

CI 00 SC AII P AII L AII # 1

Thomas Dineen Dineen Consulting

Comment Type TR Comment Status R

Please update the draft format to conform to the requirements of the IEEE Standards Style Manual 2005 Edition.

Supporting material cut from the "IEEE Standards Style Manual" 2005 Edition located at <http://standards.ieee.org/guides/style/2005Style.pdf>

4.1 Editorial requirements for submission

The sponsor of an IEEE Standards project shall be responsible for providing the IEEE-SA Standards Board with a complete, technically accurate draft of the proposed standard that meets the requirements of this manual for content, style, and legibility. Any draft standard that initiates its ballot on or after 1 January 2005 shall use the IEEE templates available on the web (see 4.2.1). A cover letter or email also shall be submitted that states the software application/program (including version number) used to create the document, order of files on the disk, etc. (See 4.3 for further information on submittal to the IEEE-SA Standards Board.) If applicable, written permission for any copyrighted material (text, figures, or tables obtained from an outside source) used within a project shall be submitted to the IEEE-SA Standards Board as well (see 5.1). During the ballot invitation period prior to balloting, the sponsor is required to submit the draft and any relevant copyright permission letters to an IEEE Standards Project Editor for mandatory editorial coordination, which may include a legal review. Project Editors are also available for questions that arise as the draft is prepared.

4.2.1 Draft development

All IEEE drafts shall be developed using an IEEE-approved document template available from the IEEE Standards World Wide Web site <http://standards.ieee.org/resources/development/writing/templates.html>. The drafts should contain a front matter and main text, and follow the style outlined in this manual. The draft should be numbered consecutively, starting with the title page i of the front matter and page 1 of the main text. The front matter shall contain the title of the standard (see 9.1), draft copyright statements (see 4.2.2), an abstract and keywords (see 9.2), and an introduction that includes a list of the working group members and a statement describing the type of ballot conducted (see 9.3). Working groups are encouraged to consult with an IEEE Standards Project Editor if there are any questions concerning electronic tools used to develop IEEE drafts. (See Annex B for an example draft standard.)

Suggested Remedy

1) Identify a Style Guide and Framemaker document template, probably the current IEEE style guide. Use the selected Style Guide for this and future IEEE 802.3 projects. I am not so concerned or dogmatic about which style guide is chosen. Probably for reasons of good IEEE citizenship and cooperation it would be wise to select the current version of the IEEE Style guide and IEEE Framemaker templates.

2) Consistently apply the Style Guide and Framemaker template requirements to all clauses, pages, and lines of the draft.

3) For any naming, logical, graphical, table, state machine, or nomenclature conventions, including PICS tables not covered by the selected style guide develop, document,

standardize (within 802.3) and publish a set of IEEE 802.3 conventions.

4) Consistently apply the IEEE 802.3 Conventions requirements to all clauses, pages, and lines of the draft.

Response

Response Status U

REJECT.

The commenter has not recommended any specific document changes either required or desired per the cited policy and documents.

Also:

1. The draft has been developed consistent with the cited requirements. It uses IEEE style templates and the source document is Adobe FrameMaker as required for submission to the Standards Board.
2. The cited requirements are based upon submission of the draft to the IEEE-SA. This draft is not being submitted to the IEEE-SA at this point in time.
3. Generation of a set of IEEE 802.3 conventions is beyond the approved scope of this project.

As pointed out in the IEEE-SA Standards Board operation manual subclause 5.4.3.2 "It should be borne in mind that documents are professionally edited prior to publication."

CI 55A SC 55A P 227 L 7 # 2

Runsheng He Marvell

Comment Type TR Comment Status A

hmatrix

Specify how the parity check matrix H is constructed from RS code

Suggested Remedy

1. Specify the RS code generator polynomial
2. Specify the 6 cosets used for constructing parity check matrix H

Response

Response Status C

ACCEPT IN PRINCIPLE.

See response to comment # 63

CI 55 SC 55.7.3.2.2 P 200 L 29 # 3
Koeman, Henricus Fluke Networks

Comment Type T Comment Status A cabling

Equation (55-28) contains insertion loss parameters as well as the length parameter. The insertion loss is related to length. Insertion loss can accurately be measured, but length can not electronically as a result of uncertainties in the Nominal Velocity of Propagation. A conversion for length to insertion loss is proposed.

Suggested Remedy

Change the last portion of equation (55-28) from:

"-10(log10(L/100))"

to

"-10(log10(0.0277*IL(250MHz)))"

Remove lines 40 and 41.

Response Response Status C

ACCEPT IN PRINCIPLE.

Length dependent term is taken directly from ISO/IEC 11801 reference.

Recommend that we address length measurement uncertainties in a note pointing to TSB-155 or ISO/IEC equivalent document addressing 10GBASE-T field testing.

CI 55 SC Table 55-9 P 200 L 57 # 4
Koeman, Henricus Fluke Networks

Comment Type T Comment Status A cabling

The entries for the PS AELFEXT constant limit value at 100 MHz are not exact per the outcome of equation (55-28), which is 36.2 dB. This is noted as footnotes c and d on the top of page 201. The rounding off as stated is not really necessary, and the result should be relaxed than for regular Class E cabling (which is 37 dB).

Suggested Remedy

Enter 36.2 dB in the cells for Class F and Augmented Category 6, PS AELFEXT constant limit instead of 37 dB, and adjust the column for average of the 4 wire pairs accordingly to 41 dB.

Response Response Status C

ACCEPT IN PRINCIPLE.

Accept to remove need for footnote per resolution to comment#12

CI 45 SC 45.2.7.8 P 109 L 32 # 5
Thaler, Pat Agilent Technologies

Comment Type TR Comment Status A

These multi-register autonegotiation values need to be treated on reads like the multiple register counters.

Suggested Remedy

A read to the first register latches the values of the other two registers so that a consistent register set is retrieved.

For those that are writeable, a write to the second and third registers does not set mr_next_page_loaded. Only a write to the first register (e.g. 7.22) sets mr_next_page_loaded. Therefore, when updating the three register set, the second and third register values should be written followed by the first register value. It may seem more natural to do this for the third register, but since there are times when only the first register needs to be written (for example to set the ACK bit and toggle bit), having this register execute the change avoids extra writes to the third register.

Response Response Status C

ACCEPT.

CI 45 SC 45.2.7.1 P 106 L 28 # 6
Thaler, Pat Agilent Technologies

Comment Type TR Comment Status A

This register should have a bit to control/report use of extended next pages.

Suggested Remedy

Add the bit.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add a control bit, an ability bit and a status bit for extended next page in register 0 and register 1

CI 45 SC 45.2.7.2 P 106 L 36 # 7
Thaler, Pat Agilent Technologies

Comment Type TR Comment Status A

This register should have a bit to indicate extended next page ability unless support for this register set requires extended next page ability. If the latter, it needs to be explicitly stated.

Suggested Remedy

See comment.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add text to indicate:

support for this register set requires extended next page ability

CI 28 SC 28.2.3.4.2 P 14 L 12 # 8
Thaler, Pat Agilent Technologies

Comment Type TR Comment Status R

There also should be an Extended Unformatted Next page encoding for extended next pages with no message code field. The text for how messages for 16 bit message code field values are transmitted when extended next pages are active requires this format for messages that would be followed by more than two unformatted 16-bit pages.

Suggested Remedy

Add extended unformatted next page format (all bits other than the flag bits form an unformatted field.

Response Response Status C

REJECT.

Editor asks commenter to defer this and comment will be resubmitted by editor in Working Group Ballot.

CI 28B SC 28B.2 P 48 L 33 # 9
Thaler, Pat Agilent Technologies

Comment Type TR Comment Status R

The old label for A7 has been deleted but the new value seems to be missing.

Suggested Remedy

A7 should be Extended next page support

Response Response Status C

REJECT.

Bit A7 has been removed from the technology ability field and therefore does not need to be shown in this table.

CI 28B SC 28B.3 P 45 L 54 # 10
Thaler, Pat Agilent Technologies

Comment Type TR Comment Status A

The priority resolution text for Extended Next Page from my previous comment is misplaced. It is the second paragraph in 28.2.1.2.3 but it should appear here with the other priority resolution text (same as the pause text).

Suggested Remedy

Move the text to this section.

Response Response Status C

ACCEPT IN PRINCIPLE.

Comment 126 against D1.3 removed text from this Annex and moved it to 28.2.1.2.3.

Add a reference to 28B.3 to point to 28.2.1.2.3

CI 55 SC P 193 L 33 # 11
Eisler, George Solarflare

Comment Type T Comment Status A cabling

Add the following to the first paragraph:

The transmission parameters are further summarised in Table 55-8.

Suggested Remedy

Response Response Status C

ACCEPT IN PRINCIPLE.

Add text as suggested and change Table 55-8 caption to :

"Cabling types, distances and PS ANEXT Constants"

CI 55 SC 55.7.3.2.2 P 200 L 17 # 12
DiMinico, Chris MC Communications

Comment Type TR Comment Status A cabling

Modify equation PSAELFEXT_constant (line 29-30) to better fit the Augmented 6, Class F, Category 6 "55 meters", and the Class E 100 meters PSAELFEXT_constant values while maintaining (as close as possible) the Augmented 6, Class F, and Category 6 "55 meters" values allowing the Class E 100 meters to improve (from 37 dB to 37.9 dB).

Suggested Remedy

1. PSAELFEXT_constant=37.9-(10GBITL(250MHz)-IL(250MHz)/2.29 -10*log10(L/100)
2. Remove text regarding rounding in note c (line 6) and note d (line 8).
3. Change : Table 55-9 line 53 column 'PSAELFEXT_constant' from 37 to 37.9 and 55-9 line 55 column 'PSAELFEXT_constant' from 36.6 to 36.7.

Response Response Status C
ACCEPT.

CI 55 SC 55.7.3.1.2 P 199 L 7 # 13
Alexander, Jan Nexans

Comment Type TR Comment Status A cabling

In Table 55-8, the PS ANEXT_constant is not a "limit", specifically for the case of "category 6" PS ANEXT is not specified.

Suggested Remedy

Change "PS ANEXT_constant limit (dB)" to "PS ANEXT_constant (dB)" in Table 55-8.

Response Response Status C
ACCEPT.
Accept to change to PS ANEXT_constant

CI 55 SC 55.7.3.1.2 P 199 L 19 # 14
Alexander, Jan Nexans

Comment Type TR Comment Status A cabling

In Table 55-8 note 'b', TIA/EIA TSB-155 D1.3 is not a specification and "specified" is incorrect.

Suggested Remedy

Change "specified" to "given".

Response Response Status C
ACCEPT IN PRINCIPLE.

Change "specified" to "defined"

CI 55 SC 55.7.3.2.2 P 200 L 50 # 15
Alexander, Jan Nexans

Comment Type TR Comment Status A cabling

In Table 55-9, the PS AELFEXT_constant is not a "limit", specifically for the case of "category 6" PS AELFEXT is not specified.

Suggested Remedy

Change "PS AELFEXT_constant limit (dB)" to "PS AELFEXT_constant (dB)" in Table 55-9.

Response Response Status C
ACCEPT.
Accept to change to PS AELFEXT_constant

CI 55 SC 55.7.3.2.2 P 201 L 4 # 16
Alexander, Jan Nexans

Comment Type TR Comment Status A cabling

In Table 55-9 note 'b', TIA/EIA TSB-155 D1.3 is not a specification and "specified" is incorrect.

Suggested Remedy

Change "specified" to "given".

Response Response Status C
ACCEPT IN PRINCIPLE.

Change "specified" to "defined"

CI 55 SC 55.4.2.4 P 170 L 10 # 17
Seki, Katsutoshi NEC Electronics

Comment Type T Comment Status A infofield

CRC16 dosen't cover Oct13 and Oct14

Suggested Remedy

Oct13 and Oct14 should be covered by CRC16

Response Response Status C
ACCEPT.

CI 55 SC 55.4.2.4 P 170 L 10 # 18
Seki, Katsutoshi NEC Electronics

Comment Type T Comment Status A infofield

Transmit ordering of the information field should be specified.

Suggested Remedy

Oct1 is sent first in time.

LSB is sent first in time.

Namely, Oct1<0> should be the first bit transmitted.

Response Response Status C

ACCEPT.

CI 55 SC 4.3.1 P 172 L 12 # 19
Reviriego, Pedro Agere Systems

Comment Type TR Comment Status R thp2

The draft specifies a fixed set of both IIR and FIR THP responses. It has been shown by a number of contributors that fixing the precoder response results in a significant performance loss for some channel configurations.

It also benefits some specific receiver configurations, which is unfair.

We propose to maintain the present fixed coefficients scheme and, in addition, to include the option to program the precoder from the receiver.

The receiver could use alternative pre-calculated coefficients or it could dynamically calculate the coefficients.

Suggested Remedy

Adopt a programmable solution as per presentation Kota_1_0305.pdf

Response Response Status C

REJECT.

Motion to approve proposed response to accept the suggested remedy

Y: 17

N: 7

A: 15

Motion fails

Motion to reject the comment and have editor resubmit the comment in the next comment cycle

Y: 20

N: 6

A: 8

Passes

CI 55 SC 4.6.1 P 175 L 4 # 20
Reviriego, Pedro Agere Systems

Comment Type TR Comment Status A phycontrol2

The PHY control state diagram in the Draft is different from the one agreed by the working group (mcclellan_2_0205.pdf)

We also think there is a bug in mcclellan_2_0205.pdf: In state PMA Training Update S, instead of assigning THPinit we should assign THP IFm

Suggested Remedy

Editor to fix the differences as outlined above

Response Response Status C

ACCEPT IN PRINCIPLE.

mcclellan_2_0205.pdf references tellado_1_0205 for details on PBO incr and THP incr. The timer labeled PBO timeout was edited to maxincr_timer_done to be consistent with maxwait_timer and minwait_timer and to be more explicit with both PBO and THP increases.

PBOinit is in the Init S state, and thus the letter "S" was added at the end of the variable to make it more clear. This is not an error.

Remedy:

Replace "PCS_status" with "Loc_RCVR_status" in figure 55-18

CI 55 SC 55.7.3 P 197 L 14 # 21
Cobb, Terry Systimax

Comment Type TR Comment Status A cabling

To ensure the PHY will meet it's BER the alien crosstalk for a channel must be specified as a maximum requirement.

Suggested Remedy

change sentence to read:

"To ensure the reliable operation the alien crosstalk shall not exceed the specifications of 50.7.3.1.2 and 55.7.3.2.2."

Response Response Status C

ACCEPT IN PRINCIPLE.

Accept to explicitly specify alien crosstalk see resolution to comment#86 and #85

CI 55 SC 55.1.3.2 P 135 L 52 # 22
Powell, Scott Broadcom

Comment Type T Comment Status R intro
Verbiage inconsistent with stated objective.

Suggested Remedy

Change: "The PMA provides full duplex communications at 800Msymbols/s over four pairs of balanced cabling up to 100m in length."

To: "The PMA provides full duplex communications at 800Msymbols/s over four pairs of balanced cabling as specified in 55.7."

Response Response Status C

REJECT.
It is consistent with objectives.

Vote to accept the proposed response:

Y: 15

N: 4

A: 9

Motion passes

CI 55 SC 55.4.2.4 P 170 L 47 # 23
Powell, Scott Broadcom

Comment Type TR Comment Status A pbo2
Power backoff levels chosen without consideration of susceptibility to external interference.

Suggested Remedy

See comment on table 55-2. Same resolution should apply.

Response Response Status C

ACCEPT IN PRINCIPLE.

The Task Force has approved these levels.

Put in editor's note:

The power backoff levels chosen are subject to further study for EMI susceptibility.

Y: 21

N: 2

A: 20

Motion passes

CI 55 SC 55.4.3.1 P 173 L 12 # 24
Powell, Scott Broadcom

Comment Type TR Comment Status D pbo2
Power backoff schedule designed without consideration of susceptibility to external interference.

Suggested Remedy

Re-design schedule using analysis that includes additional noise from 55.5.8.3 (Common Mode Noise Rejection) or other susceptibility tests specified in the standard. See comment on section 55.5.8.3

Response Response Status Z

WITHDRAWN.

See response to comment #23

CI 55 SC 55.5.8.3 P 184 L 21 # 25
Powell, Scott Broadcom

Comment Type TR Comment Status A cmr
Test method is not specified. Data has not been presented which supports that the indicated levels correspond to internationally recognized susceptibility standards (or the cable clamp test specified for 1000BT in 44.6.1.3.3).

Suggested Remedy

Reference EN61000-4-6 for conducted immunity test method up to 80MHz. Reference EN61000-4-3 for radiated immunity test method for frequencies greater than 80MHz. Reference CISPR 24 (and/or EN55024) for minimum required immunity levels.

Change second paragraph to read:

The transceiver shall maintain an LDPC frame error rate less than 3.2×10^{-9} while being subject to noise immunity testing. Noise immunity test setup and method is described in EN61000-4-3 and EN61000-4-6 for conducted and radiated susceptibility respectively. Testing shall be performed to at least the minimum legal levels specified in CISPR 24.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the title of 55.9.5 to be "electromagnetic compatibility"

Add a note in 55.5.8.3 to point to 40.6.1.3.3 for the cable clamp test

CI 55 SC 55.7 P 193 L 15 # 26
Powell, Scott Broadcom

Comment Type T Comment Status R cabling

No need to explicitly specify Class E or Class F in introductory paragraph (per our objectives).

Suggested Remedy

Change first sentence to read:
10GBASE-T is designed to operate over ISO/IEC 11801 4-pair balanced cabling that meets the requirements specified in this subclause.

Response Response Status C

REJECT.
subclause 55.7 provides explicit reference to applicable media types for 10GBASE-T deployment. Introductory paragraph consistent with applicable media types specified in 55.7..

CI 55 SC 55.7.1 P 193 L 15 # 27
Powell, Scott Broadcom

Comment Type E Comment Status R cabling

This subsection seems redundant with the first paragraph with the exception of specifying a "star topology".

Suggested Remedy

Change first sentence in 55.7 intro paragraph to read:
10GBASE-T is designed to operate over a star topology using 4-pair ..."

Eliminate 55.7.1.

Response Response Status C

REJECT.
subclause 55.7.1 addresses cabling characteristics providing reader explicit reference to applicable media types for 10GBASE-T deployment including nominal impedance.

CI 55 SC 55.7.2 P 193 L 29 # 28
Powell, Scott Broadcom

Comment Type T Comment Status A cabling

Verbiage not consistent with objectives.

Suggested Remedy

Change first sentence to read:

The transmission parameters contained in this subclause are specified to ensure that a 10GBASE-T link segment consisting of at least 55 to 100 meters of 4-pair balanced cabling will provide a reliable medium.

Response Response Status C

ACCEPT IN PRINCIPLE.

A 10GBASE-T link segment consisting of at least 55 to 100 meters of Class E or up to 100 meters of Class F which meets the transmission parameters of this subclause will provide a reliable medium.

CI 55 SC 55.7.2 P 193 L 38 # 29
Powell, Scott Broadcom

Comment Type T Comment Status A cabling

Indicates that formulas for IL and ELFEXT in 11801 need to be extended in frequency but fails to mention that they also need to include length dependence.

Suggested Remedy

Change first sentence to read:

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 500MHz with appropriate adjustment for length.

Response Response Status C

ACCEPT IN PRINCIPLE.

First sentence to read:

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 500MHz with appropriate adjustments for length when applicable.

CI 55 SC 55.7.2.4.4 P 196 L 15 # 30
 Powell, Scott Broadcom
 Comment Type T Comment Status A cabling
 ELFEXT specification does not show dependence on length.
 Suggested Remedy
 Modify equation 55.19 to include length dependence.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Only the cable term is length dependent.

CI 55 SC 55.7.3.1.2 P 198 L 42 # 31
 Powell, Scott Broadcom
 Comment Type T Comment Status A cabling
 Equation 55-25 is redundant with 55-10.
 Suggested Remedy
 Modify equation 55-10 with appropriate length dependence. Drop equation 55-25 and associated text.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Add editors note: Equation 55-10 will be modified to show length dependence.

CI 55 SC 55.7.3.1.2 P 199 L 5 # 32
 Powell, Scott Broadcom
 Comment Type T Comment Status A cabling
 This table could be interpreted to imply that shielded Class F has 2dB *worse* ANEXT than Class E.
 Suggested Remedy
 I believe the intent of referencing a specific cable type in the first column is to indicate the 11801 IL equation for that particular cable. Perhaps it would be clearer to change the label from "cable" to "Insertion Loss" and replace the entries with references to appropriate equations from 11801.
 Response Response Status C

ACCEPT IN PRINCIPLE.
 The intent of the table is provide explicit reference to ISO/IEC 11801 cable types and distances constrained by their IL@250MHz and the derived PSANEXT.
 Resolution:
 Add a footnote to address comment. The The PS ANEXT limits represent the minimum requirements for 10GBASE-T operation over the referenced cabling type and distance and are not intended to represent the PS ANEXT performance limits of the cabling (i.e., the PS ANEXT performance of the cabling may be better than the minimum requirements specified in 10GBASE-T).

CI 55 SC 55.7.3.2.2 P 200 L 48 # 33
 Powell, Scott Broadcom
 Comment Type T Comment Status A cabling
 See comment on table 55-8.
 Suggested Remedy
 See remedy to comment on table 55-8
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 See response to comment #32

CI 55 SC 55.8.3.1 P 204 L 38 # 34
 Powell, Scott Broadcom
 Comment Type T Comment Status R returnloss
 Not necessary to specify RL to 500MHz with a 400MHz signal.
 Suggested Remedy
 Change upper limit from 500MHz to 400MHz to ease transformer/connector implementation.
 Response Response Status C
 REJECT.
 Editor will resubmit to working group ballot

CI 55 SC 55.1.3.2 P 136 L 1 # 35
 Ungerboeck, Gottfried Broadcom
 Comment Type T Comment Status A txfilter
 Text assumes transmit filtering performed entirely in analog domain.
 Suggested Remedy
 Change sentence to read:
 This THP processed four dimensional symbol stream may be further processed by a digital transmit filter and is then passed on to four digital-to-analog converters (DACs).
 Please see accompanying presentation on digital transmit filter.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Tx digital should be optional if tx meets PSD up/lower bound. Text should be changed to not prevent digital filtering.
 This response does not endorse specific digital transmit filter in presentation referred to in the suggested remedy
 Response:
 This THP processed four dimensional symbol stream may be further processed by a digital transmit filter and is then passed on to four digital-to-analog converters (DACs).

CI 55 SC 55.4.3.1 P 172 L 44 # 36
 Ungerboeck, Gottfried Broadcom
 Comment Type TR Comment Status A thp1
 Specifying fixed precoder values is premature prior to detailed specification of the transmitter.
 Suggested Remedy
 Please refer to corresponding presentation for transmitter specification and corresponding fixed IIR precoder coefficients.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 As an IIR set, use the coefficients defined in ungerboeck_1_0305.pdf slides 27, 28, 29 with the following correction:

On slide 27, change a3 to 0.565744

CI 55 SC 55.5.6 P 182 L 45 # 37
 Ungerboeck, Gottfried Broadcom
 Comment Type TR Comment Status D psd
 Transmit PSD mask is defined too loosely.
 Suggested Remedy
 Please see corresponding presentation for a proposed mask.
 Response Response Status Z
 WITHDRAWN.
 The Transmit PSD mask should be tightened.
 However there are other proposals and the specific proposal needs to be discussed.
 The zero excess bandwidth concept should also be discussed by the Task Force.

Cl 55 **SC 55.7.2.1** **P 193** **L 55** **# 38**
 Ungerboeck, Gottfried Broadcom
Comment Type **TR** *Comment Status* **R** *cabling*
 Insertion loss specification does not reflect length dependence.
Suggested Remedy
 Please see corresponding presentation for a concise specification of cabling characteristics.
Response *Response Status* **U**
 REJECT.
 55.7.2.1 is worst case IL. Length dependence IL specified in equation: (55-25). Editor accepts to provide reference to length dependence equation (55-25).

Cl 55 **SC 55.7.3.1.1** **P 197** **L 53** **# 39**
 Ungerboeck, Gottfried Broadcom
Comment Type **TR** *Comment Status* **R** *cabling*
 Equation 55-23 does not specify length dependence on ANEXT.
Suggested Remedy
 Please see corresponding presentation for a concise specification of cabling characteristics.
Response *Response Status* **U**
 REJECT.
 Adopt the proposed response
 Y: 20
 N: 5
 Motion passes

Cl 28 **SC** **P 17** **L 5** **# 40**
 Thompson, Todd SolarFlare Communic
Comment Type **E** *Comment Status* **A**
 Table 28-8.
 MDIO register for mr_adv_ability[16:1] is incorrect. MDIO register for mr_lp_adv_ability[16:1] is missing.
Suggested Remedy
 MDIO register for mr_adv_ability[16:1] should be 7.16.15:0 AN advertisement register (see in 45.2.7.6 that 7.16 is a copy of register 4).
 The MDIO register for mr_lp_adv_ability[16:1] should be 7.19.15:0 (see that in 45.2.7.7 that 7.19 is a copy of register 5).
Response *Response Status* **C**
 ACCEPT.

Cl 28 **SC** **P 34** **L 30** **# 41**
 Thompson, Todd SolarFlare Communic
Comment Type **T** *Comment Status* **R**
 This comment relates to Clause 45.2 Auto-Negotiation and to Clause 28 Parallel Detection and to the NLP Link Integrity Test.
 Clause 45.2 does not specify bits for parallel detection (see Clause 45.2 and also Table 28-8 where mr_parallel_detection_fault has no corresponding entry for MDIO register).
 This implies parallel detection is not required for 10GBASE-T auto-negotiation.
 The only instance of link_status_[NLP] in the arbitration state diagram is in the parallel detection (transition to LINK STATUS CHECK).

Parallel detection in the PICS proforma is required only when there is an MII interface. See items 20 and 21 in 28.5.4.6.

If parallel detection is only mandatory when an MII interface is present, there's no need to have the NLP Receive Link Integrity Test be mandatory unless an MII interface is present. (Removing parallel detection removes all reference s to link_status_[NLP] from the arbitration state diagram).

Suggested Remedy
 Modify Item 4 in 28.5.4.2 Status to MII:M.
Response *Response Status* **C**
 REJECT.
 The PICS item states that Figure 28-17 needs to be met. This is still necessary for 10GBASE-T devices.

Cl 45 **SC 45.2.7.9** **P 110** **L 18** **# 42**
 Thompson, Todd SolarFlare Communic
Comment Type **E** *Comment Status* **A**
 The reference to Table 45-3 is incorrect. There's no reference in Table 45-3 to link partner next pages.
Suggested Remedy
 Modify this reference to point to the correct table or figure.
 I'm not sure which table is the correct table. I couldn't tell from the context which table the writer had in mind. There's no table in Clause 28 that fits, but perhaps it's supposed to be a reference to a figure instead of a table in Clause 28? This probably should be Table 45-123!
Response *Response Status* **C**
 ACCEPT.

Cl 45 SC 45.2.7.11 P 112 L 47 # 43
Thompson, Todd SolarFlare Communic

Comment Type E Comment Status A check
Table 45-125.

The description of Loop Timing Ability is not accurate. It states "PHY is/is not capable of Loop timing". This is not consistent with the terms used in the rest of this table or in the control register description in the next table where LD/LP is used.

This term also doesn't match the description in 7.33.10 which says it indicates "...that the link partner has the ability...".

Suggested Remedy

Instead of "PHY" use the term "LP is/is not capable of Loop timing".

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.7.11 P 113 L 6 # 44
Thompson, Todd SolarFlare Communic

Comment Type E Comment Status A check
Table 45-125.

There is a typo in the "Bit(s)" field for the AN status register.

7.34.X is written when it should be 7.33.X.

Suggested Remedy

Change 7.34.6 to 7.33.6 and change 7.34.5:4 to 7.33.5:4.

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.7.11.5 P 113 L 55 # 45
Thompson, Todd SolarFlare Communic

Comment Type E Comment Status A check
The reference to register 6.1 is to a Clause 22 register when it should be to a clause 45 register.

Suggested Remedy

Modify 6.1 to 7.1.6.

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.7.11.9 P 114 L # 46
Thompson, Todd SolarFlare Communic

Comment Type E Comment Status A text
The descriptions for bits 7.33.6 LP THP IIR down selection and 7.33.5:4 LP THP FIR down selection are missing. They should follow subclause 45.2.7.11.9.

Suggested Remedy

Add descriptions for 7.33.6 and 7.33.5:4 just following 45.2.7.11.9.

Response Response Status C
ACCEPT IN PRINCIPLE.

Cl 45 SC 45.2.7.12 P 115 L 34 # 47
Thompson, Todd SolarFlare Communic

Comment Type E Comment Status A text
Descriptions for 7.34.5 and 7.34.4:3 from table 45-126 are missing the corresponding text describing their usage.

Suggested Remedy

Insert descriptions for 7.34.5 and 7.34.4:3 just before 45.2.7.12.1.

Response Response Status C
ACCEPT.

Cl 55 SC 55.6.2 P 190 L 12 # 48
Thompson, Todd SolarFlare Communic

Comment Type E Comment Status A management
The variable names for unformatted message bits were copied from the 1000BASE-T standard for master-slave determination, but for extended next pages these bits are in different positions now. However, the old variable names are still used which refer to the non-extended next page bit positions.

U0, U1, and U2 referred to these bit positions in next page format. In extended next pages these bits are U11, U12 and U13 respectively.

For clarity the variable names should match their new bit positions.

Suggested Remedy

Change U0 to U11, change U1 to U12 and change U2 to U13.

Response Response Status C
ACCEPT.
Directly below this text, it states which bits U0, U1, and U2 represent in the extended next page. This modification will make things slightly clearer.

CI 55 SC 55.4.3.1 P 173 L 1 # 49
Booth, Brad Intel

Comment Type E Comment Status D pbo1

The response to the comment for Table 55-2 is different than my recollection. I believe the agreement was to only have the rx'ed signal power and the power backoff columns.

Suggested Remedy

Remove editor's not and remove the length and IL columns from Table 55-2.

Response Response Status Z
WITHDRAWN.

CI 55 SC 55.11 P 208 L 19 # 50
Booth, Brad Intel

Comment Type T Comment Status R delay

TBD in the delay constraints table.

Suggested Remedy

Unless there is a maximum offered by a PHY vendor, I would recommend using the maximum associated with 10GbE. That would make this value = 18,432 bit times.

Also, change the values in Table 44-2 to reflect this change with 18,432 bit times and 36 pause_quanta.

Response Response Status C
REJECT.

See response to comment #87

CI 55 SC 55.12 P 209 L 1 # 51
Booth, Brad Intel

Comment Type E Comment Status A pics

Provide PICS for D2.0.

Suggested Remedy

Fill in the PICS.

Response Response Status C
ACCEPT IN PRINCIPLE.

Will start this process but will not be able to complete all PICS.

CI 28C SC 28C.11 P 52 L 23 # 52
Booth, Brad Intel

Comment Type E Comment Status A

Second sentence refers to next page, not extended next page.

Suggested Remedy

Insert "extended" before next page.

Response Response Status C
ACCEPT.

CI 44 SC 44.5 P 81 L 7 # 53
Booth, Brad Intel

Comment Type E Comment Status A

This section has been changed in D2.1 of REVam. There are no changes being made here by 802.3an.

Suggested Remedy

Delete all of subclause 44.5.

Response Response Status C
ACCEPT.

CI 55 SC 55.1.1 P 131 L 45 # 54
Booth, Brad Intel

Comment Type E Comment Status A intro

Editor's note not required.

Suggested Remedy

Delete editor's note.

Response Response Status C
ACCEPT.

CI 55 SC 55.4.4 P 173 L 50 # 55
Booth, Brad Intel

Comment Type T Comment Status A

Reference is to 40.4.4 which is the same text as in 55.4.4 but mentions 1000BASE-T. Reference 40.4.4's subclause to avoid having to edit Clause 40.

Suggested Remedy

Change reference from "40.4.4" to "40.4.4.1 and 40.4.4.2."

Response Response Status C
ACCEPT.

CI 55 SC 55.4.5.2 P174 L17 # 56
 Booth, Brad Intel
 Comment Type T Comment Status D maxwaittimer
 TBDs associated with timer values.
 Suggested Remedy
 Adopt timer values as listed and remove TBDs.
 Response Response Status Z
 WITHDRAWN.
 See response to comments 66

CI 00 SC P L # 57
 Booth, Brad Intel
 Comment Type E Comment Status A
 Ensure that D2.0 references the most recent version of 802.3REVam.
 Suggested Remedy
 As per comment.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Will synch up with the next version of REVam

CI 55 SC 55.5.8.4 P184 L33 # 58
 William Jones Solarflare Communica
 Comment Type T Comment Status A noise
 Power spectral density of the noise not specified (text shows it as TBD)
 Suggested Remedy
 Replace TBD with -141.9 (see jones_1_0305.pdf)
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Task force to discuss and decide on the exact number.
 Modify lines 27, 28, 29 to:
 While receiving data from a transmitter specified in 55.5.3 through a link segment
 corresponding to 100m of Class E specified in 55.7 connected to all MDI duplex channels,
 Modify figure 55-24 to clearly show how noise is added and the noise number should be
 the equivalent noise at the receiver under test. The alien cross talk source should be set up
 such that it does not significantly alter the link segment characteristics.

CI 55 SC 55.5.6 P182 L45 # 59
 Adriaenssens, Luc SYSTIMAX Solutions
 Comment Type TR Comment Status A psd
 The current upper PSD mask is a 2-piece linear equation. This results in an unnecessary
 sharp edge at 330 MHz. Simulations performed by Teranetics show that typical
 implementations will have substantial margin to this 2-piece PSD mask around 330 MHz
 (slide #13 of gupta_1_0105.pdf). We should tighten the specification to ensure
 implementations are more constrained to enhance interoperability and assure better EMC
 performance.
 Suggested Remedy
 Change the Upper PSD mask to a 3-piece linear equation:

$$\begin{array}{ll} -78 & 1 \leq f \leq 150 \\ -78 - (f - 150) / 58 & 150 < f \leq 730 \\ -78 - (f - 330) / 40 & 730 < f \leq 1850 \end{array}$$

 See supporting diagram in pdf file
 Response Response Status C
 ACCEPT.
 Motion to accept the suggested remedy
 Y: 21
 N: 3
 A: 10
 Motion passes

CI 44 SC 44.3 P79 L28 # 60
 George Zimmerman SolarFlare
 Comment Type T Comment Status A delay
 fill in TBDs in delay table. Discussion in study group and task force has made it clear that
 vendors will make application-specific delay tradeoffs. No driving reason exists for tight
 delays, and no data has been presented to restrict delays. Discussion with users has
 suggested that delays up to 10usec would be.
 Suggested Remedy
 fill in TBDs with equivalent values for 10 usec, delete reference to 55.11.1
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 See response to comment #87

CI 55 SC 55.11.1 P 208 L # 61

George Zimmerman

SolarFlare

Comment Type E Comment Status A delay

XGMII will likely not be available reference point, discussion is redundant to clause 44.

Suggested Remedy

delete lines 10-28, or replace to be in agreement with 44-2.

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment #87

replace with agreement with 44-2

CI 55 SC 55.4.3.1 P 173 L # 62

George Zimmerman

SolarFlare

Comment Type T Comment Status A pbo1

Fill in power backoff table.

Suggested Remedy

See table in presentation Zimmerman_1_0305.pdf

Length(m)	Far End Power at MDI	Backoff (dB)
0-25	>+0.3	14
25-35	+0.3 to -1.1	12
35-45	-1.1 to -2.3	10
45-55	-2.3 to -3.3	8
55-65	-3.3 to -4.2	6
65-75	-4.2 to -5.0	4
75-85	-5.0 to -5.7	2
>85	<-5.7	0

Response Response Status C

ACCEPT IN PRINCIPLE.

Power backoff schedule as per zimmerman_2_0305.pdf slide #8

Modify title of last column to read "Minimum Backoff (dB)"

Also add editors note to power backoff schedule saying:

"Power backoff schedule must be reverified if PSD mask is changed."

Motion to accept proposed response:

Y: 29

N: 3

A: 9

Motion passes.

CI 55A SC Table 55A P 214 L 3 # 63

Sailesh Rao

Phyten Technologies, I

Comment Type T Comment Status A hmatrix

The specification of the LDPC code has several problems:

1. The table for the specification is 145 pages long. It contains 194,699 entries, which is truly cumbersome.
2. The specification obscures the structured nature of the (2048,1723) LDPC code and therefore, anyone devising an encoder or a decoder from the standard would not be able to derive a competitive implementation.
3. The structured definition of the code is currently only available on the task force web site, which unlike the standard, is ephemeral in nature.

Suggested Remedy

Specify the LDPC code using the Hb sparse matrix, and the col_swap_b and row_swap_b vectors. Such a specification preserves the structured nature of the code, and provides the necessary tools for future implementers to derive competitive LDPC encoders and decoders. In addition, such a specification only needs $2048 \times 7 + 384 = 14,720$ entries in the tables and can be written up in less than 11 pages.

Response Response Status C

ACCEPT IN PRINCIPLE.

802.3an editorial staff is working with IEEE-SA to identify a location to store machine readable matrices.

The generator matrix provides a direct specification of the encoder in the transmitter. 802.3 will provide a recommended location for a machine readable specification of the generator matrix. Once that is available, the 145 pages will be remove.

The H matrix will be listed in an informative annex together with the col_swap_b and row_swap_b vectors. Even in this case, though it could be shorter, it will still be 11 pages of entries which are in a format that is cumbersome to use so for this matrix too, a machine readable version will be provided.

Put informative reference to relevant paper.

Cl 55 SC 55.4.3.1 P 172 L 15 # 64
Sailesh Rao Phytel Technologies, I

Comment Type TR Comment Status R thp2

There is no need for a THP Bypass mode during normal operation in the standard.
1. The THP Bypass mode is not needed for noise margin purposes for 0m operation.
2. If a THP Bypass mode is made available during normal operation, then implementers who are building PHYs based on just the THP Bypass mode will gain a competitive advantage if the specified THP coefficients are all unusable. At present, in Draft D1.3, the THP filters specified are all unusable if 1000BASE-T Alien FEXT/NEXT are the dominant noise sources in the cable plant.

Suggested Remedy

Delete the THP Bypass mode and free up the address space for useful purposes.

Response Response Status U

REJECT.
The task force has agreed that the bypass THP is desirable for very short channels.

The THP bypass will not be removed during startup and training

Motion to accept the proposed response to reject the comment

Y: 14

N: 5

A: 19

Motion Fails

Motion to accept the proposed response to reject the comment. The editor will resubmit in the next comment cycle.

Y: 24

N: 5

A: 10

Motion passes. Comment will be resubmitted to next comment cycle.

Cl 55 SC P L # 65
Bennett, Michael LBNL

Comment Type T Comment Status R cabling

Clause 55 includes alien crosstalk and extended frequency performance for the 10GBASE-T link segment. As with 1000BASE-T, the link segment specification of 55.7 must be supplemented with an Annex addressing the additional cabling considerations for 10GBASE-T to facilitate the end-user deployment.

Suggested Remedy

Include in 802.3 an Annex to Clause 55 addressing additional cabling design guidelines for 10GBASE-T; "Annex 55B - Additional cabling design guidelines for 10GBASE-T".

Boilerplate Proposal:

Annex 55B: Additional cabling design guidelines:

This annex provides additional cabling guidelines for 10GBASE-T deployment on balanced copper cabling systems as specified in 55.7.

These guidelines are intended to supplement those in Clause 55.

The 10GBASE-T PHY is designed to operate four pairs of balanced cabling, as specified in ISO/IEC 11801 Edition 2 with appropriate augmentation as specified in 55.7. It is recommended that the guidelines (proposed) in ANSI/TIA TSB 155 and ANSI/TIA 568-B.2-10 and ISO/IEC 11801 Edition 2.1 be considered before the installation of 10GBASE-T equipment for any cabling system.

55B.1 Alien crosstalk - coupling between link segments

55B.1.1 Cabling Topologies

+++point-to-point

+++asymmetrical

+++connector co-location

55B.1.2 Bundled or hybrid cables

55B.1.3 Field Testing

55B.1.4 Mitigation

+++patch cord

+++cabling unbundling

+++connector adjacency

55B.2 Link segment - extrapolated frequency performance

55B.2.1 Mitigation

+++cross-connect versus interconnect

55B.2.1 Field testing

Response Response Status C

REJECT.

This will be an informative annex and can be added during working group ballot.

CI 55 SC 55.4.5.2 P174 L 17 # 66
McClellan, Brett Solarflare

Comment Type T Comment Status A maxwaittimer

maxwait_timer value is TBD, and the text refers to only 1 of the 2 state machine figures using the timer.

Suggested Remedy

change text to:

maxwait_timer

A timer used to limit the amount of time during which a receiver dwells in the SLAVE SILENT and TRAINING states. The timer shall expire 2000 ± 10 ms after being started. This timer is used jointly in the PHY Control and Link Monitor stage diagrams. The maxwait_timer is tested by the Link Monitor to force link_status to be set to FAIL if the timer expires and loc_rcvr_status is NOT_OK. See Figures 55-18 and 55-19.

Response Response Status C

ACCEPT.

Also see responses to 56 and 89

CI 55 SC 55.4.5.2 P174 L 22 # 67
McClellan, Brett Solarflare

Comment Type T Comment Status A timers

The operation of the maxincr_timer isn't clear in the draft.

- First, the timer doesn't limit the amount of time in the PMA Training Init state. It only limits the time spent at any PBO setting.
- When does the timer expire when PBO = -14? The text is not clear on this.
- What happens when the timer expires while PBO=-6. Do you cycle back to PBO = -14 or stay at PBO=-6?
- The timing uncertainty after autoneg is ~68ms (8 autoneg frames=8x 8.5ms). Is there enough timing allowed for this?

Suggested Remedy

change the text to:

maxincr_timer

A timer used to limit the amount of time during which a Master dwells at each PBO setting while in the PMA Training Init M state. The timer shall expire at 168 ± 5 ms if PBO = -14, or at 100 ± 5 ms if PBO = -10. The timer shall not expire while PBO = -6.

Response Response Status C

ACCEPT.

CI 55 SC 55.4.5.2 P174 L 27 # 68
McClellan, Brett Solarflare

Comment Type T Comment Status A timers

The minwait timer definition refers to states that don't exist.

Suggested Remedy

change text to:

minwait_timer

A timer used to determine the minimum amount of time the PHY Control stays in the PCS Training and Send PCS Link OK states. The timer shall expire 1 ± 0.1 ms after being started.

Response Response Status C

ACCEPT.

CI 28 SC 28.3.2 P26 L 26 # 69
McClellan, Brett Solarflare

Comment Type T Comment Status A timers

The resolution for comment #85 at the February interim was that the link_fail_inhibit_timer would be specified differently for 10GBASE-T.

The draft does not yet reflect this change, and the time is still TBD.

This timer needs to be set such that it will not timeout prior to the time needed for PHY startup (proposed to be 2000ms).

A timer spec of 2000 to 2250 ms should be sufficient.

Suggested Remedy

Split the table entry for link_fail_inhibit_timer into lines for 10GBASE-T and other devices. Specify min/max times of 2000/2250 ms.

Also update the table in 28.5.4.8 page 44 line 22 and the text in 28.3.2 page 25 line 34 to reflect the change.

Response Response Status C

ACCEPT IN PRINCIPLE.

Split the table entry for link_fail_inhibit_timer into lines for 10GBASE-T and other devices. Specify min/max times of 2000/2250 ms with a note that these values only take effect after successful master/slave resolution for 10GBASE-T and are reset to the original values after break_link_timer_done.

Also update the table in 28.5.4.8 page 44 line 22 and the text in 28.3.2 page 25 line 34 to reflect the change.

Cl 55 SC 55.4.6.1 P 175 L 15 # 70
McClellan, Brett Solarflare

Comment Type T Comment Status A maxwaittimer

"NOTE-maxwait_timer is reset only upon transition from DISABLE 10GBASE_T TRANSMITTER state"

The maxwait timer should also be reset on the transition from Send PCS Link OK so that a retrain may occur from the Link Up state (as in 1000BASE-T) without transitioning to the Link Down state and restarting autonegotiation.

Suggested Remedy

change text to:

NOTE-maxwait_timer is reset only upon transition from DISABLE 10GBASE_T TRANSMITTER state or Send PCS Link OK state.

Response Response Status C
ACCEPT.

Cl 55 SC 55.3.2.2 P 145 L 56 # 71
McClellan, Brett Solarflare

Comment Type T Comment Status A infofield

"Training mode encoding also takes into account the value of the parameter loc_rcvr_status. By this mechanism, a PHY indicates the status of its own receiver to the link partner."

loc_rcvr_status is now sent in the Info Field, not continuously in the training sequence.

Suggested Remedy

Change text to:

"During training mode an InfoField is transmitted at regular intervals containing messages for startup operation. By this mechanism, a PHY indicates the status of its own receiver to the link partner."

Response Response Status C
ACCEPT.

Cl 55 SC 55.3.8 P 155 L 18 # 72
McClellan, Brett Solarflare

Comment Type E Comment Status A hmatrix

Reference to the file "gen_802.3an.txt" is awkward without giving a location to find the file.

Suggested Remedy

Add a description of where to find the file.

Response Response Status C
ACCEPT IN PRINCIPLE.

The 802.3 executive committee is meeting at this plenary to provide guidelines on where this file will be hosted. We will follow their guidelines and provide a location. The text of the draft will refer to the final proposed location and an Editor's note will provide the URL to be used till the final location is up and running.

Cl 55 SC 55.3.16.1 P 160 L 33 # 73
McClellan, Brett Solarflare

Comment Type T Comment Status A infofield

The InfoField is currently specified to be transmitted in the last 128 bits of every 16384 symbol periods.

Pair A is inverted every 256 symbol periods to denote the LDPC frame location.

Page 158 specifies that if requested by the link partner, the PCS shall reset the scrambler every 16384 symbol periods.

However, there is no explicit statement that these events are aligned.

Also, there is no explicit statement that the LDPC frame is aligned with the pair A inversion.

Additionally, I think it is desirable that the start of the InfoField be aligned with the start of the 16384 and 256 symbol periods.

Suggested Remedy

Add the following text:

The inversion on pair A at 256 symbol intervals defines the LDPC frame boundary during data mode. If requested by the link partner, the PCS will reset the training mode scrambler every 16384 symbol periods aligned with the 256 symbol period inversion on pair A.

change text to:

Notice that over the repeating time intervals of 16384 and of length 128, $m \cdot 16384 \leq n < m \cdot 16384 + 128$, $m = 1, 2, 3, \dots$, the PMA training pattern in pair A is XOR'ed with the InfoField (IFn).

Response Response Status C
ACCEPT IN PRINCIPLE.

It should be made clear that the optional reset of the PMA scrambler should be aligned with the PMA frame of 16384. There seems to be no advantage to moving the IF from the end to the beginning of the PMA frame

Cl 55 SC 55.4.2.4 P171 L 9 # 74
McClellan, Brett Solarflare

Comment Type T Comment Status A infofield
parameter "remotelF" is undefined

Suggested Remedy

Provide a definition or remove the reference.

Response Response Status C
ACCEPT IN PRINCIPLE.

Remove the reference

Cl 55 SC 55.6 P187 L 4 # 75
McClellan, Brett Solarflare

Comment Type E Comment Status A management
reference to clause 22 should be clause 45

Suggested Remedy

change text to:
10GBASE-T makes extensive use of the management functions provided by the MII
Management Interface (Clause 45), and the communication and self-configuration
functions provided by Auto-Negotiation (Clause 28).

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.3.11.3 P102 L 54 # 76
McClellan, Brett Solarflare

Comment Type T Comment Status A lfer
The LFER monitor only detects error rate higher than 1E-4.

Suggested Remedy

Change 1E-12 to 1E-4.

Response Response Status C
ACCEPT.

Cl 45 SC 45.2.1.60 P91 L 19 # 77
McClellan, Brett Solarflare

Comment Type T Comment Status R onehot

The use of one-hot encoding for the register bits appears to be a remnant from an ability
register rather than a status register.
Also only 4 THP settings are defined (including bypass) so there are too many bits defined.

Suggested Remedy

Change register bit definitions of 1.130.15:0 to:
1.130.12:10 Reserved Value always 0, writes ignored
1.130.9:8 Link Partner THP setting
00 = bypass
01 = SHORT
10 = MEDIUM
11 = LONG
1.130.7:2 Reserved Value always 0, writes ignored
1.130.1:0 THP setting
00 = bypass
01 = SHORT
10 = MEDIUM
11 = LONG

Response Response Status C
REJECT.

Nothing wrong with current implementation. The suggested remedy appears to be an
improvement but it should be submitted during working group ballot.

Editor to resubmit to working group ballot

CI 45 SC 45.2.1.61 P 93 L 23 # 78
McClellan, Brett Solarflare

Comment Type T Comment Status R onehot

The use of one-hot encoding for the register bits appears to be a remnant from an ability register rather than a status register.

Suggested Remedy

Change register bit definitions of 1.131.15:0 to:
1.130.15:11 Reserved Value always 0, writes ignored
1.130.10:8 Link partner TX power level
Link partner is operating with TX power level setting = -2dB * 1.130.10:8

1.130.7:3 Reserved Value always 0, writes ignored
1.130.2:0 TX power level
PMA is operating with TX power level setting = -2dB * 1.130.2:0

Response Response Status C

REJECT.

Nothing wrong with current implementation. The suggested remedy appears to be an improvement but it should be submitted during working group ballot.

Editor will resubmit to working group ballot.

CI 55 SC 55.7.2 P 193 L 29 # 79
Brown, Kevin Broadcom

Comment Type T Comment Status A cabling

The phrase "at least 55 to 100 meters of Class E" is not meaningful. The transmission parameters need to ensure a specific distance is always reliable. The current phrasing make it unclear whether a 65 meters (for example) link segment would be in all cases be reliable.

Suggested Remedy

The transmission parameters contained in this subclause are specified to ensure that a 10GBASE-T link segment consisting of at least 55 meters of Class E...

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment # 28.

Vote to accept proposed response:

Y: 22

N: 3

A: 10

Motion passes

CI 55 SC 4.3.1 P 172 L 39 # 80
Vareljian, Albert KeyEye Communicatio

Comment Type T Comment Status R thp2

Coefficient entries in the THP sets A(1), A(2) and A(3) represent 7-bit values, whereas the 802.3an TF adopted requirement is 8-bit.

Suggested Remedy

Replace coefficient entries in the THP sets A(1), A(2) and A(3) with 8-bit representation as follows:

A(1) = [1.78125 1.390625 0.515625 -0.203125 -0.65625 -0.875 -0.90625 -
0.796875 -0.609375 -0.359375 -0.140625 -0.03125 0 0 0]

A(2) = [1.265625 0.375 -0.4375 -0.78125 -0.765625 -0.5 -0.140625 0 0 0 0 0
0 0 0 0]

A(3) = [0.59375 -0.375 -0.625 -0.515625 -0.25 0.09375 0.078125 0 0 0 0 0
0 0 0 0]

Response Response Status C

REJECT.

Editor will resubmit in Working Group ballot.

Cl 55 **SC 55.4.6.1** **P 175** **L 28** **# 81**
McClellan, Brett Solarflare

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

Variables Decode IF_S, Decode IF_M and transition_count are used in the state machine without being defined.

Suggested Remedy
add the following text to 55.4.5.1:

Decode IF_M This variable reports that the Slave has successfully received and decoded the InfoField from the Master device. This variable takes on the value contained in the Message Field. Values: PBO_Increase, Transition_to_Training_Update, Transition_to_PCS_Training, Transition_to_Slave_Silent, or NOT_OK

Decode IF_S This variable reports that the Master has successfully received and decoded the InfoField from the Slave device. This variable takes on the value contained in the Message Field. Values: PBO_Increase, Transition_to_Training_Update, Transition_to_PCS_Training, Transition_to_Slave_Silent, or NOT_OK

transition_count This variable reports the value of the transition counter contained in the InfoField sent by the remote device. When the message field contains a flag for a state transition, the transition counter will denote the remaining number of InfoField until the next state transition.

Change the text in fig 55-18 at the transition from PMA Training Init to PMA Training Update from: Decode IF_S=OK and Decode IF_M = OK
to: Decode IF_S=Transition_to_Training_Update and Decode IF_M = Transition_to_Training_Update

Response **Response Status** **C**
ACCEPT.

Cl 55 **SC 4.3.1** **P 172** **L** **# 82**
Halder, Bijit Plato Networks

Comment Type **T** **Comment Status** **R** *thp2*

The proposed sets of FIR and IIR THPs were calculated without the presence of AFEXT or the power back off policy. And since then no analysis is presented to quantify the performance, in particular the SNR loss, for these THP in the presence of AFEXT, power back off, transmit distortion. Given the available small SNR margin, it is not justified to burden all vendors to implement THP sets that are not proven to work.

Suggested Remedy
Remove the THP sets until data is presented confirming satisfactory performance with realistic assumptions.

Response **Response Status** **C**
REJECT.
The current set was approved by the task force. The commenter has not recommended any specific THP FIR that improves the current set that was approved by the task force.

Motion to approve proposed response to reject the comment
Y: 23
N: 1
A: 14

Motion passes

Cl 55 **SC 55.4.3.1** **P 172** **L** **# 83**
Halder, Bijit Plato Networks

Comment Type **T** **Comment Status** **A** *thp1*

The draft specifies the number of THP sets to be 16. However, only few of them are specified in D1.4. The THP specification is incomplete.

Suggested Remedy
Either reduce the total number of THP sets to the specified ones or add TBDs for the unspecified sets.

Response **Response Status** **C**
ACCEPT IN PRINCIPLE.

Reduce the total number of THP sets to the specified ones.

CI 55 SC 55.4.3.1 P 173 L # 84
Halder, Bijit Plato Networks

Comment Type T Comment Status A pbo2

The power back off policies based on received signal power suffers significant SNR loss due to variation in transmit power. As a consequence, these PBO policies fail to guarantee even a 1.5dB system margin. Moreover, the received signal power at the MDI is hard to measure directly and accurately, and the lack of accuracy may jeopardize the robustness of the PBO policy.

Suggested Remedy

Remove the reference to MDI interface. Consider PBO policy that incorporate more than just receive signal power.

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment #62 (resolved 3/16/05)

Previous resolution on 3/15/05 to reject the comment
Task force did approve basing PBO on RX signal power.

Commenter's suggested remedy is unclear in what is meant by "more than just receive signal power".

Vote on accepting proposal to reject the comment
Y: 16
N: 8

Motion fails.

CI 55 SC 55.7.3.2.1 P 199 L # 85
Halder, Bijit Plato Networks

Comment Type T Comment Status A cabling

The PS AELFEXT is a core requirement for successful 10GBASE-T operation and must be made normative for both the worst case limit line and average limit line.

Suggested Remedy

1. Replace the text on page 199 line 55:

The PS AELFEXT loss between a disturbed duplex channel in a link segment and the disturbing duplex channels in other link segments shall meet the limit defined by the equation:

2. Add the following text at the end of the section:

The PS AELFEXT loss between a disturbed duplex channel in a link segment and the disturbing duplex channels in other link segments when averaged across four pairs of the disturbed duplex channel shall meet the limit defined by the equation:
 $PSAELFEXT_{ave} \geq X2 + 4 - 10 \log_{10}(f/100)$ (dB)

Response Response Status C

ACCEPT IN PRINCIPLE.

1. Replace the text on page 199 line 55:

The PS AELFEXT loss between a disturbed duplex channel in a link segment and the disturbing duplex channels in other link segments shall meet the values determined using equation (55-27):

2. Add the following text at the end of the section:

The average PS AELFEXT loss of the 4-pairs shall meet the values determined using equation (55-xx) $PSAELFEXT_{constant_avg} \geq X2 + 4 - 20 \log_{10}(f/100)$ (dB)

CI 55 SC 55.7.3.1.1 P 197 L 148 # 86

Halder, Bijit

Plato Networks

Comment Type T Comment Status A cabling

The PS ANEXT is a core requirement for successful 10GBASE-T operation and must be made normative for both the worst case limit line and average limit line.

Suggested Remedy

1. Replace the text on page 197 line 48:

The PS ANEXT loss between a disturbed duplex channel in a link segment and the disturbing duplex channels in other link segments shall meet the limit defined by the equations:

2. Add the following text at the end of the section:

The PS ANEXT loss between a disturbed duplex channel in a link segment and the disturbing duplex channels in other link segments when averaged across four pairs of the disturbed duplex channel shall meet the limit defined by the equations:

PSANEXT_ave \geq $X1+1-10\log_{10}(f/100)$ (dB) $1 \leq f \leq 100$
 $\geq X1+1-15\log_{10}(f/100)$ (dB) $100 < f \leq 500$.

Response Response Status C

ACCEPT IN PRINCIPLE.

1. Replace the text on page 197 line 48:

The PS ANEXT loss between a disturbed duplex channel in a link segment and the disturbing duplex channels in other link segments shall meet the values determined using equation (55-23):

2. Add the following text at the end of the section:

The average PS ANEXT loss of the 4-pairs shall meet the values determined using equation (55-xx)

PSANEXT_constant_avg \geq $X1+1-10\log_{10}(f/100)$ (dB) $1 \leq f \leq 100$
 $\geq X1+1-15\log_{10}(f/100)$ (dB) $100 < f \leq 500$.

CI 44 SC 44.3 P 79 L 28 # 87

Tellado, Jose

Teranetics

Comment Type T Comment Status A delay

Informative round trip delay value is TBD.

Suggested Remedy

Replace with ≤ 10 microsec.

Response Response Status C

ACCEPT.

See response to comment #60

The delay has to be put into bit times and
 100,352 bit times
 196 pause quanta

Straw poll:

~1.8 micro sec: 0

5 microsec: 4

10 microsec: majority

CI 44 SC 44.3 P 79 L 29 # 88

Tellado, Jose

Teranetics

Comment Type T Comment Status R delay

Informative round trip delay value is TBD.

Suggested Remedy

Replace with 5 microsec (including 100m of cable).

Response Response Status C

REJECT.

Task force to decide whether it should be equiv. to 5microsec or 10microsec as in comment #60

See response to comment #60

CI 55 SC 55.4.5.2 P 174 L 18 # 89
 Tellado, Jose Teranetics
 Comment Type T Comment Status D maxwaittimer
 maxwait_timer is currently 950/750ms.
 Suggested Remedy
 Replace with 2 sec
 Response Response Status Z
 WITHDRAWN.
 See response to comment 66

CI 55 SC P L # 90
 Tellado, Jose Teranetics
 Comment Type T Comment Status D thp1
 THP IIR coefs missing. THP filters below have been presented in golden_1_1104.
 Suggested Remedy
 Adopt the following subset of 3 THP IIRs
 Long, $H(D) = (1 - D^2) / (1 - 64/32D + 42/32D^2 - 9/32D^3)$
 Medium, $H(D) = (1 - D^2) / (1 - 13/8D + 21/32D^2)$
 Short $H(D) = (1 - D^2) / (1 - 9/8D - 5/32D^2 + 21/64D^3)$
 Response Response Status Z
 WITHDRAWN.
 Draft currently does not include an IIR set.

CI 55 SC 4.3.1 P 173 L 24 # 91
 Tellado, Jose Teranetics
 Comment Type T Comment Status A pbo1
 Received signal power at MDI is TBD
 Suggested Remedy
 Replace with MDI received power for a nominal tx power of 4.2dBm and a nominal tx psd.
 The corresponding rx MDI dbm values for PBO of -2dB, -4dB, -6, -8, -10, -12 and -14
 should be replaced with -9.8, -8.8, -7.6, -6.4, -4.9, -3.3, -1.5
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Also see comment #62