Cl **00**   *SC*   *P*   *L*   # 10

Thaler, Pat

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

Responses to some comments in the unsatisfied category reference responses to satisfied comments, 251 354, 355, and 442, that were not in the ballot package. The ballot package should be complete so either the satisfied but referenced by unsatisfied comments should have been included or the content of their responses should have been moved to an unsatisfied comment.

SuggestedRemedy

In the future, please send out a complete ballot package including any referenced comment responses. I've made this a T because I'm sure you will fix it in the future, but if the problem persists on other ballots, I'll have to start making it a TR or ER.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will copy the responses into the unsatisfied comments.

Cl **00**   *SC*   *P*   *L*   # 54

Thaler, Pat

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

"must" is used multiple places in the draft. In IEEE standards, "shall" should be used to state requirements and not "must".

Must is best avoided though it may be used to state an inevitable consequence.

SuggestedRemedy

For each "must" in the draft, change it to "shall" or eliminate it as appropriate.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Occurrences:
page 16, line 12, cl 28.2.3.4.14:
page 16, line 13, cl 28.2.3.4.14:
page 18, line 52, cl 28.3.2:
page 71, line 54, cl 55.1.5:
page 75, line 29, cl 55.2.2.2.1:
page 75, line 32, cl 55.2.2.2.1:
page 75, line 35, cl 55.2.2.2.1:
page 91, line 31, cl 55.3.2.2.19: change to "is"
page 107, line 44, cl 55.4.2.5:
page 107, line 44, cl 55.4.2.5:
page 107, line 48, cl 55.4.2.5:
page 107, line 50, cl 55.4.2.5:
page 107, line 53, cl 55.4.2.5:
page 108, line 42, cl 55.4.2.5:
page 109, line 37, cl 55.4.2.7:
page 110, line 29, cl 55.4.3.1:
page 110, line 57, cl 55.4.3.1: eliminate editors note
page 133, line 51, cl 55.7.3.1.2:
page 135, line 41, cl 55.7.3.2.2:
page 137, line 5, cl 55.7.4:
page 140, line 22, cl 55.8.2.2:
page 141, line 47, cl 55.9.2:
page 141, line 49, cl 55.9.2:
page 142, line 51, cl 55.11: eliminate "must

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **00**
SC

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Cl **00** *SC* *P* *L* # 178

Booth, Brad

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

The IEEE editor has made suggestions on requirements prior to going to sponsor ballot and requirements for submission to RevCom.

SuggestedRemedy

Implement changes as suggested by the IEEE editor in the document 802.3an_MEC.pdf.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 138

Kasturia, Sanjay

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

There are some blank pages in the document

SuggestedRemedy

Remove blank pages

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* *P* *L* # 15

Thaler, Pat

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

The compare draft appears to show additions that were made in D2.1 but omits deletions so it isn't possible to use it alone to get a clear idea of the changes that were made as a result of the comment resolution.

SuggestedRemedy

In the future, change drafts should indicate deletions as well as additions.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will provide one version showing additions and this will be used for commenting.

Will also provide another version showing additions and deletions.

Cl **00** *SC* *P* *L* # 12

Thaler, Pat

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

This draft and the 802.3aq draft are the first time I recall a recirculation being conducted with unresolved comments. The purpose of recirculation is to determine whether a draft is ready for sponsor ballot. A draft with unresolved comments is not ready to go forward to sponsor ballot and should therefore not be recirculated.

SuggestedRemedy

Resolve all comments before doing any future recirculations. Doing otherwise is a bad practice that abuses the voter's time.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment proposes no changes to the draft, only to the process.

While it is a general practice to respond to all comments, the requirement is only to consider all comments. The unresolved comments were considered but resolution could not be achieved without further investigation.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **00**
SC

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Cl **00**   *SC*   *P*   *L*   # 176
Geoff Thompson   Nortel

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

Comment 584 from D2.0
The resolution of comment text:
"The link segment transmission parameters of insertion loss and ELFEXT loss specified
are ISO/IEC 11801 Class E specifications extended by extrapolating the formulas to a
frequency up to 500 MHz with appropriate adjustments for length when applicable as
specified in ISO/IEC TR-24750 and TIA/EIA TSB-155.

There is no international standard available nor is there a guarantee that there will be one."
Supports my original point that we are wildly outside the bounds of performance of cabling
specified by international cabling standards and thus outside the scope of the project.

SuggestedRemedy

Select copper media from ISO/IEC 11801:2002, with any appropriate augmentation to be
developed through work of 802.3 in conjunction with SC25/WG3

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

802.3an will continue to work in conjunction with SC25/WG3 through the liaison process.
This active coordination has yielded a Working Draft for ISO/IEC TR 24750: Guidelines for
the support of 10GBASE-T over Copper Balanced Pairs of Class E and Class F as per
ISO/IEC 11801(ED.2.0): 2002 and IEEE 802.3an and a Working Draft for an

amendment to ISO/IEC 11801:2002, Generic cabling for customer premises.

Cl **00**   *SC*   *P*   *L*   # 177
Geoff Thompson   Nortel

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

Comment 587 from D2.0
Response from D2.0 resolution of comments is rejected as non-responsive and inadequate.

SuggestedRemedy

See comment 584 on D2.0

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #176

Cl **00**   *SC*   *P*   *L*   # 8
Thaler, Pat

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

Page numbering of the draft starts out the same as pdf page number, but at the start of
some clauses, it appears that a page was dropped so that by Clause 55 the page numbers
printed on the page are 2 greater than the pdf page number. It seems likely that some
commenters will use the pdf page number at times which will make comment resolution
confusing.

SuggestedRemedy

In the future, try to keep the page number and pdf page number consistant.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **00**   *SC*   *P* **All**   *L*   # 124
Charny, Ben

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

Header on each page, starting with page 1, has word "amendment" misspelled as
"ammemndment" in the sentence "Draft Ammendment to IEEE STD 802.3-2005".

SuggestedRemedy

Correct the spelling.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **00**   *SC* **All**   *P*   *L*   # 59
Dawe, Piers

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

In header, to many m's in Ammendment

SuggestedRemedy

Amendment

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Same as comment 124

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **00**
SC **All**

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Cl **01** *SC* *P* **8** *L* **1** *#* 142

Grow, Bob

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

Incorrect title.

SuggestedRemedy

This should simply be:
"1. Introduction" (in H1 IEEE template style if I recall correctly).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4** *P* **8** *L* **23** *#* 143

Grow, Bob

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

Definition should describe what is.

SuggestedRemedy

Change "can be" to "is".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4** *P* **8** *L* **42** *#* 1

Reviriego, Pedro

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

the text 'an echo cancellers....' is incorrect

SuggestedRemedy

Change to:

'an echo canceller....'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Also change "pairs" to "pair" on the line above

Cl **01** *SC* **1.5** *P* **9** *L* **2** *#* 2

Reviriego, Pedro

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

the text 'infinite impluse response....' is incorrect

SuggestedRemedy

'infinite impulse response....'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28** *SC* *P* *L* *#* 145

Grow, Bob

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

The title ""Changes to IEEE P802.3REVam Clause 28"" is not the correct style for
publication.

SuggestedRemedy

Delete this title, Editor's note can be moved below the Clause 28 actual title.
Same change needs to be made to Annex 28B, Annex 28C, Annex 28D, Clause 30, Clause
30B, Clause 44, and Clause 45.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28** *SC* **28.2.1.2.2** *P* **13** *L* **27** *#* 181

Law, David

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

Since there is now a change to Annex 28B (see page 24) that states that 'Extended Next
Page (XNP) is encoded in bit A7 of the Technology Ability Field.' and the previous changes
that reduced the Technology Ability Field to 7 bits has now been removed this change to
28.2.1.2.2 is no longer required.

SuggestedRemedy

Remove change to subclause 28.2.1.2.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **28**
SC **28.2.1.2.2**

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Cl **28**   *SC* **28.2.3.4**   *P* **14**   *L* **21**   # 148

McClellan, Brett   Solarflare

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

Unless referring to the name of a register bit, "able" should not be capitalized.

"the device is extended Next Page Able."
should be:
"the device is extended Next Page able."

SuggestedRemedy

change text to:
"the device is extended Next Page able."

Change other instances of "Able" as appropriate in Clause 28.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

Will make changes to Clause 28 consistent with Clause 28 as approved in IEEE 802.3REVam.

Cl **28**   *SC* **28.3**   *P* **17**   *L* **37**   # 182

Law, David

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

IEEE P802.3an D2.0 comment #675 states:

There is a statement that 'their appropriate initialization conditions when mapped to the MII interface are covered in 28.2.4 and 22.2.4, and Clause 45 MDIO management interface.' however I cannot find any default values in the Clause 45 registers. Take the Restart autonegotiation bit (7.0.9), a default is defined for it in 22.2.4.1.7, the same seems to be true of the Auto-Negotiation Enable bit (7.0.12).

The response to this comment is:

ACCEPT IN PRINCIPLE.

Add default values to the Clause 45 registers and make the cross-reference more direct. Need to make sure Clause 45 editor is aware of these changes.

It appears however that neither of these two actions have taken place, the cross-reference still seems to be just to Clause 45 and I cannot see any default values in the equivalent Clause 45 bits - e.g 7.0.12 Auto-negotiation enable.

I will submit this comment against subclause 45.2.7.

SuggestedRemedy

Implement resopnse to D2.0 comment #675.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **28**
SC **28.3**

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Cl **28**　　　*SC* **28.3.1**　　　　　*P* **25**　　　*L* **36**　　　# 20358

Kim, Yong　　　　　　　　　　Broadcom

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

Please clarify "..after a sucsessful master/slave resolution..". While you are at it, correct the spelling as well.

From the paragraph: "CHECK state for devices operating at 10/100/1,000 Mb/s. The Link_fail_inhibit_timer shall expire 2000û2250 ms after entering the FLP LINK GOOD CHECK state after a sucsessful master/slave resolution for devices operating at 10,000 Mb/s"

SuggestedRemedy

Please refer to the state transition or timer event, instead of using the phase above.

Proposed Response　　　*Response Status*　**W**

ACCEPT IN PRINCIPLE.

Text to be changed to:
The link_fail_inhibit_timer shall expire 2000-2250 ms after entering the FLP_LINK_GOOD_CHECK state for devices operating at 10Gb/s.

Cl **28**　　　*SC* **28.3.1**　　　　　*P* **26**　　　*L* **2**　　　# 20359

Kim, Yong　　　　　　　　　　Broadcom

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

The specification makes little sense.. or I am missing something. If there is no interoperability issue, it ought to be lower bound of old and upper bound of new, i.e. 5 mS ~ 7.25 mS.   If there is interoperability issue, then this seems unduely complex. Are you saying that if XNP is enabled, I need to go change my timer, and if XNP is disabled or enabled but not used, I need to change timer? Or is it if XNP capability is present (regardless of AN state), I need to use the new timer...

From the Draft: "Timer for the minimum time between two consecutive FLP Bursts. The nlp_test_min_timer shall expire 5û7 ms after being started or restarted. for devices that do not support extended Next Pages, and shall expire 6.75û7.25 ms after being started or restarted for devices that do support extended Next Pages."

SuggestedRemedy

Multiple issues on this comment:
1. Request for one range, not two, if no interoperability issue
2. Clarify the text (editorial), so XNP AN state refers to the correct timer, if more than one exist.
3. If interopeability issue(s) effected this clause change, then let me knwow so that I could suggest a remedy, or you might find a better way without me :-).

Proposed Response　　　*Response Status*　**W**

ACCEPT IN PRINCIPLE.

The lower bound of nlp_test_min_timer was extended due to the fact that the timer is referenced from the first pulse of the FLP burst. We are extending the FLP burst from 16-48 data bits for extended Next Pages, so we needed to push the lower bound of the timer up.

A device that does not support extended next pages does not need to change any of its timer values. A device that supports 10GBASE-T should always use the new timer values. This is an option within Clause 28 that is made mandatory in Clause 55. It is not believed that any interoperability problems will exist between devices that support and do not support the new timer values. Text and PICS should be added to subclause 55.6 to make this clear.

To be modified in 55.6.1
All 10GBASE-T PHYs shall provide support for extended Next Pages as defined in 28.2.3.4.2 and shall support and use optimized FLP Burst to FLP Burst, nlp_link_test_min_timer, and link_fail_inhibit_timer as defined in (put appropriate references here).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **28**
SC **28.3.1**

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Cl **28**　　　*SC* **28.5**　　　　　*P* **21**　　　*L* **58**　　　# 144

Grow, Bob

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

IEEE is beginning to use document protection which would make reproduction of the PICS tables difficult. Mr. Law has been working with IEEE staff on this issue and the tentative understanding is that the footnote copyright release text will change.

SuggestedRemedy

This needs to be updated to include a URL for download. Make consistent with 802.3-2005. (As 802.3-2005 publication is planned for August, put in an Editors' note to this effect.)

Add same note to all other PICS sections of this project.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **28**　　　*SC* **28.5.4.2**　　　　　*P* **21**　　　*L* **47**　　　# 179

Law, David

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

The first sentence of the second paragraph of subclause 28.2 in IEEE P802.3REVam draft D2.2 reads 'The Auto-Negotiation function shall provide the Auto-Negotiation Transmit, Receive, Arbitration, and NLP Receive Link Integrity Test functions and comply with the state diagrams of Figures 28û14 to 28û17.' and there is no proposed change to this text in IEEE P802.3an 10GBASE-T.

Due to this there seems to be no basis for the change to this PICS item to predicate it on the implementation supporting a MII Management Interface.

SuggestedRemedy

Remove this change.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment 459 against D2.0, copied here, was accepted by the Task Force. We should discuss what changes need to be made.

According to 28.5.4.6 items 20 and 21, Parallel Detection Faults are mandatory only for an MI
interface. Furthermore, 10GBASE-T does not require (or even allow) the reporting of a parallel detection fault. See Clause 45.2 and Table 28-8 (both indicate no means of reporting
parallel detection faults).

The only instance of link_status_[NLP] is in parallel detection part of the arbitration state diagram (LINK STATUS CHECK of Figure 28-17).
Since parallel detection is only mandatory if an MII interface is present, then the NLP Receive
Link Integrity Test should also be mandatory only when an MII interface is present. (Removing
the parallel detection functionality from the arbitration state diagram removes all references to link_status_[NLP]).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　　RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER:　Clause, Subclause, page, line

Cl **28**
SC **28.5.4.2**

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Cl **28**   *SC* **28.5.4.8**   *P* **22**   *L* **37**   # 180

Law, David

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

While the item predication abbreviation in the PICS for extended Next Page is ENP (see 28.5.3) the text referenced, 28.3.2) does not use any abbreviation and instead always spells out extended Next Page. Suggest that this is also done in the feature column.

SuggestedRemedy

Suggest that '(with ENP) should read '(with extended Next Page)'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **28B**   *SC* **28B.2**   *P* **24**   *L* **16**   # 184

Law, David

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

The second new paragraph to be added to the end of 28B.2 really would fit better as a new paragraph added at the end of subclause 28B.3. This would then mean it would follow similar text about bits A5 and A6 being orthogonal to data rate, medium and link technology.

If this is done I also think the note to be added after the second paragraph of 28B.3 is no longer required as the reference to 28.2.3.4 will provide enough infoamtion.

SuggestedRemedy

[1] Change second new paragraph to be added to the end of 28B.2 to be a new paragraph to be added to the end of 28B.3.

[2] Remove the addition of a note after the second paragraph of 28B.3 (line 37).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28B**   *SC* **Table 28B-1**   *P* **24**   *L* **27**   # 183

Law, David

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

Typo.

SuggestedRemedy

'extended Next Page' should read 'Extended Next Page'

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **28C**   *SC* **28C**   *P* **26**   *L* **18**   # 185

Law, David

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

According to subclause 28.2.3.4 'Next Page function' on page 14 ''Four types of Next Page encodings are defined: Message Pages, Unformatted Pages, extended Message Pages, and extended Unformatted Pages.'.

Based on this I believe that Extended Next Pages can only be used to transmit multiple extended Message Pages and extended Unformatted Pages.

SuggestedRemedy

Suggest the text '.. multiple Message Pages and Unformatted Pages in ..' should read '.. multiple extended Message Pages and extended Unformatted Pages in ..'

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

As mentioned in the comment, there are four types of Next Page encodings: Message Page, Unformatted Page, extended Message Page, extended Unformatted Page.

The text here is explaining how a single extended Next Page may contain multiple message or unformatted pages. It describes how to fit the multiple 16-bit words inside the extended Next Page.

Cl **28C**   *SC* **28C**   *P* **26**   *L* **20**   # 186

Law, David

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

The format of a 'Unformatted Page' is defined in Figure 28-12 of IEEE P802.3REVam. It includes an 11 bits 'Unformatted Code Field' and 5 flag bits, T, Ack2, MP, Ack and NP, which totals 16 bits.

This text reads '.. two Unformatted Pages associated with the Message Code Field value are mapped to bits U0:U10 ..'. This cannot be correct as this would be mapping 16 bits into 11 bits.

SuggestedRemedy

Suggest the text '.. two Unformatted Pages ..' be changed to read '.. two Unformatted Code Fields ..'.

Similarly on line 21 'Additional Unformatted Pages would ..' should be changed to read 'Additional Unformatted Code Fields would ..'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **28C**
SC **28C**

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Cl **28C**   *SC* **28C**   *P* **26**   *L* **21**   # 187

Law, David

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

The ordering of extended Unformatted Pages, and the Unformatted Code fields in extended Message and Unformatted Pages, is not fully defined. In addition the mapping of Unformatted Code fields to a extended Unformatted page is unclear.:

[1] Multiple extended Unformatted Pages associated with a single extended Message Page need to be transmitted in a burst and not interspersed by other extended Message Pages otherwise the context will be lost. While it is stated the additional Unformatted Code Fields are mapped to subsequent Unformatted Pages I don';t think the word subsequent is clear enough - I suggested it last time as it wasn't clear that there were two types of extended Next Page message - this has now been clarified.

[2] A extended Unformatted Page provides 43 user bits so how are multiple 11 bit Unformatted Code fields to be mapped into this. Either it is a fixed mapping of 3 Unformatted Code fields with 10 bits spare or 43 bits of the 44 are carried in one extended Unformatted page with the remaining bit be carried in the start of the next extended Unformatted Page. I will assume it is the fixed mapping that is intended.

[3] In addition there is nothing to specify in which order multiple Unformatted Code Fields are mapped into the Message and Unformatted Pages.

SuggestedRemedy

Suggest the last sentence of the additional third paragraph be removed and replaced with the following two new paragraphs:

If more that two Unformatted Code fields are required by a Message Code, then additional Unformatted Code fields are transmitted in extended Unformatted Pages immediately following the extended Message Page. Up to three Unformatted Code fields can be transmitted in each extended Unformatted Page, the first in bits U0:10, the second in bits U11:U21 and the third in U27:U37.

Where a Message Code requires the transmission of one or more extended Unformatted Pages, due to the number of Unformatted Code fields it defines, the Unformatted Code fields in the extended Message and Unformatted Pages shall be in the order specified by the Message code.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **28C**   *SC* **28C**   *P* **26**   *L* **22**   # 188

Law, David

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

Why are we allowing spare bits to be random, normally we require set to zero on transmit and ignore on receive.

SuggestedRemedy

Suggests the text '.. are transmitted as zero or one ..' be changed to read '.. are transmitted as zero ..'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **30**   *SC*   *P* **28**   *L* **9**   # 146

Grow, Bob

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

These change instructions are requesting an Insert.

SuggestedRemedy

Rewrite all instructions as is done in 30B.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **30B**   *SC* **30B.2**   *P* **61**   *L* **28**   # 20612

Grow, Robert   Intel

Comment Type   **ER**   *Comment Status* **A**   *editing*

This change could be significantly shortened.

SuggestedRemedy

Make the change instruction to simply insert the line and indicate after which existing line, do not show remainder of the subclause.

Proposed Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Some information is provided to ensure a level of context. Where not required, the information will be removed.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **30B**
SC **30B.2**

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Cl **44**   *SC* **44.1**   *P* **75**   *L* **35**   # 20615

Grow, Robert   Intel

Comment Type **ER**   *Comment Status* **A**   *editing*

Too much of the base standard is repeated.

SuggestedRemedy

Delete all subclauses, figures, tables and paragraphs that are not changed, and insert appropriate change instructions when necessary.

Proposed Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Some information is provided to ensure a level of context. Where not required, the information will be removed.

Cl **44**   *SC* **44.3**   *P* **79**   *L* **28-2**   # 20236

Shimon Muller   Sun Microsystems, Inc

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

The delay constraints specified for 10GBASE-T are at least an order of magnitude greater than what would be acceptable for many applications that are intended to be deployed using this technology.
Furthermore, I do not recall any contributions made to the Task Force that justify such a high latency in the PHY.
See my presentation (muller_1_0304.pdf) for latency considerations for the 10GBASE-T PHY.

SuggestedRemedy

Change the 10GBASE-T entry in Table 44-2 such that the round-trip latency does not exceed 20480 bit times or 40 pause_quanta.

Proposed Response   *Response Status* **U**

See response to comment 242

Cl **45**   *SC* **45.2**   *P* **35**   *L* **28**   # 86

Charny, Ben

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

Text "Each MMD contains registers 5 and 6, as defined in Table 45-2.".

1. Table 45-2 does not define bits of register 5, but rather the bits that changed.

2. Table 45-2 does not show any bits of registers 6.

SuggestedRemedy

Insert the complete table with all bits shown based on table 45-6 in 802.3ae and with MMD address replaced with "m".

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Only the changes are shown in this draft version. Registers 5 & 6 are unmodified from the original document.

Cl **45**   *SC* **45.2.1**   *P*   *L*   # 3

Reviriego, Pedro

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

There seems to be no registers to read the selected THP coefficients. It can be useful to read those settings in some situations.

SuggestedRemedy

Include a set of four registers one per cable pair so that when read they output the THP coefficients cyclically (coef(1), coef(2),...coef(15), coef(16), coef(1),.....).

We may include one set of registers for the THP coefficients that are used in the local transmitter and another for the ones that were sent to the remote transmitter during startup.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Previously discussed and decided not to include these registers. Alternative would be to define them and make them optional.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.1**

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Cl **45**   *SC* **45.2.1**   *P* **36**   *L* **31**   # 87
Charny, Ben

Comment Type **E**   *Comment Status* **D**
   Typo: 1.145 though 1.146

SuggestedRemedy
   Correct "though" to "through"

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

Cl **45**   *SC* **45.2.1.10**   *P* **38**   *L* **23**   # 98
Charny, Ben

Comment Type **E**   *Comment Status* **D**
   Reference to 10GBASE-KR4

SuggestedRemedy
   Replace KR4 with KX4.

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

Cl **45**   *SC* **45.2.1.10.1**   *P* **38**   *L* **51**   # 90
Charny, Ben

Comment Type **E**   *Comment Status* **D**   *PMA/PMD*
   Reference to 10GBASE-T PMA/PMD on lines 51 and 53 (2 occurrences).

SuggestedRemedy
   Replace 10GBASE-T PMA/PMD with 10GBASE-T PMA.

Proposed Response   *Response Status* **W**
   PROPOSED REJECT.

   Clause applies to both PMA & PMD devices.

Cl **45**   *SC* **45.2.1.6.1**   *P* **37**   *L* **10**   # 88
Charny, Ben

Comment Type **E**   *Comment Status* **D**
   Setting "1 0 0 1" is 10GBASE-T PMA/PMD type whereas 10GBASE-T is PMA only.

SuggestedRemedy
   Replace PMA/PMD with PMA.

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

Cl **45**   *SC* **45.2.1.60**   *P* **40**   *L* **14**   # 91
Charny, Ben

Comment Type **E**   *Comment Status* **D**
   Bits 1.130.5:4 in the Description field refer to pair D for all combinations whereas the bits
   name is for pair C.
   Bits 1.130.3:2 in the Description field refer to pair D for all combinations whereas the bits
   name is for pair B.
   Bits 1.130.1:0 in the Description field refer to pair D for all combinations whereas the bits
   name is for pair A.

SuggestedRemedy
   Correct description fields to refer to correct pair.

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.1.60**

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Cl **45**   *SC* **45.2.1.61**   *P* **41**   *L* **14**   # 149
McClellan, Brett   Solarflare

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

This register is entitled "TX power level setting" yet the description refers to subclause 55.4.2.5 which specifies TX power backoff settings.

Additionally, this sentence appears to be a remnant from a previous one-hot register bit definition.
"As described in 55.4.2.5, only one TX power level setting may be selected at any time."

SuggestedRemedy

Change text to:

"45.2.1.61 10GBASE-T TX power backoff setting (Register 1.131)
The TX power backoff setting register reflects the TX power backoff selected during the startup negotiation process. The startup negotiation process and all TX power backoff settings are defined in 55.4.2.5 and 55.4.5.1. If LP information valid bit, 1.129.0, is set to one bits 1.131.15:13 will indicate the TX power backoff setting of the link partner. The assignment of bits for the power backoff setting are shown in Table 45û51. "

For bits 1.131.15:13 and 1.131.12:10 change the names to:
"Link partner TX power backoff setting" and "TX power backoff setting"
change the description text to:
1 1 1 = 14dB
1 1 0 = 12dB
....
0 0 0 = 0dB

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

Cl **45**   *SC* **45.2.1.62**   *P* **42**   *L* **23**   # 92
Charny, Ben

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

Table 45-52 is missing definition of bits 1.132.9:0.

SuggestedRemedy

Define bits 1.132.9:0 as "Reserved".

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

Cl **45**   *SC* **45.2.1.63**   *P* **42**   *L* **43**   # 93
Charny, Ben

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

The description of the register states that the "0.0dB will be represented by 0x8000". It will be helpful to clarify that the number is in offset two's complement notation.
Same comment and remedy for other instances in all registers described in sections 45.2.1.64 through 45.2.1.74.

SuggestedRemedy

Re-phrase "The number will be in offset two's complement notation, with 0.0dB represented by 0x8000".

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

Cl **45**   *SC* **45.2.1.75**   *P* **44**   *L* **21**   # 94
Charny, Ben

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

Table 45-53 shows registers 1.145 and 1.146 with skew delay for pairs B through C. Pair B uses bits 145.6:0, pair C uses bits 1.146.14:8, and pair D uses bits 1.146.6:0.

This order of pairs within the register is different from the rest of the document. In register 1.146, pair D would get higher order bits than pair C.

While pair A is missing (skew delay is calculated with respect to pair A), pair B should be in the upper byte of register 1.145.

SuggestedRemedy

Following bit assignment:

1.145.15 - Reserved
1.145.14:8 - Skew delay B
1.145.7:0 - Reserved
1.146.15 - Reserved
1.146.14:8 - Skew delay D
1.146.7 - Reserved
1.146.6:0 - Skew delay C

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**   Page 12 of 63
SC **45.2.1.75**   7/16/2005 9:02:31 AM

Cl **45**   *SC* **45.2.1.75**   *P* **44**   *L* **9**   # 95

Charny, Ben

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

Section title is 10GBASE-T skew delay register (Registers 1.146 and 1.147) should be ... (Registers 1.145 and 1.146)

SuggestedRemedy

Change the title to show correct register addresses.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.1.8**   *P* **38**   *L* **15**   # 89

Charny, Ben

Comment Type   **E**   *Comment Status* **D**   *PMA/PMD*

Reference to 10GBASE-T PMD transmit disable function.

SuggestedRemedy

Replace PMD with PMA.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This sub-clause includes CX4 which is a PMD. Change heading to:

"10G PMA/PMD transmit disable register (Register 1.9)"

and change "10GBASE-T PMD" to "10GBASE-T PMA"

Cl **45**   *SC* **45.2.10.4**   *P* **56**   *L* **5**   # 169

McClellan, Brett   Solarflare

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

The resolution to comments 237, 460, 461, and 527 was supposed to remove "full duplex" from the name and description.
7.32 is a control register. This bit is supposed to control whether the PHY advertises 10GBASE-T ability during autoneg.

SuggestedRemedy

change title to:
"45.2.7.10.4 10GBASE-T capability (7.32.12)"
change text to:"Bit 7.32.12 is to be used to select whether or not auto-negotiation will advertise the ability to operate as a 10GBASE-T PHY. If bit 7.32.12 is set to one the PHY will advertise 10GBASE-T PHY capability. If bit 7.32.12 is set to zero the PHY will not advertise 10GBASE-T PHY capability."
remove editor's note for this bit.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.10.4**

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Cl **45**   *SC* **45.2.7**   *P* **49**   *L* **8**   # 189
Law, David

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

IEEE P802.3an D2.0 comment #675 states:

There is a statement that 'their appropriate initialization conditions when mapped to the MII interface are covered in 28.2.4 and 22.2.4, and Clause 45 MDIO management interface.' however I cannot find any default values in the Clause 45 registers. Take the Restart autonegotiation bit (7.0.9), a default is defined for it in 22.2.4.1.7, the same seems to be true of the Auto-Negotiation Enable bit (7.0.12).

The response to this comment is:

ACCEPT IN PRINCIPLE.

Add default values to the Clause 45 registers and make the cross-reference more direct. Need to make sure Clause 45 editor is aware of these changes.

It appears however that neither of these two actions have taken place, the cross-reference still seems to be just to Clause 45 and I cannot see any default values in the equivalent Clause 45 bits - e.g 7.0.12 Auto-negotiation enable.

A similar comment has been submitted against subclause 28.3.

SuggestedRemedy

Implement resopnse to D2.0 comment #675.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.7**   *P* **54**   *L*   # 126
Thompson, Todd

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

Tables are missing for the following registers (throughout 45.2.7):
7.22-2.24 AN XNP transmit
7.32 10GBASE-T AN control
7.33 10GBASE-T AN status
7.34 10GBASE-T AN control 2

SuggestedRemedy

Add back the tables that define the bits in these registers.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Tables exist. See comment 97

Cl **45**   *SC* **45.2.7.1.2**   *P* **50**   *L* **45**   # 128
Thompson, Todd

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

This comment also applies to 45.2.7.6 and Table 45-120 on page 53.

On page 50, line 45, bit 7.1.8 is a reserved bit, not the extended next page ability bit. Extended next page ability bit should be in the AN advertisement register.

On page 53, the extended next page ability bit is missing from register 7.16 (this parallels register 7.19 which is the link partner version of the same bit).

SuggestedRemedy

On page 50, change 7.1.8 to 7.19.12.

On page 53, add an extended next page ability bit, 7.16.12 to Table 45-120 and add a paragraph/description of this bit (reports whether a PHY supports extended next pages, and may be used to control whether a PHY exchanges extended next pages by being overwritten by a host).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

See comment number 129

Cl **45**   *SC* **45.2.7.10.1**   *P* **55**   *L* **32**   # 97
Charny, Ben

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

Text refers to missing Table 45-124.
Same problem (missing but referenced table) exists for Table 45-125 (page 56, line 16) and Table 45-126 (page 57, line 24).

SuggestedRemedy

Insert tables with bit assignments per document text.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Tables exist but were mistakely removed during creation of this draft.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.7.10.1**

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Cl **45**   *SC* **45.2.7.10.4**   *P* **56**   *L* **5**   # 125

Thompson, Todd

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

Comment 461 on Draft 2.0 (accepted) made the point that the bit 7.32.12 is a "control" bit and not a status bit. This bit is used for controlling whether or not the PHY advertises 10GBASE-T ability (the full-duplex on the description is gratuitous). The table (which was deleted) for 7.32 had the correct description, but the paragraph is still incorrect. The paragraph is worded as if it is a status.

SuggestedRemedy

Re-word as described in comment 461 from Draft 2.0.

Suggested wording is "Bit 7.32.12 is to be used to control whether or not auto-negotiation advertises the capability to operate as a 10GBASE-T PHY..."

Remove the words "full-duplex" from the table describing bit 7.32.12 and also from paragraph 45.2.7.10.4, since this bit has nothing to do with reporting or controlling half/full duplex ability.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment 169

Cl **45**   *SC* **45.2.7.11.5**   *P* **56**   *L* **51**   # 170

McClellan, Brett   Solarflare

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

This bit should report the link partner's capability to support 10GBASE-T operation. To reduce confusion about 10GBASE-T vs. full duplex operation change, I suggest removing the term "full duplex from the title and description".

SuggestedRemedy

change text to:
"45.2.7.11.5 Link partner 10GBASE-T (7.33.11)
The bit will only be valid when page receive bit 7.1.6 in is set to one. When read as a logic one, bit 7.33.11 indicates that the link partner has the capability to support 10GBASE-T signaling specification in Clause 55. When read as a logic zero, bit 7.33.11 indicates that the link partner lacks the capability to support 10GBASE-T operation."
and remove the editor's note.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.7.11.7**   *P* **57**   *L* **11**   # 62

Dawe, Piers

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

Font size

SuggestedRemedy

9 pt s/b 10 pt

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.7.11.7**   *P* **57**   *L* **8**   # 171

McClellan, Brett   Solarflare

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

LD and LP should be consistently used for bits 7.33.9/7.33.8 and 7.34.2/7.34.1.

To reduce confusion, I suggest changing the names to:
"45.2.7.11.7 LP PMA training reset request(7.33.9)"
"45.2.7.11.8 LP THP bypass request (7.33.8)"
"45.2.7.12.2 LD PMA training reset request (7.34.2)"
"45.2.7.12.3 LD THP bypass request (7.34.1)"

SuggestedRemedy

change text as indicated

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.7.11.7**

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Cl **45**   *SC* **45.2.7.12**   *P* **57**   *L* **22**   # 127
Thompson, Todd

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

In comment #462 against version 2.0, it was agreed these are status bits and should be made RO and moved to a status register. Not clear if they were made RO as the table is missing, however the bits got moved from a control register to another control register.

The paragraph 45.2.7.12.1 starting on line 24 is worded in such as way as to imply the host may provide a seed or exercise some control over the master/slave selection with this register, which it may not.

Having a single seed value as read-only is not helpful without also having the remote seed value.

SuggestedRemedy

Remove these bits (7.34.15:5) and remove this paragraph. 1000BASE-T has no such bits.

If the bits are left, both local and remote seed values should be made available and the paragraph should be re-worded to make it clear that these are read-only status bits of the seeds which were exchanged and not control bits. The seeds should be in a status register and not in a control register and should be RO.

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

Remove 7.34.15:5 and associated text.

Move 7.34.2 to 7.33.7 and make is RO since it is a status indication.

Move 7.34.1:0 to 7.32.1:0 and remove register 7.34 completely.

Cl **45**   *SC* **45.2.7.2.6**   *P* **52**   *L* **42**   # 150
McClellan, Brett   Solarflare

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

typo: "cleared up AN Reset"
should be:"cleared upon AN Reset"

SuggestedRemedy

change text as indicated

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

Cl **45**   *SC* **45.2.7.2.6**   *P* **52**   *L* **42**   # 60
Dawe, Piers

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

Grammar problem in 'Bit 7.1.2 shall be cleared up AN Reset.' Also a gratuitous capital.

SuggestedRemedy

Maybe it should be 'Bit 7.1.2 shall be cleared on AN reset.'?

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

See comment 150

Cl **45**   *SC* **45.2.7.6**   *P* **53**   *L* **38**   # 129
Thompson, Todd

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

Extended next page ability bit should be in register 7.16 and not 7.1. In Table 45-120, the technology ability field is bits 12:5, when it should be 11:5 (to be consistent with 28.2.1.2.3).

SuggestedRemedy

Add a bit 7.16.12 to Table 45-120 and a description for this bit to this paragraph. Remove one bit from 7.16.12:5.

Modify references from 7.1.8 in all of 45.2.7 to 7.16.12 (in 45.2.7.1.2 and 45.2.7.2.1).

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

Register 7.1 is an RO status register. Bit 7.1.7 indicates both LD & LP are using XNP and reflect valid status.

Modify 45-120 to define 7.16.12 as XNP ability and add text accordingly.

References to 7.1.8 are incorrect (it doesn't exist) and should be updated to 7.16.12 in 45.2.7.1.2 and 45.2.7.2.1

Plus performing the following:
Reference to 4.4:0 and 4.12:5 should be updated to 7.4:0 and 7.12:5 as recently added fourth paragraph provides explaination on relationship of these two mirrored registers.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.7.6**

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Cl **45**   *SC* **45.2.7.9**   *P* **54**   *L* **42**   # 135

Kasturia, Sanjay

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

Label 45.2.7.9 has been separated from the text of the subheading which is on line 50.
Move label to subheading and move subheading to a new line.

Similar errors occur in 45.2.7.10.1 on page 55 and in 45.2.7.11.1 on page 56

SuggestedRemedy

Move label to subheading and move subheading to a new line.

Make similar correction to 45.2.7.10.1 on page 55 and to 45.2.7.11.1 on page 56

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

Cl **45**   *SC* **45.2.7.9**   *P* **54**   *L* **42**   # 96

Charny, Ben

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

Heading/text formatting problems (text inserted between section name and section title).
Same problem exists in sections:
45.2.7.10.1
45.2.7.11.1
45.2.7.12.1

SuggestedRemedy

Correct formatting.

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

Cl **45**   *SC* **45.2.7.9**   *P* **54**   *L* **42**   # 61

Dawe, Piers

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

Problem with position of title: Frame thinks the subclause is the title and maybe vice versa?

SuggestedRemedy

There are four or so occurrences of this problem.

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

Make appropriate corrections -see comment 96 for details

Cl **45**   *SC* **45.5.9.2**   *P* **58**   *L* **33**   # 172

McClellan, Brett   Solarflare

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

typo:
change "finial" to "final"

SuggestedRemedy

change text as indicated

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

Cl **45**   *SC* **Table 45-3**   *P* **87**   *L* **44**   # 20621

Grow, Robert   Intel

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

Why the skip to register number 129? The registers start with 0. Why is 802.3ap starting
at a decimal register number (150). Let's get some consistency.

SuggestedRemedy

If a binary number is desired, then 128 is the place to start.

Proposed Response   *Response Status* **C**
REJECT.

Register 128 was listed as reserved to maintain consistancy with previous register
schemes. The first register in a set has consistantly been a control register with the next
register being a status. Thus register 128 was reserved should a control register be
necessary.

Also comment #561

Cl **55**   *SC* **55.1**   *P* **137**   *L* **12**   # 20329

Dawe, Piers   Agilent

Comment Type   **ER**   *Comment Status* **A**   cabling

Problem with referring to different versions of ISO/IEC 11801. We refer to them by date,
while IEC may use edition numbers. ISO/IEC 11801 Edition 2 and ISO/IEC 11801 Edition
2.1 aren't in 1.4 references

SuggestedRemedy

Sort out. Suggest include the edition numbers in 1.4 but use the dates in 55 if possible, as
elswhere in 802.3.

Proposed Response   *Response Status* **W**
ACCEPT IN PRINCIPLE.

Will use publication dates when available. Till then we will use edition numbers.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.1**

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Cl **55** *SC* **55.1**   *P* **143** *L* **6** *#* 175

Geoff Thompson   Nortel

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

The maximum delay allowed for signal transit through two PHYs is unreasonably long. The result is that one of the prime application spaces for 10GBASE-T, computer room server farms will have no better network latency performance than a fiber network that is two kilometers in diameter. I believe that the Broad Market Potential needs to be re-evaluated in 802.3 because of this mediocre level of performance that is far below what was expected of the Task Force.

SuggestedRemedy

(1) Significantly reduce the transceiver latency
(2) Re-evaluate the Broad Market Potential given this poor performance which will limit the applicability of this PHY for use in low-latency networks.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

Cl **55** *SC* **55.1**   *P* **65** *L* **12** *#* 16

Thaler, Pat

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

This text references ISO/IEC 11801 Edition 2 and ISO/IEC 11801 Edition 2.1 but those are not in clause 1 References. Comment 329 from Piers Dawe pointed this out, but no action was taken to correct it.

Also ISO/IEC 24750 needs to be added to 1.3.

SuggestedRemedy

Add to Clause 1.3 all standards which are referenced but not included in the current IEEE 802.3 Clause 1.3.

If some of these are drafts in development, include an instruction to the IEEE editor to replace them with a reference to the final standard if it is approved before publication.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 16, 63, 64

Cl **55** *SC* **55.1**   *P* **66** *L* **12** *#* 63

Dawe, Piers

Comment Type **ER** *Comment Status* **D**   *references*

To clear up my comment D2.0/329:
Notice that ISO/IEC 11801 Edition 2 is the same thing as ISO/IEC 11801: 2002. 802.3 refers to references by date, IEC use edition numbers.

SuggestedRemedy

In 55.1, change 'ISO/IEC 11801 Edition 2' to 'ISO/IEC 11801: 2002'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 16, 63, 64

Cl **55** *SC* **55.1**   *P* **66** *L* **14** *#* 64

Dawe, Piers

Comment Type **ER** *Comment Status* **D**   *references*

To clear up my comment D2.0/329:
ISO/IEC 11801 Edition 2.1 not yet a standard. Need a reference.

SuggestedRemedy

Add another entry to 1.3 Normative references:
ISO/IEC 11801 Edition 2.1 (draft) Information technology - Generic cabling for customer premises. Draft document number ISO/IEC JTC 1/SC 25 N 755
and add an editor's note saying that edition 2.1 is expected to supersede ISO/IEC 11801: 2002, and that revised (draft or final) documents are expected.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 16, 63, 64

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.1**

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Cl **55**   *SC* **55.1.1**   *P* **137**   *L* **35**   # 20250
Brown, Kevin   Broadcom

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

Subclause 55.1.1 Objective f) is imprecisely specified.   Specifying "at least 55 m to 100 m" does not make sense.

The minimum specified distance should be essentially zero distance. If a PHY that works over "at least 55 m" is compliant, then any distance specification is redundant. "at least 55 m to 100 m" has no meaningful difference from "at least 55 m to 90 m" or "at least 55 m to 110 m", if 55 m is the minimum requirement

SuggestedRemedy

f) Define a single 10Gb/s PHY that would support links of 0.1 m to 55 m on four pair balanced copper cabling.

Proposed Response   *Response Status* **U**

ACCEPT IN PRINCIPLE.

See response to comment 503

Cl **55**   *SC* **55.1.1**   *P* **137**   *L* **35**   # 20503
Baumer, Howard   Broadcom

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

What does "at least 55-100m" mean? Is the min distance objective 55 or 100 or something in between? Or isn't this the same as "at least 55m" since if someone can build a 100m cable that meets the specs then they have met "at least 55m" requirement.

SuggestedRemedy

change "at least 55-100m" to "55m

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change item f) in 55.1.1 to

"Define a single 10Gb/s PHY that would support links of up to 100 m on four pair balanced copper cabling as specified in 55.7

Cl **55**   *SC* **55.1.3**   *P*   *L*   # 6
Thaler, Pat

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

In regards to comment 332: The comment is marked reject, but actually a definition was added to 1.4 as the comment requested.

SuggestedRemedy

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Accepting this comment does not change the draft.

Cl **55**   *SC* **55.1.3**   *P* **138**   *L* **42**   # 20332
Dawe, Piers   Agilent

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

No indication of what you mean by hybrid: dictionary definition 'a composite of mixed origin' isn't enough information to understand this use of the word.

SuggestedRemedy

Explain, amplify, use another term, or add a definition to 1.4.

Proposed Response   *Response Status* **W**

REJECT.

The term "Hybrid" is used to refer to a two wire to four wire conversion device and has been used multiple time in IEEE Std 802.3-2002, Section Two - see page 417

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.1.3**

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Cl **55**   *SC* **55.1.3**   *P* **141**   *L* **52**   # 20361
Kim, Yong   Broadcom

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

Objectives list (55.1.1) states "f) Define a single 10Gb/s PHY that would support links of at least 55 m to 100 m on four pair balanced copper cabling as specified in 55.7". This intro (55.1.3) states (or implies) 100 m. Well, which is it? Please make it consistent to the objectives.

From Draft: "The PMA couples messages from the PCS service interface onto the balanced cabling physical medium via the Medium Dependent Interface (MDI) and provides the link management and PHY Control functions. The PMA provides full duplex communications at 800 Msymbols/s over four pairs of balanced cabling up to 100 m in length.",

SuggestedRemedy

Change length designation on line 52 page 141 to be consistent with objective f) on page 137. For example, replace "four pairs of balanced cabling up to 100m in length." with "four pairs of balanced cabling of at least 55m in length".

Proposed Response   *Response Status* **W**
ACCEPT IN PRINCIPLE.

See response to comment 503

Cl **55**   *SC* **55.1.3**   *P* **67**   *L* **43**   # 65
Dawe, Piers

Comment Type **ER**   *Comment Status* **D**

To clear up my comment D2.0/332:
Thank you for adding a definition of 'hybrid'. This is a useful service for readers of clause 40 also.
The sentence 'Hybrids and cancellers are employed to enable simultaneous transmission in both directions on each pair.' and some of figure 55-2 seem to be describing an implementation as if it is a requirement. Also, they raise the question of whether the hybrids and cancellers are components that the user is expected to buy, in addition to the PCS/PMA and a cable, in order to make a link - the following few sections do not definitively clear up this question.   The one concept we do want from this sentence is the simultaneous transmission in both directions on each pair.

SuggestedRemedy

Delete this sentence and modify the one before, giving:
'The aggregate data rate of 10 Gb/s is achieved by transmitting 2500 Mb/s in each direction simultaneously on each wire pair, as shown in Figure 55-2.' To address the question 'Do I need to buy a set of hybrids then?', add two vertical dotted lines to figure 55-2 showing the positions of the two MDIs.

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

Cl **55**   *SC* **55.1.3**   *P* **68**   *L* **12**   # 66
Dawe, Piers

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

Bad to arrange text vertically; can't search for it. It might be better not to have a thing called 'hybrid' shown at all, as it raises unnecessary questions. Thank you for adding the arrows indicating bidirectional transmission.

SuggestedRemedy

For preference, show boxes called 'Bidirectional Tx/Rx' or similar, or change H Y B R I D to 'Hybrid' written horizontally.

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

Will change the box to show 'Hybrid' written horizontally.

Cl **55**   *SC* **55.1.3.1**   *P* **70**   *L*   # 131
McConnell, Mike

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

DSQ modulation scheme has shown noticeably higher susceptibility to correlated in-band disturbance than a 12PAM-based - see details in the presentation material 'vareljian_0705.pdf'.

SuggestedRemedy

For the possible remedies see 'vareljian_0705.pdf'

Proposed Response   *Response Status* **W**

Cl **55**   *SC* **55.1.3.2**   *P* **141**   *L* **52**   # 20356
Ali, Ghiasi   Broadcom

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

It is unclear what the length objective for 10GBAS-T 55 m, 100 m, or take your pick 55-100 m.

SuggestedRemedy

Ethernet in the premises wiring is the most entrenched standard. Reducing the length from 100 m to something like take a number will cause significant damage to the Ethernet as a standard. Ethernet in the premises wiring means 100m and 10GBASE-T group should not reduce the reach.

Proposed Response   *Response Status* **W**
ACCEPT IN PRINCIPLE.

See response to 503

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**   Page 20 of 63
SC **55.1.3.2**   7/16/2005 9:02:32 AM

Cl **55**   *SC* **55.1.3.2**   *P* **70**   *L* **58**   # 151

McClellan, Brett   Solarflare

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

text:
"value in the range (-16, 16]."
is inconsistent with 55.4.3.1

SuggestedRemedy

Change text to:
"value between the interval [-16, 16)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.1.5**   *P* **71**   *L* **54**   # 120

Barrass, Hugh

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

Try to avoid the word "must" as it gives the appearance of a normative statement.

SuggestedRemedy

change "implementations must be compatible" to "implementations are compatible

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.1.5**   *P* **71**   *L* **55**   # 121

Barrass, Hugh

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

a single-port device or a multi-port device"

I believe that this is redundant - unless the case of a "zero-port device" is considered...

SuggestedRemedy

change "When the PHY is incorporated within the physical bounds of a single-port device or a multi-port device, physical implementation of the XGMII is optional."

to "Physical implementation of the XGMII is optional.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **55**   *SC* **55.11**   *P*   *L*   # 11

Thaler, Pat

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

This comment is in support of comments 236 and 242 of Shimon Muller and comment 369 on delay constraints. The existing delay number of over 10 us is painful for various systems applications of this network and reduces market potential.

The need for such a large delay number has not been justified to the Task Force.

SuggestedRemedy

Either reduce the number or produce some justification for why so much delay is necessary for implementation.

A possible compromise would be to have lower delay in at least some situations. A delay of 10 us round trip per PHY is particularly harmful to performance in computer clusters and storage attach (e.g. iSCSI).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

Cl **55**   *SC* **55.11**   *P* **141**   *L* **9**   # 123

Barrass, Hugh

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

Unresolved comment #369 on draft 2.0 notwithstanding, the specification of latency for a link operating at 10m may encourage an implementer to optimize certain components for lower latency at that distance. This may cause the latency at longer distances to increase by more than just the cable delay.

In order to close this loophole, the latency should be specified at 100m (corrections or even optimizations may be made for shorter links) thereby putting an upper limit on latency.

SuggestedRemedy

Change Table 55-10 "with 10m cable" to "with 100m cable"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.11**

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Cl **55** *SC* **55.11** *P* **143** *L* **6** # 46

Thaler, Pat

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

The response to comment 370 is incorrect. We need to control the overall round trip delay, but it is desireable to allow implementers freedom to trade off delay between the transmitter and receiver in the same PHY.

That is why constraining XGMII to MDI delay is the wrong answer to the commenter's concern. The error in the draft Hugh points out is there. As it is written now it controls the sum of the transmit delay of one PHY and the receive delay of another PHY which doesn't work for the reason Hugh points out.

SuggestedRemedy

The best way to correct it is to change the spec in 55.11 to specify the sum of the XGMII to MDI and MDI to XGMII delays of the PHY.

Since there is only one parameter in this case, it doesn't need to be done in a table. You can look at delay specs in the other 10 Gig clauses for examples (e.g. 50.3.7, 51.3.3).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

Cl **55** *SC* **55.11** *P* **143** *L* **9** # 85

Powell, Scott

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

Incomplete latency specification: latency is specified for a 10m link but is left undefined for longer distances.

SuggestedRemedy

Specify latency to be less than or equal to a maximum value over any cable length less than or equal to 100m.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

Cl **55** *SC* **55.11** *P* **216** *L* **19-2** # 20242

Shimon Muller Sun Microsystems, Inc

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

See my comment against 44.3.
The delay constraints specified for 10GBASE-T are at least an order of magnitude greater than what would be acceptable for many applications that are intended to be deployed using this technology.
Furthermore, I do not recall any contributions made to the Task Force that justify such a high latency in the PHY.
See my presentation (muller_1_0304.pdf) for latency considerations for the 10GBASE-T PHY.

SuggestedRemedy

See my comment against 44.3.

Change the 10GBASE-T entry in Table 44-2 such that the round-trip latency does not exceed 20480 bit times or 40 pause_quanta.

Proposed Response *Response Status* **U**

This comment was unable to be resolved by the ballot resolution committee.

PROPOSED ACCEPT IN PRINCIPLE.

Motion: Change the round-trip latency to 8 us.
M: S. Kasturia
S: J. Tellado
Y:
N: by voice
Fails

PROPOSED REJECT.

The current delay parameter does not constrain implementation

Y: 8
N: 18
Fails

Delay related comments are numbered:
236, 242, 369

Proposals:
A) 20,480 bit times or 40 pause_quanta

B) 25,600 bit times or 50 pause_quanta

Motion to reduce latency from number in Draft 2.0 to proposal (A):
Moved by: Shimon Muller

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55** Page 22 of 63
SC **55.11** 7/16/2005 9:02:32 AM

Seconded: Hugh Barrass
Yes: 10
No: 10
Abstain: 15
Motion Fails.

No voters volunteered to change their vote for proposal (B).

Comment is currently unresolved.

Cl **55**   *SC* **55.11**   *P* **216**   *L* **20**   # 20369
Barrass, Hugh   Cisco Systems

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

The latency allowed by this clause would make the performance of a 10GBASE-T link unacceptable. The parameter specified would allow the XGMII-XGMII latency to exceed 10uS.

The time to transfer a 64byte frame using Gigabit Ethernet is only 512nS; a Gigabit link will achieve higher performance than a lightly loaded 10GBASE-T link for all but the longest frames. It should be a goal of 10GBASE-T to exceed the performance of 1000BASE-T in as many situations as possible.

It is understood that the block size chosen for 10GBASE-T puts a theoretical limit on latency at ~400nS and that practical considerations will need multiple block times to achieve reasonable power and gate count tradeoffs. However, a very loose requirement for latency will create massive interoperability problems as performance will drop far below expectations for certain combinations of PHY implementation.

It is proposed that 8 block times would be a reasonable limit for PHY latency. This is equivalent to the frame transmission time for a 320 byte frame at 1Gbps.

SuggestedRemedy

Change "100,352" to "25,600

Proposed Response   *Response Status* **W**

See response to comment 242

Cl **55**   *SC* **55.11**   *P* **216**   *L* **20**   # 20370
Barrass, Hugh   Cisco Systems

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

It is not sufficient to specify the latency from XGMII to XGMII. Clearly, any variation in latency for a transmitter will eat into the budget for the connected receiver. If a receiver is qualified using a low latency transmitter and transmitter is qualified using a low latency receiver then the resulting link may not meet the requirement.

Note that this comment assumes the acceptance of the comment requiring a shorter total latency. The latency figures in the remedy may be adjusted to match the currently agreed total.

SuggestedRemedy

Add the word "(informative)" to the first column of the second row of Table 55-10.

Add a row to Table 55-10

XGMII ==> MDI ; SFD coming in on XGMII and exiting the MDI (as a start coded in a 64/65 codeblock) ; 3,100 ; SFD ; S code

Add a row to Table 55-10

MDI ==> XGMII ; Start coded 64/65 codeblock coming in on MDI and exiting the XGMII ; 22,400 ; S code ; SFD

Proposed Response   *Response Status* **U**

REJECT.

XGMII ==> MDI delay will be added to table 55-10 once comment 242 is resolved.

Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

Cl **55**   *SC* **55.12.1.2**   *P* **144**   *L* **33**   # 193
Law, David

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

Typo, and please don't tempt fate by including year designation at this point - we never do that in a draft ;-)

SuggestedRemedy

'IEEE Std 802.an:2006' should read 'IEEE Std 802.3an-200X'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied   Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**   Page 23 of 63
SC **55.12.1.2**   7/16/2005 9:02:32 AM

Cl **55**   *SC* **55.12.4**   *P* **147**   *L* **15**   # 167
McClellan, Brett   Solarflare

Comment Type   **T**   *Comment Status* **D**
    Automatic configuration is required in Clause 55.

SuggestedRemedy
    change "O" to "M"
    delete "if used

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

Cl **55**   *SC* **55.12.5**   *P* **147**   *L* **45**   # 168
McClellan, Brett   Solarflare

Comment Type   **T**   *Comment Status* **D**
    PIC's MF7, MF8 and MF9 redundant.
    MF10 and MF11 conflict with MF7, MF8 and MF9.
    MF8 and MF9 should be mandatory since all devices must be able to resolve MASTER and
    SLAVE.

    I suggest replacing them with the following two PIC's:
    "MF7, MASTER-SLAVE resolution with both or neither devices supporting Loop Timing,
    55.6.2, M, Yes [ ], As defined in Table 55?9
    MF8, MASTER-SLAVE resolution with one device supporting Loop Timing, 55.6.2, M, Yes [
    ], Device supporting Loop Timing forced to SLAVE

SuggestedRemedy
    Replace MF7 to MF11 with the text above.
    Renumber remaining PIC's.

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

Cl **55**   *SC* **55.2**   *P* **77**   *L* **35**   # 26
Thaler, Pat

Comment Type   **TR**   *Comment Status* **X**
    A number of the primitives are defined as being sent continuously. In most of the previous
    PMAs, the status conveying primitives were only sent when status changes. This makes
    more sense and should be done for consistancy.

SuggestedRemedy
    Change "when generated" for PMA_LINK.indication, PMA_TXMODE.indication,
    PMA_CONFIG.indication, PMA_SCRSTATUS.request, PMA_PCSSTATUS.request, and
    PMA_RXSTATUS.indication to be sent when the value changes rather than continuously.

Proposed Response   *Response Status* **W**
    Task force to discuss.
    1GBASE-T selected 'continuously'

Cl **55**   *SC* **55.2.2.1.2**   *P* **75**   *L* **3**   # 99
Ross, Tam

Comment Type   **E**   *Comment Status* **D**   *clarification*
    The phrase "startup mode" used here is undefined. Everywhere else in clause 55, the term
    "training mode" is used to describe (what I hope is) the same thing.

SuggestedRemedy
    Change "startup mode" to "training mode".

Proposed Response   *Response Status* **W**
    PROPOSED ACCEPT IN PRINCIPLE.
    Training (119 instances) and startup (21 instances) are used interchangeably. Training is
    also used specifically to describe states within the startup, such as PMA_Training and
    PCS_Training.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.2.2.1.2**

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7/16/2005 9:02:32 AM

Cl **55**   *SC* **55.2.2.9**   *P* **78**   *L* **52**   # 27

Thaler, Pat

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

The description of the values is unclear. When is a reset enabled? When a reset can occur or when a reset is underway? 55.4.2.1 doesn't mention "enabled". Since there is no state diagram controlling the signal it needs a clear description. Does TRUE indicate that a reset has been initiated (a momentary indication) or is TRUE asserted until the reset has completed?

Also, PMA_RESET.indicatation needs a when generated - referencing the description of the reset function doesn't determine when the primative reflecting the state of that function is to be sent.

SuggestedRemedy

Clarify the meaning of the values TRUE and FALSE and specify that the primitive is generated on value change.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.3.12**   *P*   *L*   # 47

Thaler, Pat

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

The responses to comment 374 and 383 are not adequate. When rejecting a required comment, a reason should be given for why the comment is not being accepted.

You don't have to accept every enhancement request, but you do have to fix things that are broken even if the commenter doesn't have a remedy.

SuggestedRemedy

In the case of comment 374, perhaps the answer is that the commenter is requesting enhancements that allow LDPC and CRC checks to be tested, but that could be done with a test equipment transmitter and it isn't necessary to require that functionality in every PHY transmitter.

If that is the answer, then document it in the reject. If, instead, the functionality that Hugh requests is viewed as necessary, then add it.

In the case of a comment like 383, then the reject should state why the task force feel the commenter is wrong, for instance pointing to presentations that show that there is adequate noise budget and the analysis of undetected error rate.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **55**   *SC* **55.3.12**   *P* **163**   *L* **13**   # 20374

Barrass, Hugh   Cisco Systems

Comment Type **TR**   *Comment Status* **R**   *pcspma testing*

Additional test patterns are required:

It will be prohibitively difficult to test the quality of LDPC implementations in a receiver as it will be exceedingly difficult to ensure the the the test channel genuinely produces the worst signal degradation and noise ingress to fully exercise the error correction function in a deterministic manner. Therefore we should define an error inserting test pattern generator that can exercise the LDPC decode on a good quality and quiet link.

Also,we need a mechanism of forcing a parity error in the CRC8 so that the function can be tested in the receiver.

SuggestedRemedy

At the end of clause 55.3.12, add:

The transmit function shall have the ability to inject pseudo random bit errors into the coded bits of a 65BLDPC frame. In order to test the receiver LDPC error correction function, a transmitter and receiver pair shall be connected by a short,high quality link. The SNR margin at the receiver shall be greater than 10dB. The transmitter injects a pseudo random error pattern into the coded bits of the egress 65BLDPC frames equivalent to a BER of 1/100. The receiver shall correct the errors to achieve a resultant BER less than 10^{-12}. (TBD : does the injected error pattern need to be distributed across the DSQ128 coding?)

The transmit function shall have the ability to inject random false parity codes in the CRC8 function. On a short, high quality link, with a receive SNR margin greater than 10dB, the receiver shall detect but not correct the injected CRC errors (invalidating the XGMII data as defined in 55.3.15)

Proposed Response   *Response Status* **U**

REJECT.

Commenter to provide a detailed remedy.

Cl **55**   *SC* **55.3.2.2**   *P* **86**   *L* **2**   # 152

McClellan, Brett   Solarflare

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

The Table header, "data ctrl header", extends beyond the column width.

SuggestedRemedy

Resize the column to fully contain the header.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.3.2.2**

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Cl **55**   *SC* **55.3.2.2.17**   *P* **89**   *L* **57**   # 201

Law, David

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

Typo.

SuggestedRemedy

Please use a multiplication symbol 'x' rather than a '*'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.3.2.2.17**   *P* **89**   *L* **58**   # 200

Law, David

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

Setting the Aux bit to zero and ignoring on receive would seem to be something that it would be desirable to mandate.

SuggestedRemedy

Change '.. is set to zero and is ignored ..' to read '.. shall be set to zero on transmit and shall be ignored ..'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.3.2.2.17**   *P* **89**   *L* **58**   # 153

McClellan, Brett   Solarflare

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

The task force has not identified a use for the "auxiliary" bit.
At this point I think we should identify it as a "reserved" bit.

SuggestedRemedy

change text to:
"The resulting payload of scrambled 50 65B blocks, followed by the corresponding 8 bits from the CRC8 and preceded by 1 reserved bit results in a total payload of 50*65+8+1 = 3259 bits. The reserved bit is set to zero and is ignored at the receiver."

Also change "auxiliary" to "reserved" at:
page 70 line 15
page 70 line 17
page 81 line 36
page 83 line 22

Proposed Response   *Response Status* **W**

Task force to decide.
Related comments #108

Cl **55**   *SC* **55.3.2.2.17**   *P* **89**   *L* **58**   # 108

Ungerboeck, Gottfried

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

The statement "The auxiliary bit is set to zero and is ignored at the receiver" prevents any practical use of the auxiliary bit.

SuggestedRemedy

Replace this sentence by "The auxiliary bit is reserved for vendor discretionary use". - In Figure 55-8 on page 85 replace "Aux bit" by "auxiliary bit

Proposed Response   *Response Status* **W**

Task force to decide.
Related comments #153

Cl **55**   *SC* **55.3.2.2.18**   *P* **90**   *L* **40**   # 107

Ungerboeck, Gottfried

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

Using "1DSQ128" for 1D PAM16 is awkward.

SuggestedRemedy

Let the paragraph at line 40 begin as follows. "The 2D DSQ128 constellation is obtained by eliminating from a 2D QAM256 (=PAM16 x PAM16) half of the points such that the remaining 128 2D points are maximally spaced, i.e., they correspond to the back (or white) squares in a checkerboard. The 1D components of the DSQ128 constellation will be denoted DSQ128 sub 1 (=PAM16) and DSQ128 sub 2 (=PAM16), respectively." Correspondingly, replace 1DSQ128 by PAM16 in 55.3.2.2.19 and 55.3.2.2.20, and wherever else 1DSQ128 may be used.

Proposed Response   *Response Status* **W**

Task force to decide

This remedy does not change the content and will require significant changes to draft2.1

Cl **55**   *SC* **55.3.2.2.5**   *P* **82**   *L* **57**   # 67

Dawe, Piers

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

Current draft satisfies me for comment D2.0/351.

SuggestedRemedy

Thanks!

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.3.2.2.5**

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Cl **55**   *SC* **55.3.2.3**   *P* **92**   *L* **10**   # 199
Law, David

Comment Type   **E**   *Comment Status*   **D**   *cleanup*
  Typo.

SuggestedRemedy
  Suggest '.. hi lfer ..' should read '.. high ..'.

Proposed Response   *Response Status*   **W**

Cl **55**   *SC* **55.3.2.3.3**   *P* **92**   *L* **50**   # 154
McClellan, Brett   Solarflare

Comment Type   **T**   *Comment Status*   **D**
  The addition of the text:
  "The PCS receiver shall not use the CRC8 parity check code to assist the LDPC convergence."
  Has created a new "shall" that is not reflected in the PICs.
  Even if added to the PICs, the requirement is untestable.

SuggestedRemedy
  Change the requirement to a recommendation.
  "It is recommended that the PCS receiver not use the CRC8 parity check code to assist the LDPC convergence.

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

Cl **55**   *SC* **55.3.4**   *P* **93**   *L* **43**   # 155
McClellan, Brett   Solarflare

Comment Type   **T**   *Comment Status*   **D**   *scrambler*
  The text is inconsistent with figure 55-13.

SuggestedRemedy
  Change: "Scr_n[32:0]" to "Scr_n[33:1]"

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

  Change to:

  $Scr\_n[32:1] = Scr\_(n-1)[31:0]$

  $Scr\_n[0] = Scr\_(n-1)[12]\ ^\wedge Scr\_(n-1)[32]$ if Master
  $Scr\_n[0] = Scr\_(n-1)[19]\ ^\wedge Scr\_(n-1)[32]$ if Slave

  Need to specify that these equations also aply to n mod 16K = 0 for not-periodic-init

---

Cl **55**   *SC* **55.3.4**   *P* **93**   *L* **45**   # 156
McClellan, Brett   Solarflare

Comment Type   **T**   *Comment Status*   **D**   *scrambler*
  For devices that do not request PMA training pattern reinitialization, there is no need to define a reset value for the 33-bit LFSR.

SuggestedRemedy
  change text:
  "If PCS Reset is executed, all bits of Scrn[32:0] are initialized with the 33bit hexadecimal value 0x15979A422."
  to (from Clause 40):
  "If PCS Reset is executed, all bits of the 33-bit vector representing the side-stream scrambler state are arbitrarily set. The initialization of the scrambler state is left to the implementor. In no case shall the scrambler state be initialized to all zeros."
  Add a PIC in 55.12.3
  "PCTx, In no case shall, 55.3.4, M, Yes [ ], The scrambler state be initialized to all zeros.

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.3.4**

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Cl **55**　　*SC* **55.3.4**　　　　　*P* **93**　　　*L* **51**　　　# 81
Powell, Scott

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

PMA training sequence generator should be initialized with a "random" seed to avoid
having multiple adjacent links generating the same sequence. Use 11-bit random number
generated for Master-Slave resolution to construct seed.

SuggestedRemedy

Anywhere the initialization value for the PMA training sequence generator is specified,
replace "0x15979A422" seed value with "0x39A422 for the 22 msbs and random value
SB10-SB0 from table 55-8 for the 11 lsbs". Lines 46 & 52 on page 93 and figure 55-13 are
2 such instances.

Proposed Response　　　*Response Status* **W**

Task force to decide.

Cl **55**　　*SC* **55.3.4.2**　　　　*P* **94**　　　*L* **59**　　　# 100
Ross, Tam

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

Nowhere is it stated that the 4-D symbols TAn, TBn, TCn, TDn are the "special code-
groups" referred to on page 81, line 23.

SuggestedRemedy

Place here or in 55.3.2.2 a statement like:
"When PMA_TXMODE.indicate has the value SEND_T, the transmit channel will transfer
the code-group (TAn, TBn, TCn, TDn) defined in 55.3.4.2 to the PMA via the
PMA_UNITDATA.request primitive.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **55**　　*SC* **55.3.4.3**　　　　*P* **155**　　*L* **59**　　　# 20351
Dawe, Piers　　　　　　　　　　　　　　Agilent

Comment Type **ER**　　*Comment Status* **A**　　　　　*hex notation*

In the sentence 'Hexadecimal numbers are shown in normal hexadecimal.', 'normal' seems
to be a matter of personal preference. As far as I know, this notation is C. It's not the
notation I learnt as a schoolboy.

SuggestedRemedy

Preferably, change to 'Hexadecimal numbers are shown with the least significant digit on
the right'; remove the several '0x's from the draft, use a combination of subscript 16 and a
footnote to table 55-9 to remove confusion with decimal numbers. Or if that's too much,
change this sentence to 'Hexadecimal numbers are shown prepended with '0x', and with
the least significant digit on the right (see 1.2.5)'.

Proposed Response　　　*Response Status* **W**

ACCEPT IN PRINCIPLE.

We will consistently use 0x ?

Cl **55**　　*SC* **55.3.5.2.1**　　　*P* **95**　　　*L* **42**　　　# 157
McClellan, Brett　　　　　　　　　　　Solarflare

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

IFRAME_R is defined but not used.

SuggestedRemedy

delete IFRAME_R

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **55**　　*SC* **55.3.5.2.2**　　　*P* **96**　　　*L* **36**　　　# 158
McClellan, Brett　　　　　　　　　　　Solarflare

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

signal_ok is defined but not used.

SuggestedRemedy

delete "signal_ok".

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.3.5.2.2**

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Cl **55**   *SC* **55.3.5.2.5**   *P* **98**   *L* **13**   # 159
McClellan, Brett   Solarflare

Comment Type **T**   *Comment Status* **D**
lf_fail_CRC8_cnt is defined but not used

SuggestedRemedy
delete "lf_fail_CRC8_cnt

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

Cl **55**   *SC* **55.3.9**   *P* **161**   *L*   # 20387
Juan M. Jover   Phyten Technologies, I

Comment Type **TR**   *Comment Status* **R**   *linecode*
I disagree with the appropriatness of the 128 DSQ line code for this problem.

Issues:

a) Total noise budget is too low.

b) Unprotected bits by the LDPC code present problems with noise events as described in Rao_1_1104.pdf, slide 23.

SuggestedRemedy
Change line code.

Proposed Response   *Response Status* **U**
REJECT.

This has previously been discussed multiple times and the task force continues to support the DSQ128 line code.

Passes by voice vote.

Cl **55**   *SC* **55.4.2.5**   *P* **104**   *L* **34**   # 110
Ungerboeck, Gottfried

Comment Type **T**   *Comment Status* **X**   *startup*
The 1/2-dB resolution of "SNR Margin" prevents that a (vendor-specific?) management entity may observe finer trends in the decision-point SNR achieved by a link partner during periodically invoked retraining phases of a link.

SuggestedRemedy
Increase the resolution of SNR margin and its range by representing SNR margin with more bits. Make clear that "SNR Margin" relates to LDPC-encoded 128DSQ modulation. Alternatively, instead of "SNR Margin" use the term "decision-point mean-squared error" (DP-MSE, relative to the PAM16 symbol spacing).

Proposed Response   *Response Status* **W**
Task force to decide.

1/2dB is likely sufficient. SNR Margin indicates to the link partner how much 'headroom' it has. DP-MSE is not sufficient because different implementations of the LDPC can have different coding gains.

Cl **55**   *SC* **55.4.2.5**   *P* **104**   *L* **5**   # 109
Ungerboeck, Gottfried

Comment Type **T**   *Comment Status* **D**   *startup*
Generally, the description of the PHY Control function is not clear enough to make interoperability of transceivers realized by different vendors a likely outcome. --- One particular aspect is concerned with announced transitions to new transmitter settings and/or state transitions. There exists the impression that such transitions, once announced, can be revoked before the transition counter expires. This would defy the reason for announcing transitions well ahead before they occur: namely to give a link partner time to prepare for the change and to avoid that the link partner has to inspect every received info field and be capable to react to new information in the info field instantaneously. If the standard would force this capability, then why announce transitions at all?

SuggestedRemedy
Adopt as general principle that announced transitions cannot be revoked. Thus, decoding of a single info field with an announced transition suffices for the receiving transceiver to know that and when the transition will occur.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
More description of PHY control will be added based on multiple comments. Task force to decide if revoked transitions are allowed

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TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.2.5**

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Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **17**   # 160
McClellan, Brett   Solarflare

Comment Type   **E**   *Comment Status*   **D**   *clarification*
typo: "The 16 octets the InfoField"
should be: "The 16 octet InfoField

SuggestedRemedy
change text as indicated

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

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **19**   # 39
Thaler, Pat

Comment Type   **TR**   *Comment Status*   **D**   *IF*
Why is there a start delimiter? The frame has a fixed location in the PMA frame.

SuggestedRemedy
Explain the need for the delimiter and explain what one does if one doesn't receive the delimiter where expected or receives it before expected, etc. or remove it.

And if you need one, why 4 octets?

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

The PMA frame has a length of 16K. The start of frame delimiter indicates the location of the IF.

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **19**   # 24
Thaler, Pat

Comment Type   **TR**   *Comment Status*   **D**   *IF*
Other places where we have similar message formats, we provide a figure showing the message layout followed by field definitions. For clarity that should be done here as well.

SuggestedRemedy
Since there are three "transmitter setting fields" with the same subfields in each one, I suggest that you have one diagram for the message and another figure to show the break-down of transmitter setting format into subfields.

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

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **32**   # 42
Thaler, Pat

Comment Type   **TR**   *Comment Status*   **D**
When is PBOTHP_increase sent and what fields does it use? I don't see any description of it in the rest of the training.

SuggestedRemedy
Define or eliminate.

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

Will define

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **32**   # 37
Thaler, Pat

Comment Type   **TR**   *Comment Status*   **D**   *startup*
Why is the message named PBOTHP_increase? It would seem that coefficients and even power back off could be adjusted down as well as up.

SuggestedRemedy
Use PBOTHP_change.

Proposed Response   *Response Status*   **W**
PROPOSED REJECT.

During PMA_Training_Init the tx power is increase and the THP is optionally loaded with coefficients that correspond to increasing lengths of cable. During PMA_Training_Update, the power/THP can increase or decrease.

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **42**   # 7
Thaler, Pat

Comment Type   **E**   *Comment Status*   **D**   *IF*
coefficients on pair B" could be read as implying the coefficients are sent on pair B, but the IF is sent only on pair A.

SuggestedRemedy
Change to "coefficients for pair B".

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.2.5**

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Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **47**   # 38

Thaler, Pat

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

A field can't be both reserved for future use and vendor specific. Once a vendor uses it, that would conflict with future use in a standard as values would be misinterpreted.

SuggestedRemedy

Choose one. I recommend reserved for future use as vendor specific features are only useful when one knows what vendor one is receiving them from. There is a possibility one could use vendor specific functions based on a vendor specific page exchange during autoneg, but given limited time to get the link up, it seems better to keep things simple and only reserve for future use.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
Reserve for future use

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **51**   # 132

Tellado, Jose

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

Recommend to change the optional fixed THP sequence from {byp, short, medium} to {short, medium, long} during PMA_training_init. Currently the worst case scenario is to demodulate 100m channel with the medium THP, which is optimized around 65m. With the proposed case the most mismatched THP would be the 0m channel with the short THP, which is optimized for 35m. The short channels have more margin, so it would be better to improve the more challenging 100m training

SuggestedRemedy

Change the optional fixed THP sequence from {byp, short, medium} to {short, medium, long} during PMA_training_init

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.2.5**   *P* **106**   *L* **51**   # 111

Ungerboeck, Gottfried

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

The merit of providing in the "PMA_Training_Update(_M/S)" states the capability of further coefficient updates is very questionable. This capability increases complexity for no clear benefit.

SuggestedRemedy

During PMA training coefficients should be exchanged only once in a state possibly called "PMA_Coeff_Exch". The current state "PMA_Training_Update" may then be more appropriately be renamed "PMA_Fine_Adj" and serve for refining the adjustment of transmit power, echo/next cancellers and feedforward equalizers.

Proposed Response   *Response Status* **W**

Task force to decide.

The name PMA_Training_Update refers to 'updating' the PBO settings and THP coefs relative to the coarse initial settings during PMA_Training_Init and the final adjustment of the EQ and cancellers.

Cl **55**   *SC* **55.4.2.5**   *P* **107**   *L* **1**   # 25

Thaler, Pat

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

Calling reserved bits X is not consistant with our usual practice.

SuggestedRemedy

Where bits are reserved, mark them as "reserved" not X and define reserved bits as send as zero ignore on receipt.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open   W/written   C/closed   U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.2.5**

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Cl **55** *SC* **55.4.2.5** *P* **107** *L* **3** # 19
Thaler, Pat

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

There are inconsistancies in the way PBO is described and used as a variable. Here it is decribed as a 3 bit quantity which therefore can take values 0 to 7 (here written in binary). In the variable description (55.4.5.1 Page 109 line 54) it is described as taking values from 1 to 8 though the sentence on values later in the description contradicts this statement. Other places (e.g. page 105 line 42 and in Figure 55-19) it is described as having values which appear to be the actual power back off in dB (14, 10, 6, etc.).

Also, in some cases the name is PB0 (with a zero instead of the letter O). PBO subscript k with k being a number is used in places but I can't find anywhere where its meaning is defined and the term is inconsistant with using PBO with the subscripts M and S.

SuggestedRemedy

Establish one clear definition of the use of PBO (and one spelling for it - presumably the letter 0 and not zero). Use only that set of values for it and desribe somewhere such as table 55-4 the relationship between PBO value and power back-off in dB.

I prefer values 0 to 7 since that is the value exchanged in the training frames.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5** *P* **107** *L* **44** # 49
Thaler, Pat

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

Value consistancy again. Sometimes loc_rcvr_status takes values 1 and 0, other places OK and NOT_OK

SuggestedRemedy

Use one set of values for the parameter or if you feel it helps understanding, define OK and NOT_OK as constants with the values 1 and 0.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5** *P* **107** *L* **45** # 4
Reviriego, Pedro

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

the text 'set loc_rcvr_status=1 to allow the SLAVE to transition to PMA Training Init S..... ' is not consistent with the state diagram of Figure 55-19 PHY Control state diagram.

SuggestedRemedy

One of the two alternatives below:

1) Add rem_rcvr_status = 1 as a condition for the transition from SLAVE SILENT to PMA Training Init S.The MASTER will then have to set loc_rcvr_status=0 when transitioning into PMA Training Update M.

2) Remove the text so that the MASTER does not need to set loc_rcvr_status for the SLAVE to transition into PMA Training Init S.(Assume MASTER receiver will converge always before SLAVE).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Related comments 53, 4, 161

Cl **55** *SC* **55.4.2.5** *P* **107** *L* **45** # 53
Thaler, Pat

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

The text says the master "must set loc_rcvr_status = 1 to allow the SLAVE to transition to PMA_Training_Init_S if necessary".

However the transition from SLAVE_SILENT to PMA_Training_Init_S doesn't use loc_rcvr_status so the statement doesn't make sense.

Also, why "if necessary" For the link to come up the slave has to make that transition so it is necessary.

Also, must is not normally used in IEEE standards. It is not a valid word for stating a requirement. It is best avoided as it always raises the question of whether "shall" was meant, but if used it is only used to state an inevitable consequence which it doesn't seem to be doing here.

SuggestedRemedy

If loc_rcvr_status = 1 should be ANDed into the transition do so.

Also, delete "if necessary" and change "must" to "shall

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Related comments 53, 4, 161

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.2.5**

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Cl **55** *SC* **55.4.2.5** *P* **107** *L* **46** # 161

McClellan, Brett   Solarflare

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

Initially the MASTER will not be ready for the SLAVE to respond and must set
loc_rcvr_status=0. After the MASTER has converged the necessary circuitry it must set
loc_rcvr_status=1 to allow the SLAVE to transition to PMA_Training_Init_S if necessary.

Use of the loc_rcvr_status primitive to hold off the SLAVE during training has implications
on other PCS and PMA functions.
I suggest adding a new message bit, "Slave_holdoff" bit 6 in Infofield Octet 8, to perform
this function and define it as follows:
During SLAVE_SILENT Slave_holdoff=1 from the MASTER directs the SLAVE holdoff from
transitioning to PMA_Training_Init_S.

SuggestedRemedy

Change text to:
"Initially the MASTER will not be ready for the SLAVE to respond and must set
Slave_holdoff=1. After the MASTER has converged the necessary circuitry it must set
Slave_holdoff=0 to allow the SLAVE to transition to PMA_Training_Init_S if necessary. "
also change:
page 106 line 31 add "Slave_holdoff<6>"
page 114 line 18 change "config = SLAVE * scr_status = OK" to "config = SLAVE *
scr_status = OK * Slave_holdoff = 0

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
Related comments 53, 4, 161

Cl **55** *SC* **55.4.2.5** *P* **108** *L* **14** # 9

Thaler, Pat

Comment Type **ER**   *Comment Status* **D**   *clarification*

There are times when PMA_Training_Init or PMA_Training_Update sometimes followed by
"state" are used, but there is no state with that name.

SuggestedRemedy

Please use the real state name or if you are going to use a name to refer to a group of
states, put in a definate statement to that effect.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5** *P* **108** *L* **3** # 40

Thaler, Pat

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

How does the slave know what value of k the master is using?

SuggestedRemedy

Clarify this.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5** *P* **108** *L* **4751** # 5

Reviriego, Pedro

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

There is no limit on when to do the initial THP coefficient exchange in the PMA Training Init
States but there is a limit on subsequent exchanges (Page 108 lines 53-54) of
max_wait_timer being less than 1.5 seconds.

This may be inconsistent as the objective of having 500ms for final training is not enforced
on the initial exchange.

SuggestedRemedy

One way to address this issue is to specify that the first coefficient exchange has also to
start before max_wait_timer reaches 1.5 seconds or a lower value.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Since the worst case dwell time for maxincr_timer is 168+100+100 plus any additional time
for the computation of THP coefs and cancellers during the last increment stage the
recommendion for the lower value is 750ms

Cl **55** *SC* **55.4.2.5** *P* **108** *L* **50** # 43

Thaler, Pat

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

Does this mean that the PBO values exchanged during PMA_Training_Init_x aren't acted
on until the transition into PMA_Training_Update_x state?

That isn't said explicitly.

SuggestedRemedy

If that is the case, make an explicit statement of it. Preferably do it where the field is
defined. Also apparently the field is ignored once in update so describe that too.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
The PBO values are not acted on until the transition to PMA_Training_Update

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.2.5**

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Cl **55**   *SC* **55.4.2.5**   *P* **108**   *L* **54**   # 45

Thaler, Pat

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

If additional coefficient exchanges are used, when are they applied to the transmitter?

How does the other side know that the new coefficients have been applied.

SuggestedRemedy

Specify.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
After the updated coefs are sent to the link partner the transition counter should be used to indicate the transition to updated coefs

---

Cl **55**   *SC* **55.4.2.5**   *P* **108**   *L* **59**   # 55

Thaler, Pat

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

PCS Transmit convey this information to the link partner via transmission of the parameter InfoField value loc_rcvr_status."

Two problems with this - no where else is PCS Transmit described as the source of infoField - why here? I thought PHY control function was running training.

More substantially, the InfoField is set to 1 back in PMA_TRAINING_Init_M state according to the previous page. I assume 1 is the same as OK. It is never set back to zero so the value from the MASTER can't control another transition.

SuggestedRemedy

Correct the operation of loc_rcvr_status. It may be better to add separate status bits to cover the MASTER is adjusted enough to let the SLAVE start transmitting and the receiver okay to transition into full operation.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.2.5**   *P* **108**   *L* **6**   # 41

Thaler, Pat

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

How does the slave comply with the recommendation here? How does it know when a PBOk/THPk setting from the master provides sufficient margin for reliable decoding. The state machine requires transition on scr_status=OK but this text contradicts that indictating that one might not transition because one determined there wasn't enough margin.

How can the slave determine what margin is sufficient for all the factors mentioned here?

SuggestedRemedy

Delete the text or make it work.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This paragraph is attempting to avoid the situation where a SLAVE has just enough SNR to get the scr_status=OK, but not enough margin to continue to operate when it's local transmitter is ON and generating additional Echo and NEXT.

Cl **55**   *SC* **55.4.3.1**   *P* **108**   *L* **27**   # 122

Barrass, Hugh

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

The requirement "The transmitter shall be capable of up to at least 14 dB of power backoff" is untestable (and unnecessary) with the definition in table 55-4.

SuggestedRemedy

Either...

Change "The transmitter shall be capable of up to at least 14 dB of power backoff" to "The transmitter shall be capable of up to at least 10 dB of power backoff"

or...

change the far right column of table 55-4 to read: 14; 12; 10; 8; 6; 4; 2; 0 (cell elements from top to bottom).

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Draft2.1 requires the transmitter to be cable of PBO=14 and the reciever to operate with up to

but the link partner shall be able to operate with

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.3.1**

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Cl **55**   *SC* **55.4.3.1**   *P* **109**   *L* **27**   # 133

Tellado, Jose

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

The powerbackoff levels are specified in multiples of 2dB relative to the nomimal (from 3.2dBm to 5.2dBm) tx power at the MDI. The accuracy of these 2dB steps is currently not specified

SuggestedRemedy

Specify that the PBO levels should be multiples of 2dB with tolerances of +/-0.25dB at each level.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.3.1**   *P* **110**   *L* **1**   # 56

Thaler, Pat

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

This is not the normal mathematical definition of the modulo or mod operation.

x mod 16 normally produces a number between 0 and 15 such that
x mod 16 + 16 * m = x for some integer m.

What you are describing appears to be an operation of
x mod32 - 16

Also, I've looked at several references on modulo and I'm not finding cases where it is defined as an operation on a real number. Most sources define it for operation on integers only.

SuggestedRemedy

Change the equation to use correct mathematical definitions.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.
Change to x mod 32

Cl **55**   *SC* **55.4.3.1**   *P* **110**   *L* **27**   # 18

Thaler, Pat

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

Comment 357 has not been adequately responded to.

What is described here wouldn't work because each side would back-off power based on what it is receiving from the other side under the assumption that the other side was transmitting nominal power - which it wouldn't be if it decided to back off. There is no indication of when or how often receiver power level is checked and transmitter power level is adjusted. Depending on how implementors interpret this links could make poor choices: one transmitter lowers power, the other side reads the lower power as a need to raise its power or maintain high power leading to a bad crosstalk situation.

What is described also isn't consistant with what is described in the state machine for control of the variable PBO. It isn't clear if this is intended to further adjust power backoff after the state machine sets PBO, but I assume it isn't since the remote TX would definately not be at nominal power at that point.

Also there is a contradiction between the text which says "at least 14 dB of power backoff" and Table 55-4 which shows 10 dB of backoff.

SuggestedRemedy

Have one method of adjusting power back-off not two. Suggest deleting the one here because it is broken and there is no clear way to fix it.

There are inconsistancies and problems in the state machine adjustment of power back-off too, so correct those.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

I believe the misunderstanding is in the interpretation of the sentence "estimation of the received signal power (dBm) at the MDI, must be computed assuming theremote TX is at nominal power". The intent was to measure the rx MDI and correct this estimate with the difference between the power actually transimitted by the LP and the nominal power. The reason for this is to estimate the power that would be received that the MDI if the LP was at nominal power to then select the values from Table 55-4

Every tx must be capable of at least 14dB of PBO. The remote rx must request up to 10dB to mitigate crosstalk to other links, but if the rx has enough margin it could request up to 14dB

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**   *SC* **55.4.3.1**   *P* **110**   *L* **6**   # 57

Thaler, Pat

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

This says that the coefficients are exchanged in twos complement notation which is a notation for integers and the coefficients are obviously real numbers.

SuggestedRemedy

The actual coefficients aren't exchanged, a scaling for them is. The coefficient value is the field value/128. Please make this clear.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The THP coefs scaling is described in page 108, line 43. The range is -2 to 2-1/64, thus the coef value should be field/64

Cl **55**   *SC* **55.4.3.1**   *P* **178**   *L* **20**   # 20701

Powell, Scott   Broadcom

Comment Type **TR**   *Comment Status* **A**   *thp programmable*

Loosely constrained transmit PSD mask makes predetermined fixed set of precoding functions impractical.

SuggestedRemedy

Add requirement for transmitters to support programmable precoder with FIR precoding polynomial. See ungerboeck_1_0505.pdf for details.

Proposed Response   *Response Status* **U**

ACCEPT IN PRINCIPLE.

See comment #473

Cl **55**   *SC* **55.4.3.1**   *P* **179**   *L* **1**   # 20357

Ali, Ghiasi   Broadcom

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

Power backoff scheme is unclear. It appears that the power of the remote TX can vary depending on it's own received power which is the function of the local TX. However the power of the local TX can vary depending on it's own RX power which is a function of the remote TX

SuggestedRemedy

It is not clear how one uses the received power can used to deterministically set power backoff levels

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add text that states that the received signal power at MDI should be the estimate of received power from remote TX (after accounting for local TX power).

Cl **55**   *SC* **55.4.4**   *P* **111**   *L* **18**   # 58

Thaler, Pat

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

I don't understand this. If pairs can have any arbitrary swaps, then auto MDI/MDI-X configuration doesn't do any good. The received auto-negotiation signal can be on any pair and auto MDI/MDI-X only compensates for it being on one of two pairs. If auto MDI/MDI-X allowed AN to run, then at least one of the signals "BI_DA"? is on a known pair.

SuggestedRemedy

Do you mean that for the Auto-negotiation part it uses Auto MDI/MDI-X?

Then for the operational part, only 2 of the pairs can be arbitrarily swapped if one of the signals is always sent on the same pair as the transmitted AN signal and the other is sent on the same pair as the received AN signal. Or do you want to explicitly allow the pairing for AN to be ignored and any 10GBASE-T transmitter to be on any pair. Seems like that needlessly complicates things for the receiver.

Proposed Response   *Response Status* **W**

Task force to decide

Cl **55**   *SC* **55.4.4**   *P* **111**   *L* **26**   # 194

Law, David

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

This seems to be an odd subclause to place the requirement that the received be able to correct for pair skew of up to 50ns. Suggest this really should be placed in the PMA receive requirements subclause 55.4.2.4.

SuggestedRemedy

Move the text 'The receiver shall correct for differential delay variations of up to 50ns across the wire-pairs.' to an appropriate place in subclause 55.4.2.4.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.4**

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Cl **55**   *SC* **55.4.5.1**   *P* **111**   *L* **33**   # 23

Thaler, Pat

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

This needs to describe how the state machine variable is set (since it isn't set in the state machine) and what it's values mean. Instead it describes only something about sending the primitive which is already covered under primitives and doesn't belong here.

SuggestedRemedy

Define the variable properly and indicate that its value comes from the autonegotiation result.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.5.1**   *P* **111**   *L* **41**   # 29

Thaler, Pat

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

Multiple variables are defined under one variable name (e.g. THP and THPIF, PBO and PBOIF). Also the variables THP IF and PBO IF seem to have a space in their names. Normally we don't use spaces within a variable name.

Why are the M and S subscripts needed. A device can only be one thing at a time and it has one PBO setting and one THP setting at a time. I recommend deleting the subscripts.

SuggestedRemedy

Remove spaces in variable names or change to an underscore.
Give each variable its own entry. They can reference the value definitions so that doesn't have to be repeated each time.

If you need subscripts for master and slave, I'm willing to have them combined in one variable, but since each implementation is at any given time only a master or only a slave, I don't see any need for the subscript. The local PBO setting is the PBO setting regardless of whether operating in master or slave mode.

Proposed Response   *Response Status* **W**

Task force to discuss

Cl **55**   *SC* **55.4.5.1**   *P* **111**   *L* **42**   # 28

Thaler, Pat

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

THP has similar consistancy problems to PBO.

Sometimes the subscript refers to whose THP value it is (e.g. M, S, . Sometimes the subscript indicates the value (BYPASS, 1, 2, 3).

Sometimes its value is an integer between 0 and 3. Sometimes it is a setting name. Sometimes it is the whole string of coefficients. (I could accept the name as a vector name for the vector of coefficients, but if that is the intent describe it that way.)

The items shown in Values of the THP definition aren't values but different values of the variable name.

The description of the variable implies that 55.4.3.1 and 55.4.2.5 specify different ways of setting the variable during different states, but 55.4.2.5 seems to descrobe the control for all the states and 55.4.3.1 specifies the coefficient value sets for each of the settings.

SuggestedRemedy

Specify the variable so it has one consistant set of values and use it consistantly. If you need two kinds of value sets, then make two kinds of variables. Use subscripts for one consistant thing (i.e. who's THP).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.5.1**   *P* **111**   *L* **44**   # 162

McClellan, Brett   Solarflare

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

typo:
change "setting the"
to "setting of the

SuggestedRemedy

change text as indicated

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.5.1**

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Cl **55**   *SC* **55.4.5.1**   *P* **112**   *L* **16**   # 174

McClellan, Brett   Solarflare

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

transition_count lacks a description of the transition for PBOTHP_increase.

SuggestedRemedy

add the text:

"In the PMA_Training_Init_M state, the MASTER initiates the transition count for a PBO/THP increase with "PBOTHP_increase" flag and a minimum counter value of 2^9 (~10ms) and maximum of 2^12 - 1. The SLAVE will respond prior to the counter reaching 2^8 (~5ms) else it holds off until the next PBO/THP setting from the master. Upon detection of the SLAVE's training pattern and if the transition count is greater than 2^6 (~1ms) the MASTER will abort the transition, reset the PBOTHP_increase flag and set the Next transmitter setting octet to the current PBO and THP settings."

change:"The MASTER initiates the transition count with "trans_to_Training_Update" flag and a minimum counter value of 2^9 (10ms) and maximum of 2^12 - 1."
to: "The MASTER initiates the transition to PMA_Training_Update count with the "trans_to_Training_Update" flag and a minimum counter value of 2^9 (10ms) and maximum of 2^12 - 1.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.5.1**   *P* **112**   *L* **17**   # 173

McClellan, Brett   Solarflare

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

transition_count should be defined for the case when no state transition flag is present.

SuggestedRemedy

add text:
"When the message field does not contain a flag for a state transition, the transition counter will be set to zero and ignored by the receiver.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.5.1**   *P* **112**   *L* **17**   # 35

Thaler, Pat

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

It appears that there are potentially two transition counts - at any given time. The one being sent and the one being received.

The state machine and description aren't clear on exactly how they are to be handled and on which one is tested for the state transitions.

Also the description says the transitions will be simultaneous but transitions are never absolutely simultaneous - there is a time difference between the link transmissions and receptions so remove that text and verify that the state machines are defined to work properly given small mismatches or CRC errors in the info field.

SuggestedRemedy

Create two transition_count varibles - one for received transition count and one for transmitted transition count. Then be specific about how the slave value is set and which value is tested.

Once receiving transition counts from the master, does the slave update its transition count each time an IF is received from the master or having started its count does it increment down each time an IF is sent regardless of how the received value changes?

Is it the transmitted or the received value that causes a transition?

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.5.1**   *P* **112**   *L* **22**   # 44

Thaler, Pat

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

Why is the master allowed such a large range for starting transition count?

80 ms of transition time seems excessive.

SuggestedRemedy

Reduce the range or justify why the transmitter implementation needs the variability.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The dwell time for PMA_Training_Init k=1 is 168ms and for k=2,3 it's 100ms. The Master can start counting down earlier if the counter is allowed to be larger.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.5.1**

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Cl **55**　　　*SC* **55.4.5.1**　　　　　*P* **112**　　　*L* **5**　　　　# 36

Thaler, Pat

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

Decode IF (both of them) can only take one value at a time, but the IF format has separate bits for the various items so more than one bit can be sent at a time.

What decode value is reported if multiple bis are set?

Also, the value names don't match the names in the IF definition: PBO_Increase versus PBOTHP_increase. Note that there is a difference in capitalization as well as in the letters.

SuggestedRemedy

Since it only seems to make sense for the IF to be one message type at a time, it would make more sense to encode message type as a multi-bit value (like an opcode) and reserve any unused values, but if you don't make that change you need to define what happens when multiple bits are set.

Make the names of the messages match.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **55**　　　*SC* **55.4.5.2**　　　　　*P* **112**　　　*L* **44**　　　　# 20

Thaler, Pat

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

maxincr_timer has values defined for PBO equal to 14, 10 and 6 but not for the other values of PBO. Also, one sentence says it expires at a time for PBO 14 and 10, but later in the description it contradicts that by saying it should never expire when the Master has detected a training pattern transmitted by the SLAVE.

Having a statement that another condition keeps a timer from expiring is inconsistant with the way we have defined and used timers elsewhere in the standard.

SuggestedRemedy

Define the value of the timer for all values of PBO. If it only needs a value for some values of PBO make it clear why.

If reaction to timer_done should be conditioned on the state of some other variable, then use a logical AND of that variable with maxincr_timer_done. Another alternative would be to use the variable to cause the action stop maxincr_timer_done. (We added this in 40.4.5.2, it may be time to put it into the general timer description referenced in clause 14.)

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The PBO values of 14, 10 and 6 are using as initial coarse PBO settings during PMA_Training_Init and have associated dwell times. The remaining PBO levels are used during PMA_Training_Update and do not need a timer.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER:　Clause, Subclause, page, line

Cl **55**
SC **55.4.5.2**

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Cl **55**   *SC* **55.4.5.3**   *P* **114**   *L* **27**   # 34
Thaler, Pat

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

There no reason to have separate IFm and IFs functions. An implementation isn't likely to have one function that decodes the received IF from the slave when it is the master and encodes it when it is the slave.

A single transmit IF function that transmits the IF regardless of master or slave status and a single receive IF function that receives the IF makes more sense.

This also applies to the decode variable; only one decode variable is needed.

SuggestedRemedy

Make one transmit IF function and one send IF function.

Make only one decode IF variable.

Also, the decode sounds like a function more than a variable. If it is meant to be an output from the receive IF function then a name like IF_message would be more appropriate. Also you need to describe when the value NOT_OK is used: CRC error? undefined value?

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6**   *P* **112**   *L* **1**   # 113
Ungerboeck, Gottfried

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

Some state names in the PHY Control state diagram are ill-chosen: "SLAVE_SILENT" as a transient zero-time (?) state for going to PMA_Training_Init_M? "PCS_Training", what is trained?. "Send_PCS_Link_OK" for sending and receiving data?

SuggestedRemedy

The names of states should be chosen to reflect more accurately the actions performed. For example, instead of "PCS_Training" use "PCS_Test"; instead of "Send_PCS_Link_OK" use "PCS_Data". Further, transitioning through "SLAVE_SILENT" to "PMA_Training_Init_M" should be avoided. --- Btw, shouldn't PMA training of the MASTER begin with a short period of silence in order to help the SLAVE detecting that the MASTER has returned to PMA training?

Proposed Response   *Response Status* **W**

Task force to discuss

Cl **55**   *SC* **55.4.6**   *P* **112**   *L* **1**   # 112
Ungerboeck, Gottfried

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

State diagram convention. Figure 55-19 and other state diagrams in Draft 2.1 comprise (a) states designated with their names and specifying in their body the actions to be performed in the state and (b) state transitions associated with the condition for each transition. This convention is quite limited and leads to problems. In particular, it makes it cumbersome to distinguish between actions occurring repetitively while the system is in a particular state and one-time actions, which occur only once like in Figure 55-19 setting k=0 (missing!) or starting a counter.

SuggestedRemedy

The convention for state diagrams should be extended to permit statements of one-time actions to be associated with state transitions. This would easily solve, for example, the problem with the one-time action of "start maxwait_timer" given in state "SLAVE_SILENT". Currently an external four-line NOTE is needed to detail further that "start maxwait_timer" is not performed when the transition into "SLAVE_SILENT" occurs from state "PCS_Training". In addition to associating transitions with one-time actions, transitions may also be allowed to fork into several branches depending on the value of a variable or expression that is tested.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
k=0 is missing

Cl **55**   *SC* **55.4.6**   *P* **114**   *L* **1**   # 22
Thaler, Pat

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

The PMA state diagrams are not consistant with our state machine conventions and they don't appear to have had adequate reveiw and verification. Everywhere I look in them I find errors and inconsitancies. There were significant changes to the diagram and its supporting text including 55.4.2.5 between the drafts.

This is a particularly serious problem because ambiguity in link initialization processes is a major source of interoperability failures.

I have submitted specific comments on items I have found, but they need a thourogh review and verification before this draft goes forward. A 10 day recirculation does not provide sufficient time to identify all the problems.

SuggestedRemedy

Fix the state diagrams and establish a plan for review and verification.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.6**

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Cl **55**   *SC* **55.4.6**   *P* **114**   *L* **23**   # 21

Thaler, Pat

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

All state machine variables must be defined.

k is not defined or initialized. On successive trips through slave silent it will continue to increment without limit.

SuggestedRemedy

Presumably it is an index that takes values from 1 to 3 and should be returned to 1 in SLAVE_SILENT. I would prefer a more descriptive name for it.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **15**   # 31

Thaler, Pat

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

This note appears to try to cancel an action that is in the SLAVE_SILENT state (start maxwait_timer) when the state is entered from PCS_TRAINING.

It is not legitimate or necessary to cancel an action with a note.

SuggestedRemedy

Create a second state without the action. There are two ways to implement this:
Either create a state parallel to SLAVE_SILENT that is entered from PCS TRAINING instead of SLAVE_SILENT and don't start the timer in that state, or
create a state above SLAVE_SILENT that starts the timer and enter it from the states that should start the timer, exit that state to SLAVE_SILENT with a UCT and delete the start timer from SLAVE_SILENT.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **16**   # 30

Thaler, Pat

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

State machines should not have text randomly scattered about.

Our conventions specify the text that goes in the boxes: State names and actions; and the text that goes on transitions.

SuggestedRemedy

Make state machines consistant with state machine conventions.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **18**   # 163

McClellan, Brett   Solarflare

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

'k' needs to be initialized to 0 in SLAVE_SILENT

SuggestedRemedy

add text:
"k = 0"
in SLAVE_SILENT

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **19**   # 50

Thaler, Pat

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

scr_status, loc_rcvr_status, and rem_rcvr_status are not defined in the State Machine variables. Everything that is used here must be defined.

SuggestedRemedy

Define all variables

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.6.1**

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Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **24**   # 164

McClellan, Brett   Solarflare

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

Add "NOTE-" prior to informational text:
"PBO1=14,PBO2=10,PBO3=6,
THP1=bypass, THP2=short, THP3=medium
or THPk=bypass (Autonegotiation select)

SuggestedRemedy

change text as indicated

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **25**   # 32

Thaler, Pat

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

Text that doesn't belong in the state diagram.

It appears to be defining values for the variables PBO and THP (with subscript 1 through
3) - and doing a poor job obf that since it tries to give two values to THP subscript k where
k is 1, 2, or 3 depending on autonegotiation result.

SuggestedRemedy

Define variables in the text variable definition, not the state machine.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **32**   # 33

Thaler, Pat

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

Inapproriate and incorrect text in state diagram.

The state diagram is in only one state at a time so it can't make two transitions
simultaneously. Even assuming you mean that the link partner and local device make the
transition at the same time, that isn't true. There will be a time difference and of course it is
always possible that one of them has a problem like loc_rcvr_status becoming not OK so
the transition isn't made.

SuggestedRemedy

Delete the notes and arrows about simultaneous transitions.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **38**   # 51

Thaler, Pat

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

Sometimes the test for type of IF uses Decode IF and sometimes it just uses IF.

SuggestedRemedy

Use consistant terms

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.4.6.1**   *P* **114**   *L* **39**   # 52

Thaler, Pat

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

Transition_count = 0 is used in the self transition to PMA_Training_Update_x states on
coeff_exchange, but in the state machine variables (and I think also in the earlier
description of training frames), it isn't described as being given a non-zero count value at
any point. (It may have a left over value of 0 from the transition to
PMA_Training_Update_x, but then there wouldn't be any point to using it to condition the
transition.)

Also, it appears that both exits (i.e. the exit that loops back into the state and the exit to
PCS_training) from the states could be satisfied at the same time.

SuggestedRemedy

Either explain the operation of transition_count for coefficient updates un the update states
or delete the term from the coefficient update transitions.

Also, make clear by the rules for setting IF frame values that the two transtions out of the
state cannot occur simultaneously or add conditions so that the transitions are mutually
exclusive.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.4.6.1**

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Cl **55**   *SC* **55.5.2**   *P* **117**   *L* **5**   # 101

Cobb, Terry

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

An additional test mode may be required to measure impedance balance. See comment on 55.8.2.2.

SuggestedRemedy

add:

Test mode X is for testing impedance balance. When test mode X is enabled, the Phy shall disable transmission but shall remain connected to the MDI as in normal operation.

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.

Test mode 7 (in which the transmitter is sending pseudo random data) can be used for this is and, as in Clause 40 (40.8.3.2), triggered averaging can be used to separate the component due to the applied common-mode sine wave from the transmitted data component.

Cl **55**   *SC* **55.5.3.2**   *P*   *L*   # 48

Thaler, Pat

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

Comment 579 appears to actually be an uresolved comment since it has the response: "Reject Need to develop concensus on clear definition." which implies that there is something that needs to be fixed.

A similar problem exists for comment 691.

SuggestedRemedy

If something is broken, fix it.

If there is no need for a change, the response should briefly explain that stance.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment 119

Cl **55**   *SC* **55.5.3.2**   *P* **119**   *L* **54**   # 119

Pagnanelli, Chris

Comment Type   **T**   *Comment Status* **D**   *pmaelec-linearity*

Two-tone SFDR is not precisely defined.

SuggestedRemedy

Change text starting on line 54 of page 119 to read "where f is the maximum frequency of the two test tones in MHz and SFDR is the ratio in dB of the minimum RMS value of either input tone to the RMS value of the worst intermodulation product in the frequency range of 1 to 400 MHz.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

Task force to discuss and approve the exact text.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.5.3.2**

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Cl **55**   *SC* **55.5.3.2**   *P* **190**   *L*   # 20579
Babanezhad, Joseph   Plato Networks

Comment Type **TR**   *Comment Status* **R**   *pmaelec-linearity*

In section 55.5.3.2 (page 190) Eq. (55-7) currently would require lower linearity with
increasing frequency. With two tone test and because of nonlinearity we can have
intermodulation terms that fall in lower frequencies.

SuggestedRemedy

For those cases the linearity requirement should be specified not based on the two tone
frequency but the frequency of the resulting intermodulation term.

Proposed Response   *Response Status* **U**

See response to comment #119

REJECT.

Need to develop consensus on clear definition.

In favor of proposed response as per text below:
Yes: 9
Opposed: 5
Motion fails

Replace line 8 and 9 on page 190 with text below:

where SFDR is in dB and f is the frequency of the two tones or all the resulting spurs, in
MHz in the range of 1 to 400MHz.

Relevant comments: 495, 579

Accept in principle the following remedy:
In favor: 8
opposed: 11

Replace SFDR for two tone on page 190 with text below:
The intermodulation products (IMD) of the transmitter, for dual tone inputs, producing
output with peak to peak transmit amplitude, shall meet the requirement that:
Signal level - IMD >= (2.5+ min(52, 58-20xlog10(f/25) (55-7)
where f is the frequency of the IMD product in MHz in the frequency range of 1 to 400MHz
and the signal level and IMD are in dB.

Reject the comment:
In favor of rejecting: 23
Opposed: 0

Cl **55**   *SC* **55.5.3.4**   *P* **118**   *L* **38**   # 114
Ungerboeck, Gottfried

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

The transmit PSD is still very loosely specified by the Upper PSD limit given by (55-9) and
Lower PSD limit given by (55-10). On the other hand, despite the wide variations in
permitted PSD shapes, the Lower PSD limit disallows having a spectral null at dc wider
than 5 MHz, and entirely forbids having a spectral null at 1/2T Hz. Furthermore, the Upper
PSD limit exhibits a 1 dB step at 70 MHz, which looks very strange.

SuggestedRemedy

(a) Let the Lower PSD limit start at 20 MHz and end at 380 MHz. (b) Shift the Lower PSD
limit up by 1 dB or more. (c) Eliminate the 1 dB step in the Upper PSD limit by replacing the
second line of (55-9) by "-78-(f-70)/80 dBm/Hz".

Proposed Response   *Response Status* **W**

Task force to discuss and decide

Related comments: 114, 134

See graphical plot in kasturia_1_07_05.pdf

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.5.3.4**

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Cl **55**   *SC* **55.5.3.4**   *P* **120**   *L* **29**   # 134
Bill, Woodruff

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

The upper PSD integrates to too high a power, and the lower PSD has little margin when implemented with respect to transmitters with 2V peak to peak differential. Also the range of PSD is too broad in 0-70MHz, the step of 1dB at 70MHz is too big a step. The power range of 3.2-5.2dB is better suited to the suggested remedy for the PSD mask, and narrows down and centers the PSD upper and lower mask w.r.t. 2V+/- (5-7)% transmitter designs.

SuggestedRemedy

1. Change the upper PSD by removing the 1dB step in 0-70MHz, and uniformly lower it down by another 0.5dB everywhere else.

The upper PSD is therefore:
-79 dBm/Hz, 0<f<=70
-79.5dBm/Hz, 70<f<=150
-79.5-(f-150)/58, 150<f<=730
-79.5-(f-330)/40, 730<f<=1810
-116dBm/Hz 1810<f<3000

2. Change the lower PSD by moving it DOWN also by 0.5dB everywhere, that is
-83.5dBm/Hz, 5<f<=50
-83.5-(f-50)/50 dBm/Hz, 50<f<=200
-86.5-(f-200)/25, 200<f<=400.

Proposed Response   *Response Status* **W**

Task force to discuss and decide

Related comments: 114, 134

See graphical plot in kasturia_1_07_05.pdf

Cl **55**   *SC* **55.5.3.4**   *P* **190**   *L* **46**   # 20696
Powell, Scott   Broadcom

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

(Resubmission of comment 37 from last meeting deferred by task force.) The transmit PSD mask is defined too loosely. Accepted resolution: "The zero excess bandwidth concept should be discussed by the task force.

SuggestedRemedy

Transmit PSD mask should specify a zero at 400MHz. See presentation ungerboeck_1_0505.pdf to lead discussion.

Proposed Response   *Response Status* **U**

REJECT.

The task force discussed this issue and decided not to specify the zero at 400MHz.

The null is not necessary for interoperability and will overly constrain implementation.

Relevant comments: 272, 592, 672, 692, 696, 708

Cl **55**   *SC* **55.5.3.4**   *P* **191**   *L* **1**   # 20691
Powell, Scott   Broadcom

Comment Type **TR**   *Comment Status* **R**   *psd ripple*

Transmitter PSD mask permits a 6dB ripple up to 50MHz an ~8dB ripple up to 200MHz, and > 8dB ripple from 200 to 400MHz. Equalization and precoding requirements differ for a smooth spectrum vs a spectrum with ripples.

SuggestedRemedy

Add a TBD ripple specification to the PSD mask.

Proposed Response   *Response Status* **U**

REJECT.

Request commenter to provide specific remedy.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.5.3.4**

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Cl **55**   *SC* **55.5.4.3**   *P* **192**   *L* **14**   # 20693
Powell, Scott   Broadcom

Comment Type   **TR**   *Comment Status*   **R**   *pmaelec-impulse*

Data has been presented to the task force indicating the presence of impulsive noise in
actual installations (see reflector post from Dan Dove 7/22/04). There is no test to cover
impulsive noise or required performance in the presence of impulsive noise specified.

SuggestedRemedy

Specify tolerable impulsive noise levels, and operational requirements in the presence of
impulsive noise. Include validation test.

Proposed Response   *Response Status*   **U**
REJECT.

There are two tests included for external noise. Sub-clause 55.8.3.4 covers impulse noise
and sub-clause 55.5.4.3 covers RF noise. Each defines a validation test and the
operational requirements for the test.

Cl **55**   *SC* **55.5.4.3**   *P* **192**   *L* **20**   # 20363
Walter Hurwitz   Broadcom

Comment Type   **TR**   *Comment Status*   **A**   *pmaelec-cmnr*

The common mode noise rejection test is not clear

SuggestedRemedy

Specify where the common mode voltage is to be measured. Is the noise signal a single
tone swept frequency of wideband noise? Clearly specify if a 10GBASE-T PHY is required
to pass the test referenced in 40.6.1.3.3 or note that it is only a recommendation.
Alternatively, specify that the internationally recognized test procedures and levels for noise
immunity shall be used by referencing EN61000-4-6 and EN61000-4-3 for the test method
and CISPR 24 (or EN55024) for required legal levels.

Proposed Response   *Response Status*   **W**
ACCEPT IN PRINCIPLE.

See response to comment 354

Relevant comments: 274, 354, 363, 421, 500, 702

Cl **55**   *SC* **55.5.4.4**   *P* **192**   *L* **33**   # 20275
Dove, Daniel   HP ProCurve Networki

Comment Type   **TR**   *Comment Status*   **A**   *pmaelec-alien*

Is the word "shall" appropriate here? If so, I think the location is not appropriate.

SuggestedRemedy

Remove the word "shall" and replace with "should".

Define the coupler more clearly. Simply saying it does not significantly alter the link
segment characteristics is a bit too fuzzy.

Also, I question if a flat response is realistic. Typically, noise sources on UTP have a
frequency dependent gain function consistent with the balance characteristics of UTP cable.

Perhaps a better approach would be to define a 1000T spectrum run through a 1st order
high-pass filter?

Proposed Response   *Response Status*   **W**
ACCEPT IN PRINCIPLE.

1) replace "shall" with "should"

2) Coupler definition needs to be clarified

3) See jones_1_0305.pdf and zimmerman_2_0105.pdf for justification for using a flat noise
source. This noise represents the sum of different noise sources - some high pass some
low pass, which add up close to a flat spectrum. The decision to use flat was approved by
the group - see resolution on comment 46 in comments_2_0105.pdf and resolution on
comment 58 in comments_2_0305.pdf

Cl **55**   *SC* **55.6.1.1**   *P* **123**   *L* **42**   # 130
Thompson, Todd

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

In table 55-7, the names for 7.16 and 7.22-24 do not match 45.2.7.

SuggestedRemedy

Remove the ""LD"" from these two register names to make it match 45.2.7.

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

Will make table match Clause 45.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.6.1.1**

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Cl **55** *SC* **55.6.1.2** *P* **124** *L* **55** # 165
McClellan, Brett Solarflare

Comment Type **T** *Comment Status* **D**
description for U19 does not match 45.2.7.12.3

SuggestedRemedy
change text to:
"LD THP Startup
(1 = the Local Device receiver does not expect the Link Partner transmitter to increment
THP during PMA training initialization;
0 = the Local Device receiver does expect the Link Partner transmitter to increment THP
during PMA training initialization)"

also correct the references to clause 45.2.7.12 for bits U20 to U17

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

Cl **55** *SC* **55.6.2** *P* **126** *L* **18** # 82
Powell, Scott

Comment Type **TR** *Comment Status* **D**
Master-Slave assignment when both links do not support loop timing is unspecified. This
could result in interoperability problems.

SuggestedRemedy
Change first sentence on line 18 page 126 to read ""In the instance when both link partners
support the optional Loop Timing mode or, both link partners do not support the Loop
Timing mode, as designated by bit U17 ...""

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

Cl **55** *SC* **55.6.2** *P* **126** *L* **19** # 166
McClellan, Brett Solarflare

Comment Type **E** *Comment Status* **D**
typo:
change "inTable"
to "in Table"

SuggestedRemedy
change text as indicated

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

Cl **55** *SC* **55.6.2** *P* **127** *L* **2** # 83
Powell, Scott

Comment Type **TR** *Comment Status* **D**
Expand definition for 2 link partners being of the ""same type"" to include loop timing
support in addition to multi/single port.

SuggestedRemedy
Change sentence fragment on line 2 ""e.g., both devices are multiport devices,"" to ""e.g.,
both devices are multiport devices and both devices have the same loop timing support,"".
Change parentheses phrase on line 35 from ""(either multiport device or single port
device)"" to ""(ether multiport device or single port device and identical loop timing
support)""

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

Cl **55** *SC* **55.6.2** *P* **127** *L* **24** # 84
Powell, Scott

Comment Type **TR** *Comment Status* **D**
Additional Master-Slave Configuration fault conditions can exist with respect to loop timing
support and need to be defined for interoperability.

SuggestedRemedy
Insert the following sentence on line 24: ""In the situation where one link partner supports
loop timing and the other does not, a Master-Slave Configuration fault condition shall be
flagged (status register bit 7.33.15) if: a) the link partner with loop timing support is
manually set to Master or b) the link partner with no loop timing support is manually set to
Slave.""

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

Task Force to discuss.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.6.2**

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Cl **55**   *SC* **55.7**   *P*   *L*   # 20521

Baumer, Howard   Broadcom

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

There appears to be a desire for a length dependent or a variable set of link segment sharacteristics. This dependency is very confusing and unclear as to its intent and specification. Several possible intents for the link segment specifications could be:

1) one set of link segment specifications that any and all compliant link segments must meet?
2) Two sets of link segment specifications that a link segment gets to choose from to meet, one equivalent to 55m length and the other to 100m
3) an infinit set of link segment specifications that a link segment can choose from to meet where one end is equivalent to 55m and the other to 100m and anything inbetween.
4) one set of link segment specifications that any and all compliant link segments must meet where the NEXT, ELFEXT, ANEXT, AELFEXT specifications are dependet upon the measured insertion loss of the link segment.

It is also unclear as to whether the link segment specifications are tied to a measured length or not. If they are tied to a measured length how is that length measured?

SuggestedRemedy

Clearly state what the intent of the link segment specification is. One possible clearification of intent is:

Any compliant link segment shall meet the specified insertion loss of Eq 55-10.
A give link segment's NEXT, ELFEXT, ANEXT AELFEXT limits are set by its measured insertion loss. Put in a sub-clasue that describes how that insertion loss is to be measured and how each dependent specification is calculated from that measured insertion loss.

This is a hugh rewrite of 54.7 and as such the whole sub-clause should then be left open for comments on the next recirculation ballot.

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

See response to comment 251.

Additionally:

Agree in principle that the subclause 55.7.3 "Coupling parameters between link segments" alien cross talk specifications (PSAELFEXT and PSANEXT) need to be clearer in regard to the 10GBASE-T cabling types and distances and the usage of insertion loss scaling. Recommended remedy: (1). In 55.7.3 (or where appropriate), provide a table of supported cabling types and distances with references to applicable cabling standards. This table will not include the calculated 10GBASE-T PSAELFEXT or PSANEXT which has resulted in much of the confusion between the minimum requirements for 10GBASE-T operation over the referenced cabling type and distance and the performance limits of the cabling.

Cl **55**   *SC* **55.7.2**   *P* **126**   *L* **42**   # 17

Thaler, Pat

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

TIA/EIA TSB-155 and TIA/EIA-568-B.2-10 are referenced with draft numbers. I assume this means they are in development, but if the text is approved this way, it will be referencing the draft rather than the finished documents.

Also, I not that these references are not consistant with the references added to 1.3 which do not specify a draft number.

SuggestedRemedy

Remove "D1.3" and "D1.4" from Table 55-10. If these aren't draft numbers and should stay for some reason, then make the references in 1.3 match what is called out in 55.7.2.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.7.2**   *P* **127**   *L* **3**   # 13

Thaler, Pat

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

The meaning of "may" here is unclear. Is it intended to indicate "will be able to replace" or does it indicate that a choice on whether to replace the reference to TIA/EIA TSB-155 will be made in the future if ISO/IEC TR-24750 is available. The note is also confusing because it says "in which case, 802.3an will refereence both (meaning both Class E and Class F specs in ISO/IEC TR-24750 or meaning both ISO/IEC TR-24750 and TIA/EIA TSB-155?) but it already appears to be referencing ISO/IEC TR-24750 and TIA/EIA TSB-155

SuggestedRemedy

Edit the editor's not to be a clear instruction of what will be done to the draft if ISO/IEC TR-24750 is available before IEEE 802.3an is approved. This should include a clear statement of what is meant by "is available" - is this published, approved, out for final ballot?

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete Editor's note: The editor's note is confusing. As you point out, the document already references both ISO/IEC TR-24750 and TIA/EIA TSB-155. 1000BASE-T includes both ISO and TIA references.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.2**

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Cl **55** *SC* **55.7.2**   *P* **128** *L* **33** # 71

Koeman, Henriecus

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

ELFEXT is already defined as a "loss". The additional word "loss" is inappropriate. This does not apply to Insertion Loss, NEXT Loss or Return Loss. The addition of the word "loss" for the latter parameters is appropriate as well as for "FEXT loss". This should be a global change: the same occurs in other places: e.g., line 51 on the same page.

SuggestedRemedy

Remove the word "loss" after ELFEXT (this is a global change for the document). Correction is also needed on page 129, lines 44 and 48; page 131, lines 1,3, 15, 18 (in the equation 55-17), 47, 52, 53; page 132 lines 8, 10, 11, 15 (in formula 55-21), 21, page 134 lines 51, 53; page 135 lines 3 (in formula 55-27), 8, 12, 25, 39, 42, 46. I definitively may have missed some occurences.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.7.2**   *P* **128** *L* **37-4** # 147

Alan Flatman   LAN Technologies

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

While the specification of suitable cabling for 10GBASE-T is technically correct, the detail has been diluted to the point where it is unhelpful and potentially misleading to users of this document. 802.3 standards have always stated supported cabling types, maximum lengths and any qualifications clearly in the past. Screened Class E cabling should be featured as an obvious, high margin 100m option, especially due to its installed base and strong support by cabling suppliers. Screened cabling is clearly specified by ISO/IEC 11801. Link lengths should be provided for unscreened Cat 6/Class E with/without AXT mitigation. A reliable link length should also be provided for Class E/Cat 6 cabling without mitigation (if this is not 55m, then a better number should be provided).

SuggestedRemedy

Replace Table 55-10 with the following:

Cabling	Alien Crosstalk Mitigation	Max Distance	Cabling References
Class E screened	not required	100m	ISO/IEC TR-24750
Class E unscreened	not required	55m (TBD)	ISO/IEC TR-24750
Cat 6 unscreened	not required	55m (TBD)	TIA/EIA TSB-155
Class E unscreened	required	100m	ISO/IEC TR-24750
Cat 6 unscreened	required	100m	TIA/EIA TSB-155
Class F (screened)	not required	100m	ISO/IEC TR-24750
new Class E unscreened	not required	100m	ISO/IEC 11801 Ed 2.1
Cat 6 Augmented (unscreened)	not required	100m	TIA/EIA-568-B.2-10

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The draft has cycled through a number of iterations of providing both more and less detail. The cabling considerations your comment addresses are better addressed in more detail than less. In order for your recommended table to be helpful and not misleading , the concept and mechanism of mitigation needs to be addressed as well. Proposed remedy: Address the use of screened cables in Annex 55B-"Additional cabling design guidelines for 10GBASE-T" providing the detailed implementation considerations as related to mitigations.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.2**

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Cl **55**   *SC* **55.7.2**   *P* **128**   *L* **42**   # 14

Thaler, Pat

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

It isn't clear why Class E says "up to 100 m" and the other rows say 100 m.

SuggestedRemedy

Is this intended to indicate that the support for 100 m on existing 100 m Class E cable is only partial or under some conditions? If so, indicate that clearly in the text. If not, make all the columns the same. You might also reference what IEEE 802.3aq has done with regard to operation over legacy FDDI-grade fiber since they are in a similiar situation.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The table footnote(a) points the reader to 55.7.3.1.2 and 55.7.3.2.2 which addresses the alien crosstalk to insertion loss requirements. The alien crosstalk to insertion loss requirements are the "conditions" under which the length is scaled (i.e., distances less than 100 meters). The table 55-10 was to identify "simply" cable types, distances, and standard references. Recommended remedy: delete "up to". Revise footnote(a) to read: Table entries are for maximum distances. Class E link segment distances may be reduced to maintain the minimum insertion loss to alien crosstalk specified in 55.7.3.1.2 and 55.7.3.2.2.

Cl **55**   *SC* **55.7.2**   *P* **201**   *L* **28**   # 20243

Muth, Jim   Broadcom

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

At least 55m to 100m of Class E is too ambiguous for a specification. Additionally, other parts of section 55.7 imply cable class and length are not sufficient parameters to guarantee 10G operation.

SuggestedRemedy

Replace first sentence of 55.7.2 with "A 10GBASE-T link segment consisting of at least 55m of Class E or at least 100m of Class F which also meets the additional transmission parameters of this subclause will provide a reliable medium.

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

See Comment resolution to #251

Cl **55**   *SC* **55.7.2**   *P* **201**   *L* **35**   # 20504

Baumer, Howard   Broadcom

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

There is no tollerance specified with the load impedance.

SuggestedRemedy

Change: ".. of 100 ohm" to ".. of 100 ohm +/- 10%" or ".. of 100 ohm with a tollerance of 20dB

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

See response to 417

Cl **55**   *SC* **55.7.2**   *P* **201**   *L* **37**   # 20584

Thompson, Geoff   Nortel

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

The text:
"The link segment transmission parameters of insertion loss and ELFEXT loss specified are ISO/IEC 11801 Class E specifications extended by extrapolating the formulas to a frequency up to 500 MHz with appropriate adjustments for length when applicable."
...is not acceptable. We are not a cabling standards group and not an appropriate forum for whether such extrapolations are appropriate or justified.

SuggestedRemedy

Change text to stay within the boundaries of performance laid out by established standards appropriate for reference by an international standard. Delay approval until such approved reference is available.

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change text to: The link segment transmission parameters of insertion loss and ELFEXT loss specified are ISO/IEC 11801 Class E specifications extended by extrapolating the formulas to a frequency up to 500 MHz with appropriate adjustments for length when applicable as specified in ISO/IEC TR-24750 and TIA/EIA TSB-155.

There is no international standard available nor is there a guarantee that there will be one. Reference to guides has been done in the past and ultimately an international standard did result from the guide that we referenced.

We have published standards in the past with references to drafts.

In favor of response: 20
Opposed to response: 3

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.2**

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Cl **55**   *SC* **55.7.2**   *P* **201**   *L* **37**   # 20362

Kim, Yong   Broadcom

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

May be a naive concern, but nevertheless a concern. The two paragraphs in 55.7.2 below indicates to me that we do not have realistic 10GBase-T segment model (or installed Class E and F cableing data) to evaluate the specification (or implimentation). Also, the note says IF available, then WILL reference, and MAY replace the reference in the draft. How could we vote on this?

"The link segment transmission parameters of insertion loss and ELFEXT loss specified are ISO/IEC 11801 Class E specifications extended by extrapolating the formulas to a frequency up to 500 MHz with appropriate adjustments for length when applicable. The link segment transmission parameters of NEXT loss, MDNEXT loss and Return Loss specified are ISO/IEC 11801 Class E specifications extended beyond 250 MHz by utilizing the equations referenced in TIA/EIA TSB-155 D1.3.
Editor?s note: ISO/IEC TR-24750: Assessment of installed Class E and Class F cabling beyond their maximum specified frequencies, should be available before 802.3an is approved. In which case, 802.3an will reference both and may replace the above reference to TIA/EIA TSB-155.

SuggestedRemedy

Please provide reasonable evidence of agreement among the technical experts that the adopted extrapolation plus Table 55-8 provide a segment requirement that allows interoperable specification. Between the clause text and the note, I am not getting that impression.

Please re-draft the note, since the note is dictating future changes to the draft in auto-pilot (unless you meant it).

Proposed Response   *Response Status* **W**

REJECT.

The 10GBASE-T task group has validated the implementation with "realistic" measurements and models for both Class E and Class F. In the formulation of other Ethernet standards we have referenced standards in development. This Comment does not include specific suggested remedy.

Cl **55**   *SC* **55.7.2.1**   *P* **129**   *L* **17**   # 74

Koeman, Henriecus

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

It will be proposed that for computation of the PSANEXT and PSAELFEXT constants, the insertion loss that is to be substituted in the equation will be the MEASURED insertion loss, rather than some computed value, which is not necessarily correct for the particular link anyway. As a result equation 55-26 is unnecessary and needs to be removed. The commenter feels strongly about this, because the possible implication is that pass/fail limits for IL based on the measured lengths are appropriate, which causes major problems.

SuggestedRemedy

Delete lines 17 and 18.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The equation 55-26 is for "information". It provides a definition for the IL of a scaled link segment and is the basis for the "worst case" channel models. The field testing of length and insertion loss (i.e., measured insertion loss) are addressed in TIA/EIA TSB-155 and ISO/IEC TR-24750.

Cl **55**   *SC* **55.7.2.1**   *P* **201**   *L* **60**   # 20505

Baumer, Howard   Broadcom

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

Frequency domain specifications are defined with respect to a reference impedeance.

SuggestedRemedy

Replace "terminated in" with "referenced to".

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

See response to 418

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.2.1**

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Cl **55**   *SC* **55.7.2.4.1**   *P* **202**   *L* **47**   # 20508

Baumer, Howard   Broadcom

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

The wording from lines 47-56 does't seem to explicitly tie the frequency ranges to the specification. The "where"s should be replaced with "for"s and the two equations tied together with an "and".

SuggestedRemedy

replace "where f is the frequency" with "for" on line 47
replace the sentence on line 49 with "and"
and on line 56 replace "where f is the frequency" with "for".

Proposed Response   *Response Status* **W**

REJECT.

Consistent with 1000BASE-T equation format

Cl **55**   *SC* **55.7.2.4.2**   *P* **203**   *L* **16**   # 20509

Baumer, Howard   Broadcom

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

The wording from lines 16-22 does't seem to explicitly tie the frequency ranges to the specification. The "where"s should be replaced with "for"s and the two equations tied together with an "and".

SuggestedRemedy

replace "where f is the frequency" with "for" on line 16
add "and" between line 16 and eq. 55-15
and on line 22 replace "where f is the frequency" with "for".

Proposed Response   *Response Status* **W**

REJECT.

1000BASE-T equation format

Cl **55**   *SC* **55.7.3**   *P* **131**   *L* **38**   # 103

Cobb, Terry

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

Several comments from the last ballot were resolved where a noise floor was to be added for ANEXT and AFEXT. This was not implemented in this draft.

SuggestedRemedy

Implement resolution, see comment 687 on draft 2.0.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The proposed response to comment (687) was to provide the following guidance to ISO/IEC and TR 42 relative to the measurement noise floor issue which was initiated through the liaison process. We are waiting for their response: Guidance: A cap of 67 dB(TBD) PS AFEXT is imposed. At frequencies where 67 dB(TBD) or greater measured values occurs the PS AFEXT measurements are extended by extrapolating utilizing a 20 Log relationship for PS AELFEXT calculations. Same thing will apply to PS ANEXT using a different slope.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.3**

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Cl **55**   *SC* **55.7.3**   *P* **205**   *L* **31**   # 20278
Dove, Daniel   HP ProCurve Networki

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

Coupling Parameters between link segments...

I have a hard time with the whole concept of defining this because it is not something that customers can readily measure, control, or predict.

I believe it is essential to define a standard that *works* in the general sense with the cable systems that are measureable and controllable.

As I understand it, if a customer has cable installed and measures AFEXT, MDAFEXT, ANEXT or MDANEXT and concludes that their cable does not meet specifications, there is not readily available method for resolving the problem. They would be instructed to re-configure their cable plant, cross their fingers, and hope it passed the test when re-tested.

SuggestedRemedy

Define the solution in a way that allows customers to define their cable solution, have it installed, measured, and certified to work with 10GBASE-T such that when they purchase and install equipment, it works.

For example, there is no need to specify ANEXT for Category 7 cables. (Class F)

If this means reducing the length of UTP supported, to a point that 9x% (pick a number) of the cable guarantees operation, fine. If it means removing UTP from the list of supported cables and mandating a foil/shield on the cable to ensure ANEXT is below tolerable limits, please do this.

It is just not fair to a customer to put them into a wild-goose expedition to get their cabling to support a new technology.

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

See responses to comment 251 and 442

Cl **55**   *SC* **55.7.3.1.1**   *P* **132**   *L* **56**   # 117
Mei, Richard

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

The 67dB noise floor cap for PSANEXT was not included per the comment resolution from the last interim meeting.

SuggestedRemedy

Calculations that result in PSANEXT loss values greater than 67 dB shall revert to a requirement of 67 dB minimum

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The proposed response to comment (687) was to provide the following guidance to ISO/IEC and TR 42 relative to the measurement noise floor issue which was initiated through the liaison process. We are waiting for their response: Guidance: A cap of 67 dB(TBD) PS AFEXT is imposed. At frequencies where 67 dB(TBD) or greater measured values occurs the PS AFEXT measurements are extended by extrapolating utilizing a 20 Log relationship for PS AELFEXT calculations. Same thing will apply to PS ANEXT using a different slope.

Cl **55**   *SC* **55.7.3.1.1**   *P* **205**   *L* **49**   # 20516
Baumer, Howard   Broadcom

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

MDANEXT specification is structered differently than MDNEXT and MDELFEXT. For consistacy sake structure this section the same a the MDNEXT and MDELFEXT sections.

SuggestedRemedy

Change the structure of the MDANEXT specification section such that it is the same as the MDNEXT and MDELFEXT section having the same sub-clauses, same / similar titles, etc.

Proposed Response   *Response Status* **W**

REJECT.

The same structure was applied to the sections mentioned whenever possible. Alien Crosstalk includes the insertion loss scaling and insertion loss ratio requirements.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.3.1.1**

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Cl **55**   *SC* **55.7.3.1.1**   *P* **206**   *L* **8**   # 20517
Baumer, Howard   Broadcom

Comment Type **TR**   *Comment Status* **A**   *cabling*
n is not specified and is therefore open ended, specify what "n" should be.

SuggestedRemedy
Specify "n".

Proposed Response   *Response Status* **W**
ACCEPT IN PRINCIPLE.

Will clarify: n is the number of pair-to-pair combinations between adjacent link segments (see ANNEX 55X)

Cl **55**   *SC* **55.7.3.1.2**   *P* **133**   *L* **29**   # 104
Cobb, Terry

Comment Type **TR**   *Comment Status* **D**   *cabling*
There was no comment or comment resolution that required a change to Table 55-11.

SuggestedRemedy
Change table to the table that was in draft 2.0

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

Recommended remedy to comment 521 and 251: (1). In 55.7.3 (or where appropriate), provide a table of supported cabling types and distances with references to applicable cabling standards. This table will not include the calculated 10GBASE-T PSAELFEXT or PSANEXT which has resulted in much of the confusion between the minimum requirements for 10GBASE-T operation over the referenced cabling type and distance and the performance limits of the cabling.

Cl **55**   *SC* **55.7.3.1.2**   *P* **133**   *L* **31**   # 77
Koeman, Henriecus

Comment Type **T**   *Comment Status* **D**   *cabling*
The intent is to apply an upper limit to the sensitivity of the measurement. This "cap" is not expected to reduce the SNR in a significant manner.

SuggestedRemedy
Add a line starting on page 133, line 31:

"PSANEXT loss limit values greater than 67 dB revert to 67 dB.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

The proposed response to comment (687) was to provide the following guidance to ISO/IEC and TR 42 relative to the measurement noise floor issue which was initiated through the liaison process. We are waiting for their response: Guidance: A cap of 67 dB(TBD) PS AFEXT is imposed. At frequencies where 67 dB(TBD) or greater measured values occurs the PS AFEXT measurements are extended by extrapolating utilizing a 20 Log relationship for PS AELFEXT calculations. Same thing will apply to PS ANEXT using a different slope.

Cl **55**   *SC* **55.7.3.1.2**   *P* **133**   *L* **49**   # 115
Mei, Richard

Comment Type **T**   *Comment Status* **D**   *cabling*
It is not clear that the scaling of IL and PSANEXT only applies to the channel whose length is between 55m and 100m in the draft.

SuggestedRemedy
The scaling of IL and PSANEXT only applies to the channel whose length is between 55m and 100m.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

There is no technical basis for limiting the scaling to distances between 55m to 100m. See recommended remedy to comment 79 for proposed minimum for alien crosstalk constants.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.3.1.2**

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Cl **55**   *SC* **55.7.3.1.2**   *P* **133**   *L* **53**   # 75

Koeman, Henriecus

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

The intent of this comment and other comments is to replace the scaled insertion loss formula by a measured value. Therefore the reference to equation 55-26 and equation 55-26 itself can be removed.

SuggestedRemedy

Add a full stop after the word "meters" on line 54 and delete the rest of the sentence.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The equation 55-26 is for "information". It provides a definition for the IL of a scaled link segment and is the basis for the "worst case" channel models. The field testing of length and insertion loss (i.e., measured insertion loss) are addressed in TIA/EIA TSB-155 and ISO/IEC TR-24750.

Cl **55**   *SC* **55.7.3.1.2**   *P* **134**   *L* **11**   # 76

Koeman, Henriecus

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

The intent is to replace the "scaled for length" insertion loss with the actually measured insertion loss. This avoids numerous issues.

SuggestedRemedy

Replace line 11 and on with:

"IL(250MHz) is the measured insertion loss of the link under test."

Delete up to line 26 (the table stays).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following test: 55.7.3.1.2-L13-P134 For the purpose of field testing, IL(250MHz) is the measured insertion loss of the link under test at 250 MHz.

Cl **55**   *SC* **55.7.3.1.2**   *P* **134**   *L* **27**   # 72

Koeman, Henriecus

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

With the removal of equation 55-26, the word "calculated" is no longer applicable. Instead the word "estimated" should be used, because it will be an estimate based on what the expected measured insertion loss is.

SuggestedRemedy

Replace the word "calculated" with "estimated from cabling equations

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The equation 55-26 is for "information". It provides a definition for the IL of a scaled link segment and is the basis for the "worst case" channel models. The field testing of length and insertion loss (i.e., measured insertion loss) are addressed in TIA/EIA TSB-155 and ISO/IEC TR-24750.

Cl **55**   *SC* **55.7.3.1.2 Table 55-8**   *P* **207**   *L* **29**   # 20587

Thompson, Geoff   Nortel

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

Invalid references
same basic comment as my #2 (comment 584)

SuggestedRemedy

See my #2

Proposed Response   *Response Status* **U**

ACCEPT IN PRINCIPLE.

See response to comment 584

In favor of proposed response: 20
Opposed : 3

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**   Page 55 of 63
SC **55.7.3.1.2 Table 55-**   7/16/2005 9:02:32 AM

Cl **55** *SC* **55.7.3.2.1** *P* **134** *L* **51** # 118

Mei, Richard

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

The 67dB noise floor cap for PSAFEXT was not included per the comment resolution from the last interim meeting.

SuggestedRemedy

PSAELFEXT limit does not apply when the calculations of PSAFEXT loss values greater than 67 dB.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The proposed response to comment (687) was to provide the following guidance to ISO/IEC and TR 42 relative to the measurement noise floor issue which was initiated through the liaison process. We are waiting for their response: Guidance: A cap of 67 dB(TBD) PS AFEXT is imposed. At frequencies where 67 dB(TBD) or greater measured values occurs the PS AFEXT measurements are extended by extrapolating utilizing a 20 Log relationship for PS AELFEXT calculations. Same thing will apply to PS ANEXT using a different slope.

Cl **55** *SC* **55.7.3.2.1** *P* **135** *L* **23** # 78

Koeman, Henriecus

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

Under conditions where the PSAFEXT exceeds 67 dB, the AELFEXT limits should not apply. Both the 10GBASE-T system and the measurement systems that are used are sensitive and measure Alien FEXT, while PSAELFEXT is only a computed value. If the PSAFEXT exceeds 67 dB, the PSAELFEXT limits should not matter.

SuggestedRemedy

Insertion a sentence starting on page 135, line 23:

"When the PSAFEXT values exceed 67 dB, the PSAELFEXT limits shall not apply.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The proposed response to comment (687) was to provide the following guidance to ISO/IEC and TR 42 relative to the measurement noise floor issue which was initiated through the liaison process. We are waiting for their response: Guidance: A cap of 67 dB(TBD) PS AFEXT is imposed. At frequencies where 67 dB(TBD) or greater measured values occurs the PS AFEXT measurements are extended by extrapolating utilizing a 20 Log relationship for PS AELFEXT calculations. Same thing will apply to PS ANEXT using a different slope.

Cl **55** *SC* **55.7.3.2.2** *P* **135** *L* **39** # 116

Mei, Richard

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

It is not clear that the scaling of PSAELFEXT only applies to the channel whose length is between 55m and 100m in the draft.

SuggestedRemedy

The scaling of PSAELFEXT only applies to the channel whose length is between 55m and 100m.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

There is no technical basis for limiting the scaling to distances between 55m to 100m. See recommended remedy to comment 79 for proposed minimumof alien crosstalk constants.

Cl **55** *SC* **55.7.3.2.2** *P* **135** *L* **50** # 79

Koeman, Henriecus

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

The commenter has serious concerns about the scaling formula, but does not have the required expertise to suggest a replacement. Fundamentally, the application is sensitive to the amount of PSAFEXT relative to the insertion loss of the link. It appears really odd that the PSAELFEXT constant is scaled again relative to the insertion loss. The formula also does not scale properly for short links. The length parameter should also be removed from the equation (is is practically not reliably measured by electronic means due to uncertainties in the Nominal Velocity of Propagation).

SuggestedRemedy

A careful review by a subcommittee of qualified members of the task group, resulting in an equation that contains a measured insertion loss and does not contain the length parameter.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Both the PSAELFEXT and PSANEXT equations need to be explicitly bounded to a minimum distance; length scaling to "0" meters is nonsensical. Recommended remedy: For PSANEXT: add the following text to 55.7.3.1.2-Page 134-Line 13-The calculated PSANEXT constant values that exceed 33.5 dB shall revert to a value of 33.5 dB
For PSAELFEXT: Add the following text: 55.7.3.2.2-Page 136-Line 7 - For insertion loss less than 10 dB at 250 MHz the calculated PSAELFEXT constant values that exceed 32.5 dB shall revert to a value of 32.5 dB.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.7.3.2.2**

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Cl **55**   *SC* **55.7.3.2.2**   *P* **135**   *L* **57**   # 80

Koeman, Henriecus

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

The intent of this comment is (again) to replace a computed/scaled IL with the measured insertion loss.

SuggestedRemedy

Change to:
"where
10GBTIL(250MHz) is the measured insertion loss at 250 MHz."

Delete lines 1 through 6 on page 136.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following test: 57.3.2.2.-L3-P136: For the purpose of field testing, IL(250MHz) is the measured insertion loss of the link under test.

Cl **55**   *SC* **55.7.3.2.2**   *P* **136**   *L* **10**   # 73

Koeman, Henriecus

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

Since the scaled length formula is no longer needed, there is no calculation.

SuggestedRemedy

Replace the word "calculated" with "estimated from cabling equations

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.

The equation 55-26 is for "information". It provides a definition for the IL of a scaled link segment and is the basis for the "worst case" channel models. The field testing of length and insertion loss (i.e., measured insertion loss) are addressed in TIA/EIA TSB-155 and ISO/IEC TR-24750.

Cl **55**   *SC* **55.7.4**   *P* **209**   *L* **41**   # 20520

Baumer, Howard   Broadcom

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

This section does not appear to add to the specification as it is purely informative to help a potential vendor implement a transceiver.

SuggestedRemedy

This is more suited to be included as an Informative Annex.

Proposed Response   *Response Status*   **W**

REJECT.

The subclause characterizes the total noise environment. Follows subclause headings structure from 1000BASE-T.

Cl **55**   *SC* **55.8.2**   *P* **139**   *L* **40**   # 139

Kasturia, Sanjay

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

The MDI impedance balance test was mandatory in D2.0. In D2.1 it was changed to recommended based on a task force approved response to a comment that was recorded ambiguously. This should be changed back to mandatory and a PICS item must be added.

SuggestedRemedy

Change:
It is recommended that the common-mode-to-differential-mode impedance balance, Zbal(f), of each channel of the MDI meet the relationship:

to:
The common-mode-to-differential-mode impedance balance, Zbal(f), of each channel of the MDI shall meet the relationship:

Also add a PICS item to cover this.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Related comments: 105, 139

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.8.2**

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Cl **55**   *SC* **55.8.2**   *P* **211**   *L* **57**   # 20590

Thompson, Geoff   Nortel

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

I don't understand this clause and especially the note. Is the intent to require automatic implementation of the cross-over function without regard to whether or a straight or cross-over cable is used? Ifso the wording does not indicate this. If not, then I don't understand the intent.
The absolute requirement (for that is how it is stated) for the jack to be marked with an "X" means that the same jack can not be used in multiple speed implementations.

SuggestedRemedy

I'm not sure. Once I know the intent perhaps I can help work out the wording.

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

Remove 55.8.2 and the editors note. The subclause does not add additional requirements to the 10GBASE-T PHY other than marking of an X for having the automatic crossover, which will be mandatory on all 10GBASE-T PHY's, so this will not be needed. For multiple speed implementations the requirements for those PHY's will be followed.

Cl **55**   *SC* **55.8.2.2**   *P* **138**   *L* **40**   # 105

Cobb, Terry

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

Balanced transmission is required for a 10GBASE-T PHY. This is the only test that verifies this.

SuggestedRemedy

Change to a shall

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Related comments: 105, 139

Cl **55**   *SC* **55.8.2.2**   *P* **138**   *L* **45**   # 106

Cobb, Terry

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

Equation 55-33 does not account for the connector.

SuggestedRemedy

Change the equation to:

- 48   for f = 1 to < 30 MHz
- 44 + 19.2 log (f/50) for f >= 30 to 1000 MHz

Rationale: The equation is 10 dB better than 1000BASE-T. The addtional margin is necessary because of the addtional spectrum. Addtional margin over this (5dB) may still be necessary to meet any emissions requirement. Measuring to 1000 MHz is necessary because connectors can have very sharp upswings in balance at high frequencies.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **55.8.2.2**   *P* **138**   *L* **49**   # 102

Cobb, Terry

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

Exsisting test will not work. A wideband probe does not have sufficient common mode rejection to measure the differential voltage to high frequencies.

SuggestedRemedy

Change test to use a mixed mode analyzer.

End the sentence on line 49 after MHz and remove all remaining text. Add the following:

The impedance balance shall be measured with a mixed mode four port network analyzer capable of measuring the common mode voltage and differential mode voltage of a balanced port. Impedance balance is the S parameter measurement of Scd11 in dB at the MDI where two ports of the four port network analyzer are connected between two MDI contacts used by a duplex link channel and these two ports are configured as a single balanced port. The PHY ground shall be connected to the network anaylzer ground. The other two ports of the network analzer are unconnected. The network analyzer shall be capable of measuring Scd11 to at least -60dB and shall use a differential input impedance of 100 ohms and a common mode impedance of 75 ohms.

During the test the Phy shall disable transmission but shall remain connected to the MDI as in normal operation.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **55.8.2.2**

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Cl **55**   *SC* **55.8.3.3**   *P* **213**   *L* **29**   # 20279

Dove, Daniel   HP ProCurve Networki

Comment Type **TR**   *Comment Status* **A**   *mdi - common mode output*

15mV is an impractical and unnecessary limit.

EMI compliance is not directly related to the common-mode voltage on the MDI, but rather, to the frequency/amplitude vector and is outside the scope of this standard.

SuggestedRemedy

Change to 50mV to remain consistent with earlier standards.

Proposed Response   *Response Status* **W**

ACCEPT IN PRINCIPLE.

Based on response to comment 355. This is no longer necessary.

Related comments: 279, 355, 423, 457, 501

Cl **55**   *SC* **8.2.2**   *P* **140**   *L* **24**   # 205

Cohen, Larry

Comment Type **T**   *Comment Status* **X**   *Late comment*

In Figure 55-31 the high-impedance probe and voltmeter should be removed from the picture. Their presence may be interpreted to mean that the measurement must be made with specific test equipment. The standard should define a requirement under specific test conditions, but not a specific test method unless that test method itself is standardized.

SuggestedRemedy

Revise the figure.

Proposed Response   *Response Status* **O**

Cl **55**   *SC* **All**   *P* **All**   *L* **All**   # 20383

Sailesh Rao   Phyten Technologies, I

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

It is not feasible to implement a robust receiver for 100m Cat-6E (Model 3) line length operation using the 128 Double Square line coding scheme documented in Draft 2.0, for two main reasons:
1. Even assuming all noise sources are perfectly Gaussian, the input-referred rms noise budget for the receiver is 650 microvolts, using an optimum MMSE implementation (ref. vareljian_1_1104.pdf). This is the noise budget that must be allocated to overcome
a) residual Echo
b) residual NEXT
c) residual FEXT
d) A/D quantization noise
e) sampling jitter noise
f) circuit thermal noise
g) finite precision implementation noise, etc.
This total noise budget is inadequate and it is, in fact, 7.0dB lower than just the thermal noise budget used in the 802.3ap task force models (altmann_01_1104.pdf, slide 5).
2. Three out of seven bits in the 128DSQ line code are not protected by the LDPC code. These unprotected bits are vulnerable to isolated noise events on the order of a few millivolts (ref. rao_1_1104.pdf, slide 23).

SuggestedRemedy

At least two line code alternatives were presented in rao_2_1104.pdf to address the fundamental inadequacies of the 128-DSQ line code used in D2.0. Either PAM16-P or PAM8-P would be an useable choice for 10GBASE-T.

Proposed Response   *Response Status* **U**

REJECT.

All in favor of accepting comment:
Yes: 4
No: 25

Motion to accept fails.

Motion to reject. See response to 387

Yes: 25
No: 4
Motion passes

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **All**

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Cl **55**   *SC* **Figure 55-17**   *P* **103**   *L* **22**   # 196

Law, David

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

The PMA_LINK.request and PMA_LINK.indicate primitives do not come from the Management Functional Interface defined in Clause 22 but instead come from the Technology Dependent Interface defined in Clause 28 - see Figure 28-13 in IEEE P802.3REVam.

SuggestedRemedy

Chnage the text on the right hand side of this figure from 'Management Functional Interface (Clause 22)' to read 'Technology Dependent Interface (Clause 28)'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **Figure 55-3**   *P* **69**   *L* **31**   # 197

Law, David

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

The PMA_LINK.request and PMA_LINK.indicate primitives do not come from the Management Functional Interface defined in Clause 22 but instead come from the Technology Dependent Interface defined in Clause 28 - see Figure 28-13 in IEEE P802.3REVam.

SuggestedRemedy

Chnage the text on the right hand side of this figure from 'Management Functional Interface (Clause 22)' to read 'Technology Dependent Interface (Clause 28)'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **Figure 55-3**   *P* **69**   *L* **43**   # 198

Law, David

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

Typo.

SuggestedRemedy

Chage the text:

(link_control)
PMA_Link.request

to read:

PMA_Link.request
(link_control)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55**   *SC* **Figure 55-4**   *P* **74**   *L* **26**   # 202

Law, David

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

The PMA_LINK.request and PMA_LINK.indicate primitives do not come from the Management Functional Interface defined in Clause 45 but instead come from the Technology Dependent Interface defined in Clause 28 - see Figure 28-13 in IEEE P802.3REVam.

SuggestedRemedy

Chnage the text on the right hand side of this figure from 'Management Functional Interface (Clause 45)' to read 'Technology Dependent Interface (Clause 28)'.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55**
SC **Figure 55-4**

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Cl **55**   *SC* **Table 55-10**   *P* **128**   *L* **38**   # 191
Law, David

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

I understand that for Class E/Cat 6 lengths up to about 55m (actual figure TBD), and all Class F lengths, mitigation is not required. Based on this Table 55-10 is some what misleading for the user since it makes no mention of this and lumps all Class E/Cat 6 and Class F together.

SuggestedRemedy

Add an additional column to Table 55-10 to indicate if mitigation is require. For Class E/Cat 6 split the current row into two with one for 0 to 55 m and one for 55 to 100m. Mark 0 to 55 m as requiring mitigation and mark 55 to 100 m and Class F as not requiring mitigation.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The draft has cycled through a number of iterations of providing both more and less detail in resolution of technical comments. The cabling considerations your comment addresses are better addressed in more detail than less. In order for your recommended table to be helpful and not misleading , the concept and mechanism of mitigation needs to be addressed as well. Proposed remedy: Address the use of screened cables in Annex 55B- "Additional cabling design guidelines for 10GBASE-T" providing the detailed implementation considerations as related to mitigations.

Cl **55**   *SC* **Table 55-10**   *P* **128**   *L* **42**   # 190
Law, David

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

Screened Class E cabling is included in ISO/IEC TR-24750, is mentioned elsewhere in this draft and I understand will support 10GBASE-T operation at 100m without mitigation. Based on this add screened Class E to this table.

SuggestedRemedy

Add the following entry to Table 55-10 (assumes the mitigation column is added based on my other comment).

Cabling: Screened Class E
Length: 100 m
Mitigation: No
Cabling: ISO/IEC TR-24750

Proposed Response   *Response Status* **W**

for committee discussion

Cl **55**   *SC* **Table 55-10**   *P* **143**   *L* **6**   # 192
Law, David

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

This comment is in support of unresolved D2.0 comment #242. The latency value for the 10GBASE-T is unacceptably high for many intended applications.

SuggestedRemedy

Change the 10GBASE-T entry in Table 44-2 such that the round-trip latency does not exceed 40 pause_quanta.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370
See proposed text in editors report kasturia_1_07_05.pdf

Cl **55**   *SC* **Table 55-4**   *P* **110**   *L* **41**   # 195
Law, David

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

Minor point but received signal power values overlap - so for example at exactly -1.1 dBm I could choose a Minimum Power Backoff of either 8dB or 10dB depending which line I choose.

SuggestedRemedy

It this matters, add a greater than symbols to each of the lower values. For the last value change it to less than or equal symbol.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **55A**   *SC*   *P* **153**   *L* **13**   # 137
Kasturia, Sanjay

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

The text refers to a matrix P which is defined such that G=[I P] and says P will be available online in pdf format. This was put in before 802.3 decided to accept a machine readable format for G. Given that, P is no longer required and the pdf format is not required either.

SuggestedRemedy

Eliminate the last sentence of the first paragraph

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **55A**
SC

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Cl **55A**   *SC*   *P* **153**   *L* **9**   # 136
Kasturia, Sanjay

Comment Type   **E**   *Comment Status* **D**
    Verify URL chosen is OK with appropriate 802.3/IEEE staff

SuggestedRemedy
    change if necessary

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

Cl **55A**   *SC* **55A**   *P* **153**   *L* **10**   # 203
Law, David

Comment Type   **E**   *Comment Status* **D**
    This is just a reminder that we still need to fully resolved the issues with the URL with
    Yvette. Should have final answer by July plenary.

SuggestedRemedy
    Resolved URLs.

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

Cl **55B**   *SC* **55B**   *P* **154**   *L* **1**   # 204
Law, David

Comment Type   **TR**   *Comment Status* **D**
    I really don't think this Annex satisfies D2.0 TR comment #442 which was marked as an
    Accept in the last round of balloting. This comment stated 'Please add an Annex similar to
    that found in 1000BASE-T (Annex 40A), which addresses cabling design guidelines and
    Alien Crosstalk.'. Similarly, I don't really think this Annex satisfies D1.4 comment #14001
    which is marked as Accept in Principle, see comment #422.

    While this Annex is titled 'Additional cabling design guidelines for 10GBASE-T' it seems to
    only provides text related to Alien crosstalk.

SuggestedRemedy
    Complete the Cabling Annex to addresses cabling design guidelines as requested in the
    Accepted D2.0 TR comment.

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

    Annex 55B is similar to that found in 1000BASE-T Annex 40A.
     Annex 40A addresses noise between cables (alien crosstalk) given in
    40A.1 and noise internal to cables given in Annex 40A.2 .
     For 10GBASE-T the primary issue is Alien Crosstalk and not the internal
    cable performance. Please advise on specific additional content concerning comment
    resolution to 442 to better address your issues.

Cl **99**   *SC*   *P* **2**   *L*   # 20607
Grow, Robert   Intel

Comment Type   **ER**   *Comment Status* **A**
    Front matter will be required for Sponsor Ballot. (Front matter is not part of the standard.)

SuggestedRemedy
    Add more complete front matter (to be supplied by WG Chair) prior to Sponsor Ballot. It
    would be nice if this was done for at least one WG recirculation.

Proposed Response   *Response Status* **C**
    ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **99**
SC

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Cl **99**   *SC*   *P* **5**   *L* **6**   # 140
Grow, Bob

Comment Type   **E**   *Comment Status* **D**
   This amendment will have a significant component published via the web. The introductory
   material should probably have an paragraph added on downloads.

SuggestedRemedy
   Downloads

   Select portions of this document and files included by reference can be downloaded from
   the Internet. Material may include PICs tables, data tables and code referenced or
   included in the standard. These files can be accessed at the following URL: [URL currently
   under discussion with IEEE staff].

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

Cl **99**   *SC*   *P* **8**   *L* **0**   # 141
Grow, Bob

Comment Type   **E**   *Comment Status* **D**
   The IEEE EDITORIAL NOTE got lost when adding the front matter. This note should be on
   a preceding page (when published I believe it is an internal title page.

SuggestedRemedy
   Return the EDITORIAL NOTE to the draft.

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

Cl **99**   *SC* **99**   *P* **2**   *L*   # 68
Dawe, Piers

Comment Type   **E**   *Comment Status* **D**
   'List of special symbols' page is out of date. Rubric has been rewritten, more symbols have
   been added.

SuggestedRemedy
   Use the current one from P802.3am.

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

Cl **99**   *SC* **99**   *P* **3**   *L* **11**   # 69
Dawe, Piers

Comment Type   **E**   *Comment Status* **D**
   Hanging punctuation.

SuggestedRemedy
   Finish the sentence in a box with: 10GBASE-T.) or 10GBASE-T).

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

Cl **99**   *SC* **99**   *P* **4**   *L* **19**   # 70
Dawe, Piers

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

SuggestedRemedy
   Change '10Gb/s' to '10 Gb/s' (twice on this page), change '20xx. .' to '20xx.' (in 802.3as
   section on this page), fix the grammar in 'This document adds a new physical layer for
   operation at 10 Gb/s. includes a new clause, Clause 55.'

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **99**
SC **99**

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