

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.5 P133 L42 # 1

Abbott, John

Comment Type E Comment Status A pmaelect

In 55.5.3.4 p.133 lines 38-54, the notation in equation 55-9 needs to be improved. If the units of f are MHz, then the 2nd line of the equation should be written as  $(f - 70\text{MHz})/(80\text{MHz})$  etc. , so that the  $(f-70)/80$  term does not have mixed units. Furthermore, where the range of f is given, are these various boundaries in MHz? Should it say  $70\text{MHz} < f < 150\text{MHz}$  etc.?

SuggestedRemedy

Avoid mixed units in equation 55-9. Indicate the units of f.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Move the line that "f is in MHz" should be move before figure 55-30 to closer to the eqs

Cl 55 SC 55.7 P142 L33 # 2

Abbott, John

Comment Type T Comment Status A

In 55.7.2.3 p. 142 lines 30-37, equation 55-12. if f has the units of MHz then one should divide by a variable with the same units before taking the logarithm. One can only take the logarithm of a unitless value without getting into a mixed unit problem in the equation. For example, the 2nd line should read  $24 - 5\log_{10}(f / 1\text{MHz})$  or something like that. The same problem occurs in equations 55-13, 55-14, 55-20.

SuggestedRemedy

correct mathematical/engineering notation in equations so that rather the argument of the logarithm is unit-less. For example, equation 55-12 could have the 2ndline written  $24 - 5\log_{10}(f / 1\text{MHz})$ .

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

An acceptable resolution is to identify that "f" is in MHz rather than calling out "MHz" in the equation.

Cl 55 SC 55.7.1 P141 L15 # 3

Shimon Muller

Sun Microsystems, Inc

Comment Type T Comment Status R

There is no need to constrain the operation of 10GBASE-T to Class E and Class F cables only. In the future we expect to have better cabling systems that will accommodate 10GBASE-T requirements.

SuggestedRemedy

Replace "Class E or Class F" with "Class E, Class F or better".

Proposed Response Response Status C

REJECT.

This text is not necessary.

Cl 55 SC 55.7.1 P141 L16 # 4

Shimon Muller

Sun Microsystems, Inc

Comment Type TR Comment Status R

I don't think that by "other classes" we mean Cat-3/4, nor do we want anyone to even try to use these types of cables.

SuggestedRemedy

Replace "on other classes" with "over Class D/Category 5e" to read as follows: "Operation over Class D/Category 5e cables may be supported if the link segment meets the requirements of 55.7."

Proposed Response Response Status U

REJECT.

If a Cat5e cable met the 55.7 requirements it would also meet Class E requirements. This change in text is not necessary.

Passes by voice vote.

Cl 00 SC P L # 5

van Doorn, Schelto

Comment Type E Comment Status R

In the headers: ""IEEE P802.3an DRAFT 2.2"" has mixed fonts.

SuggestedRemedy

Correct font

Proposed Response Response Status C

REJECT.

No mixed fonts were found. If any are found, they will be fixed.

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Cl 00 SC P L # 6  
 van Doorn, Schelto  
 Comment Type E Comment Status A  
 Format tables to IEEE style guide.  
 SuggestedRemedy  
 Outside and header box thicker than inside cells  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Will be done later by IEEE professional editorial staff.

Cl 00 SC P L # 7  
 van Doorn, Schelto  
 Comment Type E Comment Status A  
 Check for consistent spelling of ""auto-negotiation"". Auto-negotiation vs Auto-Negotiation  
 SuggestedRemedy  
 As mentioned above.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Will change all to Auto-Negotiation to be consistent with Rev AM

Cl 00 SC P L # 8  
 van Doorn, Schelto  
 Comment Type ER Comment Status R  
 It seems that there is a general issue with different Font sizes in the subclause headers.  
 Numbers are smaller than letters. Same for the spelling in figures and tables as of  
 10Gxx.....  
 SuggestedRemedy  
 Use Fonts sizes according to style guide  
 Proposed Response Response Status W  
 REJECT.  
 The problem the commenter is seeing is due to an error in the PDF viewer in rendering at  
 certain magnifications.

Cl 28 SC 3.2 P23 L55 # 9  
 van Doorn, Schelto  
 Comment Type E Comment Status A  
 Sentence is split  
 SuggestedRemedy  
 Remove end of paragraph marker or add colon after "" is""->"" is: ""  
 Proposed Response Response Status C  
 ACCEPT.

Cl 45 SC 2.1 P44 L20 # 10  
 van Doorn, Schelto  
 Comment Type E Comment Status R  
 insert comment to 802.3 Editor.  
 SuggestedRemedy  
 Insert: Change Table 45.3 to read as follows:  
 Proposed Response Response Status C  
 REJECT.

Cl 45 SC 2.1 P44 L27 # 11  
 van Doorn, Schelto  
 Comment Type E Comment Status A  
 Table 45-3:  
 Line 26: row 1.9: Why was register added? These are all registers. Remove the word  
 register and also remove the word register from 1.11 in .3am  
 Line 27: 1.16 through 1.129 Reserved, Underline Reserved. Reserved is missing in .3am  
 SuggestedRemedy  
 As mentioned in comment  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Remove "register" Register name column for 1.9  
 Any change to register 1.11 or 802.3am is out of scope for 802.3an.  
 Underline 1.129 and Reserved in line 27. Underline Reserved in line 28.

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Cl 45 SC 2.7.2 P60 L1 # 12  
van Doorn, Schelto

Comment Type E Comment Status A

Remove the word ""register"" from title. It is redundant and not used in any of the other registers and it's mentioned in the following brackets

SuggestedRemedy

As mentioned above.

Proposed Response Response Status C

ACCEPT.

Cl 55B SC 1.1 P167 L # 13  
van Doorn, Schelto

Comment Type E Comment Status A

Add a blank in the AH3 template so that a space appears between numbering and header.

SuggestedRemedy

As mentioned above.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Will do if consistent with IEEE templates.

Cl 55 SC 55.7 P147 L11 # 14  
Jimenez, Andrew

Comment Type TR Comment Status A

Per lines 11 and 12 ""IL (250MHz) is the insertion loss of a link segment less than 100 meters (equation (55-26)) or the insertion loss at 250 MHz of the supported cabling types in Table 55-11"", Table 55-12 should reflect the calculated PSANEXT constants for Class F and new Class E/Augmented Category 6 cabling at 100 meters using an IL (250MHz) value of 33.8 dB. Similarly, Table 55-13 should be changed to ensure that the previously mentioned cabling types are correctly represented in the calculated PSAELFEXT constants.

SuggestedRemedy

Add row in Table 55-12:

Link Segment Distance - 100 meters  
PSANEXT\_constant (dB) - 60  
PSANEXT\_constant\_avg average of the 4-pairs (dB) - 61  
Insertion Loss at 250 MHz (dB) - 33.8

Add row in Table 55-13:

Link Segment Distance - 100 meters  
PSAELFEXT\_constant (dB) - 37  
PSANEXT\_constant\_avg average of the 4-pairs (dB) - 41  
Insertion Loss at 250 MHz (dB) - 33.8

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

See response to comment #53

Cl 55 SC 55.3.2.2.17 P97 L32 # 15  
Kasturia, Sanjay

Comment Type E Comment Status A cleanup

The text in Lines 30-32 indicates that the generator matrix, G, has the form [I P] and goes on to mention that G and P are described in Annex 55A. Providing both G and P is redundant. This was originally done because we were trying to include a representation of G in the PDF document and P potentially had a more compact representation than G. Now that the IEEE has agreed to go with a machine readable version of G that will be available online, there is no need to provide P. Reference to P has been removed from Annex 55A hence reference to P should be removed from Line 32.

SuggestedRemedy

Change the last sentence of the paragraph to:  
G is described in Annex 55A.

Proposed Response Response Status C

ACCEPT.

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Cl 45 SC 45.2.10.1.1 P47 L 24 # 16  
Kasturia, Sanjay

Comment Type E Comment Status A

Delete the first sentence of the Editor's note on Line 24 - this will no longer apply to the next draft.

Remove the Also at the start of the second sentence.

Specify when the remaining part of this note will be removed or convert it into a note.

SuggestedRemedy

As per comment.

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.5.10 P116 L 40 # 17  
Kasturia, Sanjay

Comment Type E Comment Status A editornote

Power backoff levels have been unchanged. Remove editors note

SuggestedRemedy

As per comment

Proposed Response Response Status C

ACCEPT.

See response to Comment #144

Cl 55A SC 55A P166 L 27 # 18  
Kasturia, Sanjay

Comment Type E Comment Status A

Specify that the editor's note will be removed prior to publication. Also update the URLs if new URLs are available

SuggestedRemedy

Proposed Response Response Status C

ACCEPT.

Cl 55 SC Figure 55-15 P108 L 32 # 19  
McConnell, Mike

Comment Type E Comment Status R

If the XGMII data is invalid the /E/ control character is placed in all eight character locations (/E/ is only 7 bits) but what goes in the block type field?

Per Figure 55-9 I would assume:  
data control header=1  
all 8 ""C"" fields contain /E/ (0x1E)  
but what is the block type field?

SuggestedRemedy

One alternative might be:

data control header =0  
all 8 8bit data fields hold 0xFE which is the XGMII error control value but this doesn't properly indicate a known error.

Better alternative might be to define a block type field for the error.

Proposed Response Response Status C

REJECT.

From draft2.2 page 102 line 51: "EBLOCK\_T<64:0> 65 bit vector to be sent to the PMA containing /E/ in all the eight character locations."

1. The /E/ is encoded into 0x1E according to Fig 55-9.
2. According to the encoder in Table 55-9, a control block has a block type field of 0x1E.

So the EBLOCK\_T has a header of 1, a block type field of 0x1E and 8 characters (C0 to C7) of 0x1E.

Nothing has changed from Clause 49 except the header is a single bit.

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CI 55 SC 55.1.3.1 P78 L14 # 20

McConnell, Mike

Comment Type ER Comment Status R clarification

There is significant ambiguity in how the PHY frame is constructed. Beginning on line, ""Adding CRC8 check bits yields a CRC-checked Ethernet payload of 50x65+8 = 3258 bits. An auxiliary channel bit is added to obtain a block of 3259 bits."" This text implies that the CRC8 is added to the end of the payload and that an Auxiliary channel bit is then added yet figure 55-6 shows the auxiliary channel bit being added to the beginning of the payload data and the CRC8 at the end.

The next paragraph states, ""The 3259 bits are divided into 3x512 bits and 1723 bits. The 3x512 bits, among them the auxiliary channel bit, remain uncoded."" There is no mention of order for dividing the 3259 bits and no mention of where the auxiliary channel bit is to be placed in the 3x512. Figure 55-6 doesn't reflect it either.

SuggestedRemedy

See supplied text for section 55.1.3.1.

Proposed Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

Proposed response delayed since "supplied text" is not available

CI 55 SC 55.5.2 P131 L4 # 21

McConnell, Mike

Comment Type T Comment Status A pmaelect

Last sentence of Section 55.5.2 reads, ""When in test mode 7, the PHY shall transmit and receive data and report the error rate as specified in 55.3.3.""

55.3.3 doesn't describe how to report any errors and doesn't mention an error rate.

Error counters are defined in MMD 3 in clause 45 but are not defined for this use. (3.32.1 & 3.33.13:8)

SuggestedRemedy

Add text to describe a BER calculation for this test mode in section 55.3.3. Modify 45.2.3.12.3 to include BER values for test mode 7 defined in 55.5.2 & 55.3.3. Be explicit on 64/65 errors being reported in 45.2.3.11.3 and update that clause as well.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Eliminate "receive data and report error rate as specified in 55.3.3" on page 131 line 4.

And make corresponding change to 55.3 and to clause 45 if necessary.

CI 55 SC 55.4.2.5.11 P118 L34 # 22

Brown, Kevin

Comment Type TR Comment Status A startup

The 1.5 second requirement is not shown on the phy control state diagram 55-23. The text states that coefficient exchange must happen within 1.5s but does not specify what happens if this condition is violated.

SuggestedRemedy

Either eliminate this extra requirement or specify what happens if it is violated and clearly show this on the PHY control state diagram.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

OBE. Remove requirement for 1.5s

CI 55 SC 55.4.6.1 P126 L32 # 23

Abaye, Ali

Comment Type T Comment Status A startup

The current PHY control state diagram permits the slave to transition from PMA\_training\_init\_S to PMA\_coeff\_exch even if the master is not able to decode info fields (ie: insufficient power from the slave).

SuggestedRemedy

Change the condition for exit to loc\_SNR\_margin \* rem\_rcvr\_status=OK and permit the master to request a higher power level if needed.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment # 161 and #167

CI 55 SC 55.4.6.1 P126 L33 # 24

Agarwal, Puneet

Comment Type TR Comment Status A startup

The text implies final power backoff (PBO) value is determined in PMA\_coeff\_exch state. This is not clear from the PHY control state diagram.

SuggestedRemedy

Add the process ""determine\_final\_PBO"" inside the currently empty PMA\_coeff\_exch state.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Determine and exchange final PBO in both directions.

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Cl 55 SC 55.7.2 P141 L44 # 25  
 Valerie Rybinski Siemon

Comment Type E Comment Status A

This table implies that all category 6 UTP cabling will support 55 meters of the 10GBASE-T application. It should be clarified that some mitigation may be required in order for the installed base to deliver the SNR required to support 10GBASE-T at 55 meter lengths.

SuggestedRemedy

Inset superscript "b" after "55m" in the second column of row 3 in table 55-11 and add the following associated footnote to the bottom of the table, "b Existing Class E/Category 6 specifications do not address channel performance requirements from 250 to 500 MHz and do not include alien crosstalk requirements. ISO/IEC TR 24750 and TIA TSB-155 are informative documents that characterize existing installations for these additional parameters. These documents include mitigation steps , such as unbundling cables/cords and component replacement, that may be required to support the distances specified above."

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

resolved by comment#202:

Cl 55 SC 55.7.2 P141 L52 # 26  
 Cobb, Terry

Comment Type TR Comment Status A

This implies that the ISO and TIA references are normative documents and existing installed links meet these requirements.

SuggestedRemedy

Add note:

Class E/Category 6 specifications do not cover channel performance requirements from 250 to 500 MHz and do not include Alien Crosstalk requirements. ISO/IEC TR 2470 and TIA TSB-155 are informative documents for the characterization of installations to verify these additional parameters. These documents include mitigation steps ranging from cable/cord unbundling to component replacement. These mitigation steps may be required to support the distances stated above.

Proposed Response Response Status U

ACCEPT IN PRINCIPLE.

resolved by comment #202:

Cl 55 SC 55.7.3.1.2 P147 L1 # 27  
 Cobb, Terry

Comment Type TR Comment Status A

The equation for PSANEXT is normative but not the constant.

SuggestedRemedy

Change sentence to read:

The PS ANEXT\_constant shall be specified by the following equation.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment#201

Cl 55 SC 55.7.3.1.2 P147 L40 # 28  
 Cobb, Terry

Comment Type TR Comment Status A

Table 55-12 should include PS ANEXT constants for supported cables types.

SuggestedRemedy

Add row to table for augmented Cat 6:

100 meters 60 61 33.8

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment #53

Cl 55 SC 55.7.3.2.2 P148 L49 # 29  
 Cobb, Terry

Comment Type TR Comment Status A

The equation for PS AELFEXT is normative but not the constant.

SuggestedRemedy

Change sentence to read:

The PS AELFEXT\_constant shall be specified by the following equation.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment#201

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Cl 55 SC 55.7.3.2.2 P149 L # 30  
 Cobb, Terry  
 Comment Type TR Comment Status A  
 Table 55-13 should include the PS AELFEXT for supported cable types.  
 SuggestedRemedy  
 Add row to the table for augmented Cat 6:  
 100 meters 37 41 33.8  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Resolved by comment #53

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Cl 55 SC 55.7.3.1.2 P147 L12 # 31  
 Cobb, Terry  
 Comment Type TR Comment Status A  
 Specifying field testing requirements is beyond the scope of a channel requirement.  
 SuggestedRemedy  
 Remove sentence or point to the appropriate TIA document.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 The sentence provides useful guidance that is appropriate to include in the 10GBASE-T standard. The inclusion of the text has resolved a number technical comments.  
 Replace text: L12, P147,57.3.1.2 with-  
 For measurement based calculations (e.g.,field testing), IL(250MHz) is the actual measured insertion loss of the link under test at 250 MHz.

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Cl 55 SC 55.7.3.1.2 P147 L15 # 32  
 Cobb, Terry  
 Comment Type TR Comment Status R  
 The channel requirements are specified for a worst case channel. The minimum distance supported is 55 meters which does not correspond to 33.5 dB for a PS ANEXT constant.  
 SuggestedRemedy  
 Remove sentence.  
 Proposed Response Response Status C  
 REJECT.  
 There is no minimum distance.  
 The numbers correspond to the extrapolation of the PS ANEXT equation and PS AELFEXT equation.

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Cl 55 SC 55.7.3.2.2 P149 L2 # 33  
 Cobb, Terry  
 Comment Type TR Comment Status A  
 Specifying field testing requirements is beyond the scope of a channel requirement.  
 SuggestedRemedy  
 Remove sentence or point to the appropriate TIA document.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See response to #109

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Cl 55 SC 55.7.3.2.2 P149 L9 # 34  
 Cobb, Terry  
 Comment Type TR Comment Status R  
 The channel requirements are specified for a worst case channel. The minimum distance supported is 55 meters which does not correspond to 32.5 dB for a PS AELFEXT constant.  
 SuggestedRemedy  
 Remove sentence.  
 Proposed Response Response Status C  
 REJECT.  
 See response to comment #32

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CI 55 SC 55.4.6.1 P126 L48 # 35

Vivek, Telang

Comment Type TR Comment Status R startup

If the loc\_rcvr\_status=NOT\_OK briefly as the PCS\_test state is entered, the current PHY control state diagram declares a failure and transitions back to the SILENT state to start over.

SuggestedRemedy

If the loc\_rcvr\_status=NOT\_OK briefly as the PCS\_test state is entered, the current PHY control state diagram declares a failure and transitions back to the SILENT state to start over.

Proposed Response Response Status W

REJECT.

This is the desired response. The receiver decides what is 'briefly' and what is not.

From draft2.2, page 85, line 47:

loc\_rcvr\_status conveys (...) information on whether the status of the overall receive link is satisfactory or not. Note that loc\_rcvr\_status is used by the PCS Receive decoding functions. The criterion for setting the parameter loc\_rcvr\_status is left to the implementor

CI 00 SC P3 L10 # 36

Healey, Adam

Comment Type E Comment Status A

Description of IEEE Std 802.3ap-20xx is inaccurate. This may be moot given the expected order of publication for these amendments, but still should be corrected just in case this text persists in the final document.

SuggestedRemedy

Change text to read:

""This amendment includes changes to IEEE Std 802.3-2005 and adds Clause 69 through Clause 73 and Annexes 69A and 73A. This amendment adds new physical layers that support the exchange of IEEE Std 802.3 format frames over electrical backplanes at 1 and 10 Gb/s.""

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Follow suggested remedy but put in "Gb/s" after the 1 also.

CI 01 SC 1.5 P15 L5 # 37

Healey, Adam

Comment Type E Comment Status A

BP is defined to be ""base page"". However, IEEE P802.3ap uses ""BP"" extensively to represent ""backplane"". Since ""BP"" appears nowhere else in the document, it is suggested that this abbreviation be surrendered to IEEE P802.3ap so that we can avoid expanding the numerous instances of ""BP"" in that document.

SuggestedRemedy

Delete ""BP"" from list of abbreviations.

Proposed Response Response Status C

ACCEPT.

Replace instances in D2.2 where the abbreviations BP was used with the expansion 'base page'

CI 55 SC 55.7.3.1.2 P147 L37 # 38

Paul Kolesar

Systemax Solutions

Comment Type TR Comment Status A

Table 55-12 contains parameters for only a subset of the cabling types that support this PMD and must be corrected to represent all of them. Providing a single row of values to represent all cable types that support the 100m distance results in an incomplete and incorrect specification because it imposes a single set of parameters that do not apply to all 100m-capable cable types.

SuggestedRemedy

Modify table 55-12 to include a row for each of the cable types listed in table 55-11. Accomplish this by adding a new column on the left side of the table entitled "Cabling". Beneath this heading, fill in the cells of each row with the content of the left column of table 55-11. Place the appropriate values into the remaining cells of each row.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Resolved by comment #53



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Cl 55 SC 55.4.3.1 P120 L8 # 39

Koeman, Henricus

Comment Type E Comment Status A cleanup

I believe that the IEEE convention is that there is always a space between the quantity and units. Therefore ""2dB"" should be shown as ""2 dB"". There are numerous cases in this document where there is no such space is present, while there should be.

SuggestedRemedy

Add a space between quantity and units.

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.7.2.1 P142 L13 # 40

Koeman, Henricus

Comment Type E Comment Status A

Insertion loss is the value that is measured of cable.

SuggestedRemedy

Replace ""attenuation"" with ""insertion loss"".

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.7.2.3 P142 L27 # 41

Koeman, Henricus

Comment Type E Comment Status A

All other performance requirements for transmission parameters have introductions why they are required. It is felt that these introductions are unnecessary, and the text can be reduced. However, if it is felt (based on additional comments on these other parameters) that these introductions should not be deleted), such introduction should be added for return loss.

SuggestedRemedy

Match an appropriate introduction for return loss, and show that the return loss must meet or exceed the equation that follows.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

55.7.2.3, L27-28, P142, Replace sentence with: In order to limit the noise at the reciever due to impedance mismatches in the cablingsystem, each link segment duplex channel shall meet or exceed the return loss specified in equation (55-12) at allfrequencies from 1 MHz to 500 MHz. The reference impedance for the return loss specification is 100 Ω."

Cl 55 SC 55.7.2.4.1 P142 L51 # 42

Koeman, Henricus

Comment Type E Comment Status R

There does not appear any value in the text why the near end crosstalk must be limited. A straight requirement is preferred.

SuggestedRemedy

The paragraph to read:

""The differential pair-to-pair Near-End Crosstalk (NEXT) loss between a duplex channel and the other three duplex channels shall exceed: ""

Proposed Response Response Status C

REJECT.

A noise budget allocation for each coupling transmission parameter limits the total noise which is the basis for channel specifications (for a specified insertion loss).

Cl 55 SC 55.7.2.4.2 P143 L20 # 43

Koeman, Henricus

Comment Type E Comment Status R

There does not appear any value in the text why the PS near end crosstalk must be limited. A straight requirement is preferred.

SuggestedRemedy

""The multiple disturber NEXT loss is specified as the power sum of the individual NEXT losses. The Power Sum loss between a duplex channel and the other three duplex channels shall exceed: ""

Proposed Response Response Status C

REJECT.

A noise budget allocation for each transmission parameter limits the total noise which is the basis for channel specifications (for a specified insertion loss).

Cl 55 SC 55.7.2.4.4 P144 L3 # 44

Koeman, Henricus

Comment Type E Comment Status R

The introduction is why there is this specification is not needed. It is also not found in the introduction of the return loss requirements.

SuggestedRemedy

Delete the first sentence and start with: Far-End Crosstalk (FEXT) à.

Proposed Response Response Status C

REJECT.

A noise budget allocation for each transmission parameter limits the total noise which is the basis for channel specifications (for a specified insertion loss).

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Cl 55 SC 55.7.2.4.4 P144 L 27 # 45

Koeman, Henricus

Comment Type E Comment Status R

Recommend the use of "exceed" instead of "greater than". This not only suggests a higher numerical (positive value), but also suggests that it shall be "better".

SuggestedRemedy

Change to read:  
The worst pair ELFEXT between any two duplex channels shall exceed:"

Proposed Response Response Status C

REJECT.

consistent with 1000BASE-T

Cl 55 SC 55.7.2.4.5 P144 L 54 # 46

Koeman, Henricus

Comment Type E Comment Status R

Recommend the use of "exceed" instead of "greater than". This not only suggests a higher numerical (positive value), but also suggests that it shall be "better".

SuggestedRemedy

Change to read:  
"The Power Sum loss between a duplex channel and the three adjacent disturbers shall exceed:"

Proposed Response Response Status C

REJECT.

consistent with 1000BASE-T

Cl 55 SC 55.4.3.1 P120 L 32 # 47

Koeman, Henricus

Comment Type T Comment Status R PBO

Table 55-5-Power Backoff schedule shows a table showing power back-off with the length in m as a reference. It will be necessary during performance verification of PSA(EL)FEXT to use similar power back-off corrections, and more likely the measured insertion loss will be used as a reference.

SuggestedRemedy

Add column to table 55-5 to show the insertion loss @ 250 MHz as a reference:

Received signal power (dBm)	Length (m) (Reference)	IL @ 250 MHz (dB) (Reference)	Minimum Power Backoff (dB)
at MDI on worst pair			

> 0.3	0 - 25	0 - 9.9	10
(-1.1, 0.3)	25 - 35	0.9 - 13.4	10
(-2.3, -1.1)	35 - 45	13.4 - 16.9	8
(-3.3, -2.3)	45 - 55	16.9 - 20.3	6
(-4.2, -3.3)	55 - 65	20.3 - 23.8	4
(-5.0, -4.2)	65 - 75	23.8 - 27.3	2
(-5.7, -5.0)	75 - 85	27.3 - 30.7	0
<= -5.7	> 85	> 30.7	0

Proposed Response Response Status C

REJECT.

Information is already in the document and does not need to be added to this table.

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Cl 55 SC 55.7.3.2.2 P149 L12 # 48

Koeman, Henricus

Comment Type T Comment Status A

There is no need to make reference to a cabling document when the information can be directly included in this document.

SuggestedRemedy

Copy the current equation 55-30 and replace in this equation  $10\log_{10}(L/100)$  with:  $10\log_{10}(2.77*IL@250MHz/100)$

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

10GBASE-T utilizes 11801 © ISO/IEC:2002(E) reference for length dependence: G.4.3 Assumptions for ELFEXT length dependence- $10*\log(L/100)$ .

Recommended remedy: Replace text L1-4, P149,57.3.2.2. with: L is the length in meters of the link segment. The equation assumes coupling over 100 meters of horizontal cable and cable cords. For measurement based calculations (e.g., field testing), L can derived from the measured insertion loss and substituted in equation (55-30) as defined in equation (xx)  $L = 2.77*(\text{measured insertion loss at 250 MHz})$  equation (xx)."

Cl 55 SC 55.7.3.2.2 P148 L49 # 49

Mei, Richard

Comment Type ER Comment Status A

In reading the draft it appears that technically there are no normative requirements for alien crosstalk. The equation is normative but not the constants used in the equation.

SuggestedRemedy

Change the sentence before equation equation 55-30 to The PS AELFEXT\_constant shall be specified by the following equation

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment #201

Cl 55 SC 55.7.2 P141 L37 # 50

Mei, Richard

Comment Type TR Comment Status A

It appears the supported distance of Class E screened and unscreened cabling is normative.

SuggestedRemedy

Add a footnote at the supported distance for both class E unscreened and screened cabling to reflect the following.

TSB-155/TR24750 document are informative. It is expected that not all of the installed based Class E/ Category 6 cabling will pass these requirements initially. Mitigation steps ranging from cable/cord unbundling to component replacement may be required to support the distances stated in the table.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

resolved by comment#202:

Cl 55 SC 55.7.2 P141 L37 # 51

Mei, Richard

Comment Type TR Comment Status R

The reference for Class F cabling is incorrect.

SuggestedRemedy

Change ISO/IEC 24750 to ISO/IEC 11801:2002

Proposed Response Response Status C

REJECT.

See : Liaison document 3n754.pdf TITLE: Letter to the chairman of IEEE 802.3 on a WD 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 IEEE802.3anSOURCE: WG 3 SecretariatPROJECT: 25.03.02.02-03""

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.7.3.1.2 P147 L1 # 52

Mei, Richard

Comment Type TR Comment Status A

In reading the draft it appears that technically there are no normative requirements for alien crosstalk. The equation is normative but not the constants used in the equation.

SuggestedRemedy

Change the sentence before equation equation 55-25 to  
The PS ANEXT\_constant shall be specified by the following equation

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment#201

Cl 55 SC 55.7.3.1.2 P147 L32 # 53

Mei, Richard

Comment Type TR Comment Status A

In Table 55-12 Calculated PS ANEXT Constants only Category 6 is included. Augmented Category 6 should be included as well.

SuggestedRemedy

Add a row in Table 55-12 with the following values

100 / 60 / 61 / 33.8

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Insert table as per cmt53\_table.pdf

Cl 55 SC 55.7.3.2.2 P149 L18 # 54

Mei, Richard

Comment Type TR Comment Status A

In Table 55-13 Calculated PS AELFEXT Constants only Category 6 is included. Augmented Category 6 should be included as well.

SuggestedRemedy

Add a row in Table 55-12 with the following values

100 / 37 / 41 / 33.8

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment #53

Cl 55 SC 55.7.2 P141 L52 # 55

Adriaenssens, Luc

Comment Type TR Comment Status A

The installed base of Class E / Cat-6 cabling is what it is. We can not assure that new requirements are met without potential mitigation. This should be clarified in Table 55-10.

SuggestedRemedy

Add this note to Table 55-11 Cabling Types and Distances to all Class E/Category 6 cable types:

Class E/Category 6 specifications do not cover channel performance requirements from 250 to 500 MHz and do not include Alien Crosstalk requirements. ISO/IEC TR 2470 and TIA TSB-155 are informative documents for the characterization of installations to verify these additional parameters. These documents include mitigation steps ranging from cable/cord unbundling to component replacement. These mitigation steps may be required to support the distances stated above.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

resolved by comment#202:

Cl 55 SC 55.7.3.1.2 P147 L1 # 56

Adriaenssens, Luc

Comment Type TR Comment Status A

The PSANEXT constant should be normative.

SuggestedRemedy

Change ""The PSANEXT\_constant is defined by"" to ""The PSANEXT\_constant shall be defined by"".

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by comment#201

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.7.3.2.2 P148 L49 # 57  
 Adriaenssens, Luc  
 Comment Type TR Comment Status A  
 The PSAELFEXT constant should be normative.  
 SuggestedRemedy  
 Change ""The PSANEXT\_constant is defined by"" to ""The PSANEXT\_constant shall be defined by"".  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Resolved by comment#201

Cl 55 SC 55.7.3.1.2 P147 L39 # 58  
 Adriaenssens, Luc  
 Comment Type TR Comment Status A  
 Part of a long-debated compromise on cabling was that both cat-6 and cat-6A would be referenced on equal footing. We need to include and reference Cat-6A just as we reference cat-6 in Table 55-12.  
 SuggestedRemedy  
 Add a row with the following entries to Table 55-12:  
 distance IL ANEXT ANEXTavg  
 100m 33.8 60 61  
 Note that the order of the rows has been changed to list IL as the second entry. Since inputs are usually listed before results/outputs, this should make it clearer to the casual reader that because the IL of cat-6A is less, the ANEXT and ANEXTavg is lower.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Resolved by comment #53

Cl 55 SC 55.7.3.2.2 P149 L25 # 59  
 Adriaenssens, Luc  
 Comment Type TR Comment Status A  
 Part of a long-debated compromise on cabling was that both cat-6 and cat-6A would be referenced on equal footing. We need to include and reference Cat-6A just as we reference cat-6 in Table 55-13.  
 SuggestedRemedy  
 Add a row with the following entries to Table 55-13:  
 distance IL AELFEXT AELFEXTavg  
 100m 33.8 37 41  
 Note that the order of the rows has been changed to list IL as the second entry. Since inputs are usually listed before results/outputs, this should make it clearer to the casual reader that because the IL of cat-6A is less, the AELFEXT and AELFEXTavg is lower.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Resolved by comment #53

Cl 00 SC 00 P1 L44 # 60  
 Dawe, Piers  
 Comment Type E Comment Status A  
 Confusion about whether 10GBASE-T has a PMD or a physical medium dependent (PMD) sublayer.  
 SuggestedRemedy  
 If it doesn't, change 'physical medium dependent (PMD) sublayer' here to 'physical medium attachment (PMA) sublayer'. In 55.7.2.4.2 and 55.7.2.4.5, change PMDs to PMAs (note similar bugs in e.g. 40.7.1 and 40.7.3.2.2 if interested). Consider revising figure 28-2. Or, if AN is a PMD sublayer, make this explicit.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 On page 1, line 44, change PMD to PMA.  
 Also see response to comment 160  
 No changes to figure 28-2

IEEE P802.3an Draft 2.2 Comments

Cl 28 SC 28.5 P26 L59 # 61

Dawe, Piers

Comment Type E Comment Status R

Unnecessary capitals in 'the IEEE Standards World Wide Web site'. 'World Wide Web' is not a proper noun - just because there is only one WWW is not a reason for the capitals: e.g. the sun and the moon. In fact, the whole phrase is unnecessary - if the URL contains 'standards.ieee' it will be obvious; if it doesn't, it won't be true.

SuggestedRemedy

Delete 'the IEEE Standards World Wide Web site'. Similarly for the other clauses' PICS.

Proposed Response Response Status C

REJECT.

The capitalization is following directions from IEEE editorial staff

Cl 28 SC 28.2.3.4.14 P21 L15 # 62

Dawe, Piers

Comment Type E Comment Status R

Don't change 'Next Page able' to 'Next Page Able' for consistency with the existing clause 28 when that clause says 'Next Page able' at this point! I hope that 802.3am will stay with lower case able (except where 'ability' would have been better anyway!)

SuggestedRemedy

Change 'Able' back to 'able', twice.

Proposed Response Response Status C

REJECT.

For consistency with Rev am

Cl 28 SC 28.2.1.1.3 P18 L45 # 63

Dawe, Piers

Comment Type E Comment Status A

Wrong subclause number

SuggestedRemedy

28.2.1.2.3. Also change renubmer to renumber above.

Proposed Response Response Status C

ACCEPT.

Cl 28 SC 28.2.3.4.13 P21 L1 # 64

Dawe, Piers

Comment Type E Comment Status A

This new subclause would follow the existing 28.2.3.4.10 Unformatted Code Field. You've added one additional subclause so this one would be 28.2.3.4.12.

SuggestedRemedy

Change this to 28.2.3.4.12, add a rubric explaining the old/new subclause numbers. Similarly with 28.2.3.4.14 Use of Next Pages (former 28.2.3.4.11, now 28.2.3.4.13).

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Make changes after confirming correctness of new numbers

Cl 30 SC 30.12.1 P35 L16 # 65

Dawe, Piers

Comment Type E Comment Status A

Spelling for clause 30.

SuggestedRemedy

behaviours (and BEHAVIOUR below, four times).

Proposed Response Response Status C

ACCEPT.

The editor was just making sure that the English speaking members were awake. :-)

IEEE P802.3an Draft 2.2 Comments

Cl 30 SC 30.12.1.1.1 P35 L30 # 66

Dawe, Piers

Comment Type T Comment Status A

Ambiguous. This draft tells me the resolution and the offset for mapping dB to a hex number, but it doesn't actually say whether each step of the register is worth 0.1 dB, or if the register increments in steps of 256 to use up its range, or what. There are 127 steps each side of 0 dB, and 65536 possible settings of the register. Same issue with the following subclauses, and 45.2.1.63 and following subclauses. Are you expecting finer, non-standardised resolution?

SuggestedRemedy

Either change 8000 to 80, or precisely define the gain coefficient between dB and register content, or give a cross-reference to wherever this is properly defined. Similarly for 45.2.1.63 and following.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Resolve issue in clause 45 where mapping from hex to dB number should be specified.

See response to comment 81 which attempts to resolve the ambiguity identified by this comment.

Cl 30 SC 30.12.1.1.1 P35 L31 # 67

Dawe, Piers

Comment Type ER Comment Status A

Clause 30 doesn't use C number notation and should not start now. Precedent in e.g. 30.8.1.1.8. Reason for objecting to this notation: the reader is not warned that the document jumps from the usual English/simple engineering language to a different language for just one word and then jumps back again. I would read e.g. 0x00 as zero, don't care, zero, zero, so it's ambiguous. And it's unnecessary - does not make the document significantly shorter, clearer or more accessible.

SuggestedRemedy

Change '0x8000' style notation to 'hexadecimal value 8000' style throughout clause 30. I believe you should do similarly throughout clause 45 also, which is not 802.3an's private property but is shared. Precedent in e.g. 45.2.2.12.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Remove reference to hex representation in clause 30 and point to appropriate place in clause 45 and clear ambiguity if any in clause 45.

Also take out sentence starting on line 30.

Cl 30 SC 30.12.1.1.1 P35 L29 # 68

Dawe, Piers

Comment Type T Comment Status A

I don't like the ambiguity of this 'will be' language. Are you stating a present or time-independent situation, predicting, recommending, or requiring, and/or does the statement become true after another event (not specified here)? Do we have to use this form of language to comply with the style of another document?

SuggestedRemedy

Find out if we have to use 'will' like this in clause 30 to follow someone else's style. If not, change to 'is' each time in clause 30.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Change to "is" for specific instance identified and in changes to clause 30 that are due to this project

Cl 45 SC 45.2.7.10.4 P66 L13 # 69

Dawe, Piers

Comment Type E Comment Status A

Bit 7.312.12

SuggestedRemedy

Bit 7.32.12

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.6 P45 L21 # 70

Dawe, Piers

Comment Type TR Comment Status A

In table 45-7 in this draft, 1000 is shown as 10GBASE-KR PMA/PMD type. In P802.3aq D2.2 and P802.3ap D2.0, it is shown as 10GBASE-LRM PMA/PMD type, and 10GBASE-KR is 1011. It would be very bad to have amendments contradicting each other!

SuggestedRemedy

Change '10GBASE-KR PMA/PMD type' to 'Reserved', 'Reserved for 10GBASE-LRM PMA/PMD type' or '10GBASE-LRM PMA/PMD type'

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Change to be consistent with .3aq and .3ap

See response to comment 210

IEEE P802.3an Draft 2.2 Comments

Cl 45 SC 45.2.1.59.1 P47 L51 # 71

Dawe, Piers

Comment Type E Comment Status A

This is harder to read than it needs be. I know we have to say 'When read as a zero, bit X indicates that bit Z means ...' to distinguish between X and Z. Here, Z is a rather long list, and the careful reader wants to quickly learn if this is the identical list to the list Y affected by X being one. Writing it all out again makes this hard to do (and makes more work for editors and maintainers). This can be much simplified without ambiguity because X is singular and Z=Y is not.

SuggestedRemedy

Change the second occurrence of 'bits 1.130.11:0, 1.131.15:10, 1.145.14:8, 1.146.14:8 and 1.146.6:0 which are established during the startup protocol' to 'these bits'.

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.59.1 P47 L47 # 72

Dawe, Piers

Comment Type E Comment Status A

While writing another comment, I noticed 'logic one' ... 'logic zero'. Clause 45's style is not to do this - just 'one' ... 'zero' every time (and clause 28 does the opposite!) This comment is out of scope, but anyway...

SuggestedRemedy

At some stage before/at opening of sponsor ballot, change all 'logic one' ... 'logic zero' in clause 45 to 'one' ... 'zero'.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Change edited sections of 45 to use the "one" and "zero" terms for greater consistency with Clause 45.

Clause 28 will not be modified to match this because it uses "logic zero" and "logic one"

Cl 45 SC 45.2.1.61 P49 L39 # 73

Dawe, Piers

Comment Type E Comment Status R

Editorials

SuggestedRemedy

is set to one, bits ...  
The assignment of bits ... is

Proposed Response Response Status C

REJECT.

See comment 132

Cl 45 SC 45.2.1.60.5 P49 L19 # 74

Dawe, Piers

Comment Type T Comment Status A

Too little information. How is clause 45 supposed to know this? What is the mapping between A B C D and 00 01 10 11? By a string search I found 55.4.4, which refers to 40.4.4.1 and 40.4.4.2, but they don't address the second point either.

SuggestedRemedy

Add a cross-reference to 55.4.4. Define the mapping.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Modify clause 45 to reference to clause 55.4.4.  
Scope of pair swaps allowed is now defined in 55.4.4.



IEEE P802.3an Draft 2.2 Comments

Cl 45 SC 45.2.1.63 P51 L5 # 75

Dawe, Piers

Comment Type T Comment Status A

I don't like the ambiguity of this 'will be' language. Are you stating a present or time-independent situation, predicting, recommending, or requiring, and/or does the statement become true after another event (not specified here)?

SuggestedRemedy

Change to 'is' in this instance. Scrub the clause and change each 'will be' to 'is' or 'shall be' as appropriate, change 'will contain' to 'contains' or 'shall contain', and so on. In some cases like 'NOTE - This operation will interrupt data communication.' we really are predicting, so the 'will' could be left alone

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Change "will be" to "is" in clauses 45.2.1.63 thru 45.2.1.74.

Change "will contain" to "contains" in clauses 45.2.1.67 thru 45.2.1.74

Cl 45 SC 45.5.8 P69 L4 # 76

Dawe, Piers

Comment Type E Comment Status A

Wrong subclause number?

SuggestedRemedy

Change 45.5.8 to 45.5.1, renumber following. Note apparent bug in 802.3am, which has 45.5.3.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

A paragraph number problem does exist. Will need to coordinate with .3 editors to correct properly.

Cl 45 SC 45.5.8 P69 L33 # 77

Dawe, Piers

Comment Type E Comment Status A

Base document isn't 802.3ae, it's 802.3am

SuggestedRemedy

Rubric should be 'Change 802.3-2005 to 802.3an-200x ...' Similarly at line 26 above.

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.5.8 P69 L46 # 78

Dawe, Piers

Comment Type E Comment Status A

Blank line?

SuggestedRemedy

Remove

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.5.10.3 P70 L13 # 79

Dawe, Piers

Comment Type E Comment Status A

followss (and several similar bugss)

SuggestedRemedy

follows , and so on.

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.61 P50 L7 # 80

Dawe, Piers

Comment Type E Comment Status A

Although it won't make the document any shorter, this table would look nicer if the second column were widened, as in table 52-2.

SuggestedRemedy

Per comment.

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 45 SC 45.2.1.63 P51 L5 # 81

Dawe, Piers

Comment Type T Comment Status R

Ambiguous. (This is similar to a comment against 30.12.1.1.1.) This draft tells me the resolution and the offset for mapping dB to a hex number, but it doesn't actually say whether each step of the register is worth 0.1 dB, or if the register increments in steps of 256 to use up its range, or what. There are 127 steps each side of 0 dB, and 65536 possible settings of the register. Same issue with the following subclauses, and 30.12.1.1.1 and following subclauses. Are you expecting finer, non-standardised resolution?

SuggestedRemedy

Either change 8000 to 80, or precisely define the gain coefficient between dB and register content, or give a cross-reference to wherever this is properly defined. Similarly for 30.12.1.1.1 and following.

Proposed Response Response Status C

REJECT.

Registers are 16bits and contents are in offset two's complement notation. The resulting values are properly sign extended 16 bit values that correctly represent the values wrt 0dB. The fact that we don't use all 16bits is irrelevant.

Cl 45 SC 45.2.7.1.2 P58 L48 # 82

Dawe, Piers

Comment Type T Comment Status A

If the device is advertising something, wouldn't it do so in a status register, not a control register? Who (what) is controlling this bit; the station management, the far PHY, the far station management? Also, not sure that such anthropomorphic language as 'wishes' is appropriate.

SuggestedRemedy

Change to something like 'When bit 7.0.13 is set to one, extended next page(s) can be exchanged if the device(s) is/are capable of this.'

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Change to "When bit 7.0.13 is set to one, extended next page(s) are exchanged if the device(s) is/are capable."

Cl 45 SC 45.2.7.6 P62 L7 # 83

Dawe, Piers

Comment Type E Comment Status A

A Capital or three too many - you are sometimes capitalizing Next Page but very rarely extended (unless it's the beginning of a sentence, table cell or similar). It looks like the underlying problem is table 45-120 where everything in the Name column gets a capital, unlike most tables in clause 45.

SuggestedRemedy

Change 'Extended Next Page (7.16.12)' to 'extended next page ability (7.16.12) here and similarly at line 35 (correct the bit number too).

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 45 SC 45.2.7.2.6 P61 L24 # 84

Dawe, Piers

Comment Type T Comment Status A

Ambiguous because it is not clear what controls this bit. The link status bit cannot 'be set' (by management) to anything because it's read only. Also, the description is not accurate for a latched bit. And is this subclause meant to be applicable to other port types? If not, should it mention 'PMD'? Grammar of 'will cleared'.  
I hope you can write something a bit shorter than my attempt below!  
(Also, I couldn't find a clear statement of what 'self clearing' means.)  
Compare the language of e.g. (the not latched)  
45.2.3.11.1 10GBASE-R receive link status (3.32.12)  
When read as a one, bit 3.32.12 indicates that the PCS is in a fully operational state. When read as a zero, bit 3.32.12 indicates that the PCS is not fully operational. ...

SuggestedRemedy

Either: follow the style of the existing clause 45:  
'When read as a one, bit 7.1.2 indicates that the PMA/PMD has determined that a valid link has been established and maintained. When read as a zero, bit 7.1.2 indicates that the PMA/PMD has not determined that a valid link has been established, or has determined that the link is or has been invalid. Bit 7.1.2 is one when the variable link\_status = OK and is zero otherwise. Bit 7.1.2 shall be cleared to zero upon AN reset. It shall be implemented with a latching function, such that the occurrence of a link failure condition will cause/causes this bit to become cleared and remain cleared until it is read via the management interface.' (The last sentence could be shortened as this latching is already described at the beginning of 45.2.)  
Or, because both current text and the remedy above are unclear about what controls this bit (MMD or management?),  
'When read as a one, bit 7.1.2 indicates that the PMA/PMD has determined that a valid link has been established and maintained. When read as a zero, bit 7.1.2 indicates that the PMA/PMD has not determined that a valid link has been established, or has determined that the link is or has been invalid. The MMD [or, the PMA] controls this bit, and shall set/sets it to one when the variable link\_status = OK and clear it to zero otherwise. [assuming that link\_status follows the same latching rules] The MMD shall clear bit 7.1.2 to zero upon AN reset. This bit shall be implemented with a latching function, such that the occurrence of a link failure condition causes it to be cleared and remain cleared until it is read via the management interface.'

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Change to:

"When read as a logic one, bit 7.1.2 indicates that the PMA/PMD has determined that a valid link has been established. Bit 7.1.2 is set to one when the variable link\_status = OK and is cleared to zero when the variable link\_status = Fail. The Link Status bit shall be implemented with a latching function, such that the occurrence of a link\_status = Fail condition causes the Link Status bit to become cleared and remain cleared until it is read via the management interface. Bit 7.1.2 shall be cleared upon AN reset. When read as a logic zero, bit 7.1.2 indicates that the link is not valid. This status indication is intended to support the management attribute defined in 30.5.1.1.4, aMediaAvailable.

Variable "Fail" needs to be changed to "FAIL" here and elsewhere

Cl 45 SC 45.2.7.2.6 P61 L27 # 85

Dawe, Piers

Comment Type T Comment Status A

Will it be an inconvenience that while the receive link status bits are mostly RO/LL, this AN link status is RO/LL/SC?

SuggestedRemedy

?

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Remove SC from bit 7.1.4 to match 1.4 in register 1.

remove SC from bit 7.1.2 as SC is undefined.

Remove SC from footnote on Table 45-119

Cl 45 SC 45.2.7.2.6 P61 L26 # 86

Dawe, Piers

Comment Type E Comment Status A

Thank you for changing 'up' to 'upon'. But you didn't take the capital out of 'Reset'. Look at the rest of 28 and 45, both base document and 802.3an; this is the odd one out.

SuggestedRemedy

Change 'Reset' to 'reset'.

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.7.3 P61 L40 # 87

Dawe, Piers

Comment Type E Comment Status A

Missing full stop

SuggestedRemedy

Add full stop. Also 55.3.4

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 45 SC 45.2.7.11.5 P68 L6 # 88  
 Dawe, Piers  
 Comment Type E Comment Status A  
 capable  
 SuggestedRemedy  
 capability  
 Proposed Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.7.11.5 P68 L10 # 89  
 Dawe, Piers  
 Comment Type T Comment Status A  
 Bad use of 'support'. It's commonplace to support something one does not actually do: 'I support the London marathon'. Editorial: missing 'the', and where else could I find a 10GBASE-T signaling specification? See e.g. 45.2.1.4.2, 45.2.1.4.3 for precedent.  
 SuggestedRemedy  
 Change to 'When read as a logic one, bit 7.33.11 indicates that the link partner is able to operate as 10GBASE-T. When read as a zero, bit 7.33.11 indicates that the link partner is not able to operate as 10GBASE-T.'  
 Proposed Response Response Status C  
 ACCEPT.

Cl 55 SC 55.1.3.2 P78 L58 # 90  
 Dawe, Piers  
 Comment Type E Comment Status A cleanup  
 Dead link: one of at least several  
 SuggestedRemedy  
 Activate  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Will try to make the links active but I don't know how to do this. If you can help me, I might be able to do it. Otherwise I will defer this to the IEEE editorial staff.

Cl 55 SC 55.3.4 P101 L8 # 91  
 Dawe, Piers  
 Comment Type E Comment Status A cleanup  
 #CrossRef# Table55-8  
 SuggestedRemedy  
 Search the document for #CrossRef# and make the links (this would fix the missing space here, too).  
 Proposed Response Response Status C  
 ACCEPT.

Cl 55 SC 55.4.2.4 P112 L58 # 92  
 Dawe, Piers  
 Comment Type T Comment Status A cleanup  
 'to any arbitrary manner': if it's true, change to 'in any arbitrary manner'. But the changed 55.4.4 contradicts it; only certain swaps are to be corrected.  
 SuggestedRemedy  
 Revise to bring in line with 55.4.4.  
 Proposed Response Response Status C  
 ACCEPT.  
 Will put pointer to where the specified swaps are identified.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.8 P151 L3 # 93

Dawe, Piers

Comment Type T Comment Status R

This statement 'The link topology requires a crossover function in a DTE-to-DTE connection.' contradicts 55.4.4 (with its changed text).

SuggestedRemedy

Delete the sentence, or replace it with one saying that although 10GBASE-T may work without a crossover function, other PHYs may not so it's recommended.

Proposed Response Response Status C

REJECT.  
The text in the document says this:

55.8 says:  
The link topology requires a crossover function in a DTE-to-DTE connection. See 55.4.4 for a description of the automatic MDI/MDI-X configuration.

55.4.4 says:  
Automatic MDI/MDI-X configuration is intended to eliminate the need for crossover cables between similar devices. Implementation of an automatic MDI/MDI-X configuration is required for 10GBASE-T devices. The automatic configuration method used shall comply with 40.4.4.1 and 40.4.4.2 noting that the function is mandatory.

I don't see how they contradict each other. Crossover is required for autonegotiation. The 10GBASE-T handles it internally without the use of cables.

The crossover function could be in the cable or in the PHY. The specific wording used has been around and will not be changed.

Cl 55 SC 55.3.2.2.17 P97 L25 # 94

Dawe, Piers

Comment Type E Comment Status A clarification

Does the 50x notation relate to the 0x notation ;) ?

SuggestedRemedy

Replace the x's used as multiplication signs with the proper multiplication cross. It would be good to replace the \* used as multiplication at line 36 (and ordinary multiplication in 55.3.2.2.18) also, because \* may be properly used as convolution.

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.1.3.2 P78 L59 # 95

Dawe, Piers

Comment Type ER Comment Status A clarification

Arcane and unnecessary notation that looks like a misprint. I think you've changed (-16,16] to [-16, 16). That's not going to help many (most) readers! It would help to understand this and write a comment if I could find a subclause called THP precoding or similar.

SuggestedRemedy

If you mean from -15 to 16, or from -16 to 15, say so in words: 'from 16 to 15'. If you mean from -15 to 15, or the odd numbers from -15 to 15, say so words. If the 'quasi-continuous discrete time value' (is that continuous or discrete??) can take any fractional value, we can't really tell or care if one end point is included or not, at least in the overview - just say 'from -16 to 16'. Get rid of this notation from the whole document.

Proposed Response Response Status W

ACCEPT.

Cl 55 SC 55.3.2.2.18 P98 L40 # 96

Dawe, Piers

Comment Type TR Comment Status A clarification

Arcane and unnecessary notation 'interval [0, 16]' that looks like a misprint, not explained, not acceptable in a normative algorithm, and there's no excuse for such a performance if the variables here are integers. Is your 'intmod' not the common modulo function anyway?

SuggestedRemedy

If you mean from 0 to 15, say so in words: 'range from 0 to 15' or 'range from 0 to 15 inclusive'. Get rid of this notation from the whole document.

Proposed Response Response Status W

ACCEPT.

Cl 55 SC 55.3.4 P101 L1 # 97

Dawe, Piers

Comment Type E Comment Status A cleanup

implementor

SuggestedRemedy

implementer

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.11 P156 L10 # 98  
 Dawe, Piers  
 Comment Type T Comment Status R  
 I wasn't aware that 10GBASE-T uses, or can transport, overhead or stuff octets.  
 SuggestedRemedy  
 Consider deleting this sentence.  
 Proposed Response Response Status C  
 REJECT.  
 As part of PHY framing 10GBase-T does include overhead bits.

Cl 55 SC 55.4.2.5 P113 L20 # 99  
 Dawe, Piers  
 Comment Type E Comment Status A cleanup  
 expiration  
 SuggestedRemedy  
 expiry  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Will be made consistent with usage elsewhere. English expert opinion?

Cl 55 SC 55.4.2.5 P113 L20 # 100  
 Dawe, Piers  
 Comment Type E Comment Status A cleanup  
 These three figures 55-18 to 55-20 precede the text that introduces them (I thought they were orphans). Too many capitals. Some forced abbreviations.  
 SuggestedRemedy  
 Move the anchors so the figures follow the text that introduces them. Change titles to InfoField format, InfoField transition counter format, InfoField coefficient exchange format. Remove the unnecessary capitals within the figures, e.g. in Settings, Counter, Exchange. Spell out 'Exch' and 'Spcl', making the row taller as needed.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 99 SC 99 P1 L40 # 101  
 Dawe, Piers  
 Comment Type E Comment Status R  
 'this specifies ... that specifies' somehow doesn't read right.  
 SuggestedRemedy  
 Suggest changing the second 'specifies' to 'defines', 'provides' or 'is'.  
 Proposed Response Response Status C  
 REJECT.

Cl 99 SC 99 P1 L41 # 102  
 Dawe, Piers  
 Comment Type E Comment Status A  
 Missing space. Other similar cases e.g. in 55.4.5.1 '10ms' and so on, in 55.4.2.5.11 and 55.4.5.1 '10dB' and so on, 55.4.2.4 '50ns', 55.3.4 '33bit', 55.4.3.1 '2dB.'. Also cases like '200MHz' in unchanged text in 55.5.2.  
 SuggestedRemedy  
 100 space m and similarly. At some stage before/at opening of sponsor ballot, use string searches to scrub the document.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 99 SC 99 P2 L1 # 103  
 Dawe, Piers  
 Comment Type E Comment Status R  
 Several editorials on the common front matter.  
 SuggestedRemedy  
 Compare changes marked in P802.3aq D2.2 and comments against it.  
 Proposed Response Response Status C  
 REJECT.  
 Not clear which changes are being called for.  
 Please provide a specific list of changes.

IEEE P802.3an Draft 2.2 Comments

Cl 99 SC 99 P8 L13 # 104

Dawe, Piers

Comment Type E Comment Status A

For consistency with expected practice and other projects,

*SuggestedRemedy*

Please put the Greek letters in alphabetical order - swap gamma and epsilon.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Will make it consistent with other projects

Cl 99 SC 99 P12 L1 # 105

Dawe, Piers

Comment Type E Comment Status A

Is it usual to have a table of figures and a table of tables? Also, these tables show that a minority of figure and table captions may suffer from Gratuitous Capital Syndrome.

*SuggestedRemedy*

If you choose to keep the table of figures table of tables, please make the links work properly. At some stage before/at opening of sponsor ballot, review the use of capitals in e.g. fig 55-1 (compare other 10G clauses), 55-6 to 55-10, 55-12, 55-18 to 55-21, table 55-1, tables 55-12 and 55-13.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Table of tables and Table of Figures will be removed. Other items will be addressed in subsequent drafts.

Cl 99 SC 99 P4 L13 # 106

Dawe, Piers

Comment Type E Comment Status R

'the IEEE World Wide Web site'. First, if a 'site' is a synonym for a server (or a server name), the IEEE has more than one. Then, 'World Wide Web' is not a proper noun - just because there is only one WWW is not a reason for the capitals: e.g. the sun and the moon.

*SuggestedRemedy*

Change 'the IEEE World Wide Web site' to 'the world wide web' (or 'the IEEE Standards world wide web site').

Proposed Response Response Status C

REJECT.

The name and the formatting are according to the recommendations of the IEEE editor

Cl 99 SC 99 P10 L1 # 107

Dawe, Piers

Comment Type E Comment Status A

Capitals

*SuggestedRemedy*

Table of contents . similarly Table of tables, Table of figures

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Table of Tables and table of figures will be removed as per discussion with Bob Grow and Michelle Turner. As of others, we will follow the IEEE guidelines or precedents where appropriate.

Cl A SC A P16 L13 # 108

Dawe, Piers

Comment Type E Comment Status A

Incomplete reference

*SuggestedRemedy*

Needs a place name as well as a state.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

State is already listed; Town listed will be Cambridge - based in input from commenter

IEEE P802.3an Draft 2.2 Comments

CI 55 SC 55.7 P L # 109

Baumer, Howard

Comment Type TR Comment Status A

The cabling specification is much, much cleaner and way more understandable now, however, I believe there is a big hole that would allow a cable to pass the compliance test yet not work in the system. Here is how:

- 1) 55.7.2.1 specifies any channel SHALL meet the given insertion loss equation, 55-11. Equation 55-11 has to be met by any length cable, which means even a cable less than 100m could just barely meet this limit.
- 2) 55.7.3.1.1 specifies that any channel SHALL meet the given PS ANEXT equation, 55-23, 55-24. This equation is based on the length of the cable where shorter cables are allowed to have more PS ANEXT.
- 3) 55.7.3.1.1 specifies that any channel SHALL meet the given PS AELFEXT equation, 55-28, 55-29. This equation is based on the length of the cable where shorter cables are allowed to have more PS AELFEXT.

Since there is no ""SHALL"" limiting the loss of cables shorter than 100m these cables could have PS AFEXT, PS AELFEXT and IL combinations that would not work.

SuggestedRemedy

What is needed is to have the IL be dependent upon the length where it get's tighter by an appropriate amount that compensates for the amount the PS AFEXT & PS AELFEXT are loosened up.

A second approach would be to use the measured IL for the length adjusted PS AFEXT & PS AELFEXT instead of an equation base IL.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Replace text: L12, P147, 57.3.1.2 with-  
For measurement based calculations (e.g., field testing), IL(250MHz) shall be the actual measured insertion loss of the link under test at 250 MHz.

Add PICS for the Shall added.

CI 55 SC 55.5.4.3 P192 L14 # 110

Baumer, Howard

Comment Type TR Comment Status R pileon

This is a pile on of comment #20693

SuggestedRemedy

Proposed Response Response Status W

REJECT.

Task force stands by original response to #20693  
Also comment was not open since it was a comment on D2.0 and received no pile on in prior recirculations

CI 55 SC 55.5.3.4 P190 L46 # 111

Baumer, Howard

Comment Type TR Comment Status R pileon

This is a pile on of comment 20696

SuggestedRemedy

Proposed Response Response Status W

REJECT.

The task force has previously decided to reject requiring a zero at 400MHz.

In the recirculation of D2.1 there was no pile on to keep this comment alive.

It is maintained in this database for reference only.

See response to 20696

CI 55 SC 55.3.4 P101 L8 # 112

McConnell, Mike

Comment Type E Comment Status A cleanup

Cross reference to Table 55-8 should be changed to 55-9.

Same problem in Figure 55-13

SuggestedRemedy

change Table 55-8 to Table 55-9 on page 101 lines 8 & 33

Proposed Response Response Status C

ACCEPT.



IEEE P802.3an Draft 2.2 Comments

Cl 99 SC P10 L13 # 113

McClellan, Brett

Comment Type E Comment Status A

the TOC entry for Clause 28 doesn't match the Clause 28 title

SuggestedRemedy

change: ""28. Physical Layer link signaling for 10 Mb/s, 100 Mb/s, and 1000 Mb/s Auto-Negotiation on twisted pair""

to: ""28. Physical Layer link signaling for Auto-Negotiation on twisted pair""

also link 18 change: ""28.5 Protocol Implementation Conformance Statement (PICS) proforma for Clause 28, Physical Layer Link signaling for 10 Mb/s, 100 Mb/s, and 1000 Mb/s Auto-Negotiation on twisted pair26""  
to: ""28.5 Protocol Implementation Conformance Statement (PICS) proforma for Clause 28, Physical Layer Link signaling for Auto-Negotiation on twisted pair.....26""

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Table of content entries can be abbreviated as per IEEE formatting guidelines.

Cl 99 SC P10 L42 # 114

McClellan, Brett

Comment Type E Comment Status A

page number ""69"" should be at right of table

SuggestedRemedy

change as indicated

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

This table is automatically generated. This fix will be made prior to publication.

Cl 45 SC 45.2.1 P45 L1 # 115

McClellan, Brett

Comment Type E Comment Status A

""Change or add rows to Table 45-3 as follows (continued)""  
This not should appear prior to the table, or the text should be changed to reflect that the table appears prior to the not

SuggestedRemedy

change text as indicated

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.3 P52 L47 # 116

McClellan, Brett

Comment Type E Comment Status A

""45.2.3 PCS registers""

This header looks akward because it comes before Table 45-53 from the PMA registers section.

SuggestedRemedy

Move the header after Table 45-53

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.7.1.3 P59 L38 # 117

McClellan, Brett

Comment Type E Comment Status A

""unless the PHY reports via bit 7.1.3 or 1.3 (if present)""  
references a bit from Clause 22, but doesn't explicitly call out that it is located in Clause 22.

SuggestedRemedy

change text:  
""The default value of bit 7.0.12 is one, unless the PHY reports via bit 7.1.3 or 1.3 (if present)""  
to:  
""The default value of bit 7.0.12 is one, unless the PHY reports via bit 7.1.3 or 1.3 if present(see 22.4.2.12)""

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.5.5 P115 L6 # 118

McClellan, Brett

Comment Type E Comment Status A

Line break in ""Reserved<7:6>"" is akward.

cleanup

SuggestedRemedy

change:  
""Reserved<7:6>""  
to:  
""Reserved<7:6>""

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.6.2 P139 L18 # 119

McClellan, Brett

Comment Type E Comment Status A

typo: ""or both link partners do no""  
should be: ""or both link partners do not""

SuggestedRemedy  
change text as indicated

Proposed Response Response Status C  
ACCEPT.

Cl 99 SC P1 L38 # 120

McClellan, Brett

Comment Type T Comment Status A

This amendment specifies a new PCS and PMA, not a PMD.

SuggestedRemedy  
Change text:  
""This amendment to IEEE Std 802.3-2005 specifies a new physical medium dependent sublayer interface for 10 Gb/s Ethernet.""  
to:  
""This amendment to IEEE Std 802.3-2005 specifies new physical coding sublayer and physical medium attachment sublayer interfaces for 10 Gb/s Ethernet.""  
Also change keywords on line 44-45 from:  
""physical medium dependent (PMD) sublayer""  
to  
""physical coding sublayer (PCS), physical medium attachment (PMA) sublayer""

Proposed Response Response Status C  
ACCEPT IN PRINCIPLE.

Change to:  
"This amendment to IEEE Std 802.3-2005 specifies a new physical coding sublayer and a new physical medium attachment sublayer interface for 10 Gb/s Ethernet."

Also change keywords on line 44-45 from:  
""physical medium dependent (PMD) sublayer""  
to  
""physical coding sublayer (PCS), physical medium attachment (PMA) sublayer""

Cl 45 SC 45.2.7.10 P65 L23 # 121

McClellan, Brett

Comment Type T Comment Status A

""1 = Link partner requested to reset PMA Training PRBS every frame 0 = Link partner requested to run PMA Training PRBS continuously""  
The description is ambiguous as to who made the request. Can we change it to something like:  
""1 = Local Device requests that Link Partner reset PMA Training PRBS every frame 0 = Local Device requests that Link Partner run PMA Training PRBS continuously""

SuggestedRemedy  
change text as indicated

Proposed Response Response Status C  
ACCEPT.

Cl 45 SC 45.2.7.11 P67 L15 # 122

McClellan, Brett

Comment Type T Comment Status A

""1 = Local device resuested to reset PMA Training PRBS every frame 0 = Local device requested to run PMA Training PRBS continuously""  
The description is ambiguous as to who made the request. Can we change it to something like:  
""1 = Link Partner requests that Local Device reset PMA Training PRBS every frame 0 = Link Partner requests that Local Device run PMA Training PRBS continuously""

SuggestedRemedy  
change text as indicated

Proposed Response Response Status C  
ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.3.6.2 P106 L21 # 123

McClellan, Brett

Comment Type T Comment Status A counter

As a comment resolution on draft 2.0 (#663) ""lfer\_count"" was renamed ""lfer\_cnt"". However there is already a counter named ""lfer\_cnt"" defined in 55.3.5.2.5 with a different function. ""lfer\_cnt"" and ""lfer\_count"" came from Clause 49 counters ""ber\_cnt"" and ""ber\_count"" defined in 49.2.13.2.4 and 49.2.14.2. ""lfer\_cnt"" has a max value of 16 and is reset every 125us, while ""lfer\_count"" has a max value of 63 and is reset when register 3.33 is read.

SuggestedRemedy

Change name back to ""lfer\_count"". add text to clarify this counter function: ""The counter is reset when register 3.33 is read by management. Also change page 57, line 26 from ""lfer\_cnt"" to ""lfer\_count"".

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.4.5.1 P124 L10 # 124

McClellan, Brett

Comment Type T Comment Status A counter

To reduce variability in the startup timing and simplify the state machines, I propose using a fixed starting value of the transition counter. Currently the transition count is initiated with a value in the interval [2^9 2^10]. An initial value of 2^9 (~10ms) is sufficient for a transition announcement.

SuggestedRemedy

page 124 line 10 change: ""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 2^10 - 1 (~20ms).""  
to: ""In the PMA\_Training\_Init\_M state, the MASTER initiates the transition count for a PBO/THP increase with ""PBOTHP\_increase"" flag and a counter value of 2^9 (~10ms).""  
page 124 line 17 change: ""The MASTER initiates the transition to PMA\_Fine\_Adjust count with the ""trans\_to\_Fine\_Adjust"" flag and a minimum counter value of 2^9 (10ms) and maximum of 2^10 - 1 (~20ms).""  
to: ""The MASTER initiates the transition to PMA\_Fine\_Adjust count with the ""trans\_to\_Fine\_Adjust"" flag and a counter value of 2^9 (10ms).""  
page 127 lines 11,25 & 32 change: ""[2^9, 2^10)""  
to: ""2^9""

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.4.6.2 P127 L39 # 125

McClellan, Brett

Comment Type T Comment Status A startup

The transition condition of ""transition\_count >= 2^6"" from SLAVE\_HOLDOFF to STOP\_COUNTER\_PMA\_Training\_Init is not necessary. Eliminating this conditions allows the MASTER to perform slave detection up to the end of the transition count. If the SLAVE is not detected, the MASTER changes PBO settings. Otherwise the MASTER will train it's receiver on the SLAVE's training pattern and transitions to PMA\_Coeff\_Exch after loc\_SNR\_margin = OK. This elimination also simplifies the state machine

SuggestedRemedy

page 127 line 39 change: ""(slave\_detect = 1 \* transition\_count >= 2^6)""  
to: ""slave\_detect = 1""  
page 117 line 22 change: ""If the MASTER does not detect the SLAVE while transition\_count >= 2^6, ""  
to: ""If the MASTER does not detect the SLAVE, ""

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

CI 55 SC 55.4.6.1 P126 L23 # 126

McClellan, Brett

Comment Type T Comment Status A startup

The conditional transition from SILENT to PMA\_Training\_Init\_S is missing a '\*' operator:  
 ""config = SLAVE \*loc\_SNR\_margin = OK \* en\_slave\_tx = 1 \* master\_transition\_counter > 2^8 minwait\_timer\_done""  
 should be: ""config = SLAVE \*loc\_SNR\_margin = OK \* en\_slave\_tx = 1 \* master\_transition\_counter > 2^8 \* minwait\_timer\_done""  
 Additionally, the condition ""\* master\_transition\_counter > 2^8"" prevents the SLAVE from transitioning to PMA\_Training\_Init\_S unless the master is currently sending a transition count. At master\_init\_step=3 the SLAVE would never transition. Furthermore, this condition is redundant since the MASTER sets en\_slave\_tx = 0 for transition\_count < 2^8.

*SuggestedRemedy*

change: ""config = SLAVE \*loc\_SNR\_margin = OK \* en\_slave\_tx = 1 \* master\_transition\_counter > 2^8 minwait\_timer\_done""  
 to: ""config = SLAVE \*loc\_SNR\_margin = OK \* en\_slave\_tx = 1 \* minwait\_timer\_done""

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Make the change in the suggested remedy and, in addition:

In the PMA\_training\_init\_S state, take the setting of "Loc\_SNR\_margin" out.

Change the transition from that state to the PMA\_coeff\_exchange to be:  
 Loc\_Rcvr\_status=OK \* rem\_rcvr\_status=OK

In the PMA\_training\_init\_M state, take the setting of "slave\_detect" out

Change the transition from that state to the PMA\_coeff\_exchange to be the same as in the case of the Slave.

CI 55 SC 55.4.6.3 P128 L34 # 127

McClellan, Brett

Comment Type T Comment Status A startup

The variable ""training\_detect"" is undefined.  
 The state ""TRAINING"" is unnecessary, it adds no function to the state machine.

*SuggestedRemedy*

Eliminate state ""TRAINING"" and the transition condition from ""LINK\_DOWN"" to ""TRAINING"".  
 Use the remaining transition condition ""maxwait\_timer\_done \* PCS\_status = OK"" as the conditional transition from ""LINK\_DOWN"" to ""LINK\_UP.""

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Eliminate state ""TRAINING"" and the transition condition from ""LINK\_DOWN"" to ""TRAINING"".

Use the remaining transition condition ""minwait\_timer\_done \* PCS\_status = OK"" as the conditional transition from ""LINK\_DOWN"" to ""LINK\_UP.""

Editor - please note change from "maxwait" to "minwait"

CI 55 SC 55.12 P158 L34 # 128

McClellan, Brett

Comment Type T Comment Status A overlooked

D2.1 comments 156 and 168 were accepted but no changes were made in the PICs.

*SuggestedRemedy*

Make the changes described in D2.1 comments 156 and 168.

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 28 SC 28.2.1.1.1 P17 L51 # 129

Barrass, Hugh

Comment Type E Comment Status A

The definition for extended FLP bursts is plural whereas the definition for a fast link pulse burst is singular.

SuggestedRemedy  
Change

""Extended FLP Bursts contain 97 pulse positions with...""

to

""An extended FLP Burst contains 97 similarly defined pulse positions with...""

Proposed Response Response Status C

ACCEPT.

In addition to this change, the editor noticed and fixed Figure 28-14, on page 20.

The text underneath the bits needs to be adjusted, as it was cut and pasted from Figure 28-13.

Some of the terms were also adjusted to be consistent with capitalization so to avoid future comments.

Cl 30 SC 30.12.1.1.1 P35 L31 # 130

Barrass, Hugh

Comment Type E Comment Status A

The attribute should reference its corresponding Clause 45 register.

This comment also applies to 30.12.1.1.2; 30.12.1.1.3; and 30.12.1.1.4

SuggestedRemedy

Add the following after at the end of the subclause:

""If a Clause 45 MDIO Interface to the PMA/PMD is present, then this attribute will map to the 45.2.1.63 SNR operating margin channel A register (see 45.2.1.63).""

with analogous changes for the following 3 subclauses.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Change to read:

If a Clause 45 MDIO Interface to the PMA/PMD is present, then this attribute will map to the SNR operating margin channel A register (see 45.2.1.63).

Also apply to channels B, C and D.

Cl 45 SC 45.2.1.61 P49 L39 # 131

Barrass, Hugh

Comment Type E Comment Status A

Although it may seem obvious to those who know - I think it should be made clear that the power numbers quoted in this section refer to the reduction in power due to power backoff

SuggestedRemedy  
Change:

""The assignment of bits for the power backoff setting are shown in Table 45-51.""

to

""The assignment of bits for the reduction in power due to backoff setting are shown in Table 45-51.""

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.61 P49 L38 # 132

Barrass, Hugh

Comment Type E Comment Status A

The sentence doesn't seem to make sense unless it is reread multiple times, mostly because of the ""is set to one bits"" in the middle. Adding ""then"" to match the ""if"" would help.

SuggestedRemedy  
Change

""...is set to one bits...""

to

""...is set to one then bits...""

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 45 SC 45.2.1.63 P51 L6 # 133

Barrass, Hugh

Comment Type E Comment Status R

The last sentence ""Implementation of this register is optional."" is redundant because the implementation of MDIO accessible registers is optional.

The same comment applies to all of the subclauses from 45.2.1.63 to 45.2.1.74

SuggestedRemedy

Remove the sentence ""Implementation of this register is optional."" for all subclauses from 45.2.1.63 to 45.2.1.74

Proposed Response Response Status C

REJECT.

The optional aspect is the MDIO interface. It is possible then to have mandatory and optional registers within an MMD.

Cl 55 SC 55.3.2.2.17 P97 L26 # 134

Barrass, Hugh

Comment Type T Comment Status A auxbit

If the auxiliary bit is reserved for vendor use then its use should not be discussed in this document as it is out of scope.

SuggestedRemedy

Change

""If during Autonegotiation both transceivers agree on the use of this vendor specific bit it may be used as a PHY communication channel, otherwise the auxiliary bit is set to zero and ignored by the link partner.""

to

""The use of this bit for vendor specific communication is outside the scope of this document. For the purposes of this standard it is ignored by the link partner.""

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.4.2.5.10 P116 L32 # 135

Thaler, Pat

Comment Type E Comment Status A clarification

It would be more helpful to put the notation subclause before the field description subclauses. Also, the Valid<7> information only appears to apply to the transmitter settings octets and it should say that.

SuggestedRemedy

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.63 P51 L4 # 136

Thaler, Pat

Comment Type T Comment Status R

At some point between SNR of 0 dB and SNR of -12.7 dB, wouldn't one cease having an accuracy of 0.5 dB in the measurement?

SuggestedRemedy

Perhaps the accuracy should be required over only part of the range.

I didn't make this a TR because it is on text that hasn't changed and because it isn't likely to cause interoperability problems.

Proposed Response Response Status C

REJECT.

Set by prior motion in Task force. Will not cause interoperability problems.

Cl 55 SC 55.4.2.5 P113 L26 # 137

Thaler, Pat

Comment Type TR Comment Status A IF

In Figure 55-25, the message field dependent part of the infoField should just be marked Message dependent and not filled in. This would be the transition counter or coeff exch field and the reserv/vendor spcf or Coeff Field.

Also, there are messages sent that are not transition counter and not coefficient update - need to show the field format for that case - which bits are reserved and which are vendor specific.

SuggestedRemedy

See comment. For messages that are not transition counter and not coefficient update, perhaps the same bits that are vendor specific for transition counter should be vendor specific and the rest of the bits should be reserved.

Proposed Response Response Status W

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.4.2.5.3 P114 L33 # 138

Thaler, Pat

Comment Type TR Comment Status A IF

This subclause and the next subclause also need to reference figure 55-21 for their layout.

Also need to specify what the THP bits do when during Coefficient Exchange.

The field is present in all states, but the text only covers what it does in two states for the next and requested fields and three states for current. When the slave is in PMA\_Training\_Init\_S, what value does it send in the next and requested fields? Same as current or all zeros (reserved) or flip the valid bit and don't care about the rest of the field? Same question applies to master and slave in fine adjust.

SuggestedRemedy

Add the reference.

In all three clauses state that the THP bits are reserved (send as zero, ignore on receipt) when the field is valid but the PMA is not in PMA\_Training\_Init\_M. This is my preferred resolution though it would also be acceptable to say that their value was undefined in the other states

Specify what the fields do for the states where they are currently unspecified. The simplest alternative would be to make valid false and say the rest of the content is don't care.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

In all three clauses state that the THP bits are reserved (send as zero, ignore on receipt) when the field is valid but the PMA is not in PMA\_Training\_Init\_M.

Cl 55 SC 55.4.2.5.5 P114 L49 # 139

Thaler, Pat

Comment Type TR Comment Status A IF

Specification is too loose. Behavior of this field should be a requirement.

SuggestedRemedy

""should not"" should be ""shall not""

Also need ""shall be"" before ""ignored at the receiver.

Proposed Response Response Status W

ACCEPT.

Cl 55 SC 55.4.2.5.6 P115 L25 # 140

Thaler, Pat

Comment Type TR Comment Status A IF

What is to be sent as SNR margin when one doesn't know the current value? This will be the case for the transmitter when the slave has not yet been enabled. There may also be a period after transition when the value has not yet been determined.

SuggestedRemedy

Use one value (probably all 0's removing the -2.5 margin) to indicate that the SNR is unknown. Also, indicate that the lowest and highest values are used when the margin is better than the 5 dB or worse than -2.0 dB.

Proposed Response Response Status W

ACCEPT.

Will use specific suggested remedy.

Cl 55 SC 55.4.2.5.5 P115 L8 # 141

Thaler, Pat

Comment Type TR Comment Status A IF

What does slave send in en\_slave\_tx? Does it always send 1 because if it wasn't enabled it wouldn't be sending or should the bit be reserved in the slave since the master doesn't need it.

The text says that loc\_rcvr\_status is reflects the value of loc\_rcvr status, but the table contradicts that by making the state of loc\_rcvr\_status field tied to the other message bits. It is possible for instance that one could be in fine adjust and find that the receiver became not okay but the table says the bit has to be sent as one there. One could also be in a state where the other bits are all being sent as zero and the local receiver status is okay (e.g. one has transition to fine adjust and isn't ready to start sending transition to PCS test).

SuggestedRemedy

Current table implies slave sends en\_slave\_tx as 1 but please clarify in the text.

In the table loc\_rcvr\_status should be an X indicating that it can be sent as either 0 or 1 depending only on the local receiver status.

Proposed Response Response Status W

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

CI 55 SC 55.4.2.5.7 P115 L31 # 142

Thaler, Pat

Comment Type TR Comment Status A IF

Also applies to 55.4.2.5.8 - Don't describe two fields in one subclause. Each field should have its own separate description - even if they occupy the same bits in the infoField for different message formats.

This was requested last time in a comment that was accepted.

Also, the behavior of the coefficient exchange handshake bits is unspecified.

SuggestedRemedy

Break each field description into its own subclause. Finish the definition of the coefficient exchange handshake field or at least provide a reference to where its behavior is described.

Proposed Response Response Status W

ACCEPT.

CI 55 SC 55.4.2.5.7 P115 L37 # 143

Thaler, Pat

Comment Type TR Comment Status A IF

The use of the two ""reserved"" bits as validity bits is unnecessary and contradictory. The field format picture shows them as reserved so they shouldn't be used for a function. Validity bits are also unnecessary since the transition counter must always be valid if the message field bits indicate a transition.

SuggestedRemedy

Make the bits reserved and remove discussion of them as validity bits.

Proposed Response Response Status W

ACCEPT.

CI 55 SC 55.4.2.5.10 P116 L40 # 144

Thaler, Pat

Comment Type TR Comment Status A editornote

I don't know of any action items assigned by the group to do the study indicated by the editor's note. Since this has not been acted on, the draft is not ready to go to sponsor ballot.

Also, the editor's note does not follow normal IEEE 802.3 editorial practice. It should be in a box using the editor's note format, not buried in a sentence. I pointed this out on the last ballot but it has not been corrected.

SuggestedRemedy

If the study has been completed remove the note.

If the study is still underway, please respond with a statement about the task force's plan for completing the work including the correlation between that plan and the draft schedule. If the note is retained, put it in proper format.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Remove the note

Approved by voice vote

CI 55 SC 55.4.5 P121 L38 # 145

Thaler, Pat

Comment Type TR Comment Status A startup

There still seem to be issues with the PMA State Machines and training description. It isn't clear to what extent a transition is revokable.

SuggestedRemedy

Proposal will be brought to the interim meeting.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

See response to comments 161, 167 and additional comments on state machine.

Promised proposal was not available at the meeting.

Based on subsequent input from Pat Thaler, some changes to refine this were introduced via a motion and are captured in the text of the motion.



IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.4.5.1 P122 L33 # 146

Ungerboeck, Gottfried

Comment Type E Comment Status R startup

Who likes to say "decrease BPO", when "increase TXP" is meant?

SuggestedRemedy

Throughout the standard, replace the notion of PBO by TXP: TX power level relative to nominal transmit power. Then replace also nominal transmit power by maximum transmit power.

Proposed Response Response Status C

REJECT.

PBO is a very common term used in communication systems. Unnecessary change

Cl 55 SC 55.4.6.2 P127 L6 # 147

Ungerboeck, Gottfried

Comment Type T Comment Status R startup

According to the diagram on the left side of Figure 55-24, the SLAVE may start transmission \*anytime\* when the SLAVE has reached the ability to decode InfoFields and receives therein en\_slave\_tx = 1 and transition count >= 2^8. This requires that the MASTER devotes continuously resources to detect the start of transmission by the SLAVE, not knowing when SLAVE transmission will start. Moreover, there is an unnecessary dual use of the transition counter. The MASTER "threatens" the SLAVE with a TX power increase, if the SLAVE does not start sending before the announced increase in TX power would occur. Furthermore, if slave\_detect =1 and transition count >2^6, the transition count is stopped and the announced TX power increase is revoked. This is ugly and unnecessary because the SLAVE will most likely not be able to decode InfoFields shortly after starting SLAVE transmission. There are better ways to perform the functions required during this initial phase of PMA training.

SuggestedRemedy

Adopt the following principle. After the MASTER has adjusted its cancellers and is ready for receiving a signal from the SLAVE, it sends an \*invitation\* to the SLAVE to start transmission at a \*specified time\*. The invitation can be expressed by announcing in the InfoFields next TX power = current TX power with a non-zero transition count, i.e., announcing a \*no-power-increase\* at the time when the transition count expires. The MASTER can then focus its resources on detecting the start of SLAVE transmission at the specified time, which can be known at the MASTER to within +/- half of the maximum roundtrip propagation delay of a link. If the SLAVE signal is not detected, the invitation may be repeated at suitable time intervals until the dwelling time for one TX power level expires. The MASTER will then announce a transition to the next TX power level with next TXP > current TXP. The SLAVE cannot confuse this with an invitation to send and thus a collision between an increase of TX power and the SLAVE starting transmission is safely avoided.

Proposed Response Response Status C

REJECT.

The Master currently has a 5ms window in which to look for the Slave's transmission.

Comments resolution on 126, 167 fix other problems

Passes by voice; no request for count.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.4.6.2 P127 L6 # 148

Ungerboeck, Gottfried

Comment Type T Comment Status R startup

The purpose of the transition count is to announce to the link partner a transition in TX power or to a next state. It should be sufficient for the link partner to decode a single InfoField with a non-zero transition count to know that and when the transition will occur. The transition count should not be misused as a ""program counter"" to do one thing if the transmission count is in one range and another thing if it is in another range as on the left side of Figure 55-24.

*SuggestedRemedy*

Stick to simple principles of using the transition count.

Proposed Response Response Status C

REJECT.

This change is not required to ensure interoperability. It does not fix something that is broken.

Related to comment #147

Passes by voice vote;

Cl 55 SC 55.4.6.1 P126 L6 # 149

Ungerboeck, Gottfried

Comment Type T Comment Status R startup

The functions performed by a MASTER in states Silent and PMA\_Training\_Init\_M, and by a SLAVE in states Silent and PMA\_Training\_Init\_S, lack symmetry and deserve a better split into states with distinct functionalities.

*SuggestedRemedy*

(a) In new state Silent, MASTER and SLAVE should perform the same function, namely remain silent for 1 ms. ---

(b) Split PMA\_Training\_Init\_M into two new states: PMA\_Train1\_M and PMA\_Train2\_M. In PMA\_Train1\_M, send PMA training frames initially at minimum TX power, train cancellers, send \*invitations\* to SLAVE to start transmission at \*specified times\*, check for SLAVE signal at specified times, if SLAVE signal is not received within given dwell time increase TX power to minimum TX power + 4 dB; repeat above functions, if SLAVE signal again not received, increase TX power finally to minimum TX power + 8 dB. In PMA\_Train2\_M, send PMA training frames, continue to maintain cancellers adjusted, train receiver until InfoFields can be decoded, communicate with SLAVE via InfoFields to determine final MASTER and SLAVE TX powers, refine all adjustments until loc\_SNR\_margin = OK and rem\_SNR\_margin = OK, where OK means OK for LDPC-coded 128DSQ. ---

(c) Split PMA\_Training\_Init\_S into two new states: PMA\_Train1\_S and PMA\_Train2\_S. In PMA\_Train1\_S, send zero, train receiver until InfoFields can be decoded, wait for \*invitation\* from MASTER to start transmission at \*specified time\*. In PMA\_Train2\_S, start sending PMA training frames at specified time at TX power = current TX power of MASTER, train cancellers while continuing to maintain receiver adjustments, decode InfoFields, communicate with MASTER via InfoFields to determine final MASTER and SLAVE TX powers, refine all adjustments until loc\_SNR\_margin = OK and rem\_SNR\_margin = OK, where OK means OK for LDPC-coded 128DSQ. --- Further details will be provided in slides offered for presentation to the 10GBASE-T Task Force.

Proposed Response Response Status C

REJECT.

Lack of symmetry in a state machine is not a reason to modify the draft. No problem has been identified. Will result in significant text changes that could introduce inconsistencies.

Passes by voice vote;

Count requested:

In favor of rejecting comment:

Yes: 11

No: 6

Vote fails.

Motion to reject: This proposal has not been reviewed sufficiently to be included at this point. The related text in the draft will be left open to comment on the next recirculation and

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will be identified by an editor's note in the draft.

Moved by David Law  
 Seconded: Hugh Barrass  
 In favor: 23  
 Opposed: 0  
 Abstain: 12  
 Motion passes. Comment is rejected.

Cl 55 SC 55.4.6.1 P126 L6 # 150

Ungerboeck, Gottfried

Comment Type T Comment Status R startup

Loops in PHY Control other than those back to state Silent under failure conditions should be avoided. In Figure 55-23 a loop around state PMA\_Training\_Init\_M is used to express sending initially with minimum TX power, then if SLAVE signal not received with minimum TX power +4 dB, and finally with minimum TX power +8 dB. This can be accomplished with state-internal counters and logic of the new state PMA\_Train1\_M. A major transition in functionality of the MASTER occurs only when the SLAVE signal has been received.

*SuggestedRemedy*

Adopt the PHY Control state diagram proposed in Comment 3 and use internal counters to control in the new state PMA\_Train1\_M the stepping of TX power.

Proposed Response Response Status C

REJECT.

Power backoff changes are indicated by the loop.

Yes: 16  
 No: 2  
 Comment is rejected

Cl 55 SC 55.4.2.5.5 P114 L44 # 151

Ungerboeck, Gottfried

Comment Type T Comment Status R IF

The message octet of the InfoFields indicates state transitions by a variety of bits. Without loops in the PHY Control state diagram other than returns to Silent, a simpler mechanism to announce state transitions can be used.

*SuggestedRemedy*

State transitions should be announced by a non-zero transition count and a 1-bit state\_transition\_flag = 1 in the InfoField. If the transition count expires, the transmitter portion of the sending transmitter advances to the next state in the order PMA\_Train1\_M -> PMA\_Train2\_M/S -> PMA\_Coeff\_Exch -> PMA\_Fine\_Adj -> PCS\_Test. In the InfoField a 2-bit current\_state\_indicator may be included: 00 = PMA\_Train1\_M, 01 = PMA\_Train2, 10=PMA\_Coeff\_Exch, 11 == PMA\_Fine\_Adj. A set of revised InfoField formats will be proposed in slides offered for presentation to the 10GBASE-T Task Force.

Proposed Response Response Status C

REJECT.

Unnecessary change

Yes: 12  
 No: 2

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Cl 55 SC 55.4.5.2 P124 L 55 # 152

Ungerboeck, Gottfried

Comment Type T Comment Status D startup

maxwait\_timer duplicates the function of link\_fail\_inhibit\_timer employed in Clause 28 (Auto Negotiation). Both timers are used to limit the time allowed for 10GBASE-T PHY Control to reach state PCS\_Data, or equivalently link\_status = OK.

SuggestedRemedy

Eliminate max\_wait\_timer. If Auto Negotiation still observes link\_status = FAIL when link\_fail\_inhibit\_timer expires, it disables 10GBASE-T PHY Control. In order to permit 10GBASE-T retraining after failure in state PCS\_Data, in Auto Negotiation the link\_fail\_inhibit\_timer must be restarted when Auto Negotiation observes a transition of link\_status from OK to FAIL. --- The solution will be described in slides offered for presentation to the 10GBASE-T Task Force.

Proposed Response Response Status W

PROPOSED REJECT.

Eliminating maxwait\_timer at this time might have negative effects and has no significant implementation advantage

Yes: 13  
No: 6

Move to approve the suggested remedy: Shimon Muller  
Seconded: G. Ungerboeck  
Yes: 4  
No: 18.

Cl 55 SC 55.4.2.5.2 P114 L 10 # 153

Ungerboeck, Gottfried

Comment Type T Comment Status A IF

InfoFields contain 3 octets, one for current transmitter settings, one for next transmitter settings, and one for requested transmitter settings. First, the 2-bit subfields for (fixed) THP are not needed, because in states where fixed THP may be used the value of THP follows from the 3-bit value of PBO. Second, there is no justification for the 1-bit subfields Valid and the 2-bit subfields Reserved.

SuggestedRemedy

Express the three transmitter settings by 9 bits: 3 bits each for current PBO, next PBO, and requested BPO. There is no reason for sending InfoFields with invalid transmitter settings.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Remove fixed THP subfields from the InfoFields and convert to reserved.

Cl 55 SC 55.4.5.1 P123 L 22 # 154

Ungerboeck, Gottfried

Comment Type T Comment Status A thp

Enabling fixed THP = THPShort, TPHMedium, or THPLong during initial PMA training makes a sequence of periodic PMA training frames non-periodic.

SuggestedRemedy

Include option for resetting THP state at beginning of each PMA training frame.

Proposed Response Response Status C

ACCEPT.

Resetting applies when in periodic mode.

OBE. See response to comment #155 which eliminates use of fixed THP during startup

Cl 55 SC 55.4.5.1 P123 L 22 # 155

Ungerboeck, Gottfried

Comment Type T Comment Status A thp

Obtaining a final THP response with fixed THP enabled during initial PMA training requires training of a receiver with a differential decision feedback filter. The final THP response is then obtained by convolving the fixed THP response with the response of the differential decision feedback filter. However, the final THP response can have at most 16 coefficients. Is there not a problem? Any easy solution here?

SuggestedRemedy

Eliminate option for fixed THP during initial phases of PMA training.

Proposed Response Response Status C

ACCEPT.

Move by: Gottfried Ungerboeck  
Seconded by: George Zimmerman

Yes: 21  
No: 4

Motion passes

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Cl 55 SC 55.4.2.5 P118 L31 # 156  
 Ghiasi, Ali  
 Comment Type **TR** Comment Status **A** clarification  
 The text ""simultaneously"" is inconsistent with the text on page 124 line 14 which permits a 1 frame offset between transitions.  
 SuggestedRemedy  
 Needs to be clear for interoperability  
 Proposed Response Response Status **W**  
 ACCEPT.  
 Eliminate 'simultaneously'

Cl 55 SC 55.4.6.1 P126 L32 # 157  
 Ghiasi, Ali  
 Comment Type **TR** Comment Status **A** startup  
 The current PHY control state diagram permits the slave to transition from PMA\_training\_init\_S to PMA\_coeff\_exch even if the master is not able to decode info fields (ie: insufficient power from the slave).  
 SuggestedRemedy  
 Change the condition for exit to loc\_SNR\_margin \* rem\_rcvr\_status=OK and permit the master to request a higher power level if needed.  
 Proposed Response Response Status **W**  
 ACCEPT IN PRINCIPLE.  
 See response to comment #161 and # 167

Cl 55 SC 55.4.5.1 P121 L32 # 158  
 Powell, Scott  
 Comment Type **ER** Comment Status **A** startup  
 Text is not clear as to the definition of ""coefficient exchange"". Is this with respect to one PHY or both PHYs ?  
 SuggestedRemedy  
 I believe the intended definition ""coefficient exchange"" is when \*both\* sides have received all coefficients from the other.  
 Proposed Response Response Status **C**  
 ACCEPT.  
 Both transceivers have received the corresponding coeffs from the link partner

Cl 55 SC 55.4.6.1 P126 L23 # 159  
 Powell, Scott  
 Comment Type **ER** Comment Status **A** startup  
 Is the condition on the rightmost arc from the SILENT state is missing a star (\*) ?  
 SuggestedRemedy  
 If the \* is missing, add it. If there is no star, explain why  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Not needed due to changes accepted in resolution of comment #126

Cl 55 SC 55.4.2.5.11 P117 L12 # 160  
 Powell, Scott  
 Comment Type **TR** Comment Status **A** startup  
 Need to define ""has not received any signal from the SLAVE"" on lines 12,25,32.  
 SuggestedRemedy  
 Suggest ""has not detected the correct slave sequence"". A simple signal detect could be fooled by large crosstalk or other noise.  
 Proposed Response Response Status **C**  
 ACCEPT.  
 Applies to lines 16, 29 and 36

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.4.2.5.11 P117 L40 # 161

Powell, Scott

Comment Type TR Comment Status A startup

Slave only knows its own SNR margin at this point in the PMA training. It cannot determine "sufficient decision point SNR margin for the master". Also, shouldn't the "should" be a "shall" for interoperability ?

SuggestedRemedy

Either: a) define what "sufficient" SNR margin is needed at the slave to insure sufficient SNR margin at the master without explicit communication from the master (needs justification) or b) permit the master to request a power increase from the slave during PMA training (doesn't need justification).

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Quantify sufficient decision point SNR as 20dB. PMA Training PAM2 symbols (including InfoField) can be detected reliably with 10dB (one shot BER of ~0.001 and much better with IF averaging--BER of ~1e-6 by averaging two IFs). This implies the Slave has about 10dB margin. This should be sufficient margin to account for differences between the Master and Slave implementation and noise levels

Change the "should" on line 45 with "is highly recommended"

Cl 55 SC 55.4.5.1 P123 L17 # 162

Powell, Scott

Comment Type TR Comment Status A startup

How does the master know if it has detected a signal from the slave or from some other noise source ?

SuggestedRemedy

Replace "signal" with "the appropriate sequence"

Proposed Response Response Status C

ACCEPT.

Cl 55 SC 55.4.5.1 P124 L20 # 163

Powell, Scott

Comment Type TR Comment Status A counter

The reason for a transition\_count\_en function is not clear. Why would there be a condition where the transition counter has a non-zero value and is "not" decrementing ?

SuggestedRemedy

Eliminate this variable if unnecessary

Proposed Response Response Status C

ACCEPT.

Will be eliminated.

Cl 55 SC 55.4.6.2 P127 L38 # 164

Powell, Scott

Comment Type TR Comment Status A startup

The second term on the leftmost arc from the SLAVE\_HOLDOFF state implies that slave\_detect "could" equal 1 after transition\_count < 2^6. If this happens, the PHY control state diagram breaks.

SuggestedRemedy

This condition should never occur. This needs to be stated as a "shall" for interoperability. With this statement, the second term is not necessary and should be removed from the figure.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

See related comments #125, #208

Cl 55 SC 55.4.6.3 P128 L34 # 165

Powell, Scott

Comment Type TR Comment Status A startup

The training\_detect variable is never defined

SuggestedRemedy

Define training\_detect - I'm not sure what was meant here so have no suggestion.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Eliminate the "training\_detect" variable

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Cl 55 SC 55.4.6.3 P128 L43 # 166

Powell, Scott

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

Link\_status should only be OK when PHY control is in the PCS\_data state. However, maxwait\_timer is stopped in this state (see fig 55-23 on pg 126). I assume when the timer is ""stopped"", it is not yet at zero and therefore the maxwait\_timer\_done variable is not set. If this assumption is true, the conditions necessary for entry into the LINK\_UP state in figure 55-26 will never be satisfied and link\_status will remain as FAIL.

*SuggestedRemedy*

Get rid of link monitor state diagram (and associated notes) and set link\_status within the PHY control diagram. -or- somehow, define the transition from TRAINING to LINK\_UP in the link monitor state diagram to mimic the transition into PCS\_data in the phy control state diagram.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

See related comment #127 which redefines transition from Link\_Down to Link\_Up

Comment #127 also corrects the error - it is the "minwait" timer rather than "maxwait" timer

Cl 55 SC 55.4.6.1 P126 L54 # 167

Powell, Scott

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

If one side transitions to PCS\_data sooner than the other, link\_status = ok on the side which transitioned. This side may then start transferring valid packets even though the other side is in PCS\_test. Packets will be lost.

*SuggestedRemedy*

Use the auxiliary channel to convey state information. Only assert link\_status=ok if both sides are in PCS\_data state.

Proposed Response Response Status **C**

REJECT.

This comment was WITHDRAWN by the commenter.

The identified problem cannot happen because of reconciliation sublayer prevents it. See mcclellan\_2\_0905.pdf

Cl 55 SC 55.5.4.4 P135 L21 # 168

Kasturia, Sanjay

Comment Type **E** Comment Status **A** pmaelect

The first sentence in the paragraph can be read to imply that Class E is specified in 55.7. This is not the case.

*SuggestedRemedy*

Change the beginning of the first sentence in the paragraph to read:  
While receiving data from a transmitter compliant with specifications in 55.5.3, through a 100m link segment compliant with the specifications in 55.7, a receiver shall operate with an Ethernet frame error rate less than ...

Proposed Response Response Status **C**

ACCEPT.

Cl 55 SC 55.7.3.3 P149 L28 # 169

Paul Kish

Belden CDT

Comment Type **T** Comment Status **A**

Add a new Clause 55.7.3.3 Alien Crosstalk Margin Computation (reference TIA Contribution TR42.7-05-08-127a from George Zimmerman SolarFlare Communications, Larry Cohen Independent, Jose Tellado Teranetics & Chris DiMinico MC Communications)

*SuggestedRemedy*

See attached Word file that contains the text of proposed alien crosstalk margin computation

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Add text in kish\_1\_0905.pdf with modifications as shown in the presentation diminico\_2\_0905.pdf

Cl 55 SC 55.3.2.3.2 P99 L51 # 170

Yong Kim

Broadcom

Comment Type **T** Comment Status **R**

The use of "shall" seems inconsistent w/ prior use of this word, i.e. key word for PICS.

*SuggestedRemedy*

Replace "shall" with "will produce" or "produces"

Proposed Response Response Status **C**

REJECT.

Conformance to the scramblers specified is required.

This text was copied from clause 49, and therefore is consistent with prior use of this word

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Cl 55 SC 55.3.3 P100 L48 # 171  
 Yong Kim Broadcom  
 Comment Type E Comment Status A cleanup  
 "#CrossRef#"  
 SuggestedRemedy  
 Fix it.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 55 SC 55.4.2.4 P112 L44 # 172  
 Yong Kim Broadcom  
 Comment Type TR Comment Status R clarification  
 It's not clear whether each receiver needs the capability to correct for 50 nS, or +/- 25 nS, or correct for 100 nS, or +/- 50 nS. I could interpret this either way.  
 SuggestedRemedy  
 Please clarify the specification so that the text is clear.  
 Proposed Response Response Status W  
 REJECT.  
 The 50 ns specifies the delay difference between the minimum delay and the maximum delay of the four pairs.

Cl 55 SC 55.4.2.5.11 P117 L37 # 173  
 Yong Kim Broadcom  
 Comment Type TR Comment Status A startup  
 In PMA training, the draft currently specifies that the slave determine the PBO necessary for the slave's proper operation and then reply back to the master with this same PBO setting. What if the sufficient PBO at the slave end is not sufficient PBO at the master end. Or, what if the slave is a much better receiver implementation than the master. The master will not be able to recover IF's and will remain stuck in PMA training with no opportunity to request for a power increase.  
 SuggestedRemedy  
 Permit the master to request a power increase from the slave during PMA training.  
 Proposed Response Response Status W  
 ACCEPT IN PRINCIPLE.

See related comment #161 which calls out margin in the slave.

Cl 55 SC 55.4.4 P121 L18 # 174  
 Yong Kim Broadcom  
 Comment Type E Comment Status A mdix  
 "Automatic...is intended to eliminate the needs...noting that the function is mandatory" does not seem consistent other requirement text.  
 SuggestedRemedy  
 Revised to read "Automatic MDI/MDI-X Configuration shall be implemented as in 40.4.4.1 and 40.4.4.2 for 10GBASE-T."  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

Full text:

Automatic MDI/MDI-X Configuration is intended to eliminate the need for crossover cables between similar devices. Automatic MDI/MDI-X configuration is required for 10GBASE-T devices and shall comply with 40.4.4.1 and 40.4.4.2.

Cl 30 SC 30.12.1.1.4 P36 L9 # 175  
 Grow, Robert  
 Comment Type TR Comment Status A  
 This needs a clear Clause 55 reference to establish unambiguously where and what is being measured.  
 SuggestedRemedy  
 Add reference.  
 Proposed Response Response Status W  
 ACCEPT IN PRINCIPLE.  
 Determine the correct reference.  
 See response to 198.



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Cl 30A SC 30A.23 P37 L35 # 176

Grow, Robert

Comment Type TR Comment Status A

The Task Force has acted irresponsibly in recirculating this draft, and I think have violated the trust given to the Task Force by the WG in allowing ""recirculations as necessary"". Were this draft submitted to the WG for ballot approval, and the known technical incompleteness was noticed by the WG, I expect it would not be approved for ballot by the WG.

(I do appreciate that this deficiency was admitted in an editor's note, and recognize not including the note to attempt to hide the deficiency would have been much worse.)

SuggestedRemedy

The registration arcs must be included for technical completeness.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Registration arcs are not issued till we reach sponsor ballot.

The editor will work with the working group chair to determine the necessary information to add.

Cl 30A SC P37 L9 # 177

Grow, Robert

Comment Type E Comment Status A

There is no such thing as an 802.3 GDMO compiler.

SuggestedRemedy

After adding registration arcs, it would be appropriate for the note to say that the specifications have not be verified through compilation with a GDMO compiler, then inviting verification and close scrutiny.

Proposed Response Response Status C

ACCEPT.

There is a GDMO compiler though it is not the "802.3 GDMO compiler"

Cl 44 SC 44.1.1 P40 L19 # 178

Grow, Robert

Comment Type ER Comment Status A

This paragraph is being modified by other parallel projects (e.g., P802.3aq).

SuggestedRemedy

Change to be an insert instruction and add an Editor's note explaining that this would customarily be written as a change instructions, but has been written as an insert to make it clear that if P802.3aq is published first, its changes will not be lost, and that the publication editor may choose to rewrite it as a change.

Proposed Response Response Status W

ACCEPT.

Cl 44 SC 44.1.2 P40 L25 # 179

Grow, Robert

Comment Type E Comment Status A

Grammar problem.

SuggestedRemedy

I believe the objective is over selective media (plural). If not, then fix the grammar for singular medium.

Proposed Response Response Status C

ACCEPT.

Cl 44 SC 44.1.4.4 P41 L18 # 180

Grow, Robert

Comment Type E Comment Status A

The table does not appear linked to the change instruction.

SuggestedRemedy

properly anchor the table and unfloat it so it will appear after the change instruction.

Proposed Response Response Status C

ACCEPT.

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CI 44 SC 44.1.4.4 P41 L27 # 181

Grow, Robert

Comment Type ER Comment Status A

If I remember correctly, P802.3aq is changing this also. The editor should make a comparison against P802.3aq to assure appropriate editor's notes are added to each subclause being modified by parallel projects. The note should be clear enough that both reader and publication editor do not have to interpret or guess what should be done.

SuggestedRemedy

See comment, make notes of consistent style through the draft.

Proposed Response Response Status W

ACCEPT.

CI 45 SC P43 L24 # 182

Grow, Robert

Comment Type E Comment Status A

Use a consistent style for Editor's notes throughout the document.

SuggestedRemedy

I recommend a boxed paragraph(s) as it is easily distinguishable from text to be included in the standard at publication. Fix throughout.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

CI 00 SC P L # 183

Grow, Robert

Comment Type E Comment Status A

The IEEE editor is converting all occurrences of Times font to Times New Roman and Helvetica to Arial in publication preparation of IEEE Std 802.3-200x. It appears that the old fonts may still exist in some parts of the draft.

SuggestedRemedy

Change fonts to be consistent with the target base document for this amendment.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Will be done where ever possible

CI 99 SC P1 L7 # 184

Grow, Robert

Comment Type ER Comment Status A

This is not a revision

SuggestedRemedy

Replace Revision with Amendment.

Proposed Response Response Status W

ACCEPT.

CI 99 SC P1 L52 # 185

Grow, Robert

Comment Type ER Comment Status A

Required copyright statement differs from that of the recently published 2005 style manual.

SuggestedRemedy

Update.

Proposed Response Response Status W

ACCEPT.

CI 00 SC P1 L1 # 186

Grow, Robert

Comment Type E Comment Status A

It is difficult to determine where the EDITORIAL NOTE to IEEE publications editor ends. The text of the note is also different than what is desired.

SuggestedRemedy

Use boxed paragraphs to clearly delineate what is to be removed prior to publication (as is done in earlier in the front matter. Replace the text preceding the table with the following.

BOXED PARAGRAPH

Editors Note: to be removed prior to publication.

The third column of the table below is to be deleted prior to publication.

BELOW THE BOXED EDITORS NOTE

For the benefit of those who have received this document by electronic means, what follows is a list of special symbols and operators. If any of these symbols or operators fail to display correctly, the editors hope that this table will aid in interpreting any funny blobs and strokes appearing in the body of the document.

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 99 SC P7 L33 # 187

Grow, Robert

Comment Type E Comment Status A

The table includes Times, assuming another comment is accepted, there should be no Times font in the document. (It is yet early in publication preparation to determine if all of the listed special symbols will be converted to symbol font, where in prior published standards, some symbol fonts were converted to Times because of the publication platform for IEEE Std 802.3.

SuggestedRemedy

Update table to Time New Roman.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Will be done as far as no conflicts exist between this request and the IEEE templates

Cl 99 SC P9 L1 # 188

Grow, Robert

Comment Type ER Comment Status A

Per the 2005 Style Manual this now becomes simply a NOTE. The content is also dated as it does not include Replace.

SuggestedRemedy

Replace with the note found in 21.1 of the 2005 Style Manual.

Proposed Response Response Status W

ACCEPT.

Cl 99 SC P12 L1 # 189

Grow, Robert

Comment Type E Comment Status A

Table of Figures and Table of Tables are not generally included in IEEE standards.

SuggestedRemedy

Verify with IEEE publication editor if this will continue to be the case for IEEE Std 802.3-2005 and make this document consistent.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Table of figures and Table of tables will be removed as per discussion on subject with Bob Grow and IEEE Associate project editor, Michelle Turner

Cl 01 SC 1.3 P14 L6 # 190

Grow, Robert

Comment Type E Comment Status A

Technically the insertion order should be alphanumeric.

SuggestedRemedy

Replace alphabetic with alphanumeric. Also change at line 28 and 58.

Proposed Response Response Status C

ACCEPT.

Cl 01 SC 1.4 P14 L29 # 191

Grow, Robert

Comment Type E Comment Status A

Grammar

SuggestedRemedy

Change definition to definitions.

Proposed Response Response Status C

ACCEPT.

Cl 00 SC P16 L1 # 192

Grow, Robert

Comment Type ER Comment Status A

Publication order is changes to clauses, changes to annexes, new clauses, new annexes.

SuggestedRemedy

Correct FrameMaker book for correct clause order.

Proposed Response Response Status W

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl **A** SC P16 L13 # 193

Grow, Robert

Comment Type **E** Comment Status **A**

The reference identification is rather strange, and it should be consistent with IEEE Style.

*SuggestedRemedy*

Instruction should indicate what is to be done with the Bxx numbering. For example ""Insert the following reference in alphabetic order, numbering as required. With the inserted text being:

[B##a] ...

Proposed Response Response Status **C**

ACCEPT.

Cl **28** SC 28.2.1.1.2 P18 L9 # 194

Grow, Robert

Comment Type **E** Comment Status **A**

Figures are generally replaced

*SuggestedRemedy*

Change instruction to read: Replace Figure 28-6 with the following

Proposed Response Response Status **C**

ACCEPT.

Cl **30** SC 30.2.5 P34 L11 # 195

Grow, Robert

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

Typo, there is no existing Table 30-6.

*SuggestedRemedy*

Dhange to Table 30-5.

Proposed Response Response Status **W**

ACCEPT.

Cl **30** SC P34 L40 # 196

Grow, Robert

Comment Type **E** Comment Status **A**

It might be helpful to readers concerned about change instructions to add explanation.

*SuggestedRemedy*

Editors note to be removed prior to final publication.

Some of the changes in this clause are written as Insert instructions when they typically would be done as Change instructions. This was done because multiple projects are likely to be modifying the same text or attribute definitions. The publication editor may choose to change the format during preparation for publication as is appropriate based on the order of publication of the various projects working in parallel.

Proposed Response Response Status **C**

ACCEPT.

Cl **30** SC 30.12.1.1.1 P35 L27 # 197

Grow, Robert

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

This needs a clear Clause 55 reference to establish unambiguously where and what is being measured.

*SuggestedRemedy*

Add reference.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

Determine the appropriate reference.

Cl **30** SC 30.12.1.1.2 P35 L40 # 198

Grow, Robert

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

This needs a clear Clause 55 reference to establish unambiguously where and what is being measured.

*SuggestedRemedy*

Add reference.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

Determine the correct reference - in clause 55.

IEEE P802.3an Draft 2.2 Comments

Cl 30 SC 30.12.1.1.3 P35 L53 # 199  
 Grow, Robert  
 Comment Type TR Comment Status A  
 This needs a clear Clause 55 reference to establish unambiguously where and what is being measured.  
 SuggestedRemedy  
 Add reference.  
 Proposed Response Response Status W  
 ACCEPT IN PRINCIPLE.  
 See response to comment 198.

Cl 55 SC 55.7 P L # 200  
 Bernie Hammond ADC Telecommunicati  
 Comment Type TR Comment Status A cabling  
 Add a line to table 55-11 and 55-12 with Augmented category 6 PSANEXT and PSAELFEXT requirements. Currently only category 6 is included.  
 SuggestedRemedy  
 Table 55-11: add a line with the following information - 100 60 61 33.8  
 Table 55-12: add a line with the following: 100 37 41 33.8  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Resolved by comment #53

Cl 55 SC 55.7 P L # 201  
 Bernie Hammond ADC Telecommunicati  
 Comment Type TR Comment Status A  
 Equations 55-25 and 55-30 should have normative requirements for PSANEXT and PSAELFEXT  
 SuggestedRemedy  
 Make a normative reference to the both of the equations rather than the term "is defined by the following equation".  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 For 55-25,L1,P147: change to: The PS ANEXT constant shall be specified by the following equation:;  
 For 55-30,L-49,P-148: change to:The PSAELFEXT constant shall be specified by the following equation:  
 Add PICS, LKS15 PS ANEXT constant-55.7.3.1.2,(55-25), LKS16 PS AELFEXT constant-55.7.3.2.2,(55-30)."

Cl 55 SC 55.7 P L # 202  
 Bernie Hammond ADC Telecommunicati  
 Comment Type TR Comment Status A  
 Table 55-10 implies that cat 6 will work to the distances listed. This may not always be the case.  
 SuggestedRemedy  
 Add a note that states that mitigation may be required for category 6 installations in order to achieve the specified distances.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Include Annex 55B reference 55.7.1 b) to point to mitigation guidelines. Please note: The table is not normative.  
 Recommended remedy: Revise 55.7.1 b) as follows. 10GBASE-T is an ISO/IEC 11801 Class E and Class F application with the additional transmission requirements specified in this subclause. Mitigation practices may be required - see Annex 55B.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.3, 55.4 P86-128 L All # 203  
 Rao, Sailesh Phytel Technologies, I

Comment Type TR Comment Status R clarification

These two sections of the draft have undergone such substantial changes and added complications (see PHY control and transition counter state machines, for instance) that I'm not confident that interoperability at any line length between different vendors is assured.

SuggestedRemedy

Distribute an executable software C source code modeling the PCS and PMA sections along with future drafts..

Proposed Response Response Status U

REJECT.

There is nothing within the suggested remedy that the editor can include in the next revision of the draft

Yes: 16  
 N: 3

Cl 45 SC 45.2.7.10 P65 L23 # 204  
 Reviriego, Pedro

Comment Type E Comment Status R

The abbreviation PRBS is used here and a few more times in the draft but the abbreviation is not defined

SuggestedRemedy

Define PRBS in section 1.5

Proposed Response Response Status C

REJECT.

PRBS is in the Abbreviation List.

Cl 55 SC 55.3.2.2.18 P98 L40 # 205  
 Reviriego, Pedro

Comment Type E Comment Status A clarification

The interval [0,16) is used for an integer value. I believe [0,15] is more appropriate for an integer.

SuggestedRemedy

Change interval to[0,15]

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Notation will be clarified and made consistent with other instances.

Cl 55 SC 55.6.2 P140 L50-5 # 206  
 Reviriego, Pedro

Comment Type E Comment Status A

The text 'Fault Detected: (This happens when both end stations are set for manual configuration and both are set to MASTER or both are set to SLAVE)' is not precise as there is another condition described in page 140 lines 24-27 that causes a Fault Detect.

SuggestedRemedy

Either remove the text between the brackets or make it precise.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Text between parentheses will be removed.

Cl 55 SC 55.11 P156 L7 # 207  
 Reviriego, Pedro

Comment Type E Comment Status R clarification

The abbreviation BT is used but is not defined.

SuggestedRemedy

Define BT in section 1.5

Proposed Response Response Status C

REJECT.

Already defined in 802.3

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.4.6.2 P127 L # 208

Reviriego, Pedro

Comment Type T Comment Status A startup

In figure 55-24 in the SLAVE HOLDOFF state en\_slave\_tx is set to 0.

If we then follow the transition to STOP\_COUNTER by (slave\_detect = 1 \* transition\_count >= 2^6) the MASTER is supposed to abort the transition but at the same time is telling the SLAVE to stop transmitting. This can cause that after slave\_detect = 1 the slave decodes en\_slave\_tx = 0 and stops transmitting creating a potential problem in the state machine.

*SuggestedRemedy*

The simplest solution is to avoid the potential problem by removing the (slave\_detect = 1 \* transition\_count >= 2^6) condition in going from SLAVE HOLDOFF to STOP\_COUNTER as this buys us less than 4ms to detect the slave.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

See also comment #125

Cl 55 SC P74 L4 # 209

Grow, Robert

Comment Type E Comment Status A

I just noticed that when published, IEEE Std 802.3af-2003 included a note that you should consider adding, since just like P802.3af, P802.3an is replacing an existing clause (33 and 55 respectively).

*SuggestedRemedy*

NOTE -- Although this clause existed in a previous publication of IEEE Std 802.3, it was reserved for future use and therefore contained no information. All information in this clause is new material.

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.6 P45 L18 # 210

Brett McClellan

Solarflare

Comment Type T Comment Status A

802.3an D2.2 is not consistent with 802.3ap D2.0 and 802.3aq D2.2 in Table 45-7. I assume that our draft is incorrect since the other two are consistent.

802.3ap D2.0 and 802.3aq D2.2

- 1 1 X X = Reserved
- 1 0 1 1 = 10GBASE-KR PMA/PMD type
- 1 0 1 0 = 10GBASE-KX4 PMA/PMD type
- 1 0 0 1 = 10GBASE-T PMA/PMD type
- 1 0 0 0 = 10GBASE-LRM PMA/PMD type

802.3an D2.2

- 1 1 X X = Reserved
- 1 0 1 X = Reserved
- 1 0 0 1 = 10GBASE-T PMA type
- 1 0 0 0 = 10GBASE-KR PMA/PMD type

In addition, the editor's note is a direct copy of 802.3aq and needs to be rewritten for 802.3an.

*SuggestedRemedy*

Change table text to:

- 1 1 X X = Reserved
- 1 0 1 1 = 10GBASE-KR PMA/PMD type
- 1 0 1 0 = 10GBASE-KX4 PMA/PMD type
- 1 0 0 1 = 10GBASE-T PMA type
- 1 0 0 0 = 10GBASE-LRM PMA/PMD type

Change editor's note to:

Editor Note (to be removed prior to publication): Table 45-7 is also being modified by P802.3aq and P802.3ap. If P802.3aq is not published prior to or simultaneous with P802.3an, the line for bits 1.7.3:0 value 1000 should be "Reserved". If P802.3ap is not published prior to or simultaneous with P802.3aq bits 1.7.3:0 values 1011 and 1010 should be "Reserved". Other change markings are against P802.3REVam and may need to be modified based on publication order of current amendment projects, with edit reference changed to latest amendment.

Proposed Response Response Status C

ACCEPT.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.8.2.2 P153 L10 # 211  
 Babanezhad, Joseph Plato Networks  
 Comment Type E Comment Status A late  
 On this line there are two ""where"" words back-to-back.  
 SuggestedRemedy  
 Remove one of the ""where""s.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 55 SC 55.7.3.1.1 P145 L # 212  
 Babanezhad, Joseph Plato Networks  
 Comment Type E Comment Status A late  
 The heading of this subsection is missing the word ""Alien""  
 SuggestedRemedy  
 Insert the word ""Alien"" in the heading for this subsection.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 55 SC 55.7.2.4.4 P144 L # 213  
 Babanezhad, Joseph Plato Networks  
 Comment Type E Comment Status A late  
 In Eq. 55-18 there are extra parenthesis.  
 SuggestedRemedy  
 Remove the extra parenthesis.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 55 SC 55.5.3.4 P133 L # 214  
 Babanezhad, Joseph Plato Networks  
 Comment Type TR Comment Status A late  
 The transmit PSD upper mask is not continuous.  
 SuggestedRemedy  
 Reduce the frequency break-point before the last to 1790MHz (as opposed to currently 1810MHz).  
 Proposed Response Response Status W  
 ACCEPT IN PRINCIPLE.  
 Change from 1810 to 1790MHz in equation 55-9

Cl 55 SC 55.5.3.1 P132 L38 # 215  
 Babanezhad, Joseph Plato Networks  
 Comment Type T Comment Status R late  
 While explaining droop test it is a good idea, at least parenthetically, to remind the reader about the test condition. On page 133 this is done for jitter and transmit PSD tests.  
 SuggestedRemedy  
 On page 132 line 38 after ""test mode 6"" insert the following paranthesis: (One hundred twenty eight +16 followed by one hundred twenty eight -16 symbols)  
 Proposed Response Response Status C  
 REJECT.

It is already spelt out and repeating it is not necessary.

Cl 55 SC 55.5.3.2 P132 L # 216  
 Babanezhad, Joseph Plato Networks  
 Comment Type TR Comment Status A late  
 What does ""producing output with peak to peak transmit output"" mean? It does not provide any information.  
 SuggestedRemedy  
 Either remove this statement or specify the peak to peak output voltage.  
 Proposed Response Response Status W  
 ACCEPT IN PRINCIPLE.

Remove the statement. Replace with text pointing to Test mode 4 - (e.g. While operating in test mode 4).

Cl 55 SC 55.5.3.1 P132 L # 217  
 Babanezhad, Joseph Plato Networks  
 Comment Type T Comment Status R late  
 The reference to waveform's 10%, 90% and zero crossing points are confusing.  
 SuggestedRemedy  
 Include a drawing showing 10%, 90% and zero crossing points. Originally we had such a drawing, borrowed from 1000BASE-T, but it disappeared.  
 Proposed Response Response Status C  
 REJECT.  
 Text is clear enough



IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.5.3 P132 L30 # 218  
 Babanezhad, Joseph Plato Networks

Comment Type TR Comment Status R late

The AC coupling to MDI needs to be specified in terms of its lower -3dB frequency.

SuggestedRemedy

I suggest using 200kHz as the lower -3dB frequency for this AC coupling. This is transformer's lower -3dB frequency provided by Pulse.

Proposed Response Response Status W

REJECT.

This is covered by the droop test

Cl 55 SC 55.5.2.1 P131 L53 # 219  
 Babanezhad, Joseph Plato Networks

Comment Type E Comment Status A late

Figure 55-22 is wrong.

SuggestedRemedy

Change it to Figure 55-29.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Point to correct reference.

Cl 55 SC 55.5.2.1 P131 L # 220  
 Babanezhad, Joseph Plato Networks

Comment Type T Comment Status R late

Does the differential probe, referred to in this subclause, (resistance > 10kOhm and capacitance < 1pF over the 1-to-400 MHz frequency range) actually exist? I have seen probes, with 7 GHz rating, do not have such a flat resistance and capacitance.

SuggestedRemedy

Provide more realistic specifications for the differential probe.

Proposed Response Response Status C

REJECT.

Operation up to 7GHz is not required. A commercially available probe is capable of operating up to 1.7GHz

Cl 55 SC 55.1.3.2 P79 L15 # 221  
 Babanezhad, Joseph Plato Networks

Comment Type E Comment Status A late

""normal state"" is not consistent with the rest of the text.

SuggestedRemedy

Change it to ""normal mode"". This way it goes better with ""training mode"" on line 17.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

And make similar changes elsewhere if required for consistency

Cl 55 SC 55.7.2 P201 L28 # 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 U

ACCEPT IN PRINCIPLE.

See Comment resolution to #251

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.1.1 P137 L35 # 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 55.7.3 P205 L31 # 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 U

ACCEPT IN PRINCIPLE.

See responses to comment 251 and 442

Field testing of cabling is being specified in TIA TSB-155 and in ISO/IEC TR-24750

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.1.3.2 P141 L52 # 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 U

ACCEPT IN PRINCIPLE.

See response to 503

Cl 55 SC 55.4.3.1 P179 L1 # 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 U

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 55.3.12 P163 L13 # 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 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 C

REJECT.

Commenter to provide a detailed remedy.

IEEE P802.3an Draft 2.2 Comments

CI 55 SC A11 P A11 L A11 # 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

CI 55 SC 55.3.9 P161 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.

CI 55 SC 55.7.4 P209 L41 # 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 U

REJECT.

The subclause characterizes the total noise environment. Follows subclause headings structure from 1000BASE-T.

IEEE P802.3an Draft 2.2 Comments

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 characteristics. 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 infinite 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 dependent 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 clarification 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-clause 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 huge 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 U

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 55.5.3.2 P190 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

REJECT.

See response to comment #119

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

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.7.2 P201 L37 # 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 U

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

Cl 55 SC 55.7.3.1.2 Table 55-8 P207 L29 # 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

Cl 55 SC 55.8.2 P211 L57 # 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? If so 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 U

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 55.5.3.4 P191 L1 # 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.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.5.4.3 P192 L14 # 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 55.5.3.4 P190 L46 # 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 55.4.3.1 P178 L20 # 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 55.7.3 P131 L38 # 21103  
Cobb, Terry

Comment Type TR Comment Status R cabling-floor

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 U

REJECT.

By voice vote

The proposed response to comment (687 - D2.0) 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.

IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.7.3.1.2 P133 L 29 # 21104

Cobb, Terry

Comment Type TR Comment Status R 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 U

REJECT.

Motion to accept the response to reject the comment:

In favor: 14

opposed: 2

Motion passes, comment is rejected.

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 55.8.2.2 P138 L 45 # 21106

Cobb, Terry

Comment Type TR Comment Status A 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 additional margin is necessary because of the additional spectrum. Additional 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 C

ACCEPT IN PRINCIPLE.

Change the equation to:

48 for f = 1 to < 30 MHz

44 - 19.2 log (f/50) for f >= 30 to 500 MHz

Cl 55 SC 55.7.3.1.1 P132 L 56 # 21117

Mei, Richard

Comment Type TR Comment Status R cabling-floor

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 U

REJECT.

See response to comment 103

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 P134 L 51 # 21118

Mei, Richard

Comment Type TR Comment Status R cabling-floor

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 U

REJECT.

See response to comment 103

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.



IEEE P802.3an Draft 2.2 Comments

Cl 55 SC 55.1 P143 L6 # 21175  
 Geoff Thompson Nortel

Comment Type TR Comment Status A 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 U

ACCEPT IN PRINCIPLE.

See response to comment #85

Related comments 11, 46, 85, 123, 175, 192, 20236, 20242, 20369, 20370  
 See proposed text in editors report kasturia\_1\_07\_05.pdf

Cl 00 SC P L # 21176  
 Geoff Thompson Nortel

Comment Type TR Comment Status A 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 U

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 # 21177  
 Geoff Thompson Nortel

Comment Type TR Comment Status A

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 U

ACCEPT IN PRINCIPLE.

See response to comment #176