in Figure 57-6, is the location of the logic supporting the "may be sent immediately" and "isn't subject to the 10 fps limit." A valid_pdu_req is either
a) a request to send an OAMPDU as a result of an OAMPDU.request service primitive as long as the 10 fps limit hasn't been exceeded or
b) a request to send an OAMPDU as a result of a critical link event after the Discovery process has completed.

When a normal request is made, the pdu_cnt is decremented. When a critical request is

made, no decrement occurs.

Summary, the OAM Editor does not propose accepting the first portion of the suggested remedy.

- - -

However, the clarification of adding "of any type" to PLAIN/p.176/ln. 35 is worthwhile.

Also, final point of the suggested remedy will be accepted:

Add the following text to clause 57.2.5.3.2 page 171 line 41 after the first sentence: "When set, the local_link_status parameter will cause the OAM sublayer entity to transmit an Information OAMPDU with the Link Fault bit of the Flags field set."

The rationale for this change is to clarify the behavior. In Portonovo, the OAM STF fixed a bug in the Discovery state diagram. As a result, when link_status = FAIL, the OAM sublayer entity sends special Information OAMPDUs w/ no TLVs once a second indicating Link Fault. The commenter's suggestion to add this to the service primitive definition is worthwhile.

Cl **57** *SC* **57.2.11.1** *P* **177** *L* **36** # **48**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

the local MAC client stops sending frames

Can the OAM client somehow tell the MAC client to stop sending frames?
There is a mechanism for the OAM client to tell the OAM sublayer to stop the transmission of MAC client frames (local_mux_action = DISCARD).

Should it say: the local OAM client sets its local_mux_action to DISCARD thereby stopping the transmission of MAC client frames.

Then on the reception of the Information OAMPDU from the remote OAM client, the local OAM client sets the local_mux_action to FWD.

SuggestedRemedy

change line to read
the local OAM client sets its local_mux_action to DISCARD

add line
On the reception of Information OAMPDU from the remote OAM client, the local OAM client sets the local_mux_action to FWD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The opening line in 57.2.11.1 is meant to reinforce the notion that OAM remote loopback is an intrusive operation. Ideally, a switch would take a port out of service, and then perform OAM remote loopback tests.

However, to keep the context of 57.2.11.x on the OAM client/sublayer entity, the proposed change is worthwhile.

The following line: "To initiate remote loopback, the local MAC client stops sending data frames to the remote DTE and the local
OAM client sets its local_par_action parameter to DISCARD via the OAM_CTL.request service primitive."

will be changed to: "To initiate OAM remote loopback, the local OAM client sets its local_mux_action parameter to DISCARD and the local_par_action parameter to DISCARD via the OAM_CTL.request service primitive."

At the end of the paragraph, the following line will be added:
"On the reception of Information OAMPDU from the remote OAM client, the local OAM client sets the local_mux_action to FWD."

Cl **57** *SC* **57.2.11.3** *P* **178** *L* **17** # **49**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

Can the OAM client somehow tell the MAC client to stop sending frames?
There is a mechanism for the OAM client to tell the OAM sublayer to stop the transmission of MAC client frames (local_mux_action = DISCARD).

Should it say: the local OAM client sets its local_mux_action to DISCARD thereby stopping the transmission of MAC client frames.

Then on the reception of the Information OAMPDU from the remote OAM client, the local OAM client sets the local_mux_action to FWD.

SuggestedRemedy

change line to read
the local OAM client sets its local_mux_action to DISCARD

add line
On the reception of Information OAMPDU from the remote OAM client, the local OAM client sets the local_mux_action to FWD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The following line: "When the local DTE wishes to end the OAM remote loopback test, the local MAC client stops sending
frames."
will be changed to: "When the local DTE wishes to end the OAM remote loopback test, the local OAM client sets its local_mux_action parameter to DISCARD."

The second portion of the suggested remedy appears redundant to: PLAIN/p.178/lines 23-25.

However, the last line in the paragraph "The remote Parser resumes passing received non-OAMPDUs up to the MAC client and the MAC client resumes sending frames to the OAM sublayer."

should be changed to: "The remote Parser resumes passing received non-OAMPDUs up to the MAC client and the local Multiplexer resumes forwarding any frames sourced by the local MAC client."

Cl **57** *SC* **57.2.11.3** *P* **178** *L* **24** # **50**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

"local OAM client set its local_par_action and local_mux_action to FWD"

It is my understanding that the local_mux_action is never in a state other than FWD, when the local device is in charge of loopback operation. Therefore setting local_mux_action to FWD is not necessary.

In two areas, (57.2.11.3 line 17) and (57.2.11.1 line 36) it states the local MAC client stops sending data. If this mean the local OAM client sets its local_mux_action to DISCARD, then please state so. Be aware however that if the local OAM client sets the local_mux_action to DISCARD, then in both cases (57.2.11.1 - Initiation and 57.2.11.3 - Exiting) local_mux_action should be set to FWD on the reception of the Information OAMPDU from the remote OAM client.

SuggestedRemedy

Either change the line to read: "local OAM client sets its local_par_action to FWD"

or

Change both instances of "local MAC client stops sending data" to local MAC client sets its local_mux_action to DISCARD." and Under Loopback Initialization add the line about setting the local_mux_action to FWD on the reception of the Information OAMPDU.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See related comments #48 and 49.

The proposed modifications to the suggested remedies for #48 and #49 should satisfy the concerns expressed in this comment.

Cl **57** *SC* **57.2.11.6** *P* **179** *L* **21** # **51**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

"Sending the Information OAMPDU before changing state information allows the remote DTE to change its local_par_action to FWD prior to the earliest possible reception of a MAC client frame. This of course, does assume the Information OAMPDU is received error-free."

I see issues with this:
1) The Information OAMPDU is sending false information.
2) There is no way to guarantee that the remote DTE will change its local_par_action to FWD prior to the earliest possible reception of a MAC client frame, because the assumption is that the Information OAMPDU is received error-free.
3) There is no way to guarantee that the local DTE has received the Information OAMPDU before the remote DTE sets the local_mux_action to FWD, dumping its queued frames onto the link. Possibly losing all those frames.

SuggestedRemedy

Consider the following three way handshake:

1) The local MAC client stops sending frames.
2) The local OAM client sends a Loopback Control OAMPDU with the Disable command
***Note: if the Loopback Control OAMPDU is dropped due to error, the local OAM client tries again. No harm - No foul.

3) The remote OAM client on reception of the Loopback Control OAMPDU sets the local_par_action to FWD.
4) The remote OAM client then sends an Information OAMPDU reflecting a local_par_action set to FWD.
***Note: if the Information OAMPDU is dropped due to error, the remote can't transmit MAC client frames but can receive them. Since its been queuing since loopback operation started, this shouldn't be a problem. After 1 second the Information OAMPDU is retransmitted. No harm right?

5) The local OAM client on the reception of this Information OAMDPU sets its local_par_action to FWD.
6) The local OAM client then sends an Information OAMPDU reflecting a local_par_action set to FWD.
***Note: if the Information OAMPDU is dropped due to error, all the local device does is transmit and receive MAC client frames, which isn't a problem because the remote can't send any MAC client frames, but can receive them!! So there isn't a problem while a second goes by and the Information OAMPDU is automatically retransmitted.

7) The remote OAM client on the reception of this Information OAMPDU sets its local_mux_action to FWD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The suggested remedy will not work because it creates an unintended unidirectional link for an interminate amount of time. As this breaks 802.1, the commenter's suggested remedy will not be followed.

Instead, after careful review of the current implementation, one critical change is necessary. Bullets c) and d) need to be swapped in 57.2.11.6. This is the crux of the commenter's issue to begin with.

As currently defined, if bullet c) happens but d) for some reason does not, the local OAM client will change its two parameters to FWD. However, the remote DTE will remain in loopback. This will cause MAC client traffic to loop back to itself. This is a problem.

After swapping bullets c) and d), the above catastrophe can not happen as the remote device will exit loopback prior to sending updated status to the local device. Also, this approach prevents an unintended unidirectional link.

Cl **57** *SC* **57.2.12** *P* **179** *L* **38** # **52**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

"the OAM sublayer ensures that only OAMPDUs are sent across the link. These OAMPDUs contain. . ."

When local_link_status = FAIL, the PHY has detected an error on the link. This is the same condition causing OAMPDUs to be sent with the Link Fault critical link event flag set.

But local_link_status is a global transition that leads to local_pdu = LF_INFO, so any unidirectional operation will lead to local_pdu = LF_INFO. Thus the only OAMPDUs sent while in unidirectional operation are Information OAMPDUs with the Link Fault critical link event flag set and no Information TLVs.

SuggestedRemedy

Basically I don't want readers to think they can send any OAMPDU while in unidirectional mode. They're limited to Information OAMPDUs with certain restrictions.

Please change all reference to OAMPDUs to Information OAMPDU with the Link Fault critical link event flag set and no Information TLVs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

57.2.12 contains two lines describing OAMPDUs sent during unidirectional operation. These two lines will be combined as follows:
<current text>
"When a link is operating in Unidirectional OAM mode, the OAM sublayer ensures that only OAMPDUs are sent across the link. These OAMPDUs contain the Link Fault critical link event indicating the receive path has failed and are sent once per second."

<new text>
"When a link is operating in Unidirectional OAM mode, the OAM sublayer ensures that only Information OAMPDUs with the Link Fault critical link event indication set and no Information TLVs are sent once per second across the link."

57.3.2.2 looks okay.

57.3.3.1.3 contains a sentence that needs to changed.
<current text>
"Since only OAMPDUs are sent on a unidirectional link, the status of the link is evaluated to ensure the same behavior as devices that do not support the optional Unidirectional OAM capability."

<new text>
"Since only Information OAMPDUs with the Link Fault critical link event indication set and no Information TLVs are sent on a unidirectional link, the status of the link is evaluated to ensure the same behavior as devices that do not support the optional Unidirectional OAM capability."

Cl **57** *SC* **57.2.5.1.1** *P* **170** *L* **08** # **3**

Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The Function clause descriptions for the other three primitives use only 'OAM client to OAM sublayer flow', or vice versa. This one should as well.

SuggestedRemedy

Change the text of line 8 to read:
"This primitive defines the transfer of data from an OAM client entity to an OAM sublayer entity."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

OAMPDU.request transfers an OAMPDU between two peer OAM clients, with the help of several sublayers, of course. An OAM client uses OAMPDU.request to send an OAMPDU to the remote device's OAM client.

OAMPDU.indication simply tranfers a received OAMPDU up to the OAM client.

OAM_CTL.request alters variables of the subordinate OAM sublayer entity.

OAM_CTL.indication provides updated state variables to the attached OAM client entity.

In summary, OAMPDU.request is different than the other three.

Cl **57** *SC* **57.2.5.1.2** *P* **170** *L* **22** # **2**

Martin, David Nortel Networks

Comment Type **T** *Comment Status* **D**

The OAMPDU.request parameter 'flags' shouldn't include the Critical link events, or else it is redundant with the OAM_CTL.request parameters (i.e. local_link_status, local_dying_gasp, local_critical_event).

SuggestedRemedy

Add the following text to page 170 line 22 in between the second and third sentences:
"Only the indications corresponding to the Flags field bits 3-15 are contained in the flags parameter."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* **57.2.5.3.2** *P* **171** *L* **26** # **23**
David, James JGG

Comment Type **E** *Comment Status* **D**

Indentation style is strange.

SuggestedRemedy

Look at 802.16, which indents in a more readable C-code like way.
(single 1/4" table for each argument value).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

802.3-2002/2.3 defines the inter-layer service specifications. The service specifications found in Clause 57 are patterned after 802.3-2002/2.3. The indentation style is followed so as to make 802.3-200x self-consistent.

Cl **57** *SC* **57.2.5.3.2** *P* **176** *L* **15** # **25**
David, James JGG

Comment Type **E** *Comment Status* **D**

Bad line thickness, around note.

SuggestedRemedy

Eliminate visible lines around the after-table note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* **57.2.5.3.2** *P* **177** *L* **25** # **24**
David, James JGG

Comment Type **E** *Comment Status* **D**

Inconsistent notation.

Either use all caps, or lower case, but not both
(a mixture is prohibited by IEEE Style).

SuggestedRemedy

CONTROL ==> control
OPTIONAL ==> optional
MEDIA ==> Media

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"CONTROL" will be remain "CONTROL". In layer diagrams within 802.3, MAC CONTROL is always all caps.

"OPTIONAL" will be changed to "Optional".

"MEDIA" will be changed to "Media"

Cl **57** *SC* **57.3.1.5** *P* **183** *L* **32** # **169**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

I have a comment against Comment #586 made against D2.0. The comment was against 57.3.1.5, and the values of the two timers defined there. Both timers are defined as having nominal values of 5s and 1s respectively, but no ranges are provided for the timers. The comment requested that a range be provided for each of them.

The response was to reject, stating that sometimes timers are described as having just nominal values. Examples in 23.2.4.3, 32.3.4.2, 36.2.5.1.7, and 40.3.3.3 were provided.

Subclause 23.2.4.3 (100BASE-T4 PHY) defines a timer that governs the transitions between states in a state machine. It seems that this 40ns timer is based off of the defined TX_CLK of 25MHz, which does have a tolerance associated with it. Subclause 32.3.4.2, 40.3.3.3, and 36.2.5.1.7 have similarly defined timers for 100BASE-T2, 1000BASE-T, and 1000BASE-X respectively.

In each of these examples, it appears that there is a clear range over which the timer should exist, and therefore a clear measurement range.

For the timers in Clause 57, I can see so such range. Also, we're talking about timers on the order of seconds and not nanoseconds. I would like to have a range such that I can test that the device properly implements these timers. For example, look at A_timer defined in 40.4.5.2. This is a 1.3 second timer with a range of +/- 25%. I would expect something similar for the timers in Clause 57.

SuggestedRemedy

Add ranges for each timer of +/- 10% (10 percent is an arbitrary placeholder).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change:
"Duration: 5 s nominal."

to read:
"Duration: 5 s +/- 10%."

Change:
"Duration: 1 s nominal."

to read:
"Duration: 1 s +/- 10%."

Cl **57** *SC* **57.3.2.1** *P* **184** *L* **40** # **4**

Martin, David — Nortel Networks

Comment Type **E** *Comment Status* **D**

Typo

SuggestedRemedy

Change "of the Flags filed" to "of the Flags field"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* **57.3.2.1** *P* **184** *L* **40** # **53**

Braga, Aldobino — UNH-IOL

Comment Type **T** *Comment Status* **D**

"This is accomplished by sending Information OAMPDUs once per second with the Link Fault bit of the Flags field set and no Information TLVs in the Data field."

Why aren't all kinds of frame permitted when in unidirectional mode? If supported wouldn't it be better to send Organization Specific Information TLVs, Event Notification OAMPDUs including Organization Specific Event TLVs, and Organization Specific OAMPDUs?

If the local_link_status = FAIL, what's the issue sourcing OAMPDUs that the last known device would understand in the hopes that you can convey more useful info?

If and when local_link_status = OK either because the link error has been corrected or the local device is connected to a different remote partner, you go back to either the ACTIVE_SEND_LOCAL or PASSIVE_WAIT state anyway. Thus restarting the OAM Discovery process and go back to INFO or RX_INFO.

SuggestedRemedy

Change local_pdu to ANY in the Link_Fault state.

or

Create a local_pdu value called LF_ANY; where Any OAMPDU can be transmitted but all must contain the Link Fault critical link event flag set. and Change local_pdu to LF_ANY in the Link_Fault state.

or

Create a local_pdu value called UNI; where Any OAMPDU can be transmitted with the exception of Loopback, Variable Request, and Variable Repsonse, but all must contain the Link Fault critical link event flag set. and Change local_pdu to UNI in the Link_Fault state.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The OAM STF took a stance that OAM information should only be exchanged with a peer OAM sublayer, both during and after the completion of the Discovery process.

During link fault situations, the OAM sublayer sends a stripped down Information OAMPDU that only contains the Link Fault bit and no Information TLVs.

An OAM client/sublayer pair has no way of knowing when a link has been disconnected and reconnected to a device that does not support OAM.

Cl **57** *SC* **57.3.2.1** *P* **184** *L* **40** # **54**
Braga, Aldobino UNH-IOL

Comment Type **E** *Comment Status* **D**
Flags filed is a typo

SuggestedRemedy
Change filed to field

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **57** *SC* **57.4.2** *P* **190** *L* **35** # **531**
Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **D**
We are at Work Group Recir ballot. Cross Refs don't fit here

SuggestedRemedy

Proposed Response *Response Status* **W**
PROPOSED REJECT.

Clause 4 used to be open as part of P802.3ah. However, it is no longer part of the draft standard we are editting. As a result, a cross-reference is currently not possible.

Other examples include:
- 57.1.5.3, which has a cross reference to Annex 31B,
- 57.1.6, which has a cross reference to 21.5
- 57.2.3, which has a cross reference to Clause 2
- 57.2.8.1.2, which has a cross reference to 3.2.8

Per the Editor's Note on PLAIN/p. 165, the "CROSS REF" text string will be used by the Chief Editor and the IEEE editor(s) to add the cross references at the appropriate time.

Cl **57** *SC* **57.4.3** *P* **190** *L* **52** # **532**
Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **D**
Again, at recir, cross refs are not accepatable

SuggestedRemedy

Proposed Response *Response Status* **W**
PROPOSED REJECT.

See proposed response to comment #531.

Cl **57** *SC* **57.4.3.1** *P* **192** *L* **37** # **38**
David, James JGG

Comment Type **T** *Comment Status* **D**
OUI definition is odd and inconvenient.

SuggestedRemedy
Organizations are structured to provide EUI-48 and EUI-64 values.
Its unclear why anyone would want to mandate yet-another EUI-56 service, which is what this text has effectively done.

If there is a great value in an EUI-56, then that value should be listed.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

EUI-48 and EUI-64 are globally unique identifiers. The 24-bit OUI and 32-bit Vendor Specific Information fields contained within the Information TLV is NOT a globally unique identifier. Rather, it provides a mechanism to identifer the

a) Product Manufacturer (via the OUI)
b) Product Model (optionally using a portion of the Vendor Specific Information field)
c) Product Version (optionally using a portion of the Vendor Specific Information field)

EFM is not defining a new EUI-56.

Cl **57** *SC* **57.4.3.1** *P* **192** *L* **37** # **37**
David, James JGG

Comment Type **T** *Comment Status* **D**
OUI definition is too vague.

SuggestedRemedy
Show a typical OUI example, with detailed layout, down to bits.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Table 57-10 will be changed by adding the following text to the OUI description:

The msb of the 24-bit OUI maps to bit 23 of this field.
The lsb of the 24-bit OUI maps to bit 0 of this field.

Cl **57** *SC* **57.4.3.2** *P* **193** *L* **08** # **26**

David, James JGG

Comment Type **E** *Comment Status* **D**

Wrong figure font size; should be 8-point Ariel.

SuggestedRemedy

Change font size to #8.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Clause 57 adheres to the IEEE Standards Style Manual-revised April 2002, by using Arial font for all figures and not using font sizes below 6 pt (7 pt is the smallest font used). See 16.1(a) in the above referenced manual for more information.

Cl **57** *SC* **57.4.3.3** *P* **194** *L* **22** # **79**

Squire, Matt Hatteras Networks

Comment Type **T** *Comment Status* **D**

Support a "ping" type function.

There are several levels at which this function could be supported:
1) Add a new ping op-code
2) Make the variable request/response more friendly toward this utilization

SuggestedRemedy

It is suggested to make the ping function easier to implement with variable request/response. The suggested changes are:
a) allow zero containers in variable requests/responses
b) introduce a new correlator field that just gets echo'd back

P194, L22: Change "one or more" to "zero or more". Add sentence at end of paragraph: "The correlator field is set by the requestor and echoed back by the responder in the response."

P194, L48: Change "one or more" to "zero or more". Add a sentence at the end of the paragraph: "The correlator field is set by the requestor and echoed back by the responder in the response."

P194,Fig 57-11, 57-12. Add "correlator" field after op-code (8-octets?)

Proposed Response *Response Status* **W**

PROPOSED REJECT.

OAM, as currently defined, ensures at least one OAMPDU is sent each second (sometimes referred to as 'keep-alives'). OAM also includes the ability to perform on-demand connectivity with the variable retrieval mechanism (using Variable Request OAMPDUs and Variable Response OAMPDUs). Other organizations, namely 802.1, MEF and the ITU are looking at implementing "ping"-like functionality and may include latency measurement.

Cl **57** *SC* **57.4.3.4** *P* **194** *L* **53** # **58**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

"b) return a Variable Error for the entire package or object"

How is this done? In draft version 1.3 it shows examples of variable errors, but only for attributes and attributes within a package. Table 57-15 doesn't seem to have an error that indicates the entire package or object can't be returned.

If returning a package with only one Variable Error is supposed to indicate that the entire package can't be returned, then there should be a statement stating so. But this could be confusing.

SuggestedRemedy

I would like to see set of package Variable Error codes and a set of object Variable Error Codes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Table 57-15 will be changed as follows:

Swap 0x03 with 0x06.

Change 0x01 through 0x06 by replacing "variable" with "attribute".

Change "0x07-7F reserved" to "0x07-3F reserved"

Duplicate 0x01 through 0x05 as 0x40 through 0x45 and change "variable" to "object".

Add row "0x46-5F Reserved for future use."

Duplicate 0x01 through 0x05 as 0x60 through 0x65 and change "variable" to "package".

Add row "0x66-7F Reserved for future use."

The end result will be a single table with three distinct error code sections, one each for attributes, packages and objects. There will be six errors codes for attributes and five each for packages and objects. (Overflow doesn't apply to packages or objects.)

Cl **57** *SC* **57.4.3.6** *P* **192** *L* **37** # **40**

David, James JGG

Comment Type **T** *Comment Status* **D**

OUI definition is insufficient.

SuggestedRemedy

Its OK to follow an OUI by vendor dependent information _if_ there is some way to ensure that the vendor does not consume all of its number space on the first implementation.

Either provide guidance on how not-to-consume, use an EUI-48, or provide some sort of extendable substructure to avoid such one OUI-per-implementation possibility.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The current description of the 32-bit Vendor Specific Information field, which follows the 24-bit OUI, is "32-bit identifier that may be used to differentiate a vendor's product models/versions." This can be found in PLAIN D.21/Table 57-11. This description provides guidance on how to use the available - and optional - 32-bit field. If a vendor consumes 4 billion combinations describing either their models or versions, they have more issues than just the OUI being used to identify their gear by OAM.

Cl **57** *SC* **57.4.3.6** *P* **192** *L* **37** # **39**

David, James JGG

Comment Type **T** *Comment Status* **D**

OUI definition is unconventional.

SuggestedRemedy

Use a typical illustrative hex-values OUI in this example, so as to avoid confusion with the rather "interesting" mix of 0-7 and 1-8 bit notations.

The reference to 802 isn't all that helpful, since this illustration does not show MSB and LSB, which have a habit of being on either side in 802 specifications.

Look at the IEEE/RAC tutorials and show something in similar detial, asking for review by the IEEE/RAC.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Figure 57-14 will be modified as follows:

Show the three octets in the center of the figure as:

1010 1100
1101 1110
0100 1000

The object on the right-hand side of the figure will be removed and replaced with: Sample OUI = AC-DE-48

This way, there can be no ambiguity as to the format of the OUI field.

Cl **57** *SC* **57.4.3.6** *P* **196** *L* **22** # **55**

Braga, Aldobino UNH-IOL

Comment Type **E** *Comment Status* **D**

Field descriptions for all other OAMPDU contain shall statements with the exception of the OUI for Organization Specific OAMPDU.

SuggestedRemedy

Please change the line to read:

"The first three octets of the Organization Specific OAMPDU Data field shall contain. . ."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* **57.4.3.6** *P* **200** *L* **15** # **99040**

Parsons, Glenn Nortel Networks

Comment Type **TR** *Comment Status* **A** *D2.0 #1156*

To be consistent with the rest of the OAM clause, the Organization specific OAMPDU should use the 'vendor identifier' (that itself should be EUI64 per another comment) as the first part of its data instead of the OUI.

SuggestedRemedy

Replace OUI with EUI64 or vendor identifier (that is defined as a subset of EUI64)

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See response to comment #1155.

Cl **57** *SC* **57.5.2.2** *P* **203** *L* **19** # **99041**

Parsons, Glenn Nortel Networks

Comment Type **TR** *Comment Status* **A** *D2.0 #1155*

The Vendor Identifier described in table 57-10 should be aligned with the EUI64 identifier. IEEE/RAC now requires that new applications use EUI64. Their review would likely recommend the same thing. That is, it should be 64 bits.

SuggestedRemedy

Define the Vendor Identifier as a subset of EUI64 with a 24 bit device identifier and a 16 bit version identifier.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Clause 57 is defining a vendor specific protocol identifier (in a manner similar to SNAP) and not a globally unique identifier. Hence, neither the usage of the EUI-48/64 nor any other EUI is appropriate.

In addition, according to "Guidelines for EUI64: 64-bit Global Identifiers," no more than one EUI-64 value shall be contained within each component that is manufactured. This restriction would prevent an OAM-enabled DTE from speaking two or more separate organization specific protocols.

Rather than the suggested remedy, the following changes will be made:
Split Table 57-10 into two. One table will contain just the OUI. The second table will contain a 32-bit vendor specific information field.

Add note to Table 57-10 and other uses of OUI within Clause 57: "Organizations that have previously received OUIs from the IEEE Registration Authority should use one of their allocated OUIs consistently as the company identifier."

Cl **57** *SC* **57.5.2.3** *P* **203** *L* **51** # **99042**

James, David JGG

Comment Type **TR** *Comment Status* **A** *RAC D2.0 #469*

Illegal and ill-advised OUI usage. All new identifier uses based on the OUI are required to use the EUI-64 unique identifier format. Relying on the owner of the OUI to properly administer Data/Pad values uniquely does not (in practice, speaking an as IEEE/RAC member) work.

SuggestedRemedy

Change (c,d) to:

c) organizationEui. A three-octet organizationally unique identifier (OUI) followed by 5 bytes administered by that organization. The concatenation of these fields forms an EUI-64, as defined by the IEEE/RAC.

d) organizationSpecific. Data bytes whose format and meaning are dependent on the organizationEui.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See response to comment #1155.

Cl **57** *SC* **57.5.3.1** *P* **200** *L* **47** # **553**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

"This event is generated if the symbol error count is equal to or greater than the specified threshold for that period."
As the default value for the threshold is 0, this event will be always be generated.
(Error appears in each of the 4 events)

SuggestedRemedy

Alarms are usually raised when a threshold is exceeded rather than when it is reached, so change "equal to or greater than" to "greater than".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

If the threshold remains set to the default value, the commeter's point is true - the link event will always be generated. This is desired behavior due to the two usage models, which emerged:

The first usage model (threshold set to zero) always generates link events at the end of the window. This provides a data log of the link over time and can be used by some applications to prove service level agreements.

The second usage model (threshold set to something other than zero) only generates link events when a threshold is met. Some applications may want link events that directly translate to alarms indications. For instance, a threshold set to the value one, would generate a link event whenever one or more errors occurred. A corresponding network management software application could then raise an alarm based on this link event.

During the Task Force review, proponents of both usage models voiced their opinions. The current text supports both usage models.

Cl **57** *SC* **57.5.3.1** *P* **201** *L* **12** # **554**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. Also, grammatical error.
"...field indicates the number of errored symbols in the
period that is required to be equal to or greater than in order for the event to be generated, ...".
As the default value for the threshold is 0, this event will always be generated, which is not desirable.

SuggestedRemedy

Change to "...field indicates the number of errored symbols in the period which must be exceeded in order for the event to be generated, ...".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.5.3.2** *P* **201** *L* **35** # **555**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. "This event is generated if the errored frame count is equal to or greater than the specified threshold for that period."
As the default value for the threshold is 0, this event will be always be generated.
(Error appears in each of the 4 events)

SuggestedRemedy

Alarms are usually raised when a threshold is exceeded rather than when it is reached, so change "equal to or greater than" to "greater than".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.5.3.2** *P* **202** *L* **03** # **556**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. Also, grammatical error.
"...field indicates the number of detected errored frames in the
period that is required to be equal to or greater than in order for the event to be generated, ...".
As the default value for the threshold is 0, this event will always be generated, which is not desirable.

SuggestedRemedy

Change to "...field indicates the number of errored frames in the period which must be exceeded in order for the event to be generated, ...".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.5.3.3** *P* **202** *L* **26** # **557**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. "This event is generated if the errored frame count is equal to or greater than the specified threshold for that period.". As the default for the threshold is zero, this event will always be generated, which is not desirable.

SuggestedRemedy

Alarms are usually raised when a threshold is exceeded rather than when it is reached, so change "equal to or greater than" to "greater than".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.5.3.3** *P* **202** *L* **51** # **558**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. Also, grammatical error.
"...field indicates the number of errored frames in the period that is required to be equal to or greater than in order for the event to be generated, ...".
As the default value for the threshold is 0, this event will always be generated, which is not desirable.

SuggestedRemedy

Change to "...field indicates the number of errored frames in the period which must be exceeded in order for the event to be generated, ...".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.5.3.4** *P* **203** *L* **21** # **559**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. "This event is generated if the number of errored frame seconds is equal to or greater than the specified threshold for that period." As the default value of the threshold is 0, this event will always be generated, which is not desirable.

SuggestedRemedy

Alarms are usually raised when a threshold is exceeded rather than when it is reached, so change "equal to or greater than" to "greater than".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.5.3.4** *P* **203** *L* **43** # **560**

Messenger, John ADVA Optical Network

Comment Type **TR** *Comment Status* **D**

See JLM-6. Also, grammatical error.
"...field indicates the number of errored frame seconds in the period that is required to be equal to or greater than in order for the event to be generated, ...".
As the default value for the threshold is 0, this event will always be generated, which is not desirable.

SuggestedRemedy

Change to "...field indicates the number of errored frame seconds in the period which must be exceeded in order for the event to be generated, ...".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See proposed response to comment #553.

Cl **57** *SC* **57.6.2** *P* **204** *L* **53** # **56**

Braga, Aldobino UNH-IOL

Comment Type **T** *Comment Status* **D**

Please provide a better description of how Variable Containers work.
Its not clear to me how they work from simply reading the text. I had to go back to draft version 1.3 to understand how these things are formated and even then I still don't fully understand it.

Table 57-14 doesn't convey the operation of packages or objects well. When operating with a package, there is one Branch, one Leaf, but then for each attribute a width & value pair (unless there is an error). This is still considered a single Variable Container. I don't think that's intuitive from the table.

I don't really know how objects work; I haven't seen an example of one.

SuggestedRemedy

Please
a) Clear this up with a paragraph or two
b) Create an informative annex with examples of attributes, packages, objects, and the previous three each with errors.

I'd settle for just the annex but both would be better.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The Editor agrees the variable section is a bit sparse. The editor will bring text suitable for OAM STF review to Albuquerque.

As to the resuscitation of the figures dating back to D1.3, we'll leave that to the OAM STF in Albuquerque. Perhaps with descriptive, concise, clear text, the examples won't be needed. Fingers crossed, anyway. :)

Cl **57** *SC* **57.6.3** *P* **205** *L* **47** # **59**

Braga, Aldobino UNH-IOL

Comment Type **E** *Comment Status* **D**

The heading is Parsing, which I can only assume means for both Variable Descriptors and Containers. The text above the list however seems to only mention Variable Containers.

SuggestedRemedy

Please add text Variable Containers in the text above the list.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* **57.6.4** *P* **206** *L* **03** # **57**

Braga, Aldobino UNH-IOL

Comment Type **E** *Comment Status* **D**

Table 57-16 alone doesn't help me understand how Variable Descriptors/Containers work.

I don't know if this is a left over from when there used to be examples of Variable Descriptors and Containers.

SuggestedRemedy

Please either
a) Remove Table 57-16
b) Add examples of OAMPDUs with Variable Descriptors/Containers to help clarify. Possibly in an Annex? The ones in draft 1.3 are a good start but more examples would be nice.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See proprosed response to comment #56.

Cl **57** *SC* **Table 57-10** *P* **199** *L* **26** # **41**

David, James JGG

Comment Type **T** *Comment Status* **D**

company_id footnote is confusing.

SuggestedRemedy

Delete footnote (b).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This footnote was added to alleviate any possible concern on the part of the Registration Authority as to the possible rapid depletion of OUIs. It was suggested that adding a footnote instructing companie which own OUI(s) already should use an existing one to identify their gear. In addition, using one of the OUIs consistently is also considered good practice.

Cl **58** SC P **220** L # **99064**
Meir Bartur Optical Zonu

Comment Type **TR** *Comment Status* **R** *D2.0 #851*
Does not include single wavelength option

SuggestedRemedy
Include single wavelength option

Proposed Response *Response Status* **U**
REJECT.

The dual wavelength proposal was adopted as baseline for the 100M bidi PMD. The single wavelength proposal was not adopted. This baseline was adopted at the Edinburgh Interim in May 2002, after the issue being discussed at several meetings.

Cl **58** SC **58.1** P **218** L **10** # **332**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**
There are now two possible 100BASE-X PCS/PMAs.

SuggestedRemedy
Change 'Clause 24*ref*' to 'Clause 24*ref* or 66.1*ref*'.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** SC **58.1** P **218** L **23** # **342**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
100BASE-LX10 direction isn't N/A: there can be discernible direction with 100BASE-LX10.

SuggestedRemedy
Change 'N/A' to 'Any'?

Proposed Response *Response Status* **W**
PROPOSED REJECT.
The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** SC **58.1.1** P **218** L **46** # **343**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
Grammar.

SuggestedRemedy
Make a proper sentence of it. Also 59.1.1, 60.1.1.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Change text to "The following are the objectives of 100BASE-LX10 and 100BASE-BX10:"

Make similar changes to 59.9.1 and 60.1.1.

Cl **58** SC **58.1.1** P **219** L **50** # **344**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
Is it really data? e.g. 36.2.4.3 draws a distinction between 'data' and 'special'.

SuggestedRemedy
Also line 51.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Change text to "NRZI encoded 4B/5B bit stream".
Also change this in Table 58-11, and in subclauses 58.8.3 & 58.8.4.

Cl **58** SC **58.1.3** P **219** L **33-38** # **64**
Shimon Muller Sun Microsystems, Inc

Comment Type **E** *Comment Status* **D**
Reference terminology.

SuggestedRemedy
Replace "Clause 1.1" with "subclause 1.1".
Replace "Clause 1.2" with "subclause 1.2".
Replace "Clause 1.3" with "subclause 1.3".
Replace "Clause 1.4" with "subclause 1.4".
Replace "Clause 1.5" with "subclause 1.5".

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.1.4.2** *P* **220** *L* **19** # **350**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

MBaud

SuggestedRemedy

MBd

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.10.2** *P* **248** *L* **52** # **357**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Shouldn't split a single letter off to another line.

SuggestedRemedy

Use nonbreaking hyphen in 'ITU-T'.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.10.4** *P* **251** *L* **16** # **99065**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #999*

There is no specified standardized MDI.
It is very much a key element of the success of any Ethernet Standard to specify a single interoperable MDI for each cabling interface. The lack of such a specification is a major shortcoming of 10 GBE. We should not make the same mistake for EFM. If EFM was able to suceed in coming up with a single code for copper then choosing a connector should be well within the ability of the group.

SuggestedRemedy

Specify a single (standards based) connector type for connecting to single mode fiber or at least a single connector type for each PMD type. Change the business about specifying the performance at the end of TP2 to be part of the test set-up instead of the interoperability test point.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
The MDI is properly specified (see subclause 58.10.4) and the explicit choice of a connector is neither necessary nor helpful to best meet our objectives in a timely manner.

Commenter's wish for a chosen connector relates to something a consumer might buy, rather than connectors in the CO.

Change to the right IEC reference for fiber optic connector performance (mechanical and optical) for all three clauses. Should be -1 not -1-1.

Cl **58** *SC* **58.11.3.2** *P* **252** *L* **11** # **358**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Last time (comment 124) we meant to add PICS items for stressed sensitivity to clauses 58 and 60 as well as 59.

SuggestedRemedy

Add them. I think they are conditionally optional depending on OM9: if so, add * to OM9

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.11.3.5** *P* **252** *L* **42** # **360**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

PICS needs to follow clause very precisely. Clause doesn't say 'Used', it says 'definitive'

SuggestedRemedy

Delete 'Used'.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.11.3.7** *P* **253** *L* **40** # **361**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Reference has changed.

SuggestedRemedy

IEC 61753-1. Check other two clauses (body and PICS) for same issue.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.2** *P* **220** *L* **47** # **135**
Jönsson, Ulf Ericsson Corp

Comment Type **T** *Comment Status* **D**

This clause shows Clause 45 registers which are not applicable to 100Mbps optics.

SuggestedRemedy

Need joint meeting between optics and logics people to discuss Clause 22/45 registers for 100/1000Mbps optics

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.2** *P* **220** *L* **50** # **337**
Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **D**

This comment applies to clauses 59 and 60 also.
The clause 45 registers shown are currently thought not applicable to 100M or 1G. Optics track believed that a method for accessing clause 22 registers through a clause 45 MDIO bus would be provided in 802.3ah; this is desired as clause 22 has no traction in optics and clause 22 voltage levels are obsolescent. Is this mechanism already in place?
Not sure if clause 60 needs new registers.

SuggestedRemedy

Need optics/logic joint meeting on 22/45 registers.
If we can already access clause 22 registers through a clause 45 interface, do we just replace these cl.45 registers in the table with the equivalent cl.22 registers?

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.3.3** *P* **222** *L* **10** # **27**
David, James JGG

Comment Type **E** *Comment Status* **D**

Wrong figure font size; should be 8-point Ariel.

SuggestedRemedy

Change font size to #8.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.3.4** *P* **222** *L* **46** # **494**
Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Table 58-4 should be kept on one page.

SuggestedRemedy

Increase the orphan count for the table.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Changes will be made upon final assembly of the document

Cl **58** *SC* **58.6** *P* **227** *L* **49** # **345**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Extend note of explanation about allocation for penalties.

SuggestedRemedy

'For 100BASE-X, it is possible for the allocation for penalties to be less than the TDP limit, as some penalties measured by TDP may arise in the receiver and need not be counted twice.'

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.7** *P* **228** *L* **10** # **346**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

The jitter sections need to be tied together and have their terminology aligned.

SuggestedRemedy

In table 58-10, insert '(W)' after 'High probability jitter'. W in italics. Make the table full width.
Change 'DJ' to 'W' twice.
Add extra words 'NOTE - As an example, TJ10....'.
Add sentence saying that 'W is similar but not necessarily identical to deterministic jitter (DJ)'.
Refer to 58.8.12, note that there are other jitter measurement methods.
Add sentence 'Jitter at TP2 or TP3 is defined with a receiver of the same bandwidth as specified for the transmitted eye.'

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.8.1** *P* **229** *L* **9** # **347**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Font size of '(1010 for 4B/5B NRZI)'

SuggestedRemedy

Reapply style.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.8.1.1** *P* **229** *L* **51** # **348**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

The reader can't see what flips. Need to add more explanation.

SuggestedRemedy

The "flipping" content causes a different frame check sequence which in turn causes the following idle to be inverted.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **58** *SC* **58.8.1.1** *P* **229** *L* **54** # **136**

Jönsson, Ulf Ericsson Corp

Comment Type **E** *Comment Status* **D**

Two periods '..'

SuggestedRemedy

Remove one '.'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **58** *SC* **58.8.1.1** *P* **231** *L* **25** # **349**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
Missing space inTable

SuggestedRemedy
in Table

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.8.1.1** *P* **231** *L* **28** # **351**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**
Is this table 58-13 complete?

SuggestedRemedy
Add extra lines for FCS 2,3,4 and ESD if needed.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.8.11.4** *P* **245** *L* **7** # **356**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
Need to tie terminology here and in receiver table together.

SuggestedRemedy
Add sentence:
f2 is specified as "Jitter corner frequency" in the receiver tables.
Move the second sentence of note a of table 58-15 to follow it.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **58** *SC* **58.8.2** *P* **231** *L* **34** # **352**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**
Now we have some good boilerplate we should use it throughout the test procedures. We can let TIA decide what the instrument is called.

SuggestedRemedy
'The wavelength and spectral width (RMS) shall meet specifications according to ANSI/EIA/TIA-455-127 ...'
Similarly in clauses 59 and 60.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.8.6** *P* **233** *L* **4** # **353**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
If we are to replace . multiplier signs by x here is one more.

SuggestedRemedy
Also might want to be consistent in eq 58-9.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **58.8.8** *P* **235** *L* **14** # **354**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
operation. . The

SuggestedRemedy
operation. The Also . at end of paragraph.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **58** *SC* **58.8.8** *P* **235** *L* **15** # **138**
Jönsson, Ulf Ericsson Corp

Comment Type **E** *Comment Status* **D**
Two '..'

SuggestedRemedy
Remove one period

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **58** *SC* **58.8.8** *P* **236** *L* **17** # **139**
Jönsson, Ulf Ericsson Corp

Comment Type **E** *Comment Status* **D**
Incorrect symbol in 5x10^-5

SuggestedRemedy
Change to correct symbol

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **58** *SC* **58.8.9.3** *P* **238** *L* **49** # **355**
Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **D**
Here we need to explain that for 100BASE-xX10, S may have to be measured with a more benign pattern.

SuggestedRemedy
Add sentences:
For 100BASE-LX10 and 100BASE-BX10, TDP includes a pattern dependent penalty. As it may be inconvenient or impossible to obtain reference transmitters and receivers which are immune to this penalty, for these cases S may be measured with a benign pattern e.g. PRBS7.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **Table 58-11** *P* **229** *L* **10** # **457**
Tom Mathey Independent

Comment Type **E** *Comment Status* **D**
Text has idle pattern as 4 bits. The idle pattern in the NRZI world is 5 bits.
Duplicate of D2.0 comment #266.

SuggestedRemedy
Change idle pattern from 4 bits to 5 bits, "10101"

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **58** *SC* **Table 58-13** *P* **231** *L* **18** # **137**
Jönsson, Ulf Ericsson Corp

Comment Type **E** *Comment Status* **D**
Missed space

SuggestedRemedy
Add space between 'in' and 'Table' on line 18 and 25

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* *P* **257** *L* # **99066**
Meir Bartur Optical Zonu

Comment Type **TR** *Comment Status* **R** *D2.0 #852*
Does not include single wavelength option

SuggestedRemedy
Include single wavelength option

Proposed Response *Response Status* **U**
REJECT.

Adoption of a two-wavelength solution has been discussed in detail and approved on the basis that it is a cost-effective and robust solution that meets our Objectives. Accordingly, the baseline proposals were selected in May 2002 with overwhelming majority.

Cl **59** *SC* **58.1.5.1** *P* **258** *L* **33** # **363**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

GBaud

SuggestedRemedy

GBd

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.1** *P* **256** *L* **9** # **362**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

There are now two possible 1000BASE-X PCS/PMAs.

SuggestedRemedy

Change 'Clause 36 *ref*' to 'Clause 36*ref* or 66.2*ref*'.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.1.3** *P* **257** *L* **46-51** # **65**

Shimon Muller — Sun Microsystems, Inc

Comment Type **E** *Comment Status* **D**

Reference terminology.

SuggestedRemedy

Replace "Clause 1.1" with "subclause 1.1".
Replace "Clause 1.2" with "subclause 1.2".
Replace "Clause 1.3" with "subclause 1.3".
Replace "Clause 1.4" with "subclause 1.4".
Replace "Clause 1.5" with "subclause 1.5".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.11.2** *P* **277** *L* **26** # **47**

Swanson, Steven — Corning Incorporated

Comment Type **E** *Comment Status* **D**

Footnote d to Table 59-18 states the wrong length for 400 MHz.km fiber.

SuggestedRemedy

Replace "...also covered 550m of 400 MHz.km fiber,..." with "...covered 500m of 400 MHz.km fiber,..."

Proposed Response *Response Status* **W**

PROPOSED REJECT. Length is correct at 1300nm.

Cl **59** *SC* **59.11.3** *P* **277** *L* **26** # **495**

Booth, Brad — Intel

Comment Type **E** *Comment Status* **D**

Correct spelling of "fibre".

SuggestedRemedy

Needs to be Americanized to "fiber".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **59** *SC* **59.11.4** *P* **277** *L* **40** # **374**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

Consistency across clauses.

SuggestedRemedy

Change '61753-1-1' to '61753-1' here and in PICS FO5. Copy the sentence from 58.10.4: 'The MDI carries the signal in both directions. For 100BASE-BX10 it couples a single fiber and for 100BASE-LX10 it couples dual fibers.' Apply to clause 60 also as appropriate.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.11.5** *P* **278** *L* **14** # **331**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

It is important that a patchcord allowing SMF grade tolerances (which this is close to) allows the two ferrules in a connector to move relative to each other, at least at the equipment connector. There are industry standard tolerances for this.

SuggestedRemedy

Add sentence explaining and (if not already covered by reference) requiring this controlled float, with reference if needed.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The reference defines a connector interface standard that includes the dimensional requirements of the ferrules, plugs, receptacles, and active device receptacles. It includes both the simplex and duplex cases. Positional tolerances, maximum force limits, or requirements for float are given to ensure that the ferrule can be mated to another connector or an active device receptacle without damage to either.

Cl **59** *SC* **59.11.5** *P* **278** *L* **34** # **30**

David, James JGG

Comment Type **E** *Comment Status* **D**

Excess capitalization.

SuggestedRemedy

Blue Color Identifier ==> Blue color identifier

(Capitalize only the first word of heading/title or proper nouns.)

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.12.3.5** *P* **282** *L* **14** # **375**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

per what?

SuggestedRemedy

?

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.2** *P* **259** *L* **6** # **140**

Jönsson, Ulf Ericsson Corp

Comment Type **T** *Comment Status* **D**

This clause shows Clause 45 registers which are not applicable to 1000Mbps optics.

SuggestedRemedy

Need joint meeting between optics and logics people to discuss Clause 22/45 registers for 100/1000Mbps optics

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.3.3** *P* **260** *L* **20** # **28**

David, James JGG

Comment Type **E** *Comment Status* **D**

Figure font should be 8-point.

SuggestedRemedy

Make this 8 point.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.3.3** *P* **262** *L* **38** # **29**

David, James JGG

Comment Type **E** *Comment Status* **D**

Table should have very thin line on the page break.

SuggestedRemedy

Fix templates and overrides.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Change to be implemented by chief editor at a later stage in the editing process.

Cl **59** *SC* **59.4.1** *P* **263** *L* **15** # **364**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

If common silicon behind TP4 is to be used for 1000BASE-LX10 and 1000BASE-BX10, the decision timing offsets need to be the same. At present they are +/- 65 ps and +/- 0.1 UI = 80 ps.

SuggestedRemedy

Choose a compromise value.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.4.1** *P* **263** *L* **19** # **329**

Dawe, Piers — Agilent

Comment Type **TR** *Comment Status* **D**

Need to agree how we cover legacy MMF fiber types. Table 59-5 calls out two TDP limits for different MMF types, yet the associated differential delay value is the same for both types. It may be that the 50 um TDP limit is worked out assuming 400 MHz.km while the differential delay assumes 500 MHz.km.

SuggestedRemedy

Reconcile TDP and differential delay values. May need to add additional explanation e.g. in 59.11; what distance of 400 MHz.km legacy fiber is supported?

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.4.1** *P* **263** *L* **24** # **366**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

Editorials

SuggestedRemedy

(Nonbreaking) space in '3dB' and '550 m' (twice), nonbreaking space in '500 MHz.km'. Also in footnote d of table 59-18.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **59** *SC* **59.4.1** *P* **263** *L* **24** # **365**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

Consistency across clauses.

SuggestedRemedy

Extend footnote b '...range, see range, see 59.9.2.' Also under table 59-8. Delete '.n' under table 59-7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE; use text in Note 1 on page 269.

Cl **59** *SC* **59.4.1** *P* **263** *L* **25** # **45**

Swanson, Steven — Corning Incorporated

Comment Type **E** *Comment Status* **D**

Footnote c to Table 59-5 states the wrong length for 400 MHz.km fiber.

SuggestedRemedy

Replace "...also covered 550m of 400 MHz.km fiber,..." with "...covered 500m of 400 MHz.km fiber,..."

Proposed Response *Response Status* **W**

PROPOSED REJECT. Length is correct at 1300nm.

Cl **59** *SC* **59.4.1** *P* **264** *L* **15** # **367**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

Hunting Down those Capitals.

SuggestedRemedy

Lower case Sensitivity (twice), Reflectance, Receive. Also in table 59-9, and a bunch in table 59-13.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.5.2** *P* **266** *L* **11** # **368**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

We seem to have ended up with the same transmit powers for 1000BASE-LX10 and 1000BASE-BX10, same cable plant yet different sensitivities. Not sure if this makes sense.

SuggestedRemedy

Consider increasing 100BASE-BX10 sensitivity, stressed sensitivity and equivalent OMAs by 0.5 dB. If so, reduce budget and allocation for penalties in table 59-10 by 0.5 dB.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.7** *P* **267** *L* **25** # **333**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

This sub-clause does not specify use of a receiver filter when measuring optical jitter of an optical signal (at TP2 and TP3). If the reader is aware of the jitter measurement section elsewhere, and persistently drills into the cross-references there, he may get there in the end, but otherwise could be misinformed.

SuggestedRemedy

In 59.7 and 59.8, mention use of same receiver filter as for eye and TDP, when measuring optical jitter of an optical signal (at TP2 and TP3). Also refer to jitter measurement sections 59.9.12 and 58.8.12. In 59.9.12, mention the filter.
Check 58 and 60 for similar issue, fix if necessary.

Proposed Response *Response Status* **W**

PROPOSED REJECT. It is believed that the note on line 52 adequately addresses the concern.

Cl **59** *SC* **59.7** *P* **267** *L* **9** # **369**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

The jitter sections need to be tied together and have their terminology aligned.

SuggestedRemedy

Consider if DJ should be replaced by W here and in 59.8.
Add sentence saying that 'W is similar but not necessarily identical to deterministic jitter (DJ)'.
Refer to 59.9.12 and 59.9.13, note that there are other jitter measurement methods.
Add sentence 'Jitter at TP2 or TP3 is defined with a receiver of the same bandwidth as specified for the transmitted eye.'
maybe 59.9.13 is a good place to elaborate on DJ and W.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.8** *P* **267** *L* **33** # **46**

Swanson, Steven — Corning Incorporated

Comment Type **E** *Comment Status* **D**

Table 59-12 title has a font error

SuggestedRemedy

Correct font size in Table 59-12 title.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.8** *P* **267** *L* **34** # **377**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

Uneven font size in table title

SuggestedRemedy

Reapply style.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.8** *P* **267** *L* **41** # **376**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

I have not calculated the jitter delta numbers in table 59-12 in the same way as table 59-11.

SuggestedRemedy

I think the TJ entries, to 3 significant figures, should be

TP1 to TP2	0.334 UI	267 ps
TP2 to TP3	0.119 UI	95 ps

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9** *P* **268** *L* **6** # **370**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Broken-up quantity.

SuggestedRemedy

Nonbreaking space in '5 m'.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9** *P* **269** *L* **1** # **424**

Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

In previous clauses, such as 36 and 48, the test patterns were defined as being separated by a minimum IPG. Should we say something about the amount of idle between these frames?

SuggestedRemedy

Add a row to Table 59-14 that has a minimum IPG to be transmitted after the Frame Check Sequence. Also, possibly add a sentence near line 42 on page 268 that says that when performing a test, the frames should be sent with a minimum IPG (or possibly we say as close to minimum as you can).

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9** *P* **269** *L* **19** # **423**

Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

It will make it much easier to create the jitter test frames if you do not have to worry about the running disparity at the end of the first portion of MAC Client Data. For the random pattern test frame, it currently begins with a positive running disparity and ends with a positive running disparity (the original pattern defined in clause 36 started with a negative RD). If a code that flips disparity was then placed at the end and the second portion of MAC Client data repeated, it would begin negative and end negative. The opposite would be the case should the test pattern begin with a negative running disparity. Also, is there a reason the frame is so small?

SuggestedRemedy

Remove the requirement for running disparity to be positive following the first portion of the MAC client data by either defining frames that will transmit both disparities of the test patterns, or defining test patterns for which the disparity doesn't have an impact. For the first solution, you would add a character that flips disparity at the end of the pattern, such as 0x06. Possibly extend the frame so that more repetitions of the pattern can be transmitted.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.1** *P* **268** *L* **44** # **371**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Table 59-15 doesn't show broad spectral content and minimal peaking: it shows a payload. Sentence missing its .

SuggestedRemedy

Maybe:
The first, which emulates a random pattern with broad spectral content and minimal peaking, is shown in Table 59-15.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.1** *P* **268** *L* **47** # **372**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

This pattern doesn't have areas of high and low density; the 8B/10B code sees to that.

SuggestedRemedy

'... and low transition density'.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.1** *P* **270** *L* **1** # **420**

Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

Table 59-16 does not have 228 octets of data, as is shown in Table 59-14 and 59-15.

SuggestedRemedy

Add extra octets or change text so that the jitter test frame doesn't need all of them.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.1** *P* **270** *L* **1** # **421**

Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

The random pattern test frame has very similar content to the frames defined in Clauses 36 and 48. The jitter test frame in Table 59-16 differs significantly from a previously defined jitter test frame for clause 48. Was this intentional? I recommend modifying test frame to be more similar to 48A.5. Also, is there a reason the size of the frame is 278 bytes? This could be increased. Also, by repeating the test pattern within the frame, such as is done in 48A.5, it allows you to ignore what the beginning running disparity of the pattern is, since both patterns will be present in the frame. This could make it somewhat easier when constructing these frames, so you don't have to worry about the disparity coming out of the first portion of the MAC Client data. The data listed here is effectively what CJPAT would be on a single lane.

SuggestedRemedy

Payload for jitter test frame:
7E for 132 octets
F4, EB, F4, EB, F4, FE, F4, AB
B5 for 40 octets
EB, F4, EB, F4, EB, F4, EB, F4
7E for 132 octets
F4, EB, F4, EB, F4, FE, F4, AB
B5 for 40 octets
EB, F4, EB, F4, EB, F4, EB, F4

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.10** *P* **272** *L* **24** # **330**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Bad cross reference.

SuggestedRemedy

58.8.9

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **59** *SC* **59.9.2** *P* **268** *L* **52** # **373**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

Now we have some good boilerplate we should use it throughout the test procedures. We can let TIA decide what the instrument is called.

SuggestedRemedy

'The wavelength and spectral width (RMS) shall meet specifications according to ANSI/EIA/TIA-455-127 ...'
(Similarly in clauses 58 and 60).

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.2** *P* **270** *L* **5** # **422**

Lynskey, Eric — UNH-IOL

Comment Type **T** *Comment Status* **D**

In Table 59-16, the first row of the low transition density starts with 7E = 011110 0011, which is the 10-bit pattern with a starting negative running disparity. The note at the bottom of Table 59-14 says that the running disparity exiting the first portion of the MAC client data shall be positive.

SuggestedRemedy

Fix the 8B10B encoded binary column, starting with the positive 7E code of 10001 1100. This change will then propagate through other rows. The next three 7E rows need to be flipped. The 74 row will stay the same, although it may wrong in the current table. Everything else stays the same until you hit the 7E following the A4. All of the 7E rows, beginning with this one need to be flipped.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **59** *SC* **59.9.4** *P* **270** *L* **53** # **411**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

Within idles? This pattern IS idles surely?

SuggestedRemedy

delete 'or within idles'?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **60** *SC* *P* **288** *L* **Table 60-1** # **99067**

Meir Bartur — Optical Zonu

Comment Type **TR** *Comment Status* **D** *D2.0 #853*

Min Ch. Loss 5dB is too low (1x4 splitter is 7dB - and that is the min in IYU which is also too high IMHO)

SuggestedRemedy

Change to 10 dB

Proposed Response *Response Status* **W**

PROPOSED REJECT. This has been stable since at least D1.1. Committee should see technical arguments before making any change. Is the issue about APD? (pin?) overload vs. tolerancing the loss of the optical plant? Would need to change either Tx max or Rx max in step.

What would the MINIMUM loss of a 1x4 splitter be? Could it be as low as 5 dB if splitting were not even?

Should we follow ITU-T's 7 dB? Why? Attenuation range of ITU-T G.982 is 15 dB.

To make a change we would need a technical presentation discussing costs of overload against costs of measuring and tolerancing path losses and stocking finer quanta of attenuators in network construction. It may be that Ethernet puts more emphasis on simple installation ("plug and play").

Cl **60** *SC* *P* **302** *L* **49** # **99068**

James, David — JGG

Comment Type **TR** *Comment Status* **D** *D2.0 #493*

Spaces in variable names cause confusion.

SuggestedRemedy

Change all variable names to be runTogetherWords.

Proposed Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
This reviewer is not confused by the spaces, and prefers the readability. These variables are not state variables used in a state machine.

Insert subscript 10 after log. Put UI in brackets (twice).

Cl **60** *SC* **60.1.2** *P* **287** *L* **10** # **533**

Brand, Richard — Nortel Networks

Comment Type **TR** *Comment Status* **D**

Ref comment 1002 which was accepted in Principle but has had no text change in the new draft. This layer model needs to change (see my comment 835 in regards to d 2.0.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Include FEC in layer diagram

Cl **60** *SC* **60.1.2** *P* **289** *L* **8** # **99070**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #1003*

P2MP has violated layering and good standards description practice by specifying the MAC function in 2 separate layers with a significant portion of the function being specified in the PHY.
The 2 layers need to communicate with each other where there is no path for doing so.
The difference between this somewhat bizarre method of specification that is contorted to try to fit into the existing Ethernet spec will be an ongoing problem because it does not match normal system partitioning. There will be a natural desire during implementation to put MAC functions in a MAC and PHY functions in the PHY. The fact that the actual design spec must be interpreted fro its current rather strange form is an invitation to interoperability/compatibility problems.

SuggestedRemedy

Create a separate standard within 802.3 for EPON that frees EPON from the backward compatibility constaints of legacy Ethernet and allows for the standard to be structured and written appropriately. Rewrite so that the media access control actually takes place in an entirely new (non-CSMA/CD) TDMA MAC.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Referred to P2MP group. See response to comment number 1119.

The commenter does not here propose a change to the Clause 60-specific material, but to other clauses and to a diagram which is kept consistent with Figure 65-1.

Cl **60** *SC* **60.1.2** *P* **289** *L* **8** # **99069**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #1002*

P2MP violates 802.3 layering as the laser control takes place in the new "MULTI-POINT MAC CONTROL" sublayer above the MAC in the ONU, the actual switching function takes place in the PHY. There is no provision in the existing 802.3 MAC or the GMII to pass this signal between those sublayers.

SuggestedRemedy

Create a separate standard within 802.3 for EPON that frees EPON from the backward compatibility constaints of legacy Ethernet and allows for the standard to be structured and written appropriately. Rewrite so that the media access control actually takes place in an entirely new (non-CSMA/CD) TDMA MAC.
A new non CSMA/CD GMI-like interface could then be freely specified with no impact on the existing 802.3 Standard.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Referred to P2MP group. See response to comment number 1119.

Cl **60** *SC* **60.1.3** *P* **287** *L* **48-53** # **66**

Shimon Muller — Sun Microsystems, Inc

Comment Type **E** *Comment Status* **D**

Reference terminology.

SuggestedRemedy

Replace "Clause 1.1" with "subclause 1.1".
Replace "Clause 1.2" with "subclause 1.2".
Replace "Clause 1.3" with "subclause 1.3".
Replace "Clause 1.4" with "subclause 1.4".
Replace "Clause 1.5" with "subclause 1.5".

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.11.4.2** *P* **313** *L* **37** # **359**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Last time (comment 124) we meant to add PICS items for stressed sensitivity to clauses 58 and 60 as well as 59.

SuggestedRemedy

Add them. I think they are conditionally mandatory depending on stressed sensitivity measurement PICS (which needs to be added) which is optional.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.3.1** *P* **290** *L* **18** # **31**

David, James JGG

Comment Type **E** *Comment Status* **D**

Wrong figure font.

SuggestedRemedy

Should be 8-point Ariel.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.3.1** *P* **290** *L* **18** # **32**

David, James JGG

Comment Type **E** *Comment Status* **D**

Excessive capitalization

SuggestedRemedy

Optical Splitter ==> Optical splitter

(Only capitalize first word of heading/title and proper nouns)

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.4.1** *P* **292** *L* **40** # **33**

David, James JGG

Comment Type **E** *Comment Status* **D**

Bad table split; should be very thin on bottom of page.

SuggestedRemedy

Fix templates and overrides.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

These issues will be addressed at a later stage when the complete document is assembled

Cl **60** *SC* **60.4.1** *P* **292** *L* **40** # **426**

Bemmel, Vincent Alloptic

Comment Type **T** *Comment Status* **D**

Table 60-5
Extinction ration (min) 6 dB is too low

SuggestedRemedy

Change to 8.5 dB

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.4.1** *P* **293** *L* **11** # **534**

Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **D**

I agree with Meir (comment # 858) that these values are too high. Ref the GPON doc G.984.3 that has just been consented in the ITU with support from the optical vendors like Zonu.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is identical to #858 of D2.0 whihc was rejected.

This item was been debated at length and has been fairly stable since D1.3 (600 ns), and was chosen to allow cost effective designs. Committee should see technical arguments before making any change.

Cl **60** *SC* **60.7** *P* **300** *L* **20** # **379**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

The jitter sections need to be tied together and have their terminology aligned.

SuggestedRemedy

Consider if DJ should be replaced by W here.
Add sentence saying that 'W is similar but not necessarily identical to deterministic jitter (DJ)'.
Refer to 60.8.12 and maybe 59.9.12, note that there are other jitter measurement methods.
Add sentence 'Jitter at TP2 or TP3 is defined with a receiver of the same bandwidth as specified for the transmitted eye.'
Consider if 60.8.12 should refer to 59.9.12 and/or 59.9.13.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.7** *P* **300** *L* **48** # **545**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Per resolution to D2.0 comment 493.

SuggestedRemedy

In 60.7 eqn (60-2), Insert subscript 10 after 'log'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **60** *SC* **60.8.13.1.1** *P* **305** *L* **1** # **496**

Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Figure is in middle of paragraph and needs to use smaller fonts and thinner lines.

SuggestedRemedy

Change frame anchor properties, and edit figure to have thinner lines and smaller fonts.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.8.2** *P* **302** *L* **23** # **378**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Seems odd to say that two different epsilon values both give "below 2 dB" chromatic dispersion penalty.

SuggestedRemedy

I guess it's safe to reduce the second one to 'less than 1.5 dB' to show we have thought about it.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.8.4** *P* **302** *L* **36** # **544**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Broken-up quantity

SuggestedRemedy

Use nonbreaking space in '20 dB'.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **60.8.4** *P* **302** *L* **38** # **543**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Per D2.0 comment 1113, 'Suggest that 'I2' should read '/I2/ ordered_set (see 36.2.4.12)'. See comment. ACCEPT IN PRINCIPLE. Also, change 'This is defined' to 'The /I2/ ordered_set is defined'. Replace 'or 110000 0101 011011 0101' to 'within idles'.

SuggestedRemedy

Agree common text for 59.9.4 and 60.8.4.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **60** *SC* **Table 60-5** *P* **294** *L* **38** # **99071**
Meir Bartur Optical Zonu

Comment Type **TR** *Comment Status* **R** *D2.0 #855*

Average launch power (min) -1dBm for the ONU is too high. FSAN is -2dBm

SuggestedRemedy

Change to -2dBm

Proposed Response *Response Status* **U**

REJECT.

This has been -1 since D1.414, and a lower transmit power would mean a more demanding sensitivity. Committee should see technical arguments, bearing receiver sensitivity in mind, before making any change.

Cl **60** *SC* **Table 60-5** *P* **294** *L* **39** # **99072**
Meir Bartur Optical Zonu

Comment Type **TR** *Comment Status* **R** *D2.0 #856*

Average launch power of OFF transmitter (max) for the OLT -39 dBm is astrange requirement - not neccesary

SuggestedRemedy

Remove

Proposed Response *Response Status* **U**

REJECT.
This item is included for consistency with other continuously operating optical transmitters within 802.3. It stops the receiver seeing an unintended signal from an "off" OLT and does not seem hard to meet for a continuous-type transmitter.

Cl **60** *SC* **Table 60-5** *P* **294** *L* **41** # **99073**
Meir Bartur Optical Zonu

Comment Type **TR** *Comment Status* **R** *D2.0 #857*

Extinction ratio (min) 6dB (4/1) is too low

SuggestedRemedy

Change to 10 like ITU

Proposed Response *Response Status* **U**

REJECT.

This has been stable since D1.1, and was chosen to be cost effective for direct modulation. Committee should see technical arguments before making any change.

If SONET used 8.2 a long time ago, 10 would be out of line.

Cl **60** *SC* **Table 60-5** *P* **295** *L* **12,13** # **99074**
Meir Bartur Optical Zonu

Comment Type **TR** *Comment Status* **R** *D2.0 #858*

Ton Toff 512nSec each IS TOO MUCH

SuggestedRemedy

Change to 50nSec

Proposed Response *Response Status* **U**

REJECT.

This item was been debated at length and has been fairly stable since D1.3 (600 ns), and was chosen to allow cost effective designs. Committee should see technical arguments before making any change.

Cl **61** *SC* *P* **341** *L* **19** # **99043**
James, David JGG

Comment Type **TR** *Comment Status* **A** *D2.0 #504*

Greek letters should not be included in titles, subclause, figure, or tables. The text in the TOC, LOF, or LOT will be incorrect and fixes will be error prone.

SuggestedRemedy

Change symbols, perhaps to:
gamma, alpha, beta.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
The "alpha(beta)"-interface and "gamma"-interface are well-known fundamental concepts in the xDSL world. We've deliberately chosen to keep these concepts and their original notation in our draft to make the relation with existing xDSL standards clear to the reader. The IEEE Editorial Staff will be asked to advise as to the proper course of action.

The commenter is unsatisified with this resonse, but responded that the following remedy would be acceptable to him:

"The WG editors will work with the IEEE Editorial Staff and the commenter to determine how these characters can be formatted so that they will be automatically incorporated into the TOC without manual intervention."

Cl **61** *SC* **3.8.7.1** *P* **361** *L* **18** # **327**

Langston, Daun Metanoia

Comment Type **TR** *Comment Status* **D**

As of Draft 2.1, 10PASS-TS no longer supports 8.625 kHz tone spacing. The benefits of using broader tone spacing are well known and have been presented to the Task Force in the discussion of comments #827/D1.1, #580/D1.2, #605/D1.414, #622/D2.0, #1244/D2.0 and #824/D2.0. However, the disadvantage of having both tone spacings mandatory in the draft was deemed to outweigh the benefits of having 8.625 kHz tone spacing. In order to allow different vendors to provide 8.625 kHz tone spacing as a proprietary but interoperable extension, it is proposed to reserve a codepoint in the 10PASS-TS handshake tree to exchange and activate this capability.

SuggestedRemedy

Define bit 5 of 10PASS-TS NPar(2) Octet 1 as "8.625 kHz capability bit". Attach a footnote "The specification and use of 8.625 kHz tone spacing is outside the scope of this standard."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
To be discussed with comment #473 (TR).
Reserving handshake codepoints for features outside the scope of the standard has already been done to allow the use of G.shdsl regenerators and G.shdsl diagnostic mode.

Cl **61** *SC* **3.8.7.2** *P* **362** *L* **11** # **328**

Langston, Daun Metanoia

Comment Type **TR** *Comment Status* **D**

Throughout the duration of the EFM project, several presentations have proposed to add trellis coding to the 10PASS-TS specification. A comment to this effect was rejected at the Ancona meeting (#884/D2.0). In order to allow different vendors to provide trellis coding as a proprietary but interoperable extension, it is proposed to reserve a codepoint in the 10PASS-TS handshake tree to exchange and activate this capability.

SuggestedRemedy

Define bit 3 of 10PASS-TS SPar(2) Octet 2 as "Trellis coding capability bit". Attach a footnote "If set, a subsequent 1-octet NPar(3) field is used to transmit the maximum size of a contiguous block of tones, starting from the highest frequency, that can be trellis-coded (bits 1-6 x 64 tones). The specification and use of trellis coding for 10PASS-TS PHYs is outside the scope of this standard."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The comment is made against material that was previously approved and is unchanged in this draft.
See also comment #418.

Cl **61** *SC* **61** *P* **317** *L* **1** # **458**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

At various places in this clause, the text "frame" vs "packet" need to be corrected.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The Editor has attempted to locate all inaccurate instances of "frame" and "packet" in resolution of comments #1190/D2.0 and #268/D2.0. A more specific suggested remedy is required to correct further errors.

Cl **61** *SC* **61** *P* **317** *L* **1** # **459**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Resolution of D2.0 comment #1237 (page 237 in final comments) was that bits for PCS link status were to be added to both transmit and receive paths for local device and link partner. This commenter can not find such assignments. They seem to be completely missing.

SuggestedRemedy

Add ability to transport local device PCS link status to link partner on transmit path.
Add ability to transport link partner PCS link status to local device on receive path.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The missing signals can be found in Table 61-8 "Additonal alpha(beta)-interface signals". They are "local_TC_freewheeling", "local_TC_out_of_sync", "remote_TC_freewheeling" and "remote_TC_out_of_sync".

Cl **61** *SC* **61.1** *P* **318** *L* **34** # **190**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Wrong cross ref

SuggestedRemedy

Unidirectional operation is described in clause 57.2.12

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.1** *P* **318** *L* **34** # **133**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

The word "Clause" before "57.2.9" is inappropriate.

SuggestedRemedy

Delete the word "Clause".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.1** *P* **318** *L* **35** # **191**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Indicator bits will be used for 10PASS-TS only (2BASE-TL uses dedicated EOC messages).

SuggestedRemedy

Replace 'indicator bits' by 'indicator bits/EOC message'

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The use of indicator bits is specified in ITU-T Recommendation G.991.2, section 7.1.2.5, incorporated by reference in the 2BASE-TL PMA specification.

Cl **61** *SC* **61.1** *P* **318** *L* **4142** # **535**

Brand, Richard — Nortel Networks

Comment Type **E** *Comment Status* **D**

sublayer needs a hyphen

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The spelling of the word "sublayer" in this draft (without hyphen) is consistent with the spelling used in IEEE Std 802.3-2002.

Cl **61** *SC* **61.1** *P* **320** *L* **34** # **99044**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #1008*

This paragraph is implementation fluff not necessary to the specification.

SuggestedRemedy

Delete lines 33-36

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
As 61.1 is an overview section (see subclause heading), it may contain some information that is not strictly necessary to the specification.
The sentence "In this case [...] establish a link." is indeed implementation fluff and shall be removed.
The sentence "The CO and CPE [...] physical device." becomes the last sentence of the fifth paragraph.

Cl **61** *SC* **61.1.1** *P* **320** *L* **45** # **99045**

Thompson, Geoff — Nortel

Comment Type **TR** *Comment Status* **A** *D2.0 #1009*

I don't think the reference to 100BASE-T4 adds value without more explanation than is offered here. If suport for code bonding of multiple pairs is in here it should be mentioned also.

SuggestedRemedy

Delete reference to 100BASE-T4.
Redo so that it actually just a "scope"
E.g. specifys a PHY from MII to MDI that is based on blah, blah. It includes DSP coding stolen from blah blah and common initialization mechanisms used by both PHYs

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Replace subclause by following text:
"This clause defines the Physical Coding Sublayer (PCS) for 2BASE-TL and 10PASS-TS, which has similarities to other 802.3 PCS types but also differs since new sublayers are added within
the PCS sublayer to accommodate the operation of Ethernet over access network copper channels. This clause also defines the common startup and handshaking mechanism used by both PHYs."

Cl **61** *SC* **61.1.3** *P* **319** *L* **19** # **318**

Beili, Edward — Actelis Networks

Comment Type **T** *Comment Status* **D**

In Figure 61-1, Clause 61 PCS at the left 2BaseTL PHY References VDSL spec G.993.1. In addition PMI aggregation is shown in 10PassTS Phy while it is more characteristic of 2BaseTL.

SuggestedRemedy

Move MAC-PHY Rate Matching/PMI Aggregation/TPS-TC rectangle to the 2BaseTL PHY. Move G.993.1 reference to 10PassTS PMA/PMD.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The Clause 61 PCS is common to 2BASE-TL and 10PASS-TS. It references ITU-T Recommendation G.993.1 for the specification of the alpha(beta)-interface and the gamma-interface, which are xDSL-flavor independent. There is no reason to consider any of the functions within the PCS, other than the CRC, to be more characteristic of a specific PMA/PMD type.
See also comment #192.

Cl **61** *SC* **61.1.3** *P* **319** *L* **23** # **316**

Beili, Edward — Actelis Networks

Comment Type **T** *Comment Status* **D**

In Figures 61-1, 61-2 PMI Aggregation function is depicted yet no PMI layer/object is shown. In Figures 61-3 61-4-2 and 61-5-4 it looks like PMI is an entity below PMA/PMD. Also PMI is defined as Physical Medium Independent in Abbreviations and Figure 61-1 and as PMA/PMD Instance in 61.1.5.3 (page 322 line 40). The Instance is probably a better term than Independent, also I couldn't find any use of PMI in the original 802.3-2002.

SuggestedRemedy

Define PMI as PMA/PMD Instance in Abbreviations and Figure 61-1. Draw PMI container around PMA/PMD in Figures 61-1 and 61-2. Replace PMI-x with Pair-x (or Copper Pair-x or Voice Grade Copper Pair or whatever) in Figures 61-3, 61-4-2 and 61-5-4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The PMI is normatively defined as "Physical Medium Independent" in subclause 1.5 of IEEE Std 802.3-2002.
The words in parentheses on page 322 / line 40 do not overrule this definition; they merely indicate that the PMI Aggregation Function aggregates everything between the PMI and the gamma-interface, inspite of what the name might suggest.
The Editor agrees that a different name might be more descriptive, but is reluctant to change the name at this late stage.

Cl **61** *SC* **61.1.3** *P* **319** *L* **9** # **497**

Booth, Brad — Intel

Comment Type **E** *Comment Status* **D**

Figure is very hard to read and contains too much information.

SuggestedRemedy

Insert other figures to explain the nuances of Clauses 61, 62 and 63 relative to other standards. This figure should show the relationship of this clause to the ISO/IEC OSI reference model and the LAN CSMA/CD layers.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The relationship of Clause 61 to the ISO/IEC OSI reference model and the LAN CSMA/CD layers is adequately shown by Figure 56-1. It is the purpose of Figure 61-1 to show the relation of Clause 61 to other standards. It uses the same formating as Figure 1-1 in IEEE Std 802.3-2002, as agreed in resolution of comment #1477/D1.414.

Cl **61** *SC* **61.1.4.1** *P* **319, 320** *L* **44, 10-11** # **67**

Shimon Muller — Sun Microsystems, Inc

Comment Type **E** *Comment Status* **D**

In this clause both terms "Rate Adaptation" and "Rate Matching" are being used to describe the same function.

SuggestedRemedy

Search the entire clause and reconcile the text to use the same term across the board. My preference would be "Rate Adaptation".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Figure 61-1, subclause heading 61.1.4.1.1 and 61.2.1 all use the term "MAC-PHY Rate Matching".
Replace following instances of "MAC-PHY Rate Adaptation" or "Rate Adaptation" by "MAC-PHY Rate Matching":
-61.4.1.4, page 319, line 43-44
-Figure 61-2 (3 times)
In 61.6, replace "PHY-MAC Rate Matching" by "MAC-PHY Rate Matching".

Cl **61** *SC* **61.1.4.1.** *P* **320** *L* **17** # **194**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

In figure 61-2 64B/65B encapsulation was renamed

SuggestedRemedy

64/65-octet encapsulation

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See also comment #95.

Cl **61** *SC* **61.1.4.1.1** *P* **320, 321** *L* **48-51, 1-3** # **68**

Shimon Muller Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**

The main problem that I have with this subclause is that it does not adequately address the issue of how MAC-PHY rate matching is supported in implementations that have MACs that are not capable of half duplex operation. Since half duplex operation is no longer mandatory for the Ethernet MAC, it is important to provide the necessary guidance to implementors that chose to implement their MAC without this capability. There are some other minor problems with the text in this subclause, primarily related to its structure and style (see SuggestedRemedy).

SuggestedRemedy

Change the text in subclause 61.1.4.1.1 to read as follows:
"The 10PASS-TS and 2BASE-TL PCS is specified to work with a 100Mb/s MAC operating in both the half duplex and full duplex modes, using the MII as defined in Clause 22. Depending on the MAC's capabilities the Rate Matching function is defined as follows:

a) A MAC that supports half duplex operation is configured for the half duplex mode, and the PCS matches the MAC's data rate to that of the medium using the deference process as defined in Clause 4.

Prior to transmission, the MAC checks CRS and does not transmit another frame as long as CRS is asserted. In order to prevent its buffer from overflowing, the PCS keeps CRS asserted until it has enough space to accept the next frame from the MAC. Once CRS is deasserted, the MAC sends the next frame to the PCS at the rate of 100Mb/s. The MAC-PHY Rate Matching function strips the Preamble and SFD fields from the MAC frame, and forwards the resulting data frame to the PMI Aggregation function or to the TPS-TC sublayer. The PCS always forces the COL signal to logic zero.

On receive, the PCS prepends the Preamble and SFD fields to the data frame received from the medium, and sends it to the MAC at the rate of 100Mb/s.

It is important to note that Clause 4 does not prohibit the MAC from simultaneously receiving and transmitting frames when it is configured for half duplex operation. However, it is recognized that some older MAC implementations may not be capable of doing that. In order to allow for interoperability with these MACs, the PCS has an operating mode where the MAC's transmission is deferred using CRS when received data is sent from the PHY to the MAC. This gives receive frames priority over transmit frames, to ensure that the receive buffer does not overflow. This mode of operation is defined in Figure 61-8.

The MAC-PHY Rate Matching function may cause excessive deferrals to be counted in the excessive deferral counter (see 30.3.1.1.20).

The precise definition of the MAC-PHY Rate Matching function is provided in subclause 61.2.1.

b) A MAC that does not support half duplex operation may be configured for the full duplex mode, and the rate matching function can be accomplished by using the IFS Stretch Mode as defined in Clause 4. In this mode of operation, the MAC lowers it own average data rate (with frame granularity) by extending the minimum inter-frame gap (IPG) with a number of octets that is proportional to the size of the previously transmitted frame, including the Preamble.

The IFS Stretch Mode requires that a management entity provide a parameter (ifsStretchRatio) which is programmed into the MAC. This parameter determines the number of octets in a frame that require one octet of IPG extension, and its value is determined using the following formula:

ifsStretchRatio = PHY_Speed / (MAC_Speed - PHY_Speed)

The precise definition of the MAC-PHY Rate Matching function using the IFS Stretch Mode is provided in subclauses 4.2.7.2 and 4.2.8.

Note---For the purposes of this specification it is recommended that implementors consider the inverse value of the ifsStretchRatio parameter, namely the number of IPG extension octets required for one octet in a frame, including the Preamble.

Note---If at any time the MAC is configured such that its average data rate is faster than the data rate of the PHY, the PHY's data buffer may overflow and it's behavior is undefined.

It is also important to note that the two mechanisms for the MAC-PHY Rate Matching function described above are fully compatible. In other words, implementations that use a PHY described in a) will interoperate with a MAC described in b)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The proposed remedy needs to be changed by deleting the word 'older' and changing
'b) A MAC that does not support half duplex operation may be configured for the full duplex mode, and the rate matching function can be accomplished by using the IFS Stretch Mode as defined in Clause 4. In this mode of operation,'
to
'b) A MAC that supports IFS Stretch Mode as defined in Clause 4 may be configured for the full duplex mode. In IFS stretch mode,'

As this is a significant change to the text in the draft it should be discussed in the sub-task force.

Cl **61** *SC* **61.1.4.1.4** *P* **322** *L* **1** # **134**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Editing mistake in implementation of comment #270/D2.0. The sentence "The physical xDSL PMIs in Clauses 62 and 63 each have their own management channel that operates per loop (EoC/voc/IB)." should have been replaced by the preceding sentence.

SuggestedRemedy

Remove redundant sentence "The physical xDSL PMIs in Clauses 62 and 63 each have their own management channel that operates per loop (EoC/voc/IB)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.1.4.1.4** *P* **322** *L* **3** # **86**

Squire, Matt — Hatteras Networks

Comment Type **T** *Comment Status* **D**

The sentence says the PMI OAM channel is used for "aggregation". I think G994.1 is used for aggregation, but I don't know what parts of aggregation used EOC/IB.

SuggestedRemedy

Eliminate "aggregation" from the sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.1.5.3.1** *P* **323** *L* **6** # **69**

Shimon Muller — Sun Microsystems, Inc

Comment Type **E** *Comment Status* **D**

Spelling.

SuggestedRemedy

Replace "independantly" with "independently".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.1.5.3.2** *P* **324** *L* **39** # **196**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

In Table 61-1 contents of PMI_Available_register is given in LSB left, MSB right.

SuggestedRemedy

Add notes: LSB left, MSB right (this also applies to tables 61-2 to 61-6)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The Editor sees no reason why reading the bits one way or the other would make any difference.

Cl **61** *SC* **61.1.5.3.2.** *P* **324** *L* **4** # **195**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

2 full stops

SuggestedRemedy

remove 1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.1.1** *P* **327** *L* **22-24** # **70**

Shimon Muller — Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**

This paragraph seems to mandate a store-and-forward implementation in the PHY. I do not believe this is absolutely necessary for a compliant implementation. Furthermore, this requirement cannot be enforced (i.e. it is not observable on the exposed interfaces).

SuggestedRemedy

1. Change this paragraph to read as follows:
"The PHY shall prepend the Preamble and the SFD fields to a received frame before sending it to the MAC."
2. Change the RM-3 PICS entry on page 403 to reflect the above change.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.1.1** *P* **327** *L* **25-27** # **71**

Shimon Muller — Sun Microsystems, Inc

Comment Type **T** *Comment Status* **D**

I do not believe that it is appropriate to mandate support for a mode of operation that has been provided for implementations whose time has passed. Instead, I would suggest that we "strongly recommend" support for it.

SuggestedRemedy

1. Change this paragraph to read as follows:
"It is strongly recommended that a PHY implement support for a mode of operation where it does not send data to the MAC while the MAC is sending data to the PHY. This will allow it to interoperate with older implementations of MACs that are not capable of simultaneously receiving and transmitting frames when they are configured for half duplex operation."
2. Delete the RM-4 PICS entry on page 403 to reflect the above change.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
If the spec 'strongly recommends' a certain functionality then it needs to define this functionality. It is much simpler and less confusing to make this 'strongly recommended' behaviour mandatory.

Cl **61** *SC* **61.2.1.1** *P* **327** *L* **29** # **197**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

In case of PAF not all TC_synchronized signals have to be true.

SuggestedRemedy

Modify the sentence in a way that fragments shall not be forwarded to a dedicated TPS-TC if this link-specific TC_synchronized signal is false.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change sentence to:
"If the PAF is disabled or not present, transmit frames shall not be forwarded to the TPS-TC unless TC_synchronized is true for the whole frame. If the PAF is enabled, transmit fragments shall not be forwarded from the PAF to a TPS-TC unless the TC_synchronized status of that TPS-TC instance is true for the whole fragment."

Cl **61** *SC* **61.2.1.1** *P* **327** *L* **32** # **198**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Frame has only to be completely discarded if all TC_synchronized signals are false.

SuggestedRemedy

Change note accordingly

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change NOTE to:
"This implies that in the absence of an active PAF, frames being transmitted over the MII when TC_synchronized becomes true are never forwarded to the TPS-TC. A frame being transmitted over the MII when TC_synchronized becomes false is aborted."

Cl **61** *SC* **61.2.1.2.2** *P* **327** *L* **48** # **199**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Reference to 61.2.3.4 is missing

SuggestedRemedy

add reference

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.1.3.2** *P* **328** *L* **20** # **72**

Shimon Muller — Sun Microsystems, Inc

Comment Type **T** *Comment Status* **D**

This variable should also be true when the MAC is configured in the full duplex mode.

SuggestedRemedy

Change the description of this variable to read as follows:
"True if the MAC is capable of simultaneously transmitting and receiving in the half duplex mode, or if the MAC is configured in the full duplex mode."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.1.3.2** *P* **328** *L* **21-22** # **73**

Shimon Muller — Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**

This variable and its description make no sense whatsoever. The MAC never "infers a collision when TX_EN and CRS are both true simultaneously".
Furthermore, based on its usage in the two relevant state machines, I do not believe that this variable is needed.

SuggestedRemedy

See my separate two comments related to the usage of this variable in the state machines. If both of them are accepted, then delete this variable.
Otherwise, provide a decent description for the variable: justify why it is needed, what it does, who sets it, etc.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace text "True if the MAC infers a collision when TX_EN and CRS are both true simultaneously."
with "True if a reduced-pin MAC-PHY interface is present that infers a collision when TX_EN and CRS are both true simultaneously."
The value of this variable is controlled through the '10P/2B PHY-MAC rate matching register' defined in Table 45-205.

Cl **61** *SC* **61.2.1.3.4** *P* **329** *L* **22-54** # **74**

Shimon Muller Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**

This state machine is more complicated than necessary.
I would like to respectfully suggest the following simplifications:
1. The only thing the crs_and_tx_en_infer_col variable does is delay the setting of crs_tx to true until TX_EN becomes false only for "some cases" (whatever they might be). However, there is no harm in ALWAYS having this delay. The MAC only "looks" at CRS after it finished transmitting the frame. Also, keep in mind that all state machine transitions and actions are immediate and instantaneous (i.e. there is no clock or other time delay involved).
2. The "IF" statement in state TX_BUFFER_NOT_EMPTY is not needed. If tx_buffer_available is true when TX_EN becomes false, a direct transition can be made to state IDLE.

SuggestedRemedy

1. Delete all actions in state TX_EN_ACTIVE.
2. Delete the "IF" statement in state TX_BUFFER_NOT_EMPTY. The action in this state becomes: crs_tx <= TRUE
3. Add a transition from state TX_EN_ACTIVE to state IDLE with the following condition: (TX_EN = FALSE) * (tx_buffer_available = TRUE).
4. Change current condition for the transition from state TX_EN_ACTIVE to state TX_BUFFER_NOT_EMPTY to be:
(TX_EN = FALSE) * (tx_buffer_available = FALSE).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The suggested remedy is good except for "Delete all actions in state TX_EN_ACTIVE". If a reduced pin interface is not present it is necessary to drive crs_tx to avoid 'carrier sense errors' as
defined in 30.3.1.1.13. 'carrier sense errors' do not occur with reduced pin interfaces as the interface drives crs when tx_en is active.

Therefore the proposed response is:

1. Keep all actions in state TX_EN_ACTIVE.
2. Delete the "IF" statement in state TX_BUFFER_NOT_EMPTY. The action in this state becomes: crs_tx <= TRUE
3. Add a transition from state TX_EN_ACTIVE to state IDLE with the following condition: (TX_EN = FALSE) * (tx_buffer_available = TRUE).
4. Change current condition for the transition from state TX_EN_ACTIVE to state TX_BUFFER_NOT_EMPTY
to be:
(TX_EN = FALSE) * (tx_buffer_available = FALSE).

Cl **61** *SC* **61.2.1.3.4** *P* **330** *L* **1-40** # **75**

Shimon Muller Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**

See my comment regarding the crs_and_tx_en_infer_col variable for the transmit state machine.

SuggestedRemedy

Delete all actions in state TX_EN_ACTIVE.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See resolution of comment #74.

Cl **61** *SC* **61.2.2** *P* **330** *L* **46** # **324**

Beili, Edward Actelis Networks

Comment Type **T** *Comment Status* **D**

In PAF specification, PHY is mentioned instead of PMI or PMA/PMD: "PMI Aggregation allows one or more PHYs to be combined…". Figure 61-1 in section 61.1.3 specifically shows that EFM PHY is a combination of PCS (including PAF) and PMA/PMDs.

SuggestedRemedy

Replace the word "PHY" with the word "PMI" or "PMA/PMD" in the context of PMI Aggregation, throughout clause 61 (lines 36, 38 on page 321, line 46 on page 330, lines 1,2 on page 331 etc.).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Use "PMA/PMD"

Cl **61** *SC* **61.2.2.3** *P* **332** *L* **38** # **217**

Horvat, Michael Infineon Technologies

Comment Type **TR** *Comment Status* **D**

Link loss handling missing

SuggestedRemedy

PMI may only be selected if TC_synchronized of this link is TRUE and no defects (TC not sync'd) from this link are reported from the far end.

Might use signal PCS_link_state

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change a) item to:

a) Select an active PMI (i.e., one with PCS_link_state asserted) for the next transmission

Cl **61** *SC* **61.2.2.3** *P* **332** *L* **41** # **200**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Increment might be not specific enough

SuggestedRemedy

increment by one (modulo 2^14)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.1** *P* **333** *L* **13** # **201**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Definition of "split horizon" does not only apply to "expected sequence number", but to all bigger/smaller-than-comparisons, e.g. to find out what the smallest sequence number is.

SuggestedRemedy

Move the definition to 61.2.2.4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

In Figure 61-11, only one split horizon comparison takes place.

Cl **61** *SC* **61.2.2.4.2** *P* **333** *L* **21** # **202**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

For correct working at least one TC_synchronized signal has to be true.

SuggestedRemedy

Change sentence to: This state is entered when at least one TC_synchronized becomes TRUE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to "when at least one PCS_link_state is asserted"

Cl **61** *SC* **61.2.2.4.3** *P* **333** *L* **36** # **540**

Cravens, George — Mindspeed

Comment Type **E** *Comment Status* **D**

Variable value is undefined. maxDifferentialDelay is discussed, but never explicitly defined. (Although a value is assigned in the PICS (pg. 405 L10), but without the variable name, and pointing to a subclause (61.2.2.6) that does not mention the variable.)

SuggestedRemedy

Either assign a value to the variable in the text in 61.2.2.5 (preferred for readability), or at least use the variable name in the PICS line so that the variable value can be found when doing a textg search.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #82

Cl **61** *SC* **61.2.2.4.3** *P* **333** *L* **36** # **539**

Cravens, George — Mindspeed

Comment Type **E** *Comment Status* **D**

Cross Reference is incorrect. Refers to 61.2.2.6 for maxDifferentialDelay, and should be 61.2.2.5

SuggestedRemedy

Fix cross reference

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.3** *P* **333** *L* **36** # **203**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong crossref.

SuggestedRemedy

change to 61.2.2.5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.4** *P* **333** *L* **48** # **204**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
crossref. can be concretized

SuggestedRemedy
change to 61.2.2.7.2.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.4** *P* **333** *L* **51** # **205**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
crossref. can be concretized

SuggestedRemedy
change to 61.2.2.7.3.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.4** *P* **334** *L* **2** # **208**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**
State maschine in figure 61-11 does not have a reset condition.

SuggestedRemedy
Add reset condition (all TC-synchronized signals FALSE).

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.4** *P* **334** *L* **29** # **206**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
wrong crossref. in box "error handling"

SuggestedRemedy
change to 61.2.2.7.2.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.4** *P* **334** *L* **38** # **207**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
wrong crossref. in box "fragment error"

SuggestedRemedy
change to 61.2.2.7.3.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.4.4** *P* **334** *L* **44** # **81**
Squire, Matt Hatteras Networks

Comment Type **E** *Comment Status* **D**
The sentence seems out of place. First we've been trying to keep the numeric values of restrictions to one place. Second, it seems like it should go in a different section where maxDifferentialDelay is talked about.

SuggestedRemedy
Delete sentence or move it to the end of 61.2.2.5.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Delete sentence.

Add note after first paragraph in 61.2.2.5:

NOTE---These restrictions ensure that buffer sizes for receivers of 2^14 bits per PMI are sufficient.

Cl **61** *SC* **61.2.2.5** *P* *L* # **82**

Squire, Matt — Hatteras Networks

Comment Type **TR** *Comment Status* **D**

During Draft2.0, I had a comment which basically said that (a) we should pull the numeric values of the various constants into a simple table, and (b) we shouldn't duplicate the constants in the text. I think that comment was partially fulfilled in that some references to contstants were removed, and things were better centralized. However, the tables were never introduced as the source of all constants. For example, maxDifferentialDelay values were removed from various places, but the actual value never put back in.

SuggestedRemedy

1) Add table at end of 61.2.2.5

	10PASS-TS	2BASE-TL
maxDifferentialDelay	4	4
maxSpeedRatio	4	4

2) Add table to the end of 61.2.2.6:

	10PASS-TS	2BASE-TL
maxFragmentSize	512	512
minFragmentSize	64	64

3) Eliminate the 64/512 constants from 61.2.2.6 sentences (P335, L37/L38) as these will now be in the table.

4)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add tables, with maxDifferentialDelay equal to 15,000 bit times as shown on page 405. As all values are identical for 10PASS-TS and 2BASE-TL, only one "value" column is needed.

Cl **61** *SC* **61.2.2.5** *P* **335** *L* **19** # **209**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Specify maxDifferentialDelay in bit times.

SuggestedRemedy

Add a value, e.g. 16384 bit times.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See #82

Cl **61** *SC* **61.2.2.5** *P* **335** *L* **21** # **210**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Specify maxSpeedRatio

SuggestedRemedy

Add a value of 4 to maxSpeedRatio

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See #82

Cl **61** *SC* **61.2.2.5** *P* **335** *L* **21** # **83**

Squire, Matt — Hatteras Networks

Comment Type **T** *Comment Status* **D**

The "Note that a max speed ratio of 4 may only be used if the latency is controlled to meet the restriction (a)" is misleading as restriction (a) is always supposed to be met.

SuggestedRemedy

Eliminate the "Note that..." sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.5** *P* **335** *L* **6** # **84**

Squire, Matt — Hatteras Networks

Comment Type **E** *Comment Status* **D**

The footnote, on the word interleaving, should probably be on the word "functions" as the footnote talks about interleaving and error correction.

SuggestedRemedy

Move footnote or change it to only talk about interleaving.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Move footnote to "functions". Also, on following line, change comma after "latency" to semicolon.

Cl **61** *SC* **61.2.2.6** *P* **335** *L* **24** # **98**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Excessive capitalization in title.

SuggestedRemedy

Change title to "PHY PMI Aggregation transmit function restrictions".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.7** *P* **335** *L* **49** # **211**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Not clear whether in case of errors a garbage frame or the beginning of the fragment (according to page 336, line 36) with RX_ER asserted shall be sent over MII.

Not clear whether RX_ER shall be asserted during transmission of a garbage frame over MII.

SuggestedRemedy

Always send a garbage frame with RX_ER asserted

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text is question says that a garbage frame shall not be sent when the frame is partially reconstructed, even if it is only the first fragment.

According to 22.2.2.8 RX_ER shall be asserted for any error the PHY is capable of detecting. This is certainly true for a garbage frame.

Cl **61** *SC* **61.2.2.7.3** *P* **336** *L* **45** # **212**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Received fragment has to be dropped.

SuggestedRemedy

Add a note that this fragment has to be dropped.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.8.2** *P* **338** *L* **18** # **88**

Squire, Matt — Hatteras Networks

Comment Type **TR** *Comment Status* **D**

There's some ambiguity on the "mandatory"ness of PMI aggregation registers and disovery. In some places (C30, C45, etc.), we indicate discovery is an optional feature. Here, we're saying the register to control discovery (remote_discovery) is mandatory. Suggest that this be made conditional on supporting PMI aggregation discovery.

SuggestedRemedy

Change this sentence to read, "If PMI aggregation discovery is supported by a CPE-subtype device, the remote_discovery_register (see XXX) shall be implemented."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Performance of Aggregation Discovery is optional. So is implementation of the PAF. However, 61.2.2.8.3 correctly states that the remote discovery register shall be inplemented in each PCS instance in a -R subtype. This is for interoperability with -O subtypes attempting aggregation discovery. See Figure 61A-2; specifically, PMI-3.

Cl **61** *SC* **61.2.2.8.3** *P* **337** *L* # **303**

Squire, Matt — Hatteras Networks

Comment Type **TR** *Comment Status* **D**

The format of the PMI aggregate/available register seem to place some restrictions on its use that are unintended. In particular, they limit the number of *potential* PMIs that can be in a particular PMD to a set of 32. The restrictions intended by the clause (I think) were to limit the number of actual PMIs in a PMD to 32 or less. But not to limit the number of potential PMIs that can be aggregated.

For example, suppose one builds a system with 48 PMIs, any two of which can be aggregated together. How does one use these 32-bit wide registers to show availability or connectivity?

SuggestedRemedy

The simplest thing (unfortunately) seems to be to increase the register size to something much greater than 32 (256?). I don't know thats a good solution. A better solutions is requested.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

At this stage in the game, a better solution is not known. The suggested remedy of increasing the register size to 256 bits is undesirable, and has negative consequences such as greatly increasing the width of the gamma interface (Table 61-7), and greatly lengthing the messages used for the Discovery process.

Since 32 was supposed to be an "outlyer" number; more than sufficient in most cases. It should therefore be sufficient as the maximum number of potential PMIs as well.

Cl **61** *SC* **61.2.2.8.3** *P* **337** *L* **26** # **213**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong register name
"EFM copper control register"

SuggestedRemedy

change to "10P/2B capability register"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.8.3** *P* **337** *L* **51** # **214**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Typo

SuggestedRemedy

respond instead of repond

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.8.3** *P* **338** *L* **18** # **215**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong cross ref

SuggestedRemedy

change to 45.2.1.12.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.2.8.3** *P* **338** *L* **42** # **216**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Add more detailed description of action on PMI_Aggregate_register.

SuggestedRemedy

PMI_Aggregate_register remains unchanged as well.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.1** *P* **340** *L* **10** # **461**
Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Text "These signals are unused when Clause 45 is not implemented" would thus discard signal PCS_link_status.

SuggestedRemedy

Need to keep PCS_link_status when loop agg is not present.
Need to keep all of the signals when an alternate to clause 45 is provided.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The sentence is question was part of the remedy to Comment #1197/D2.0. However, further discussion in the STF clarified that these signals exist in the -R subtype and allow the TC to access PAF PMI_Aggregate_register and remote_discovery_register. Thus, the status, and need, for these signals is independent of whether or not Clause 45 is implemented in the -R subtype.

Proposed remedy:

Modify the two paragraphs preceding Table 61-7 to read:

"Information flow across the [gamma]-interface indicates the PCS link state to the PAF and supports, in the -R subtype, access to remote PMI aggregation registers defined in 61.2.2.8.3. Additional signals, which would be represented in the referenced document in section H.3.1.4, are described in Table 61-7."

Also change Table 61-7 title to "Additional [gamma]-interface signals", and remove footnote a).

Cl **61** *SC* **61.2.3.1** *P* **340** *L* **14** # **220**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

In Table 61-7 the definition of how to handle the signals when more than one TC is connected to the PAF is missing.

SuggestedRemedy

In case of read/write collision the PAF has to process the read/write-requests sequentially. As this applies to all signals marked mith footnote b, appending this information to the footnote might be appropriate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add to footnote b).

Cl **61** *SC* **61.2.3.1** *P* **340** *L* **17** # **218**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**
In Table 61-7 signal TC_synchronized missing

SuggestedRemedy
Add TC_synchronized to gamma interface

Proposed Response *Response Status* **W**
PROPOSED REJECT.

TC-synchronized is indicated through PCS_link_state

Cl **61** *SC* **61.2.3.1** *P* **340** *L* **5** # **219**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
The hint "Additional Paragraph" is unnecessary

SuggestedRemedy
remove

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.2.1** *P* **341** *L* **20** # **304**
Squire, Matt Hatteras Networks

Comment Type **E** *Comment Status* **D**
Move G993.1 reference to following sentence, not section header (will match 61.2.3.2.2 and 61.2.3.2.3.

SuggestedRemedy
Eliminate reference in header, replace next sentence with:

"
Section 7.1.1 of G993.1 is referenced as is with the additions shown in Table 61-8.
"

Proposed Response *Response Status* **W**
PROPOSED REJECT.

61.2.3.2.2 & 61.2.3.2.3 do not reference sections in G.993.1, which is why they look different.

For similar subclauses, see those in 61.3

Cl **61** *SC* **61.2.3.2.1** *P* **341** *L* **33** # **221**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**
In Table 61-8, row PMA_PMD_type: for 0x80 'CO' is wrong

SuggestedRemedy
change to 'CPE'

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.2.1** *P* **341** *L* **34** # **97**
Beck, Michael Alcatel Bell nv

Comment Type **T** *Comment Status* **D**
In Table 61-8, PMA_PMD_type values 00 and 80 both map to "10PASS-TS CO subtype".

SuggestedRemedy
PMA_PMD_type value 80 should map to "10PASS-TS CPE subtype".

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.2.3** *P* **342** *L* **23** # **305**
Squire, Matt Hatteras Networks

Comment Type **E** *Comment Status* **D**
We refer to claues 62/63 for g994.1 messaging, when there's an awful lot of G994.1 messaging in C61 (61.3).

SuggestedRemedy
Add sentence "Refer to Section 61.3 for G994.1 handshaking mechanisms."

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3** *P* **343** *L* # **99046**

Kimpe, Marc — Adtran

Comment Type **TR** *Comment Status* **A** *D2.0 #864*

Per our interpretation of the spec, it appears that due to the configuration of the scrambler and CRC it is possible to deliver bad frames with good CRC's.

The specific case in theory is as follows:

The scrambler scrambles the frame payload data. The CRC then calculates a CRC on the scrambled data. The transmitter then sends the scrambled data along with the CRC where it may be subjected to bits errors.

At the receiver, if a bit error occurs near the end of a frame, that frame will likely be discarded due to a CRC mismatch. This is good. The data from that frame is then sent to the scrambler. The scrambler will propagate errors into the first payload bits of the next frame.

The CRC on the next frame will be computed and will be a correct CRC since the scrambled bits are OK. The data of the second frame is then sent to the scrambler where it is corrupted due to error propagation from the first frame. The second frame will likely be delivered with the propagated errors from the scrambler in it's first bits but with a correct CRC check.

SuggestedRemedy

If this is correct then perhaps the CRC should be on the non-scrambled data. We propose to scramble everything in each codeword except the sync byte. (This might be simpler to explain in the spec and also might make sync detection possible if the TC is used in systems in the future without byte synchronization.)

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Comments #293(T), #267(T), #820(TR), #1210(TR), #1182(TR) and #1183(TR) suggest removing the scrambler.
Comments #864(TR), #799(T), #800(T) and #1237(T) address issues related to the scrambler.

Proposed action:
- Accept comment #1237
- Remove scrambler/descrambler
- Resolution of comments #293, #267, #820, #1210, #1182, #1183, #864, #799 and #800 immediately follows

Cl **61** *SC* **61.2.3.3.1** *P* **344** *L* # **85**

Squire, Matt — Hatteras Networks

Comment Type **TR** *Comment Status* **D**

The method proposed for signaling out-of-sync on 2BASE-TL ports is not available with existing G991.2 chipsets. One of the objectives of the copper subtaskforce is to provide means to leverage the technology that has already been developed for xDSL, and that 802.3ah should not mandate changes to the ways that they are utilized today. The use of the EoC for out-of-sync signaling adds difficult and unnecessary burden on existing chips to implement new EoC signaling message that are EFM specific when simpler methods that require no changes to the chipsets are easily available.

SuggestedRemedy

The proposed method for signaling out-of-sync to a 2BASE-TL peer is to use a different type of idle frame when the local device is out-of-sync. Since idles must be transmitted whenever the local receiver is out-of-sync, the use of a new idle frame provides a simple method to tell the remote transmitter that synchronization was lost. This provides additional benefit in that the signaling for out-of-sync is kept at the same layer as the synchronization, rather than pushing it down into a lower layer management channel.

Changes required:

==========
1) Eliminate 63.2.2.2.1 which provides a new EOC message for synchronization status.

==========
2) Add a new frame type to 61.2.3.3.1

f) Out-of-sync Idle: All of the octets in the codeword are idle octets and the 64/65-octet recieve state machine is out-of-sync.

==========

3) Add a new codeword to Table 61-9.

type: all idle out-of-sync
frame data: YZZZZZZ..Z
Sync octet: F0
Octet fields: YZ...Z

==========

4) Add a new control character to Table 61-10
Codeword type: idle out of sync
Character: Y
Value: 0xD1 [equivalent to C65 if that existed]

==========

5) Adjust Fig 61-18, idle state:
Add: IF k=1 THEN transmitSyncIdle();
ELSE transmitZ();

In functions, add:
transmitSyncIdle: If the 64/65-octet receive state machine out-of-sync (LOSS_OF_SYNC1, LOSS_OF_SYNC2), this function transmits the character Y. Otherwise, it transmits the character Z.

==========

Proposed Response *Response Status* **W**

PROPOSED REJECT.
To be discussed with comments #110 and #415.

There is no objective on record to base the EFM/Copper port types on existing chipsets. Such an agreement would be difficult to implement, as feature sets are rarely identical between chipsets.

A proposal was made to use existing xDSL specifications and limit the scope of the Copper Sub Task Force to the sublayer above the gamma-interface, but this proposal was rejected by the Task Force (Eckert/Eisner motion, March 2002, Y:51 N:32 A:68).

The adopted baselines for 2BASE-TL and 10PASS-TS indeed reference existing standards and/or recommendations, but several changes have been made in the course of the project, and this is well within the scope of the PAR and the adopted objectives.

The 64/65-octet encapsulation method has received a lot of attention during Task Force review, and the proposed changes may compromise the stability of the current TC specification.

Cl **61** *SC* **61.2.3.3.1** *P* **344** *L* **3** # **223**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

"egress" instead of "transmit" used.

SuggestedRemedy

change "egress" to "transmit".
The same applies to line 5: change "ingress" to "receive".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.1** *P* **344** *L* **38** # **225**

Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Not clear whether 64 byte portion should be dropped or not.

SuggestedRemedy

Add a note that data should be processed normally.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

According to state diagram (Figure 61-19), it is discarded.

Cl **61** *SC* **61.2.3.3.1** *P* **344** *L* **43** # **229**

Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Paragraph starts with "Figure 61–15 illustrates two interesting examples". Then only the first example is described.

SuggestedRemedy

Describe the second interesting example.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add sentence: "In the second example, the first octet of a frame is aligned with the first octet of an All Data codeword".

Cl **61** *SC* **61.2.3.3.1** *P* **344** *L* **7** # **224**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

"frame" instead of "fragment" used. Using "fragment" was introduced in 61.2.3., Page 339, Line 20

SuggestedRemedy

"change "frame" to "fragment" The same applies to "frame" in line 10.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.2** *P* **345** *L* **39** # **231**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

In table 61-10, the cordword types do not match to the codeword types defined in table 61-9.

SuggestedRemedy

Use correct codeword types. Alternatively, remove the "Codeword type" column.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove column.

Cl **61** *SC* **61.2.3.3.2** *P* **346** *L* **1** # **232**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

"frame" instead of "fragment" used. Using "fragment" was introduced in 61.2.3., Page 339, Line 20

SuggestedRemedy

change "frame" to "fragment" The same applies to "frame" in line 2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.3** *P* **346** *L* **13** # **234**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

"egress" instead of "transmit" used.

SuggestedRemedy

change "egress" to "transmit". The same applies to line 14: change "ingress" to "receive" twice.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.3** *P* **346** *L* **13** # **233**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

"frame" instead of "fragment" used. Using "fragment" was introduced in 61.2.3., Page 339, Line 20

SuggestedRemedy

change "frame" to "fragment" The same applies to "frame" in lines 14, 15 and 27.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.3** *P* **347** *L* **1** # **226**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Definition of signal TX_Err missing

SuggestedRemedy

Either add definition or remove it.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

TX_Err is defined by reference to G.993.1 (Annex H) in 61.2.3.1.

Cl **61** *SC* **61.2.3.3.5** *P* **347** *L* **24** # **235**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

"ingress" instead of "receive" used.

SuggestedRemedy

change "ingress" to "receive"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.6** *P* **347** *L* **48** # **236**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Chapter "Management Entity signals" is missing. For PAF (61.2.2.8.2.) and Rate Matching (61.2.1.2.2.) such a chapter exists.

SuggestedRemedy

Add chapter, with reference to 61.2.3.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add new subclause which consists of the sentence "See 61.2.3.4".

Also, replace 61.2.1.2.2 with this sentence as well.

Cl **61** *SC* **61.2.3.3.7** *P* **347** *L* **51** # **464**

Tom Mathey — Independent

Comment Type **T** *Comment Status* **D**

1. variables are used in stare diagram without definition
2. misc changes

SuggestedRemedy

Place definition in alphabetical order
Transmit state diagram
1. Add definition for transmitS()
2. in state "PULL_PAF_DATA1" the exit for Tx_EOP can never happen given a legal incoming MAC frame. Are we allowing short frames? If so, verify that the receiver can parse a short frame.
3. in state "PULL_PAF_DATA2" the exit for k= 64 should be Tx_EoP = false and k = 64; the exit Tx_EoP = true and k < 64 should be Tx_EoP = true and k = 64
4. the incrementing of variable k may need to be mod 65 vs mod 64.

Receive state diagram
1. Signal names in definition have an underscore "_" which is missing in diagram: RxErr, RxEop
2. In state "DECODE", name "kmax" and "C" are not defined
3. no state sets variable "RxEoP" to false.
4. A number of exit conditions test for "k=65", however k can never exceed value 63.
5. Exit condition "ELSE" from state "DECODE" is strange as test "kmax<65" seems to cover all other conditions.
6. receive needs to check the PCS CRC, 2 bytes or 4 bytes
7. receive needs to remove the PCS CRC, 2 bytes or 4 bytes, and not send to upper layer

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In transmit, k is mod 64

Add definition of kmax and C in receive variables.

Changes need verification at STF.

Cl **61** *SC* **61.2.3.3.7** *P* **347** *L* **53** # **127**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Editor's Notes should be removed prior to publication.

SuggestedRemedy

Remove Editor's Note.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **347** *L* **53** # **306**
Squire, Matt — Hatteras Networks

Comment Type **E** *Comment Status* **D**
Kill editors note.

SuggestedRemedy
Kill editors note.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **350** *L* **17** # **237**
Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**
In Figure 61-18:
The transition from "PULL_PAF_DATA1" back to "PULL_PAF_DATA1" contains an unnecessary condition, Tx_EoP = False. If PAF works as specified, this cannot occur (minFragmentSize = 64).

SuggestedRemedy
Remove this condition.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **350** *L* **22** # **238**
Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**
In Figure 61-18: The transition from "ALL_DATA" back to "PULL_PAF_DATA2" must be distinguished, dependent from TX_EOP = FALSE/TRUE. Currently the first example in Table 61-15 (a frame with only C0 = 0x90 and Z afterwards) cannot be realized.

SuggestedRemedy
Split Transition into two.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **350** *L* **39** # **239**
Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**
Typo: tranmit instead of transmit.

SuggestedRemedy
Correct.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **350** *L* **40** # **240**
Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**
This definition of pullOctetFromPAF() implies that CRC is calculated in PAF.

SuggestedRemedy
Write a note, that this function returns also the CRC values, although these are calculated in TPS-TC.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **350** *L* **54** # **241**
Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**
definition of transmitS() is missing

SuggestedRemedy
Add definition.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.3.7** *P* **352** *L* **1** # **128**
Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**
Figure 61-19 specifies the 64/65-octet decapsulation (receive) function. The CRC verification seems to be missing from the state diagram.

SuggestedRemedy
Add appropriate functions/variables to perform CRC check on incoming fragments.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.4** *P* **353** *L* **48** # **465**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

For this subclause, what the commenter wanted as the change from D2.0 to 2.1 was a table, not text, which maps the various names and numbers between clauses. The added text adds no value as it repeats previous text. If this table was present, it would be obvious that there is no map for PCS link status to and from the PMA layer.

SuggestedRemedy

Replace text with table. Entries such as:
Clause 45 register and bit with signal name maps to
Clause 62 signal name which maps to
NPAR and SPAR octet and bit.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Specific remedy not supplied.

Cl **61** *SC* **61.2.3.4** *P* **354** *L* **12** # **230**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

PAF_supported: was renamed to PAF_available

SuggestedRemedy

change PAF_supported to PAF_available

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.4** *P* **354** *L* **13** # **242**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong crossref.

SuggestedRemedy

change to 45.2.3.18.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.2.3.4** *P* **354** *L* **53** # **227**

Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Assertion condition of TC_synchronized is wrong.
Additionally, signal exists for each TC.

Cross ref missing.

SuggestedRemedy

Signal TC_synchronized is asserted when state maschine reaches codeword synchronization.

Like for TC_PAF_* signals add that signal exists for each gamma interface.
Same applies to TC_CRC_error and TC_coding_error.

Add also cross ref to 45.2.3.2.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.12** *P* **398** *L* **25** # **103**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Typo: subtype's.

SuggestedRemedy

Replace "subtype's" with "subtypes".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.12.1** *P* **398** *L* **27** # **245**

Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**

Not clear which NPAR(3) has to be reset to zero.

SuggestedRemedy

Clarify

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add "Clear if same" before "Npar(3)".

Cl **61** *SC* **61.3.12.1** *P* **399** *L* **3** # **257**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
Figure 61-20: terms 'LT' and 'NT' not defined.

SuggestedRemedy
Use '-O' and '-R' device instead

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.3.12.2** *P* **400** *L* **17** # **246**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**
Write of PMI aggregate register, contradiction to clause 61.2.2.8.3 (p.338, line 10). Only bit position 0 will be used.

SuggestedRemedy
Modify that only bit 0 will be used.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Change paragraph to:

"In response to a "write" command, . . . and the Npar(3) PMI_Aggregate_register bit zero set to the value for the PMI_Aggregate_register bit position corresponding to the PMA/PMD upon which the G994.1 exchange takes place. The CPE-subtype shall set the relevent bit in its PMI_Aggregate_register to this value. The contents . . . "

Also update 45.2.1.15 accordingly.

Cl **61** *SC* **61.3.12.3** *P* **400** *L* **29** # **311**
Beili, Edward Actelis Networks

Comment Type **E** *Comment Status* **D**
C-SILECT1 is a typo. In addition gamma-interface is written as g-interface.

SuggestedRemedy
Replace C-SILECT1 with C-SILENT1. Replace g-interface with <greek_letter_gamma>-interface.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.3.12.3** *P* **400** *L* **31** # **247**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
wrong cross ref

SuggestedRemedy
correct table is Table 45-5

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

There are 2 Table45-5's in Clause 45. This reference should be set to the second Tabel 45-5, once the Clause 45 table numbering is fixed.

Cl **61** *SC* **61.3.8.7.1** *P* **360** *L* **46** # **99**
Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**
In Table 61-19, bit 8 of the 10PASS-TS row is empty.

SuggestedRemedy
Place an 'x' in the empty cell.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.3** *P* **362** *L* **34** # **100**
Beck, Michael Alcatel Bell nv

Comment Type **T** *Comment Status* **D**
In Table 61-23 and Table 61-141, the bits that represent the silent period are referenced as "bits 5 to 0" in the description column. However, the actual bits in this table (and in all other G.hs tables) are numbered 8 through 1.

SuggestedRemedy
Make description field in both tables consistent with notational conventions in ITU-T Recommendation G.994.1. Replace text with: "Silence period length (bits 6-1 x 10s, from 10 seconds to 10 minutes).

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **369** *L* **50** # **111**

Beck, Michael Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

A new way is introduced to encode data rates in G.994.1 codepoints. However, the codepoints used to encode data rates the old way are still in the codepoint tree.

SuggestedRemedy

Remove Tables 61-59 through 61-62, 61-67 through 61-70, 61-76 through 61-79, 61-84 through 61-87, 61-98 through 61-101.
Change "data rate" to "extended data rate" in Tables 61-102 through 61-105 and Tables 61-112 through 61-119.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The commenter spotted a problem but the remedy can cause further confusion. All the tables that the commenter proposes to
delete are part of the new way to encode data rates and are mandatory to be sent. The associated tables that the commenter
did not propose to delete contain optional octets. The commenter is correct that this is not obvious. To avoid confusion,
we propose the following 3 modifications to the text preceding the tables.

Change line 30 to 31 on page 370 from
The variables j5 and j6 associated with the PMMS rates shall be independent, and shall range from 1 to 8, inclusive. If
only one range of rates is required, then only the octets associated with (min1,max1,step1) shall be sent.
to
The variables j5 and j6 associated with the PMMS rates shall be independent, and shall range from 2 to 8, inclusive. If
only one range of rates is required, then only the octets associated with (min1,max1,step1) shall be sent. If more than one
range of rates is required, then j5 *4 and j6 *4 correspond to the number of octets sent.

Change line 43 to 45 on page 370 from
The variables j1, j2, j3 and j4 associated with the training rates shall be independent, and shall range from 1 to 8,
inclusive.
to
The variables j1, j2, j3 and j4 associated with the training rates shall be independent, and shall range from 2 to 8,
inclusive. If only one range of rates is required, then only the octets associated with (min1,max1,step1) shall be sent. If
more than one range of rates is required, then j1 *4 , j2 * 4, j3 * 4 and j4 * 4 correspond to the number of octets sent.

Change line 52 & 53 on page 370 from
The variables j1, j2, j3 and j4 associated with the training rates shall be independent, and shall range from 1 to 8,
inclusive. If optional line probe is used, the receiver training parameters will be further limited by the probe results.
to
The variables j1, j2, j3 and j4 associated with the training rates shall be independent, and shall range from 2 to 8,
inclusive. If only one range of rates is required, then only the octets associated with (min1,max1,step1) shall be sent. If
more than one range of rates is required, then j1 *4 , j2 * 4, j3 * 4 and j4 * 4 correspond to the number of octets sent.
If optional line probe is used, the receiver training parameters will be further limited by the probe results.

Cl **61** *SC* **61.3.8.7.4** *P* **369** *L* **50** # **414**

kimpe, marc adtran

Comment Type **E** *Comment Status* **D**

The heading for the 2BASE-TL SPAR(2) is at the wrong location.

SuggestedRemedy

Move the heading and 1st sentence under it to to p. 370 after table 61-53

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **369** *L* **60** # **101**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

The text uses uncommon abbrevations in various places.

SuggestedRemedy

Substitute "sec" with "s";
substitute "kbit" with "kb";
substitute "symbol/sec" with "baud";

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **370** *L* **14** # **102**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D** *) 61.3.8.7.4 by EFMCu Editor*

Unit of maximum bit rate is missing.

SuggestedRemedy

Add "b/s" after "5696".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **370** *L* **15** # **114**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Uncommon capitalization.

SuggestedRemedy

Replace "NPAR(3)" with "NPar(3)".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **370** *L* **19** # **124**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

Subclause 61.3.8.7.4 states:
"The following definition is added to the G.994.1 code point definitions in par. 6.4.1 of G.991.2 for the support of the extended data rates..."
However, subclause 63.3.2.2 states:
"[Section 6 is] referenced as is, with the exception of subsection 6.4 (G.994.1 Preactivation Sequence), which is supplanted by 61.3."
So the new text in 61.3.8.7.4 does not relate to any existing text in the 2BASE-TL specification, and in fact only makes changes to an ITU-T Recommendation.

SuggestedRemedy

Change text in 62.3.2.2 as follows:
-remove sentence on lines 36-37 (page 441)
-add sentence add the end of the subclause:
"Section 6.4 is supplanted by 61.3. The relevant definitions in Section 6.4.1 apply to the corresponding 2BASE-TL parameters defined in 61.3, and are incorporated by reference."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **370** *L* **20** # **112**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

Text references "this Annex".

SuggestedRemedy

Replace "the extended data rates specified in this Annex" with "the extended data rates specified in this subclause".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **370** *L* **37** # **113**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Use of "STU-R" and "STU-C" is inappropriate.

SuggestedRemedy

Throughout subclause, replace "STU-R" with "2BASE-TL-R"; replace "STU-C" with "2BASE-TL-O".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.4** *P* **371** *L* **19** # **254**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

PAF Available was renamed to PAF-O Available

SuggestedRemedy

Remove '-O' (see 61.3.12.1) in order to support CPE devices.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.5** *P* **386** *L* **19** # **255**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Table name of table 61-99 not correct (applies to tables 61-100 and 61-101)

SuggestedRemedy

Replace 'parameters' with 'rates'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Tables 103-105, 113-115, 117-119 also need to be corrected.

Cl **61** *SC* **61.3.8.7.6** *P* **393** *L* **3** # **228**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

The following tables cover 'aggregation discovery parameters' (not 'PMI aggregation').

SuggestedRemedy

Replace 'PMI aggregation' by 'aggregation discovery parameters'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.6** *P* **395** *L* **11** # **243**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
Following tables specify 2BASE-TL PMI aggregation codepoint

SuggestedRemedy
Replace 10PASS-TS with 2BASE-TL

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.6** *P* **395** *L* **25** # **244**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
Table 61-135: specify which codepoints are regsiter bits 31-30.

SuggestedRemedy
Add that bits 5 and 4 are bits 31 and 30

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.3.8.7.6** *P* **396** *L* **21** # **256**
Horvat, Michael Infineon Technologies

Comment Type **E** *Comment Status* **D**
Name of Table 61-140 not correct

SuggestedRemedy
Replace 10PASS-TS with 2BASE-TL

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.4** *P* **400** *L* **51** # **104**
Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**
Excessive capitalization.

SuggestedRemedy
Replace "Performance Guidelines" with "performance guidelines".

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **61** *SC* **61.8** *P* **401** *L* **30** # **312**
Beili, Edward Actelis Networks

Comment Type **TR** *Comment Status* **D**
The suggested PHY label description examples in a) and b) are not accurate and complete.

SuggestedRemedy
Replace a) and b) with the following text:
a) PMA/PMD (sub-)type. A Type (e.g. 10PASS-TS) can be specifed if both -O and -R subtypes are supported. A Sub-type shall be specified (e.g. 10PASS-TS-R) if only a single subtype is supported.
b) PAF capability if supported. The following information shall be provided: Number of MII/PCS ports provided; Max number of PMIs per MII/PCS; Total number of PMIs. For example:
- x8 or 1x8:8 for a single MII port with 8 PMIs
- 2x2:4 for a device with 2 MII ports and 4 PMIs, which can be aggregated up to two PMIs per port.
- 4x4:4 for a device with 4 MII ports, 4 PMIs and ability to aggregate up to 4 PMIs per port.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
As this is a recommendation, the use of the word "shall" is to be avoided.
Replace a) and b) with the following text:
a) PMA/PMD (sub)type. A Type (e.g. 10PASS-TS) can be specified if both -O and -R subtypes are supported. A subtype should be specified (e.g. 10PASS-TS-R) if only a single subtype is supported.
b) PAF capability if supported. The following information should be provided: number of MII/PCS ports provided; maximum number of PMIs per MII/PCS; total number of PMIs.

Cl **61** *SC* **61.9.4.4** *P* **408** *L* **1** # **315**
Beili, Edward Actelis Networks

Comment Type **TR** *Comment Status* **D**
Not all EFM specific Handshake messages are listed in the PICS.

SuggestedRemedy
Make sure that all EFM specific Handshake messages are listed in the PICS.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Add following PICS entries, mandatory if PAF is implemented (Editor to fill in appropriate numbering and subclause reference):
-The PHY uses handshake procedures as described in 61.3.12.1 to access the Remote Discovery register.
-The PHY uses handshake procedures as described in 61.3.12.2 to access the PMI Aggregate register.

Cl **61** *SC* **Figure 61-1** *P* **319** *L* **19** # **192**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Details of PCS for 2BASE-TL missing (see box).

SuggestedRemedy

Add foot note that clause 61 PCS for 2BASE-TL and 10PASS-TS are identical.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add sentence at the end of subclause 61.1.3:
NOTE---The PCS shown in the 2BASE-TL PHY and the PCS shown in the 10PASS-TS PHY are two instances of one unique PCS, specified in this Clause.

Cl **61** *SC* **Figure 61-11** *P* **334** *L* **29** # **80**

Squire, Matt — Hatteras Networks

Comment Type **E** *Comment Status* **D**

Figure references 61.2.2.6 as the error handling. Should be 61.2.2.7.

SuggestedRemedy

Fix references in figure (two of them).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Resolution of comment #92 may apply.

Cl **61** *SC* **Figure 61-11** *P* **334** *L* **8** # **92**

Brown, Benjamin — Independent

Comment Type **TR** *Comment Status* **D**

State variables are unconventional and undefine, e.g. "All active queues non empty" and "one queue non-empty for maxDifferentialDelay bit times".

Also, there is nothing that makes any of this state diagram manadatory.

SuggestedRemedy

Add a shall statement, along with necessary PICS, in order to make this state diagram mandatory.

Create a variable (or function) name for these and similar conditions then define the conditions in the variable subclause (or create a function subclause and define them there).

Replace all instances of logical "and" with "*"

Replace "Reference 61.2.2.6" with a function call that describes the contents and 61.2.2.6 or perhaps references it.

"Process fragment" should probably be a function describing just what is intended here.

These all may seem a level of indirection but precise descriptions allow all readers of the standard to implement compliant designs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Concrete proposal to be review by Copper Sub Task Force.

Cl **61** *SC* **Figure 61-12** *P* **339** *L* **47** # **460**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Figure seems to have two drawings artifacts.

SuggestedRemedy

In the box labeled control s/m (Tx) and in the transmit path multiplexer.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
I don't seem to see them.

Cl **61** *SC* **Figure 61-14** *P* **343** *L* **27** # **222**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

Wave forms on the left side and on the right side do not show the same interface: left gamma, right alpha/beta
Therefore, connection between these two interfaces makes no sense.

Additionally, last TX_enbl on the top right figure not correct (Z will be inserted by TC).

SuggestedRemedy

Remove '60 clocks not shown' in figure.

Remove wrong strobe.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The connection between the signals on the gamma-interface and the signals on the alpha(beta)-interface makes sense in the context of the example implementation shown in Figure 61-13. Therefore, the text "60 clocks not shown" is appropriate.

TX_Enbl must not be asserted when Z is inserted by the TC; remove this rectangle.

Cl **61** *SC* **Figure 61-18** *P* **350** *L* **1** # **93**

Brown, Benjamin — Independent

Comment Type **TR** *Comment Status* **D**

Issues with the new state diagram...

SuggestedRemedy

k doesn't have a value assigned at initialization - give it one - this may require an additional state before "IDLE" that only assigns a value to k. I finally noticed this in the text at the end of the variables list but it would be helpful to have it in the state diagram

"transmitS" needs a variable definition

need transition conditions leaving IDLE_TO_DATA and ALL_DATA states, even if they are simply "UCT" (see 1.2.1 in 802.3-2002)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
State diagram issues need to be discussed in detail in the Copper Sub Task Force.

Cl **61** *SC* **Figure 61-19** *P* **352** *L* **1** # **94**

Brown, Benjamin — Independent

Comment Type **TR** *Comment Status* **D**

Issues with the new state diagram...

SuggestedRemedy

It is not obvious where this state diagram "begins" as there are no global inputs to any state the might imply "whenever this external condition occurs, always go back here and start over". I finally noticed this in the text at the end of the variables list but it would be helpful to have it in the state diagram.

k and B don't have values assigned at initialization - give them values. I finally noticed this in the text at the end of the variables list but it would be helpful to have it in the state diagram.

replace logical "AND" with * (see states CHECK_SYNC2 & CHECK_SYNC3)

Make the indent a little more obvious between "THEN" and "ELSE" and between "ELSE" and "ENDIF" in states to indicate that all of the assignments are to be executed based on the result of the IF evaluation. By the way, ENDIF is not part of typical IEEE 802.3 convention. If you want to use it, I'm afraid you'll have to define it (even though it is probably obvious to most). Alternatively, you could do something similar to state AN_ENABLE in Figure 37-6, 802.3-2002.

Spelling error within codingViolation definition "detectino"

TC_coding_error is not in alphabetical order with the other variables

Misspelling of "TX_synhronized" in variable list

"240" and "15" aren't typical values of type "octet". Are these decimal represenations of the typically hexadecimal (2-nibble) content?

Many states don't put spaces before and after the "<=" assignment symbol.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
State diagram issues need to be discussed in detail in the Copper Sub Task Force.

Cl **61** *SC* **Figure 61-2** *P* **320** *L* **17** # **95**

Brown, Benjamin — Independent

Comment Type **TR** *Comment Status* **D**

There are still some left over 64B/65B labels in this figure.

SuggestedRemedy

Replace all instances of "64B/65B" with "64/65-octet"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See also comment #194.

Cl **61** *SC* **Figure 61-7** *P* **329** *L* **35** # **91**

Brown, Benjamin Independent

Comment Type **E** *Comment Status* **D**

Missing "= TRUE"

SuggestedRemedy

In state TX_EN_ACTIVE, replace:

IF (crs_and_tx_en_infer_col) to IF (crs_and_tx_en_infer_col = TRUE)

Or:

replace entire contents of state assignments to:

crs_tx <= !crs_and_tx_en_infer_col

A similar comment applies to Figure 61-8, state TX_EN_ACTIVE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In Figure 61-7, replace entire contents of state assignments with:
crs_tx <= !crs_and_tx_en_infer_col
In Figure 61-8, replace condition in state TX_EN_ACTIVE with:
IF (crs_and_tx_en_infer_col = FALSE)

Cl **61** *SC* **Table 61-135** *P* **395** *L* **15** # **468**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Text is a duplicate of that on p 393, line 8.

SuggestedRemedy

Unduplicate.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
A first set of NPar(3) codepoints, starting on page 393, line 8, belongs to the PMI Aggregation Discovery SPar(2). These codepoints are used to exchange the contents of the Remote discovery register.
A second set of NPar(3) codepoints, starting on page 395, line 15, belongs to the PMI Aggregation SPar(2). These codepoints are used to exchange the contents of the PMI_Aggregate_register.
Hence, there is no duplication.

Cl **61** *SC* **Table 61-48** *P* **368** *L* **33** # **466**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

Assignment is a duplicate of that on p366.

SuggestedRemedy

Unduplicate.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
A first set of NPar(3) codepoints, starting on page 366, line 29, belongs to the PMI Aggregation Discovery SPar(2). These codepoints are used to exchange the contents of the Remote discovery register.
A second set of NPar(3) codepoints, starting on page 368, line 33, belongs to the PMI Aggregation SPar(2). These codepoints are used to exchange the contents of the PMI_Aggregate_register.
Hence, there is no duplication.

Cl **61** *SC* **Table 61-57** *P* **372** *L* **37** # **467**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

What in the PMI Aggregation capability does this text refer to?

SuggestedRemedy

Add text for what was intended.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The description and use of the PMI Aggregation SPar(2) can be found in 61.3.12.2.

Cl **61** *SC* **Table 61-8** *P* **341** *L* **32** # **462**

Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

If Clause 45 and 61 are going to assign 8 bits for present and future PMA port types, then Table 61-8 needs to assign a unique signal to identify CO vs CPE port types.

SuggestedRemedy

Assign a specific signal for CO vs CPE. Which direction should this signal be ??

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The 8-bit PMA_PMD_type signal now also carries subtype information (1 bit), in resolution of comment #255/D2.0. The remaining 7-bit information space should be sufficient to accommodate relevant PMA types in the near future.
The signal is defined from the PMA to the PCS, because a PMA/PMD instance is typically physically capable of acting as one subtype only, and it should be able to indicate this to the PCS.

Cl **61** *SC* **Table 61-8** *P* **341** *L* **34** # **541**

Cravens, George — Mindspeed

Comment Type **T** *Comment Status* **D**

Error in type description. 10Pass-TL CO subtype listed twice, and CPE subtype not listed. Change second entry to CPE subtype.

SuggestedRemedy

Change second entry to CPE subtype.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See also comments #97 and #463.

Cl **61** *SC* **Table 61-8** *P* **341** *L* **34** # **463**

Tom Mathey — Independent

Comment Type **E** *Comment Status* **D**

Copy/paste text without edits.

SuggestedRemedy

Change text 0x80 10P CO subtype to CPE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See also comments #97 and #541.

Cl **61A** *SC* **61A.2** *P* **556** *L* **10** # **302**

Squire, Matt — Hatteras Networks

Comment Type **TR** *Comment Status* **D**

I've received several questions that I can't answer that can benefit from being in the example. The basic question is how does the discovery mechanism work as links are coming up over time. E.g. The examples say you "read" the remote discovery information each time a new PMI comes up, but other PMIs may already be up, and their handshaking phase might be complete already.

For example, PMI 1 might come up first. Writing to its remote register and reading all PMIs possible at this point might say that PMI 1 is by itself. So it comes up, finishes handshaking, and goes into data mode and traffic starts to flow. Then PMI 2 comes up. What happens then? Do you write a new value to PMI2? How do you read it on PMI1 if handshaking is finished? Or do you just read it first and compare it to values you've already written?

Like I said, it seems either fuzzy or broken right now.

SuggestedRemedy

Clarify how read/write of remote registers happens after PMIs are already aggregated. Its very unclear.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add note to end of 61A.2:

NOTE---Access of remote PMI Aggregation registers can only occur on links which are neither Up nor Initializing. For example, the LT system may access the remote_discovery_register through an inactive PMI to see if it contains a value already written elsewhere, and thus belongs to an aggregation group that has already begun to be activated, but it cannot access this register through already activated PMI links.

Cl **61A** *SC* **61A.2** *P* **558** *L* **28** # **258**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

numbering starts with "c"

SuggestedRemedy

start with "a"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61A** *SC* **61A.2** *P* **559** *L* **18** # **251**
Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Insert example where entire ramp-up including remote discovery, PMI aggregation and line activation under the use of G.994.1 defined actions is described

SuggestedRemedy

See Riess_01_1103.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Update Figure 61-20 with this Figure.

Cl **61A** *SC* **61A.3** *P* **562** *L* **35** # **471**
Tom Mathey Independent

Comment Type **T** *Comment Status* **D**

1. Table seems to be that from the pdf file which had the scrambler.
2. 'C' program includes only one of the two CRC.
3. Table includes only three of the 6 test cases.
4. CRC's need independent review.

SuggestedRemedy

1. Rerun program and include actual output.
2. enhance program to include both CRCs.
3. run program long enough to include all 6 test cases.
4. provide independent review of CRC's.

I will be happy to collect and compare CRC's with an actual implementation.
Required sequence is for a MAC frame of 60 bytes from 0x01 to 0x3c, with 4 MAC CRC bytes, followed by PCS CRC.
Include both types of PCS CRC. E-mail by Wed 5 Nov to <tmathey@concentric.net>

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **61A** *SC* **61A.3** *P* **562** *L* **35** # **259**
Horvat, Michael Infineon Technologies

Comment Type **TR** *Comment Status* **D**

In the C-Code the scrambler is already removed, but the output is from the version with scrambler.

SuggestedRemedy

replace output with correct one.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62** *SC* **61.2.2.5** *P* **334** *L* **54** # **536**
Brand, Richard Nortel Networks

Comment Type **E** *Comment Status* **D**

add comma behind links,

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62** *SC* **62.2.4** *P* **412** *L* **50** # **126**
Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Editor's Notes should be removed prior to publication.

SuggestedRemedy

Remove Editor's Notes on page 412 and page 415.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62** *SC* **62.3.4.1** *P* **415** *L* **22** # **418**
Ed Eckert Ikanos Communication

Comment Type **TR** *Comment Status* **D**

Trellis coding has traditionally been supported by Ethernet PHYs, such as 1000 Base-T, and EFM long reach (2Base-TL). VDSL-2, the next generation DMT VDSL will also support Trellis coding. It is only logical that the proven benefits of Trellis coding be available to 10Pass-TS implementations. Trellis coding needs to be specified in the current 802.3ah text.

SuggestedRemedy

Add reference to sections 8.7, 8.8. and 8.9 of ITU-T G.992.1

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The comment is made against material that was previously approved and is unchanged in this draft.
See also comment #328.

Cl **62** *SC* **62.3.4.1** *P* **416** *L* **4** # **473**

Behrooz Rezvani — Ikanos Communication

Comment Type **TR** *Comment Status* **D**

Attention is called to the following where the tone spacing for 10PASS-TS of 4 KHz and 8 KHz are discussed
- Data rate performance: 4 KHz and 8 KHz tone spacings are about the same;
- Delay: 8 KHz has half the delay compared to 4 KHz;
- Burst noise protection: 125 usec symbol is better suited to protect against some class of burst noise, specifically those that are greater than 125 usec and less than 250 usec;
- Power consumption: Because the 8 KHz tone spacing results in smaller geometry due to smaller block size (memory), better power efficiency is achieved;
- Support of 100/100 Mbps up to 300 meters: This would require an extension of bandwidth up to 25 MHz. Because the number of tones are now set to 4000, 8 KHz becomes mandatory.

Conclusion: Both 4 and 8 KHz tone spacing need to be supported in the 10Pass-TS EFM PHY.

SuggestedRemedy

(1) In SC 62.3.4.1, in the reference to Subsection 8.2.1.1 of MCM-VDSL, ADD:
"Additionally, 8.625 kHz tone spacing shall be supported as specified in 62.4.4.2."
(2) In SC 62.4.4.2, line 8 ADD "Section 14" to the list.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
To be discussed with comment #327 (TR).
Support for 8.625 kHz tone spacing was removed from the draft in resolution of comments #622/D2.0 (TR), #621/D2.0 (TR), #824/D2.0 (T) and #1244/D2.0 (T), accepted by the Copper Sub Task Force at the Ancona meeting (Y:12, N:3, A:2).

This was done to avoid the following problems:
- The 8.625 kHz spacing provides only 50% of the cyclic extension provided by the 4.3125 kHz systems. This creates additional ISI and performance degradation for loops longer than 700 meters.
- Complications in interoperability of systems from different vendors: The two tone spacing will result in twice the number of interoperability tests to be performed (unless the standard clearly specifies when and where each one shall be used).
- Avoid unnecessary increased crosstalk when mixing systems of 4.3125 kHz and 8.625 kHz tone spacing in the same cable (this scenario is explained in Annex C of T1.424/Trial-Use)

There is no new information or change to the draft that would necessitate the introduction of 8.625 kHz tone spacing at this point.

Cl **62** *SC* **62.3.4.4** *P* **416** *L* **40** # **129**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

The sentence "Only one UPBO mode shall be supported as described below" seems to preclude the possibility of disabling UPBO, which would be useful for testing purposes (in fact, it is implicitly required by the presence of test cases in Annex 62B which have "UPBO off").

SuggestedRemedy

Replace this sentence with:
"It shall be possible to temporarily disable UPBO for performance testing purposes (as required by Annex 62B). In normal operation, only one UPBO mode shall be supported as described below:"

Add a sentence at the end of subclause 62A.3.4:
"The 10PASS-TS PHY shall additionally allow a profile value of `0' to be selected, which indicates that UPBO is to be disabled."

Add a 1-bit Enable UPBO register to Clause 45, and document its use in 62A.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accept Clause 62 changes.

For Clause 45, it appears that bit 1.x.8 in 45.2.1.24 is not needed, and could be reassigned for this use.

Cl **62** *SC* **62.3.4.8** *P* **418** *L* **41** # **105**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Space missing.

SuggestedRemedy

Add space after "to".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62** *SC* **62.4.4.1** *P* **428** *L* **14** # **106**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

PICS entry PMA-3 needs to be updated.

SuggestedRemedy

Replace PMA-3 with: "The 10PASS-TS PMA complies to the requirements of MCM-VDSL Section 9.3, with the exception of support for the fast path, support for V>1, NTR, and TPS-TC specific indicator bits as listed."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62** *SC* **62.4.4.2** *P* **429** *L* **19** # **107**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

In PICS entry PMD-5, wrong symbol for number of subcarriers is used.

SuggestedRemedy

In symbol "NSC", make letters "SC" subscript.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62** *SC* **62.4.4.2** *P* **431** *L* **29** # **108**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

PICS entry PMD-31 does not represent an actual option (no optional "shall" statement in the text).

SuggestedRemedy

Remove PMD-31.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62A** *SC* **62A.1** *P* **564** *L* **3** # **325**

Beili, Edward — Actelis Networks

Comment Type **TR** *Comment Status* **D**

2B defines 10 exemplary complete Profiles, representing specific sets of Data Rate, Power, PSD mask (Region) and Constellation. 10P defines only a single default complete profile. It would be beneficial for the ease of deployment/management, if we could define a number of complete profiles for 10P as well, representing specific sets of Bandplan, PSD mask, UPBO Reference PSD, Notching parameters and Payload rates.

SuggestedRemedy

Add a number of Complete Profiles for 10P in Annex 62A. Define a corresponding clause 30 management variable.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Annex 62A defines 29 Band plan and PSD mask profiles, 9 UPBO reference PSD profiles, 11 Band notch profiles and 99 Payload profiles.Therefore, there are already 29 * 9 * (2^11) * 99 = 52,918,272 "complete profiles" defined. Assuming a logical combination of settings for a certain regulatory region, about 18,216 complete profiles are recommended for use.
Subclause 62A.3.8 specifies one complete profile as the default profile.
Annex 62B provides performance guidelines for various complete profiles.

Cl **62A** *SC* **62A.3.7** *P* **569** *L* **22** # **118**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Typo: "compatable".

SuggestedRemedy

Replace with "compatible".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **62B** *SC* **3** *P* *L* # **417**

Bernard, Debbasch — GlobespanVirata

Comment Type **TR** *Comment Status* **D**

Based on the draft P802.3ah/D2.2, 12 dB Gap and 0 back-off tone in the band-transition areas, simulation results for test #'s 2, 19, 21, 25, 29, and 30 show test results that fall excessively short of the objectives specified in Table 62B-1.

SuggestedRemedy

We recommend that these test be either removed or modified such that the performance objective in each test is achievable considering reasonable implementation losses. We are planning to present our simulation results at the task force meeting.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See resolution of comment #505.

Cl **62B** *SC* **3** *P* *L* # **416**

Bernard, Debbasch GlobespanVirata

Comment Type **TR** *Comment Status* **D**

Based on the draft P802.3ah/D2.2, 12 dB Gap and 0 back-off tone in the band-transition areas, the transceiver compliant with the definition in clauses 62 and 62B cannot physically meet the bit rate objectives in test case #10 and #20 in table 62B-1.

SuggestedRemedy

Test cases #10 and #20 shall be deleted from the specification.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See resolution of comment #505.

Cl **62B** *SC* **62B.3** *P* **541** *L* # **99047**

Sorbara, Massimo GlobespanVirata, Inc.

Comment Type **TR** *Comment Status* **A** *D2.0 #1241*

The transceiver compliant with the definitions in clauses 62 and 62B cannot physically meet the bit rate objectives in test cases#10 and #21 in table 62B-1. We recommend that test cases #10 and #21 be deleted from the specification.

SuggestedRemedy

We recommend that test cases #10 and #21 be deleted from the specification.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
See: #1245.

Cl **62B** *SC* **62B.3** *P* **541** *L* **9** # **99048**

Barrass, Hugh Cisco Systems

Comment Type **TR** *Comment Status* **R** *D2.0 #882*

Users should expect a high degree of interchangeability between compliant devices. In order to achieve this it is important that required performance levels are near to the maximum achievable within the standard. This will ensure the minimum of variation from on device to another without unduly constraining implementation.

Many of the distances specified in Table 62B-1 are significantly below the levels achieved by devices tested by T1E1.4 or capacity simulations. The required distances must be increased to more challenging levels as shown in the remedy.

Additionally, the distances specified for notched profiles and very high rate profiles must be shown to be near the theoretical limit for the test scenario.

Furthermore, given that a number of implementations are available which already comply with the PMA/PMD specification, it is expected that physical device testing should be performed according to this Clause prior to Sponsor Ballot.

SuggestedRemedy

Change the distances of the tests in Table 62B-1 as follows:

Test number : Change distance to

1	1100
2	750
3	1000
4	600
5	750
13	350
15	900
17	1000
18	1200
19	1400

Proposed Response *Response Status* **U**

REJECT.

The Olympic test results, the testing method, and testing parameters were designed as technology evaluation and as such should be treated only as guidelines. The reaches indicated in the table are sufficient to indicate basic functionality and performance.

Following changes have been made in resolution of comment #1245:

Tests 2 and 6: use profile 18
Change data rate on 10 and 21 to 100/35.
Tests 11: remove entry
Test 12: change noise to AWGN
Test 14: change loop length to 650m
Test 15, 17, 26, 28 : remove UPBO

Test 18: change loop length to 750m and use profile 4
Test 17: use profile 4
Tests 28, 29: use profile 4

The Chair is directed by the group to ensure that simulation data is made available to support these values and to rebutt the proposed values in comment #882.

Cl **62B** *SC* **62B.3** *P* **577** *L* **1** # **505**

O'Mahony, Barry — Intel

Comment Type **T** *Comment Status* **D**

test Cases in Table 62B-1 need updating per Copper STF teleconferences consensus.

SuggestedRemedy

Change Table 62B-1 test cases entries to match those in http://www.ieee802.org/3/efm/public/nov03/copper/62Bd2_2CMPR1.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Needs discussion in the Copper Sub Task Force.

Cl **62B** *SC* **62B.3** *P* **577** *L* **24** # **119**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

First instance of Test 11 (strikethrough) is obsolete.

SuggestedRemedy

Remove frist instance of Test 11 (strikethrough) and associated footnote.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63** *SC* **63.1.5** *P* **435** *L* **49** # **248**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Order of remote discovery PMI aggregation and line activation not clear.

SuggestedRemedy

Add a note that line activation takes place after entire discovery and PMI aggregation operation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63** *SC* **63.1.5** *P* **436** *L* **23** # **249**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

Reference not included anymore (applies also to line 26)

SuggestedRemedy

remove reference

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63** *SC* **63.2.1** *P* **436** *L* **53** # **109**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Excessive capitalization.

SuggestedRemedy

Change "Octets" to "octets".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63** *SC* **63.2.2.1** *P* **437** *L* **42** # **110**

Beck, Michael — Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

This line throws away two perfectly good framing bits (sbid1, sbid2), while in 63.2.2.2.1 a lot of overhead is created to transmit two PCS status bits by means of EOC messages.

SuggestedRemedy

Change line 42 to:
"sbid1 is defined as 'EFM TC Freewheeling', to be asserted if and only if the signal local_TC_freewheeling on the alpha(beta)-interface (see 61.2.3.2) is asserted.
sbid2 is defined as 'EFM TC Not Synced', to be asserted if and only if the signal local_TC_out_of_sync on the alpha(beta)-interface (see 61.2.3.2) is asserted."
Remove subclause 63.2.2.2.1 and the Editor's Note that preceeds it.
On page 438, line 7, remove sentence "Two new EOC messages...".
On page 439, line 1, remove heading 63.2.2.2.2, as this is now the only level-5 heading in subclause 63.2.2.2, which is a violation of the Style Guide.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Needs discussion in Sub Task Force. To be discussed with comments #85 and #415.

Cl **63** *SC* **63.2.2.2** *P* **438** *L* **10** # **125**

Beck, Michael Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Editor's Notes should be removed prior to publication.

SuggestedRemedy

Remove Editor's Notes on page 438 and page 441.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63** *SC* **63.2.2.2.1** *P* **438** *L* **16** # **415**

kimpe, marc adtran

Comment Type **T** *Comment Status* **D**

There is no latency guarantee on an EOC message hence the message indicating an out of sync condition might be stuck behind other EOC messages and take a few frames in order to get to the other side. A change in the idle frame pattern is more elegant as it operates as the same layer as the problem ie a synchronization problem in the TC-layer is flagged by a change in the idle frame pattern of the same layer rather than going one layer down in the EOC.

SuggestedRemedy

Delete the EOC messages and signal the out of sync by a change in the idle pattern of clause 61.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Needs discussion in Sub Task Force. To be discussed with comments #110 and #85.
The 64/65-octet encapsulation method has received a lot of attention during Task Force review, and the proposed changes may compromise the stability of the current TC specification.

Cl **63** *SC* **63.2.2.2.2** *P* **440** *L* **1** # **250**

Horvat, Michael Infineon Technologies

Comment Type **T** *Comment Status* **D**

Wrong message ID

SuggestedRemedy

Correct one is 140

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63** *SC* **63.3.2** *P* **440** *L* **48** # **117**

Beck, Michael Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

The sentence "G.991.2 Annex A (Regional Requirements - Region 1), Annex B (Regional Requirements - Region 2) and Annex C (Regional Requirements - Region 3) are regionally applicable, as specified." is too weak. The (new) mandatory PICS entry PROF-3 (Annex 63A) states that all listed profiles must be supported, which implies that support for Annex A and Annex B is mandatory.

SuggestedRemedy

Change the quoted sentence to: "The 2BASE-TL PMD shall support the requirements of G.991.2 Annex A (Regional Requirements - Region 1) and Annex B (Regional Requirements - Region 2) with the exception of performance requirements, which are replaced by Annex 63B."
In 63.4.4.2 (PICS for SHDSL based PMD), replace PMD-4 with "The 2BASE-TL PMD supports the requirements of G.991.2 Annex A (Regional Requirements - Region 1) and Annex B (Regional Requirements - Region 2) with the exception of performance requirements, which are replaced by Annex 63B.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In order to have a single device supporting annex A & B, the span powering option of the SHDSL standard has to be out of
scope otherwise it leads to different hardware.
In addition to the remedy suggested by the commenter, add
"Section A.5.3 Span powering is out of scope" to the end of section 63.3.2.4 and "Section B.5.3. Span Powering is out of
scope" to the end of section 63.3.2.5.
EFM also needs to reflect the agreement within ITU to change the return loss for annex B from 14 to 12 dB which is captured
in G.shdsl.bis & ETSI TM6 but not in G.991.2 and the amendment document. Therefore add the following sentence to section
63.3.2.5. "The RLmin value of section B.5.2 is modified from 14 to 12 dB for the purpose of 2BASE-TL."

Cl **63A** *SC* **63A.3** *P* **588** *L* **40** # **252**

Horvat, Michael — Infineon Technologies

Comment Type **T** *Comment Status* **D**

PMI aggregation is the only way to bundle links; up to 32 links can be bundled.

SuggestedRemedy

Remove 'M pair' and replace it with 'PMI aggregation up to 32 links'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
This section does not describe the use of PMI aggregation, but the rationale for choosing the bitrates for the different profiles. Since the profiles data rates are indeed based on an aggregation of 1 to 4 pairs, we would suggest to use the following wording:
Change
The profiles of Table 63A-1 will generate a net data rate greater than 2 Mb/s at the MII interface on M pairs where M is between 1 and 4. Note that the profiles are defined on a single pair basis. The aggregation mechanism is outside the scope of this Annex. The data rate is the closest multiple of 64 kb/s greater than a net
data rate of 2 Mb/s plus the corresponding 64/65B encapsulation overhead divided by M. The line rate has an additional 8 kb/s of SHDSL overhead.
to
The profiles of Table 63A-1 will generate a net data rate greater than 2 Mb/s at the MII interface on 1 to 4 pairs. Note that the profiles are defined on a single pair basis. The aggregation mechanism is outside the scope of this Annex. The data rate is the closest multiple of 64 kb/s greater than a net data rate of 2 Mb/s plus the corresponding 64/65-octet encapsulation overhead divided by the number of pairs. The line rate has an additional 8 kb/s of SHDSL overhead.

Cl **63A** *SC* **63A.3** *P* **588** *L* **42** # **115**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Wrong name for encapsulation.

SuggestedRemedy

Replace "64/65B encapsulation" with "64/65-octet encapsulation".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63A** *SC* **63A.3** *P* **588** *L* **45** # **87**

Squire, Matt — Hatteras Networks

Comment Type **T** *Comment Status* **D**

Why is the default profile Annex B? Seems like it should be profile #2 instead of profile #7 (Annex A).

Guess my N.A. bias is showing thru...

SuggestedRemedy

Change default profile to #2 (Sames rates, Annex A).

Proposed Response *Response Status* **W**

PROPOSED REJECT.
A region B profile was selected as default in analogy with Annex 62A (for 10PASS-TS, the region B profiles are better suited to support symmetric services). Although there is no preference for one region or the other, it was the opinion of the Copper Sub Task Force that there should be consistency between Annex 62A and Annex 63A in this matter.

Cl **63A** *SC* **63A.4** *P* **588** *L* **52** # **253**

Horvat, Michael — Infineon Technologies

Comment Type **E** *Comment Status* **D**

wrong cross ref

SuggestedRemedy

correct cross ref is 45.2.1.34

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **63A** *SC* **63A.5** *P* **589** *L* **49** # **116**

Beck, Michael — Alcatel Bell nv

Comment Type **E** *Comment Status* **D**

Numbering of PICS entries doesn't reflect the fact that these are 2BASE-TL specific.

SuggestedRemedy

Change entry numbers "PROF-n" to "2BProf-n".
In Annex 63B, change entry numbers "PERF-n" to "2BPerf-n".
Same for PMA and PMD entries in Clause 62 (prepend 10P) and Clause 63 (prepend 2B).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* *P* *L* # **474**
Maislos, Ariel Passave

Comment Type **E** *Comment Status* **D**
Verify PICS match shalls

SuggestedRemedy
cross-check PICS to shalls in draft

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **64** *SC* *P* *L* # **475**
Maislos, Ariel Passave

Comment Type **T** *Comment Status* **D**
verify counters match Clause 30 entries

SuggestedRemedy
incremetn counters in relevant state-diagrams in case of miss-match

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Volunteer is needed to identify the relevant state diagrams and locations to add counters

Cl **64** *SC* **64.1** *P* **448** *L* **25** # **419**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**
Wrong reference

SuggestedRemedy
Change reference to Clause 67

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **64** *SC* **64.1** *P* **449** *L* **12** # **143**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**
Wrong reference

SuggestedRemedy
Change to 65.1.3.4.2

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **64** *SC* **64.1.2** *P* **450** *L* **38** # **147**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**
Wrong reference

SuggestedRemedy
Change to 65.1.3.4

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **64** *SC* **64.1.2** *P* **450** *L* **40** # **278**
Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**
The decision whether to use same or different MAC addresses for each MAC in the OLT is an implementation decision and is completely out of scope of 802.3 standard

SuggestedRemedy
Remove the text prescribing single MAC address.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **64** *SC* **64.1.2** *P* **450** *L* **45** # **76**
Shimon Muller Sun Microsystems, Inc

Comment Type **TR** *Comment Status* **D**
The decision taken at the last meeting regarding the enforcement of the inter-frame spacing in the OLT has made half duplex operation in the MAC a mandatory requirement. I could not find this requirement specified anywhere in this draft.

SuggestedRemedy
1. At the end of this subclause add the following paragraph:
"All the MAC instances in the OLT shall be configured for the half duplex mode of operation, as defined in Clause 4. In the ONU, the MAC may be configured for either the half duplex or the full duplex modes."
2. Add a PICS entry to reflect the above addition.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

According to current specification, both ONU MAC and OLT MAC should be in half-duplex mode.

Corresponding explanation is to be added to C64 and C65.
PICS entry to be added to C64

Cl **64** *SC* **64.2.2.2** *P* **454** *L* **11** # **89**

Brown, Benjamin Independent

Comment Type **TR** *Comment Status* **D**

Default values are being used inappropriately. The text from 36.2.5 states:

"The notation used in the state diagrams in this clause follow the conventions in 21.5. State diagram variables follow the conventions of 21.5.2 except when the variable has a default value. Variables in a state diagram with default values evaluate to the variable default in each state where the variable value is not explicitly set."

This implies a couple of things:

default values are only used on outputs of state machines
default values are only used for variables that change value implicitly, when the state diagram changes state

The state diagrams in Clause 64 violate both of these conventions.

SuggestedRemedy

Apply default values only to variables that are outputs of state diagrams
Apply default values only to variables that are not explicitly assigned when changing state.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Volunteer to identify such variables is needed.

Cl **64** *SC* **64.2.3.1** *P* **457** *L* **37** # **279**

Glen Kramer Teknovus

Comment Type **TR** *Comment Status* **D**

The definition of tail_guard is wrong for the case when FEC is implemented. With FEC, the tail_guard should account for the additional length needed to transmit parity octets and extended EPD.

Because the length of parity data depends on length of Ethernet frame, the tail_guard cannot be a constant.

SuggestedRemedy

Update definition of tail_guard according to the comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.2.3.2** *P* **458** *L* **49** # **90**

Brown, Benjamin Independent

Comment Type **TR** *Comment Status* **D**

Variables are defined for each state machine they appear in (e.g., transmitEnable, transmitInProgress, transmitPending). This is confusing at least and is very prone to mistakes. The majority of these state diagrams have interdependencies and it is very confusing to look at one definition for an input to state diagram A and another definition for an output of state diagram B, when in reality these 2 variables are exactly the same thing.

SuggestedRemedy

Combine all of the Constants, Variables, Functions, Timers & Messages for the various state diagrams and reconcile the numerous copies of the individual variables.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.2.3.3** *P* **459** *L* **20** # **280**

Glen Kramer Teknovus

Comment Type **E** *Comment Status* **D**

Definition of timestamp() function is duplicated on line 30

SuggestedRemedy

Remove duplicate definitions

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.2.3.6** *P* **460** *L* **18** # **283**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

opcode = data[1:16]
timestamp=data[16:47]

Timestamp parsing is not correct (timestamp overlaps last bit of opcode).

SuggestedRemedy

Change text to "timestamp=[17:48]" or "opcode=[0:15]"
Similar changes should be made in Figures 64-10 and 64-12

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.2.3.6** *P* **460** *L* **6** # **281**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

In state diagrams 64-9, 64-10, and 64-11, parameter "data" is received as part of TransmitFrame function call, but "m_sdu" is used in MA_DATA.indication and in timestamp() function call.
No definitions is given to either parameter. To add to the confusion, "data" is a bit array with base 1, and "m_sdu" is a byte array with base 0.

SuggestedRemedy

1. Use base 0 for both "data" and "m_sdu" arrays.
2. Redeifine both arrays to be byte arrays.
3. Add definition explaining that "m_sdu" includes length/type as the first two octets.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.2.3.6** *P* **462** *L* **13** # **282**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

In WAIT FOR TRANSMIT state, opcode parsing code is not correct (Compare to state digrams 64-9, 64-10, 64-12).

SuggestedRemedy

change "m_sdu[1:16]" to "data[1:16]"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.2.3.6** *P* **462** *L* **26** # **284**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

Inconsistent timestamping methods in OLT and in ONU.
In OLT (Figure 64-11): timestamp(m_sdu, localTime)
In ONU (Figure 64-12): data[16:47] = localTime

SuggestedRemedy

Use the same process in both state diagrams.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Discuss whether an additional description of timestamp() function is required to illustrate that the same reference point is to be used in setting and getting timestamp values

Cl **64** *SC* **64.3** *P* *L* # **480**

Maislos, Ariel Passave

Comment Type **E** *Comment Status* **D**

shorthand form is usewd in 64.3.10

SuggestedRemedy

use additional shorthand forms to add clarity to diagrams in 64.3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.1** *P* **464** *L* **15** # **285**

Glen Kramer Teknovus

Comment Type **E** *Comment Status* **D**

"Transmitting and receiving frames as if it was connected to a dedicated link" is an incomplete sentence.

SuggestedRemedy

Rephrase the paragraph as:
"Multi-point MAC Control enables a MAC Client to participate in a point-to-multi-point optical network by allowing it to transmit and receive frames as if it was connected to a dedicated link."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.1** *P* **464** *L* **30** # **286**

Glen Kramer Teknovus

Comment Type **E** *Comment Status* **D**

"When operated, the network is assymetrical, with the OLT assuming the role of master, and the ONU assuming the role of slave."

What about the case when network is not operational?

SuggestedRemedy

Modify the above text as:
"The operation of P2MP network is assymetrical, with the OLT assuming the role of master, and the ONU assuming the role of slave."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.2** *P* **482** *L* **10** # **299**
Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

Variable "time" is not used in state diagrams.

SuggestedRemedy

Remove unneeded definition

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.2** *P* **482** *L* **26** # **149**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

The variable syncTime should also include the amount of time necessary for the PCS to acquire synchronization once the data is decodable. The number of idle characters needs to also take into account the amount of time required by the synchronization state machine to complete. This is a non-negligible amount of time as it will take a minimum of 10, 10-bit codes, or 80ns to achieve sync. The presence of errors could increase this time, as the idle stream is not covered by the RS forward error correction, if it is used. Any single bit error could force the synchronization process to restart, thus increasing the amount of idle necessary to send before a frame.

SuggestedRemedy

Modify sentence to read "It counts in time_quanta units from the point where transmission output is stable to the point where synchronization has been achieved." Change default value to 336 nano seconds.

A separate comment has also been submitted against Clause 65 to make similar changes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.6** *P* **484** *L* **45** # **293**
Glen Kramer Teknovus

Comment Type **E** *Comment Status* **D**

State transition is shown in wrong font.

SuggestedRemedy

Fix the font

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.6** *P* **485** *L* **20** # **294**
Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

A state or procedure to parse GATE message in ONU is missing (Figure 64-26). As a result, sync_time is used without ever being initialized.

SuggestedRemedy

Add GATE parsing procedure

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.6** *P* **486** *L* **20** # **295**
Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

In state TURN LASER ON, calculation of stopTime is wrong. LaserOnTime and syncTime are part of the grant length.

SuggestedRemedy

Change
"stopTime = currentGrant.start + currentGrant.length - laserOffTime
- laserOnTime - syncTime"

to
"stopTime = currentGrant.start + currentGrant.length - laserOffTime"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.6** *P* **486** *L* **24** # **300**
Glen Kramer Teknovus

Comment Type **TR** *Comment Status* **D**

In transition from TURN LASER ON to START TX state, the label IDLE_Timer_done was changed to UCT.
This modification to state diagram are made without a corresponding comment.

SuggestedRemedy

Rollback erroneous change

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.6** *P* **486** *L* **28** # **297**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

Definition of "discoveryGrantLength" is missing.

SuggestedRemedy

Add definition as follows:

discoveryGrantLength -
This variable represents the duration of ONU's transmission during discovery attempt. The value of discoveryGrantLength includes receiver settling and synchronization time (syncTime), MPCPDU transmission time and tail-guard as defined in #cross ref...#.

(note that tail_guard is not constant, so discoveryGrantLength is not constant either)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.10.6** *P* **486** *L* **31** # **296**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

Timer "grant_window_time" should be called "gntWinTmr"

SuggestedRemedy

Change timer name

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.3.2** *P* **452** *L* **45** # **99009**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **R** *D2.0 #1012*

Point to Point emulation is an out of scope function that is only required for bridging.
As closely as I can tell, from the carrier point of view, it is not part of their requirements.
Carriers want a non-peer network that does not support direct ONU to ONU communication on a peer basis.

SuggestedRemedy

Split P2P Emulation from EFM as a separate PAR for joint development with 802.1 to be formulated as a separate amendment to 802.1D (similar to 802.11 & 802.12) in clause 6.5 distinct from 6.5.1. Further have PON as a separate (Carrier oriented) 802.3 standard that is more fully oriented to the market requirements of carriers.

Proposed Response *Response Status* **U**

REJECT.
Splitting the P2P emulation as an 802.1 project is not possible as the function is located wholey inside the RS layer between the MAC and the PHY, a location that is not exposed to an 802.1 project.

In regards to dividing the 802.3 standard, see 952.

Cl **64** *SC* **64.3.3.2** *P* **464** *L* **51** # **145**
Lynskey, Eric UNH-IOL

Comment Type **TR** *Comment Status* **D**

I can find no text that describes the usage of the mode bit for an OLT. The definition states it may be a 0 or a 1, but does not describe how it is to be used. The only reference to the values this bit should take are in Figure 64-14, when describing the discovery process. The behavior for the reception of the mode and LLID bits is clearly defined in 65.1.3.4.2, but the behavior for transmission is not defined.

A list of rules previously existed up until D1.414. Comment 796 against D1.414 sought to move these rules to Clause 65. The comment was accepted in principle and stated that something would be done to either reword or move these rules. The entire list was deleted in D1.732 and has not been seen since.

SuggestedRemedy

Reprint the list of rules from D1.414 or create a new list describing the rules for transmitting the mode and LLID bits.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Discussion is needed to identify the right place for these rules. In editor's opinion, these rules do not belong to clause 64, since LLIDs values are not avalable to either MAC or MPCP.

Perhaps, it is better to fix Figure 64-14 to remove references to LLIDs. It is enough to identify whether each MPCPDU is being sent on a broadcast channel or unicast channel (or correspondingly, whether each messahe is originated by broadcasting MAC Control client or a unicasting MAC Control client).

Cl **64** *SC* **64.3.3.2** *P* **465** *L* **4** # **146**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**

Wrong reference

SuggestedRemedy

Change to 65.1.3.4.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.3.3** *P* **465** *L* **23** # **144**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**

Wrong reference.

SuggestedRemedy

Change reference to 65.1.3.4.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.4** *P* **466** *L* **34** # **287**
Glen Kramer Teknovus

Comment Type **E** *Comment Status* **D**

Extra space in formula to calculate RTT

SuggestedRemedy

Remove extra space and fit the formula on one line

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Same as #479

Cl **64** *SC* **64.3.5** *P* **466** *L* **49** # **288**
Glen Kramer Teknovus

Comment Type **E** *Comment Status* **D**

"Variable" should be "Variables"

SuggestedRemedy

Fix as shown above

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.8.3** *P* **470** *L* **15** # **289**
Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

Function max(A,B) is not used in state diagrams.

SuggestedRemedy

Remove unneeded definition.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.8.4** *P* **470** *L* **33** # **290**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

gntWinTmr is not used in discovery procesisng.

SuggestedRemedy

Remove unneeded definition

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.8.5** *P* **470** *L* **46** # **291**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

MA_CONTROL.request(DA, gate, discovery, startTime, grantLength, discoveryLength)

Definitions for parameters "gate" and "discovery" are missing

SuggestedRemedy

Add missing definitions or remove the parameters altogether

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.8.6** *P* **472** *L* **3** # **141**

Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**

States that figures 17, 18, and 19 are only performed for broadcast MAC. Also states that figures 19 and 20 are performed for every MAC.

SuggestedRemedy

Change first sentence to figures 17 and 18 are only performed for broadcast MAC.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Is it correct to say ". . . 19 and 20 are performed for every MAC"
or should we say ". . . 19 and 20 are performed for every MAC except the the MAC attached to broadacst channel"

Cl **64** *SC* **64.3.8.6** *P* **473** *L* **11** # **498**

Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

State machine transition lines should be solid with the transition label beside the line, not breaking the line.

SuggestedRemedy

Fix all the state diagrams to not have broken lines and the transition label beside the line. Transition lines must also exit the bottom of the box and enter at the top of the box.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Volunteer is needed to clean up state machines

Cl **64** *SC* **64.3.8.6** *P* **473** *L* **16** # **292**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

The following notation is very confusing
TransmitFrame(DA, SA, MAC Control,opcode =
GATE|startTime|grantLength|discoveryFlag = true)

SuggestedRemedy

1. Create variable "data" on a separate line.
2. Call TransmitFrame function with the same set of parameters as is used in its definition.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.8.6** *P* **475** *L* **22** # **142**

Lynskey, Eric UNH-IOL

Comment Type **TR** *Comment Status* **D**

Figure 64-19 controls the discovery process for an OLT. After transmitting the register frame in the REGISTER state the state machine waits until a gate message has been transmitted and the initialGate variable to be set TRUE. This variable is only set by Figure 64-25. Figure 64-25 cannot set initialGate until registered = TRUE. The registered variable is only set by Figure 64-19, and is not set until the REGISTERED state. You cannot get to the REIGSTERED state until initialGate = TRUE. Therefore, you can never register and never send the first gate message.

SuggestedRemedy

Courtesy of Glen Kramer:

I think the better way is to modify Fig. 64-19 and instead of waiting for a initialGate transition, wait for MA_CONTROL.Request to transmit GATE message. This will eliminate the need to have initialGate variable, which is confusing by itself.

The only modification to 64-19 is the transition from WAIT FOR GATE to WAIT FOR REGISTER_ACK should be labeled as MACR(DA,gate,n, start[4], length[4], discovery, force_report[4])

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.4.2** *P* **489** *L* **12** # **298**

Glen Kramer Teknovus

Comment Type **T** *Comment Status* **D**

Reports are forced per individual grant, not per GATE.

SuggestedRemedy

Change sentence
"A REPORT frame should be issued at the corresponding transmission opportunity indicated in this GATE"
to
"A REPORT frame should be issued at the corresponding transmission opportunity indicated in this grant"

Apply similar changes for each grant

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **all** *P* *L* # **99010**

Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **R** *D2.0 #843*

The concept of point to point emulation is foreign to 802.3 and was introduced to allow compliance with 802.1D bridging

SuggestedRemedy

Move this section to new document and as a part of the revised PAR, remove requirement to comply with 802.1

Proposed Response *Response Status* **U**

REJECT.

Compliance to 802.1D is a requirement of our PAR and of the LMSC policies and procedures.
In regards to dividing the 802.3 standard, see reponse to comment 952.

Cl **64** *SC* **figure 64-13** *P* **466** *L* **34** # **479**

Maislos, Ariel Passave

Comment Type **E** *Comment Status* **D**

formula is spread on two lines

SuggestedRemedy

shorten formula

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Same as #287

Cl **64** *SC* **Figure 64-28** *P* **479** *L* **16** # **99011**

Tae-Whan Yoo ETRI

Comment Type **TR** *Comment Status* **R** *D2.0 #1014*

All of the message fields in GATE MPCPDU except "Number of grants/Flags" are in even number of octets. It is, therefore, inconvenient to interpret the messages below the "Number of grants/Flags" in GATE MPCPDU when the logic is implemented to process in other than 8 bits, say 16 bits or 32 bits.

SuggestedRemedy

It is recommneded to add one octet after "Number of grant/Flags" for two purposes:
1) To enable the messages after "Flags" to be interpreted in the unit of even octets.
2) To provide a reserved field for future application.

Proposed Response *Response Status* **U**

REJECT.
All parameters are specified using the required number of bits.
A compact form is required for the message.

Vote on comment
Approve response (reject comment)
Yes: 8
No: 1
Abstain: 3

Cl **64** *SC* **Figure 64-30** *P* **481** *L* **14** # **99012**

Tae-Whan Yoo ETRI

Comment Type **TR** *Comment Status* **R** *D2.0 #1015*

All of the message fields in REPORT MPCPDU except "Number of queue sets" and "Report bitmap" are in even number of octets. It is, therefore, inconvenient to interpret the messages below the "Number of queue sets" and "Report bitmap" in REPORT MPCPDU when the logic is implemented to process in other than 8 bits, say 16 bits or 32 bits.

SuggestedRemedy

It is recommneded to add one octet after "Number of queue sets" and another single octet after "Report bitmap" for two purposes:
1) To enable the messages to be interpreted in the unit of even octets.
2) To provide a reserved field for future application.

Proposed Response *Response Status* **U**

REJECT.
All parameters are specified using the required number of bits.
A compact form is required for the message, where there is a shortage of space.

Vote on comment
Approve response (reject comment)
Yes: 9
No: 1
Abstain: 3

Cl **65** *SC* **54.2.2.2.2** *P* **512** *L* **21** # **157**

Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

The IsIdle funtion is used to determine whether tx_code-group is /T/, /R/, or a code-group in /I/. The text should be modified to make it explicit that a code group in /I/, which could be a K28.5, D16.2, D5.6, or any data code-group other than D21.5 or D2.2, should only be counted if it is part of the /I/ ordered_set (see 36.2.4.12). Basically, make sure that a /D/ in a frame doesn't get counted as part of idle.

SuggestedRemedy

This function is used to determine whether tx_code-group is /T/, /R/, /K28.5/ or any data code-group other than /D21.5/ or /D2.2/ that follows a /K28.5/.

Proposed Response *Response Status* **O**

Cl **65** *SC* **64.1.2** *P* **505** *L* **12** # **476**

Maislos, Ariel Passave

Comment Type **T** *Comment Status* **D**

efficiancy of multiplexing may be increased when slottime is decreased

SuggestedRemedy

Add The OLT may use slotTime = 512 when operating in half-duplex to improve efficiency.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65** *P* **503** *L* **1** # **380**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

This clause doesn't describe only functions. Grammar: 'a ... networks.

SuggestedRemedy

Change to 'This clause describes functions for use in 1000BASE-PX Point to Multi-Point (P2MP) networks only. Or leave out the 'only'.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1** *P* **503** *L* **30** # **381**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

FEC clause should show the FEC sublayer in its layer diagrams!

SuggestedRemedy

Add optional FEC layers to figs 65-1 and 65-3.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1.2** *P* **504** *L* **50** # **77**
Shimon Muller Sun Microsystems, Inc

Comment Type **T** *Comment Status* **D**

Half duplex operation of the MAC(s) in the OLT is an important part of understanding the principles of operation that follow. However, this clause has no mention of it at all.

SuggestedRemedy

In the second paragraph insert the following sentence between the 1-st and the 2-nd sentences:
"All the MAC instances are configured for the half duplex mode of operation."

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1.2** *P* **504** *L* **50** # **382**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

This text appears to describe the RS in the OLT with no corresponding text for the RS in the ONU.

SuggestedRemedy

Add a paragraph explaining the RS in the ONU.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1.2** *P* **505** *L* **10** # **96**
Brown, Benjamin Independent

Comment Type **TR** *Comment Status* **D**

Half-duplex operation is an extremely inefficient mechanism for enforcing the IPG between packets from different MACs for P2MP operation. See the presentation from Glen Kramer

SuggestedRemedy

Remove this concept from Clauses 64 & 65 and replace with the suggestion from Glen Kramer's presentation regarding enforcement in the Control Multiplexer within Clause 64.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1.2** *P* **505** *L* **12** # **503**
Booth, Brad Intel

Comment Type **TR** *Comment Status* **D**

The wording for CRS is confusing. The use of half duplex to defer the MAC will prevent the ONU from transmitting during the reception of data. CRS is asserted during the reception of data. This will cause deferral in the transmitting MAC which prevents simultaneous transmission and reception of data.

SuggestedRemedy

Stipulate that the CRS is duplicated to each MAC currently not in the process of transmitting frames.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1.3.3** *P* **505** *L* **48** # **383**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

SPD is not introduced.

SuggestedRemedy

Is it the same as the one in clause 36? If so, say so. If not, use a different name? Either way, spell out the abbreviation the first time it's used in this clause.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.1.3.3.1** *P* **505** *L* **48** # **384**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

It's quite hard to tell, but in clause 64, LLID appears to be "Assigned Port. This field holds a 16 bit unsigned value". If so, what happens to its bit 15 in the mapping in table 65-1?

SuggestedRemedy

?

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2** *P* **508** *L* **38** # **164**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

Auto-negotiation is not possible in an EPON, and it should be explicitly stated that any device implementing Clause 65 cannot enable auto-negotiation. The suggested remedy doesn't have a shall in it, but perhaps one is warranted.

SuggestedRemedy

Add sentence to end of 65.2.1 (or create new subclause) that states that: Auto-Negotiation, as defined in Clause 37, establishes a point to point handshaking mechanism for allowing 1000BASE-X devices to achieve a highest common denominator link. The P2MP aspect of a 1000BASE-PX network prohibits the use of the auto-negotiation protocol.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2** *P* **508** *L* **38** # **154**
Lynskey, Eric UNH-IOL

Comment Type **TR** *Comment Status* **D**

Half duplex is a bad idea. If half duplex is to be used, then it should be explicitly stated that all the mechanisms of half duplex are necessary (extension, bursting...). If this is not what is wanted, then significant changes must be made to the MAC in Clause 4 to account for this special mode in which only the CRS signal is used. Half duplex seems to be taking a large step backwards. I strongly recommend that another mechanism be found to make sure that the minimum IPG is not violated.

SuggestedRemedy

Push the mechanism back into the MAC Control layer to be supported by by Clause 64. Force each OLT and ONU to wait a predefined amount of time after transmitting each frame before it sets the transmitinProgress variable to false. Please see presentation from Glen Kramer for explicit textual changes to the OLT and ONU multiplexer state diagrams.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2** *P* **509** *L* **1** # **499**
Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Figure 65-3 is in the middle of the paragraph.

SuggestedRemedy

Change frame anchor properties.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* # **301**
Glen Kramer Teknovus

Comment Type **TR** *Comment Status* **D**

Half-duplex MAC should not be used in P2MP for the following reasons:
1. Extremely low throughput due to carrier extension
2. MPCP breaks With bursting enabled and FEC implemented.
See enclosed file for more information.

SuggestedRemedy

Use full-duplex MAC in P2MP. Add necessary changes to control packet transmission timing in MPCP.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **26** # **425**
Bemmel, Vincent Alloptic

Comment Type **T** *Comment Status* **D**

At the ONU the laser_control signal is driven by the presence of non-Idle characters in a delay buffer. This approach was chosen as alternative to the signal from the Multi-point MAC control layer, that was crossing several layers (layering violation).

This approach seems to force the ONU to pay for the {T_ON + T_ACG + T_CDR} overhead more than once, i.e., it unnecessarily limits the available upstream bandwidth.

SuggestedRemedy

Don't rely on buffer length to drive laser_control

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **27** # **537**

Brand, Richard — Nortel Networks

Comment Type **TR** *Comment Status* **D**

I am not ready to approvwe this major new operational definition at the recirculation level. Send this back to the TF for full shake out.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **32** # **148**

Lynskey, Eric — UNH-IOL

Comment Type **T** *Comment Status* **D**

The number of idle characters needs to also take into account the amount of time required by the synchronization state machine to complete. This is a non-negligible amount of time as it will take a minimum of 10, 10-bit codes, or 80ns to achieve sync. The presence of errors could increase this time, as the idle stream is not covered by the RS forward error correction, if it is used. Any single bit error could force the synchronization process to restart, thus increasing the amount of idle necessary to send before a frame.

SuggestedRemedy

Modify sentence to read "This number of idle characters is needed by the receiver to adjust its gain (Tagc), synchronize its receiving clock (Tcdr), and complete the synchronization process (Tsync)."

A separate comment addressed to Clause 64 addresses this issue to modify the definition of syncTime.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **33** # **385**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

I couldn't find any other occurrence of 'Tagc'.

SuggestedRemedy

Check notation. Treceiver_settling ?

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **44** # **388**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

Is there any way we can add words saying that the laser can be left on for longer as grant allows, as an implementation option? For one thing, it might be hard to debug a transmitter that wouldn't stay on when idling. We want it to do that to measure e.g. its extinction ratio.

SuggestedRemedy

?

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **45** # **386**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **D**

CRS?

SuggestedRemedy

Spell it out on first use. Also, it seems not to be in the abbreviations list; if that is the case, add it.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **45** # **469**

Comment Type **T**

This text places the MAC into half duplex mode in order to perform rate matching. For multi-point or EPONs, the MAC is placed into full duplex mode. In full duplex, the MAC ignores the CRS signal.

Cl **65** *SC* **65.2.2.1** *P* **509** *L* **45** # **78**

Shimon Muller Sun Microsystems, Inc

Comment Type **T** *Comment Status* **D**

Half duplex operation of the MAC(s) in the OLT is an important part of understanding the principles of operation that follow. However, this clause has no mention of it at all.

SuggestedRemedy

In the fourth paragraph insert the following sentence between the 2-nd and the 3-rd sentences:
"All the MAC instances are configured for the half duplex mode of operation."

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **1** # **501**

Booth, Brad Intel

Comment Type **TR** *Comment Status* **D**

Figure 65-4 and 65.2 make no mention (that I could find) about Clause 37 auto-negotiation. Need an explicit statement that prevents the use of Clause 37 auto-neg.

SuggestedRemedy

Add text to state that use of Clause 37 auto-negotiation shall not be used in P2MP.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **1** # **500**

Booth, Brad Intel

Comment Type **E** *Comment Status* **D**

Figure 65-4 needs some cleaning up.

SuggestedRemedy

Move the legend for * and ** to the bottom of the figure (between MDI and figure header). Move the header of the figure down further to give more space. Don't show the internal TBI in the PCS block. The signals signal_detect and laser_control should not be shown as part of the TBI as they are not listed in Clause 36 as part of the TBI.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **10** # **390**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

How do you stop the CRS going back to the transmitting MAC, or is that OK?

SuggestedRemedy

?

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **10** # **389**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Is the box marked "CARRIER SENSE" really a legacy function? Or is the CRS a legacy signal, being used here in a new way by a modified function?

SuggestedRemedy

?

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **20** # **387**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Can the TBI carry the signal from DATA DETECTOR to OR?

SuggestedRemedy

?

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **22** # **504**

Booth, Brad — Intel

Comment Type **T** *Comment Status* **D**

I'm not sure how much of a problem this is as I'm still learning about P2MP. From what I can see, if an ONU has nothing to send, it will not turn its laser on. If it doesn't turn it's laser on, then the OLT will not receive a valid signal. That will prevent the OLT from transmitting even if it has something to send.

SuggestedRemedy

Tried to find where the Clause 66 modifications are tied into the OLT transmit PCS, but I couldn't find the information. Seems to me that the OLT transmit PCS will require being forced on.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **510** *L* **30** # **159**

Lynskey, Eric — UNH-IOL

Comment Type **E** *Comment Status* **D**

Figure 65-4 shows tx_code-group and rx_code-group, whereas figures 65-9 and 65-11 show ftx_code-group and rtx_code-group, respectively.

SuggestedRemedy

Modify Figure 65-4 or modify the other two figures.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **511** *L* **1** # **502**

Booth, Brad — Intel

Comment Type **T** *Comment Status* **D**

Figure 65-5 signal labels should be on the left. Header should state that the figure applies only to an ONU. The diagram could use more information about how the receive path synchronization affects the ability of the ONU to transmit.

SuggestedRemedy

Add information as per the comment.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.1** *P* **511** *L* **22** # **152**

Lynskey, Eric — UNH-IOL

Comment Type **E** *Comment Status* **D**

Add PCS synchronization time to figure 65-5.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.2** *P* **511** *L* **28** # **391**

Dawe, Piers — Agilent

Comment Type **E** *Comment Status* **D**

Need a sentence in human language here before starting the listing.

SuggestedRemedy

Per comment.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.2.1** *P* **511** *L* **41** # **153**

Lynskey, Eric — UNH-IOL

Comment Type **T** *Comment Status* **D**

Default value of DelayBound does not include PCS synchronization time, which is a minimum of 80ns.

SuggestedRemedy

Change default value to 845 ns.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.2.1** *P* **511** *L* **43** # **150**

Lynskey, Eric — UNH-IOL

Comment Type **E** *Comment Status* **D**

Wrong reference

SuggestedRemedy

Change to laser_on_time (64.3.10.1)

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.2.1** *P* **511** *L* **44** # **151**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**
Wrong reference and variable capitalization

SuggestedRemedy
Change to syncTime (64.3.10.2)

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.2.2** *P* **512** *L* **31** # **392**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**
Need to explain how this formula is rounded off when its output is not an integer.

SuggestedRemedy
Per comment.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.3** *P* **513** *L* **37** # **155**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**
Figure 65-6 should have references to CRS removed from the state diagram pending the outcome of previous comments regarding half duplex.

SuggestedRemedy
Remove ASSERT_CRS and DEASSERT_CRS states. The exit conditions from ASSERT_CRS can be driven directly into the DATA_ARRIVAL state and remove the UCT transition into ASSERT_CRS. Remove the ELSE transition from IDLE_ARRIVAL to TRANSMIT_CODE-GROUP and the transition from IDLE_ARRIVAL to DEASSERT_CRS. The exit conditions from DEASSERT_CRS can be moved directly to IDLE_ARRIVAL. Also, you can remove the CRS variable from 65.2.2.2.1.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.2.3** *P* **514** *L* **20** # **156**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**
Figure 65-7 should have references to CRS removed from the state diagram pending the outcome of previous comments regarding half duplex.

SuggestedRemedy
Remove ASSERT_CRS state and have UCT transition from DATA_ARRIVAL to TRANSMIT_CODE-GROUP. Remove DEASSERT_CRS state and have exit conditions from IDLE_ARRIVAL go directly into TRANSMIT_CODE-GROUP.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3** *P* **514** *L* **38** # **158**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**
Depending outcome of half-duplex comments, this line may need to be modified.

SuggestedRemedy
Change to read: If FEC is implemented, the Multi-point MAC Control sublayer performs rate adaptation by disabling MAC transmission...

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.1** *P* **515** *L* **23** # **160**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**
Change period to comma in (255,239.8)

SuggestedRemedy
See comment

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.4** *P* **518** *L* **51** # **538**
Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **D**
Again, the use of Cross Ref at this stage of the document is not allowable

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.4.5** *P* **521** *L* **43** # **161**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

Add to definition of check_ahead_rx to state what values it may take on.

SuggestedRemedy

Values: /S_FEC/ with fewer than d/2 errors, /T_FEC_O/ with fewer than d/2 errors, /T_FEC_E/ with fewer than d/e errors, OTHER.

If this is accepted you can also change return path into FILL_SEARCH_SFEC_TFEC in Figure 65-14 to be SUDI*check_ahead_rx=OTHER.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.4.5** *P* **521** *L* **53** # **168**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**

The Delay[Data, T] function is not referenced anplace else.

SuggestedRemedy

Remove function

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.4.5** *P* **522** *L* **14** # **167**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

The RS_Decode(Data) function is not referenced or called anyplace but here.

SuggestedRemedy

Modify Figure 65-14 to RS_Decode the data in the FILL_SEARCH_SFEC_TFEC state.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.4.5** *P* **522** *L* **18** # **166**
Lynskey, Eric UNH-IOL

Comment Type **E** *Comment Status* **D**

The Save[Data] function is not called from any state diagram.

SuggestedRemedy

Remove function

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.4.5** *P* **522** *L* **9** # **165**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

The RS_Encode(Data) function is not referenced in any of the state diagrams. The fec_encode variable does state whether or not the function is being used, but it isn't explicitly called, but I am not sure if this is sufficient. If the suggested remedy is accepted, there may not be a need for the fec_encode variable.

SuggestedRemedy

Modify the XMIT_ENCODE state to have: ftx_code-group <= RS_Encode(tx_code-group).

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.5.3** *P* **526** *L* **14** # **162**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

It seems unnecessary to have the check_ahead_rx function take on the value of CONFIG in Figure 65-14, which seems to be referring to the auto-negotiation process. Also, since the check_ahead_rx function needs to take on some other value (T_FEC or S_FEC) before leaving the FILL_SEARCH_SFEC_TFEC state, this global transition seesm redundant.

SuggestedRemedy

Remove check_ahead_rx=CONFIG from global transition into FILL_SEARCH_SFEC_TFEC.

Proposed Response *Response Status* **O**

Cl **65** *SC* **65.2.3.5.3** *P* **527** *L* **1** # **163**
Lynskey, Eric UNH-IOL

Comment Type **T** *Comment Status* **D**

It seems unnecessary to have the buffer_head variable look for the value of CONFIG in Figure 65-15, which seems to be referring to the auto-negotiation process.

SuggestedRemedy

Remove buffer_head=CONFIG from global transition into EMPTY_WAIT_FOR_T.

Proposed Response *Response Status* **O**

Cl **65** *SC* **figure 65-4** *P* **510** *L* **26** # **478**
Maislos, Ariel Passave

Comment Type **E** *Comment Status* **D**
astrix marking states with no attached notes

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **65** *SC* **figure 65-4** *P* **510** *L* **26** # **477**
Maislos, Ariel Passave

Comment Type **E** *Comment Status* **D**
inconsistant capitalization in figure

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **66** *SC* **2.2.1.7** *P* **31** *L* **6** # **99023**
Grow, Robert Intel

Comment Type **TR** *Comment Status* **A** *D2.0 #333*
Counter should be defined in receive state diagram, not in isolation here. As defined, interoperability problems are likely. For example, it isn't clear what role alignment or link_status has, nor if it counts inter-frame, only code groups within a frame, or something in between (when RX_DV is asserted). The term "normal mode" not defined for the PCS.

SuggestedRemedy
Change counter definition to a variable in 24.2.3 and add to receive state diagram. I would recommend defining a constant of invalid, variable of coding_violation, and in the Figure 24-10 add the variable. The clause 45 counter then defines the counter size and behaviour in terms of the state diagram. It also should be clear this is an optional capability (independent of previously mandatory functions (probably needs its own major option in the PICS).

Proposed Response *Response Status* **U**
ACCEPT IN PRINCIPLE.

See response to comment #1065

Cl **66** *SC* **24.2.2.1.7** *P* **31** *L* **7** # **99024**
Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #69*
This new function, PCS Management Counter, seems to be written in such a way that it would apply to all 100BASE-X PCSs with MDIO or equivalent. This would be a retrospective requirement on existing non-EFM 100BASE-X PCSs which presumably is not our intention.

SuggestedRemedy
Make it clear that this function is optional.

Proposed Response *Response Status* **U**
ACCEPT IN PRINCIPLE.

See response to comment #1065 - the counter is removed and only a Clause 30 attribute remains

Cl **66** *SC* **36.2.4.19** *P* **77** *L* **6** # **99027**
Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #71*
This new function, PCS Management Counter, seems to be written in such a way that it would apply to all 1000BASE-X PCSs with MDIO or equivalent. This would be a retrospective requirement on existing non-EFM 1000BASE-X PCSs which presumably is not our intention.

SuggestedRemedy
Make it clear that this function is optional.

Proposed Response *Response Status* **U**
ACCEPT IN PRINCIPLE.

See response to comment #1075 - the counter is removed and only a Clause 30 attribute remains

Cl **66** *SC* **36.2.4.19** *P* **77** *L* **6** # **99028**

Grow, Robert — Intel

Comment Type **TR** *Comment Status* **A** *D2.0 #334*

Counter should be defined in receive state diagram, not in isolation here. As defined, interoperability problems are likely. For example, it isn't clear how this counter relates to invalid code-groups defined in 36.2.4.6. Are the seven reserved valid code points of Table 36-2 excluded from the count, or only the five used in Table 36-3? Is comma alignment required? The term "normal mode" is used in mulitple ways in Clause 36 (e.g., for the TBI, not loopback), its use here is too imprecise.

SuggestedRemedy

Change counter definition to a variable in 36.2.5.1 and add to receive state diagram. I would recommend defining a constant of invalid, variable of coding_violation, and in the Figure 36-7 add the variable. The clause 45 counter then defines the counter size and behaviour in terms of the state diagram. It also should be clear this is an optional capability (independent of previously mandatory functions (probably needs its own major option in the PICS).

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See reseponse to comment #1075

Cl **66** *SC* **36.2.5.1.3** *P* **77** *L* **23** # **99029**

Thaler, Pat — Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1226*

This is being inserted without any context. Reference the location of the description of unidirectional OAM capability and explanation of when it is appropriate. Also, the first usage of OAM in the clause should be expanded to.

The consequences of setting the variable TRUE are not made apparent to the reader. For example, it should state explicitly that setting the variable TRUE disables auto-negotiation.

The choice between full duplex and half duplex also needs to be covered when autonegotiation is disabled.

There may be additional places where unidirectional operation requires some alteration of behavior.

SuggestedRemedy

Provide a suitable reference. Provide information here on when this variable should not be set TRUE. In many cases such as operation with standard bridges, we rely on knowing that the link is either bidirectional or not there at all. It is only in environments designed to tolerate unidirectional operation that this variable should be set TRUE.

Since you disable Auto-Negotiation in this mode, you should also say how the duplex mode is set. For subscriber access networks, it should be full-duplex as the distance requirements of half-duplex are not likely to be met. Also, unidirectional operation only makes sense for full duplex. If you were half duplex and your receive link was down, you could be transmitting when your partner is transmitting and your transmission would be discarded as a collision. Therefore, the unidirectional variable should also force full-duplex operation.

Also, this should be reflected in the Auto-Negotiation chapter.
Note that you could force xmit to equal data in the Auto-Negotiation chapter by disabling AutoNegotionion (mr_an_enable = FALSE) and using a unidirectional variable to override all the terms except power_on=TRUE in the global transiton to AN_ENABLE.
I think this is tidier than saying that xmit sometimes gets its value from Clause 37 and sometimes doesn't.
This also works for the issue of full/half duplex. Clause 37 is where the determination of duplex mode is made.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Make the following as part of the introductory text for the "changes to Clause 36" portion of the new Clause 66 as well as part of the text for the P2MP support of unidirectional enable in Clause 65. Separate the functions (OAM and P2MP) as appropriate for the 2 clauses.

"The 1000BASE-X PCS is capable of unidirectional operation in order to support Operations, Administration and Management (OAM) or Point to Multi-Point (P2MP) for a subscriber access network. However, this mode should only be enabled under very limited circumstances. Before enabling this mode, the MAC

should be operating in full-duplex mode and Auto-Negotiation should be disabled. In addition, the OAM sublayer above the MAC (see Clause 57) must be enabled on both ends of the link or this PCS must reside within an Optical Line Terminal (OLT) in a 1000BASE-PX network (see Clause 64). Failure to follow these restrictions results in an incompatibility with the assumptions of the bridge protocol."

Leave the changes to the XMIT variable only as part of the new Clause 66 - no "changes to Clause 37" required.

Cl **66** *SC* **4.2.3.2.2** *P* **16** *L* **9** # **99013**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #956*

The further proposed expansion of this text makes it increasingly difficult to predict the behavior of a MAC in terms of its ability to sink data.

SuggestedRemedy

Move 4.2.3.2.2 out of the "legacy" Ethernet standard and into a new parallel 802.3 family standard for "Carrier Grade" applications.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Clause 04 changes removed in response to comment #337

Cl **66** *SC* **4.2.7.2** *P* **16** *L* **15** # **99014**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #957*

Proposed Carrier Grade parameters mixed into "Legacy" text

SuggestedRemedy

Move appropriate proposed parameters out of the "legacy" Ethernet standard and into a new parallel 802.3 family standard for "Carrier Grade" applications. A small number of existing parameters may also need to be put into "Carrier Grade".

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Clause 04 changes removed in response to comment #337

Cl **66** *SC* **4.2.8** *P* **17** *L* **1** # **99015**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #958*

Text not compatible with "Legacy Ethernet" and will make it increasingly difficult to understand the simple nature of the legacy MAC for those who wish to implement legacy applications.

SuggestedRemedy

Move to parallel "Carrier Grade" standard

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Clause 04 changes removed in response to comment #337

Cl **66** *SC* **4.4.2** *P* **18** *L* **43** # **99016**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #960*

Delete "ifstretch" as option in Legacy.

SuggestedRemedy

Insert into Carrier Grade
Make additional changes to make this change complete including moving the WIS over too.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Clause 04 changes removed in response to comment #337

Cl **66** *SC* **4.4.2** *P* **18** *L* **43** # **99017**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #959*

Text not compatible with "Legacy Ethernet". Bad idea for reasons previously given.

SuggestedRemedy

Move to parallel "Carrier Grade" standard

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Clause 04 changes removed in response to comment #337

Cl **66** *SC* **46** *P* **124** *L* **10** # **99031**

Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **R** *D2.0 #1230*

There is nothing to be gained by transmitting when receiving Remote Fault. Your link partner can't receive the transmission.

SuggestedRemedy

Remove transmission when receiving Remote Fault or explain its use.

Proposed Response *Response Status* **U**

REJECT.

To have uniform OAM Link Fault signaling, the OAM sublayer will interpret the Clause 46 link fault status=Remote Fault as the value FAIL. Under this condition, the OAM sublayer will transmit link fault OAMPDUs. These need to be transmitted.

Cl **66** *SC* **46** *P* **124** *L* **10** # **99030**

Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **A** *D2.0 #1229*

This is being inserted without any context. Reference the location of the description of unidirectional OAM capability and explanation of when it is appropriate. Also, the first usage of OAM in the clause should be expanded to.

The consequences of setting the variable TRUE are not made apparent to the reader. For example, it should state explicitly that setting the variable TRUE disables auto-negotiation.

SuggestedRemedy

Provide a suitable reference. Provide information here on when this variable should not be set TRUE. In many cases such as operation with standard bridges, we rely on knowing that the link is either bidirectional or not there at all. It is only in environments designed to tolerate unidirectional operation that this variable should be set TRUE.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Make the following as part of the introductory text for the "changes to Clause 46" portion of the new Clause 66.

The 10Gb/s RS is capable of unidirectional operation in order to support Operations, Administration and Management (OAM) for a subscriber access network. However, this mode should only be enabled when the OAM sublayer above the MAC (see Clause 57) is enabled on both ends of the link. Failure to follow this restriction results in an incompatibility with the assumptions of the bridge protocol.

Cl **66** *SC* **46.3.4.2** *P* **124** *L* # **99032**

Thaler, Pat Agilent

Comment Type **TR** *Comment Status* **R** *D2.0 #1228*

This change effectively disables detection of remote fault when unidirectonal_oam_enable is true because it doesn't take into account the behavior of the Link Fault Signalling state machine. The existing Link Fault Signalling state machine cancels a sequence ordered set if it doesn't see one for 127 columns. Also, to prevent false detection due to noise, it requires 3 sequence ordered sets before it will detect. If there are packets, it detect the sets intermittently or not at all.

SuggestedRemedy

Take out undirectional operation for 10 Gig or propose an alternate Link Fault Signalling state machine that will when unidirection operation is enabled so that Remote Fault may be detected when intersperced with packts.

Proposed Response *Response Status* **U**

REJECT.

With the response to comment 57001 that limits the frequency of OAMPDUs reporting Remote Fault to once per second, the following description is valid.

If the RS is receiving Remote Fault, the only frames that it will be interrupted with are those that also report the Link Fault. These packets are currently only 64 octets and not long enough to force the Link fault signaling state diagram to receive 127 columns without an Sequence ordered set. This includes when both ends of the link have a XAUI extension of the XGMII. With the response to comment 57001 the frequency of these packets is limited to once per second.

In the interest of supporting a common mechanism across all physical layers to support the announcement of Link Fault, this should be retained.

Cl **66** *SC* **66** *P* **534** *L* **1** # **394**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Are we allowed to capitalise Ethernet?

SuggestedRemedy

Capitalise Ethernet.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Cl **66** *SC* **66** *P* **534** *L* **1** # **393**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
express?

SuggestedRemedy
Delete 'express'.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

Will incorporate this change as an editorial correction to the sponsor ballot draft.

Cl **66** *SC* **66** *P* **534** *L* **12** # **397**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
Not sure about bridge protocol, but ONU must not do this if there are any other ONUs on the same PON.

SuggestedRemedy
Explain that ONU should not transmit unless given permission, therefore cannot work in unidirectional-capable mode.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

This text may be a bit general but gets more specific later in the paragraph. It makes it clear that this is for an OLT device, only.

Cl **66** *SC* **66** *P* **534** *L* **12** # **396**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
Which mode? OAM or P2MP?

SuggestedRemedy
'the unidirectional-capable mode'? Better name?

Proposed Response *Response Status* **W**
PROPOSED REJECT.

The term "mode" refers to unidirectional operation. In preparation for sponsor ballot, an editorial change will be made to replace "this mode" with "unidirectional operation".

Cl **66** *SC* **66** *P* **534** *L* **7** # **395**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**
1000BASE-PX10 requires clause 65 PCS and PMA, not clause 36.

SuggestedRemedy
Revise last sentence of first paragraph.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

Change this text to read:

"...specified in Clause 36 and modified by Clause 65."

Cl **66** *SC* **66.1.2** *P* **534** *L* **32** # **402**
Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**
'shall integrate': We are now trying to avoid over-using 'integrate'.

SuggestedRemedy
just 'are': 'The 100BASE-X PCS and PMA for subscriber access networks are the 100BASE-X PCS ... with ...'. Modify PICS to match.

Proposed Response *Response Status* **W**
PROPOSED REJECT.

This text is lifted from Clause 26. In the motion to adopt the changes that led to this clause, it was recommended that I follow the approach used by Clause 26.

Cl **66** *SC* **66.1.2.2** *P* **535** *L* **8** # **398**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**
"figure 24-8 shall be changed". The reader can't do that! so "shall" is not the right word.

SuggestedRemedy
Need to find a new form of referring to differences; maybe "figure 24-8 is applies in place of Figure 66–1."?

Proposed Response *Response Status* **W**
PROPOSED REJECT.

As an editorial correction to the sponsor ballot draft, an editorial change will be made to state:

"Additionally, the functionality of figure 24-8..."

Cl **66** *SC* **66.1.2.3** *P* **536** *L* **8** # **399**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

p535 has "mr_unidirectional_enable = FALSE,", p536 has "mr_unidirectional_enable=FALSE".

SuggestedRemedy

Spaces would allow better looking text. = could be replaced by 'is'.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Will incorporate this change as an editorial correction to the sponsor ballot draft.

Cl **66** *SC* **66.2.2** *P* **537** *L* **3** # **403**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

'shall integrate': We are now trying to avoid over-using 'integrate'.

SuggestedRemedy

just 'is': 'The 1000BASE-X PCS for subscriber access networks is the 1000BASE-X PCS ... with ...'. Modify PICS to match.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This text is lifted from Clause 26. In the motion to adopt the changes that led to this clause, it was recommended that I follow the approach used by Clause 26.

Cl **66** *SC* **66.3.1** *P* **538** *L* **6** # **401**

Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

10Gbps

SuggestedRemedy

10 Gb/s (several times).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Will incorporate this change as an editorial correction to the sponsor ballot draft.

Cl **66** *SC* **66.3.2.1** *P* **538** *L* **28** # **400**

Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **D**

So you want to allow a 10G DTE to transmit when it can't receive anything (RS receives LF). But if the RS receives RF, I think this means that the far DTE is saying it can't receive. So what's the point of transmitting then? We need a clear consensus and a reason before messing with rather expensive legacy silicon, so I've made this a TR to provoke a discussion.

SuggestedRemedy

Don't allow transmission of frames when receiving RF.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is a reiteration of comment 1230 submitted by Pat Thaler on the previous ballot and is rejected for the same reasons.

Cl **66** *SC* **All** *P* *L* # **99025**

Brand, Richard Nortel Networks

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #838*

These new additions do not align with the objectives listed in 24.1.2 and no reference is made to cl 58 requirements

SuggestedRemedy

Separate the documents per comment 6.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See resolution to comment #952

Cl **66** *SC* **All** *P* **31** *L* **1** # **99026**

Thompson, Geoff Nortel

Comment Type **TR** *Comment Status* **A** *CarrierGrade D2.0 #968*

There is no justification for the inclusion of this material in clause 24 as it is unnecessary to satify the scope and objectives of 24.1 nor has any text been proposed to the introductory material of cl 24 to provide for the inclusion of a new 4B/5B PMD such as that being proposed in cl 58.

SuggestedRemedy

Move to parallel Carrier Grade standard

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution to comment #952

Cl **67** *SC* **67.2** *P* **544** *L* **54** # **407**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

Need to state the obvious.

SuggestedRemedy

Add text:
P2MP is a shared medium so the nominal 1 Gb/s is divided by the number of ONUs. However, dynamic allocation can deliver a substantial statistical gain depending on traffic patterns.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

P2MP is suffiecienty described in clause 67 and other parts of the document

Cl **67** *SC* **67.2.1** *P* **545** *L* **5** # **405**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

This sentence is misleading: 'other link spans and split ratios can be implemented provided that the maximum and minimum channel insertion losses described in Table 60–1 are met.' because some links are dispersion limited.

SuggestedRemedy

'other link spans and split ratios can be implemented provided that the maximum and minimum channel insertion losses and <spans|reaches|distances> described in Table 60–1 are met.'

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The existing text points the reader to the relevant normative table in the EFM document. This achieves the purpose of explaining the need to reference the parametric table before architecting a system.

Cl **67** *SC* **67.4** *P* **546** *L* **36** # **406**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **D**

This sentence 'The physical size of full duplex EFM networks is not limited by the round-trip collision propagation delay.' is not interesting now that EPON is classed as half duplex (at the MAC).

SuggestedRemedy

The physical size of a Ethernet passive optical network as well as full duplex Ethernet networks is not limited by the round-trip collision propagation delay.'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

There is a pending comment on the duplex of P2MP, Pending that comment, this section will be updated appropriately

Cl **67** *SC* **67.5** *P* **546** *L* **46** # **470**

Tom Mathey Independent

Comment Type **E** *Comment Status* **D**

POTS

SuggestedRemedy

Add text that 2BASE precludes the use of POTS.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text does the complement by idetifying where POTS may be used

Cl **67** *SC* **67.6** *P* **546** *L* **54** # **131**

Beck, Michael Alcatel Bell nv

Comment Type **T** *Comment Status* **D**

The words "with the exception of 2BASE-TL and 10PASS-TS" were added in resolution of Comment #318/D2.0. The sentence now seems to imply that the optional OAM sublayer is not supported at all by 2BASE-TL and 10PASS-TS. However, the intent of Comment #318/D2.0 was just to inform the reader that 2BASE-TL and 10PASS-TS do not support unidirectional links.

SuggestedRemedy

Remove text "with the exception of 2BASE-TL and 10PASS-TS" from the sentence in 67.6. Add sentence: "2BASE-TL and 10PASS-TS PHYs do not support unidirectional links as defined in 57.2.9 (see 61.1)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **67A** *SC* **67A** *P* *L* # **410**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **D**

Typos

SuggestedRemedy

Assureance
Part 1-4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **67A** *SC* **67A.1.1** *P* **596** *L* **40** # **317**
Beili, Edward Actelis Networks

Comment Type **T** *Comment Status* **D**

2BASE-TL/10PASS-TS are defined for both Head-End and Customer Premises. Clause 61 defines -O and -R subtypes. Note that it is possible that a Phy chip is manufactured, hard wired to a specific subtype. e.g. -R.

SuggestedRemedy

Specify 2BASE-TL-O/10PASS-TS-O for the Head-End, 2BASE-TL-R/10PASS-TS-R for the Customer Premise.

Proposed Response *Response Status* **W**

PROPOSED REJECT. The comment is made against material that was previously approved and is unchanged in this draft.

Cl **99** *SC* **00** *P* **1** *L* # **42**
David, James JGG

Comment Type **E** *Comment Status* **D**

Excess capitalization.

SuggestedRemedy

Only capitalize first word of sentence/heading or proper nouns.
Applicable throughout.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done before the IEEE-SA ballot on draft 3.0

Cl **99** *SC* **00** *P* **2** *L* **1** # **43**
David, James JGG

Comment Type **E** *Comment Status* **D**

Excess capitalization.
Irrelevant page.

SuggestedRemedy

Either:
1) Eliminate the page.
2) Remove excessive capitalization and fill-out the page

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Some of these editorial changes will be done before the IEEE-SA ballot on draft 3.0