

IEEE P802.3an Comments

Cl 01 SC 1.3 P3 L24 # 121
 Booth, Brad Intel
 Comment Type E Comment Status X
 Typo.
 Suggested Remedy
 Change "augemented" to "augmented".
 Response Response Status O

Cl 28 SC P5 L1 # 124
 Booth, Brad Intel
 Comment Type E Comment Status X
 Remove unedited text.
 Suggested Remedy
 Remove 28.1, 28.4 and 28.6.
 Response Response Status O

Cl 01 SC 1.4 P3 L35 # 122
 Booth, Brad Intel
 Comment Type E Comment Status X
 Text not required.
 Suggested Remedy
 Remove "is used in 10GBASE-T".
 Response Response Status O

Cl 28 SC 28.2.1.2 P12 L34 # 126
 Booth, Brad Intel
 Comment Type T Comment Status X
 In Figure 28-7, the Technology Ability Field arrow includes bit D12 (A7). This bit has been modified to be an indication for extended next pages which is less of a technology ability as it is an auto-negotiation ability.
 Suggested Remedy
 Change A7 to be XNP. Shift the arrow to only point to A6. Shift 28.2.1.2.3-5 to be 28.2.1.2.4-6. Add new 28.2.1.2.3 as found in 28B.3. Remove A7 and extended next page information from Annex 28B.
 Response Response Status O

Cl 01 SC 1.5 P3 L56 # 123
 Booth, Brad Intel
 Comment Type E Comment Status X
 Change "CAT6" to be "Cat 6".
 Suggested Remedy
 As per comment.
 Response Response Status O

Cl 28 SC 28.2.3.4.2 P18 L28 # 75
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Two periods at end of sentence.
 Suggested Remedy
 Remove period.
 Response Response Status O

Cl 28 SC P5 L1 # 125
 Booth, Brad Intel
 Comment Type T Comment Status X
 This should be a revision to 802.3REVam.
 Suggested Remedy
 Verify that this is a revision to the existing REVam draft.
 Response Response Status O

Cl 28 SC 28.2.4.1.1 P21 L34 # 12
 Thompson, Todd SolarFlare Communica
 Comment Type E Comment Status X
 The register definition for MII control register 0 is defined in 22.2.4.1.
 Suggested Remedy
 Change 28.2.4.1 to 22.2.4.1.
 Response Response Status O

Cl 28 SC 28.2.4.1.2 P21 L54 # 113
 Thompson, Todd SolarFlare Communica
 Comment Type E Comment Status X
 The MII status register 1 is defined in 22.2.4.2 not 28.2.4.2.
 Suggested Remedy
 Change 28.2.4.2 to 22.2.4.2.
 Response Response Status O

Cl 28 SC 28.2.4.1.8 P26 L1 # 127
 Booth, Brad Intel
 Comment Type E Comment Status X
 In Table 28-8, break the MII/MDIO column into two columns.
 Suggested Remedy
 Create one column for MII (Clause 22), and another column for MDIO (Clause 45).
 Response Response Status O

Cl 28 SC 28.3.1 P30 L31 # 128
 Booth, Brad Intel
 Comment Type E Comment Status X
 Remove wasted space.
 Suggested Remedy
 Fix.
 Response Response Status O

Cl 28 SC 28.3.2 P36 L # 114
 Thompson, Todd SolarFlare Communica
 Comment Type T Comment Status X
 This is on page 36 lines 57-59 and page 37 lines 1-2 and the table 28-9. Regarding the time out values for nlp_test_min_timer, I don't think it's clear if the time out values is tied to whether a PHY supports extended next pages or is currently in the process of exchanging extended next pages. The spec seems to be saying that a phy that has support of extended next pages should always use the 6.75-7.25 timeout value. The base page is to be exchanged using the standard protocol and as such I would have expected the base page exchange to use all the non-extended next page timeout values and counts. However, this part of the spec seems to be saying that the extended next page value is to be used even during base page exchange.
 Suggested Remedy
 Clarify when the second timeout value of 6.75-7.25 ms is to be used and when the 5-7 ms timeout value is to be used.
 Response Response Status O

Cl 28 SC 28.3.2 P37 L42 # 129
 Booth, Brad Intel
 Comment Type E Comment Status X
 Remove wasted space.
 Suggested Remedy
 Fix.
 Response Response Status O

Cl 28 SC 28.5.3 P44 L37 # 130
 Booth, Brad Intel
 Comment Type T Comment Status X
 It should be mandatory that AN support non-extended next page exchanges and non-optimized FLP-to-FLP burst timing. Therefore, the only options/capabilities that should be required to be listed are *ENP and *OPT.
 Suggested Remedy
 Remove *RNP and *RPT from options table and from other PICS entries.
 Response Response Status O

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Cl 28 SC 28.6 P57 L54 # 76
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Missing text. I don't remember removing this text.
 Suggested Remedy
 Insert "Annex 28B" in appropriate location.
 Response Response Status O

Cl 28C SC 28C.11 P66 L55 # 134
 Booth, Brad Intel
 Comment Type T Comment Status X
 Replace TBD.
 Suggested Remedy
 Cross-reference to 55.6.1.
 Response Response Status O

Cl 28C SC P64 L18 # 131
 Booth, Brad Intel
 Comment Type T Comment Status X
 The use of M10 to indicate extended next pages seems to be overkill considering that we have exchanged extended next page capabilities in the base page.
 Suggested Remedy
 Delete text about M10 and its association with extended next pages.
 Response Response Status O

Cl 28D SC 28D.5 P69 L45 # 135
 Booth, Brad Intel
 Comment Type T Comment Status X
 The addition of "extended next pages" in this normative annex would imply that Clause 40 now supports extended next pages. While the Task Force is permitting this ability with message code #9, we don't need to call out "extended".
 Suggested Remedy
 Remove inserted text in item b).
 Response Response Status O

Cl 28C SC P65 L9 # 132
 Booth, Brad Intel
 Comment Type E Comment Status X
 In Table 28C-1, the 10GBASE-T Technology Message Code also contains information about 1000BASE-T.
 Suggested Remedy
 Add 1000BASE-T to the message code description.
 Response Response Status O

Cl 40 SC 40.4 P185 L # 11
 Thompson, Todd SolarFlare Communica
 Comment Type T Comment Status X
 The auto-crossover state diagram (figure 40-17 in 802.3-2002) should be duplicated here just after the link monitor state diagram, figure 55-19.
 Suggested Remedy
 Include the diagram.
 Response Response Status O

Cl 28C SC 28C.11 P66 L51 # 133
 Booth, Brad Intel
 Comment Type T Comment Status X
 Message code #9 should be able to work even if extended next pages are not used.
 Suggested Remedy
 Remove "extended" from first sentence. Delete last sentence.
 Response Response Status O

Cl 44 SC 44 P89 L20 # 33
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 The draft includes an Annex 55A that is not listed here.
 Suggested Remedy
 Change text to read "...and Annex 44A through Annex 55A."
 Response Response Status O

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Cl 45 SC 45.2.1 P101 L47 # 136
 Booth, Brad Intel
 Comment Type E Comment Status X
 Numbering is not in order.
 Suggested Remedy
 Change 1.132 to 1.131. Change the next row of the table to start at 1.132 instead of 1.133.
 Response Response Status O

Cl 45 SC 45.2.1.7.4 P102 L50 # 137
 Booth, Brad Intel
 Comment Type E Comment Status X
 Replace TBD.
 Suggested Remedy
 Change TBD to 55.4.2.2.
 Response Response Status O

Cl 45 SC 45.2.1.59.1 P104 L35 # 142
 Booth, Brad Intel
 Comment Type E Comment Status X
 Sentence does make sense.
 Suggested Remedy
 Change "... during the startup protocol and invalid." to "... during the startup protocol are invalid."
 Response Response Status O

Cl 45 SC 45.2.1.7.5 P103 L8 # 139
 Booth, Brad Intel
 Comment Type T Comment Status X
 Replace TBD with reference.
 Suggested Remedy
 Change TBD to be 55.4.2.3.
 Response Response Status O

Cl 45 SC 45.2.1.59.1 P104 L36 # 143
 Booth, Brad Intel
 Comment Type T Comment Status X
 Replace TBD.
 Suggested Remedy
 Change TBD to read:
 PMA link_status = FAIL.
 Response Response Status O

Cl 45 SC 45.2.1.8 P103 L28 # 141
 Booth, Brad Intel
 Comment Type E Comment Status X
 There is only one 10GBASE-CX4 PMD.
 Suggested Remedy
 Insert a "the" before 10GBASE-CX4 and change PMDs to PMD.
 Response Response Status O

Cl 45 SC 45.2.1.61 P106 L41 # 144
 Booth, Brad Intel
 Comment Type E Comment Status X
 Incorrect register reference.
 Suggested Remedy
 Change 1.133 to be 1.131.
 Response Response Status O

Cl 45 SC 45.2.3.1.2 P L # 83
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 The Loopback (3.0.14) bit description needs to be updated to include 10GBASE-T.
 Suggested Remedy
 Add text:
 When bit 3.0.14 is set to a one, the 10GBASE-T PCS shall accept data on the transmit path and return it on the receive path. The specific behavior of the 10GBASE-T PCS during loopback is specified in 55.3.
 Response Response Status O

Cl 45 SC 45.2.3.11.1 P113 L36 # 145
 Booth, Brad Intel
 Comment Type E Comment Status X
 Need a space.
 Suggested Remedy
 Insert a space between & and 10GBASE-T.
 Response Response Status

Cl 45 SC 45.2.7 P115 L # 15
 Thompson, Todd SolarFlare Communica
 Comment Type E Comment Status X
 Table 45-117 and the entire clause 45.2.7 numbering of registers does not match Table 55-4 in Clause 55.6.
 The bottom line of Table 45-117 on page 115 is missing.
 Suggested Remedy
 Make table 55-4 match Table 45-117 or vise versa.
 Fix the bottom outline of Table 45-117 on page 115.
 Response Response Status

Cl 45 SC 45.2.7 P115 L25 # 23
 Thompson, Todd SolarFlare Communica
 Comment Type TR Comment Status X
 This comment applies to all of Clause 45.2.7 and also 55.6.

Only when coming upon a reference to bit 6.1 in Table 45-121 and Clause 45.2.7.6.5 did it become clear that it's intended that a mixture of Clause 22/28 registers and Clause 45 registers will be required to manage auto-negotiation for a 10GBASE-T PHY.

All other functions for 10GBASE-T PHYs can be accomplished using only Clause 45 registers.

A single-speed 10GBASE-T PHY should be capable of being managed entirely using Clause 45 registers.

Suggested Remedy

Duplicate the functionality of Clause 22/28 Registers needed for auto-negotiation in Clause 45 so that a 10GBASE-T PHY may be managed entirely with an auto-negotiation MMD.

Make the Clause 22/28 registers optional for 10GBASE-T, so that an implementor who is implementing a multi-speed PHY can manage the auto-negotiation using Clause 22/28 and only needs to turn to Clause 45 registers when needed to support the extended next page functionality offered in Clause 45.

If this approach is not taken, and an approach that splits the functionality between Clause 22/28 and 45 is used, then write a section documenting the bits and their usage for all bits in the Clause 22/28 registers which apply and do not apply to managing the PHY. (For example, there's a reset bit in the clause 22 register 0. Does setting this bit result in resetting all MMD's within the PHY? Just the auto-neg MMD? Etc. There are several other bits in the Clause 22 registers whose usage become vague when these registers get pulled in. (status bits, etc.)

Finally, some of the bits in Clause 22/28 were moved to Clause 45 registers. If the Clause 22/28 registers are left, these should be removed from Clause 45 (for example, 7.0.12 and 7.0.9 are also located in Clause 22 Register 0.

Response Response Status

Cl 45 SC 45.2.7 P116 L15 # 18
Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

Lines 15-17, Table 45-117. This comment also applies to Table 55-4 in Clause 55.6 and throughout Clause 45.2.7 in all other places.

The names in these two tables do not match and the names in Table 45-117 are incorrect (and throughout Clause 45.2.7). They are inconsistent with the names in Clause 28 and Clause 22 even though they share the same functionality.

Suggested Remedy

Both tables should have the same register names and register numbering.

Registers 7.19-7.21 in both tables and throughout 45.2.7 should be changed from "AN LD XNP ability register" to "AN XNP Transmit Register" to match the similar name in Clause 28 and to match its functionality.

Registers 7.22-7.24 in both tables and throughout 45.2.7 should be changed from "AN LP XNP ability register" to either "AN LP Next Page Ability Register" to match Clause 28 or "AN LP Received Next Page" to match Clause 22. At least it should have the words "next page" in the name so as not to confuse it with register 7.16 in that same table (45-117).

Response Response Status O

Cl 45 SC 45.2.7.1 P116 L36 # 146
Booth, Brad Intel

Comment Type T Comment Status X

Table 45-118 for register 7.0 should have a reset bit.

Suggested Remedy

Add reset bit (7.0.15) to the table and the following text as 45.2.7.1.1:
Resetting AN is accomplished by setting bit 7.0.15 to a one. This action shall set all AN registers to their default states. As a consequence, this action may change the internal state of AN and the state of the physical link. This action may also initiate a reset in any other MMDs that are instantiated in the same package. This bit is self-clearing, and AN shall return a value of one in bit 7.0.15 when a reset is in progress and a value of zero otherwise. AN is not required to accept a write transaction to any of its registers until the reset process is completed. The reset process shall be completed within 0.5 s from the setting of bit 7.0.15. During a reset, AN shall respond to reads from register bit 7.0.15. All other register bits should be ignored.

NOTE—This operation may interrupt data communication.

Response Response Status O

Cl 45 SC 45.2.7.10 P122 L50 # 150
Booth, Brad Intel

Comment Type T Comment Status X

The order in Table 45-124 seems a bit strange. Normal transmission is the message next page, then two unformatted code messages. From reading this table, someone might mistake the order of the data.

Suggested Remedy

List register 19, then 20, followed by 21.

Same applies to Table 45-125.

Response Response Status O

Cl 45 SC 45.2.7.2 P117 L20 # 16
Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

Table 45-122 reference is wrong.

Suggested Remedy

It should be Table 45-119.

Response Response Status O

Cl 45 SC 45.2.7.2 P117 L34 # 17
Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

Remote fault bit should be SC and LH in addition to RO. See the text regarding the behavior of this bit and also see the similar bit definition in Clause 22.

Suggested Remedy

Add SC and LH to the R/W column for this bit.

Response Response Status O

Cl 45 SC 45.2.7.2.1 P117 L47 # 19

Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

Lines 47-53.

The references to 7.16 and 7.19-7.21 are incorrect.

Looking at the similar Clause 28.2.4.1.2, the registers listed are 4,5,6 (in Clause 28) which are the registers "AN Advertisement Register", "LP AN Ability Register", and the "AN Expansion Register".

This confusion seems to have been partially a result of the name being incorrect for Registers 7.19-21 being labelled "ability" when it is in fact a "transmit" register.

Suggested Remedy

7.16 should be listed, but not 7.19-21.

Until the Clause 22/28 issues are resolved, it's not clear which other registers should be listed in addition to 7.16.

If the Clause 22/28 registers are left, then registers 4 and 6 should be added to the list. If the functionality of registers 4 and 6 are moved to equivalent Clause 45 registers, the new registers should be listed.

Response Response Status O

Cl 45 SC 45.2.7.2.2 P117 L55 # 147

Booth, Brad Intel

Comment Type E Comment Status X

Remote fault bit references PMA/PMD when this bit is only associated with AN.

Suggested Remedy

Change PMA/PMD in the subclause to be AN.

Response Response Status O

Cl 45 SC 45.2.7.5 P118 L26 # 148

Booth, Brad Intel

Comment Type TR Comment Status X

The setup of the registers here are a little jumbled because there is a mix of Clause 22 functionality. Unlike Clause 22, Clause 45 has the ability to separately manage each part of the PHY. AN should be treated as a separate entity.

Suggested Remedy

In Table 45-117, shift registers 7.16 to 7.24 to be 7.19 to 7.27. Add register 7.16 to be AN LD base page ability register. Change register 7.7 to indicate the status of next page transmissions (as in MII register 6), delete all other information. Move registers 7.8 and 7.9 to registers 7.32 and 7.33. Register 7.32 should be renamed "10GBASE-T AN status register". Information for the base pages and next pages should be contained in 55.6.

Response Response Status O

Cl 45 SC 45.2.7.5.1 P119 L4 # 21

Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

Word is missing on line 4.

Suggested Remedy

Add the word "use" between the words "will" and "Auto-negotiation".

Response Response Status O

Cl 45 SC 45.2.7.5.5 P119 L37 # 22

Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

211 should be 2 raised to the 11th power.

Suggested Remedy

Modify 11 to be an exponent of 2.

Response Response Status O

Cl 45 SC 45.2.7.6 P120 L1 # 149
 Booth, Brad Intel
 Comment Type E Comment Status X
 Register 7.8 is not about the status of 10GBASE-T, but about the resolution of the local device and link partner.
 Suggested Remedy
 Change heading and supporting text to reference register as "10GBASE-T auto-negotiation resolution status register".
 Response Response Status O

Cl 55 SC P225 L1 # 154
 Booth, Brad Intel
 Comment Type E Comment Status X
 Annex 55A doesn't follow the correct format.
 Suggested Remedy
 Update the format to comply with the IEEE style guide.
 Response Response Status O

Cl 45 SC 45.2.7.7 P121 L26 # 24
 Thompson, Todd SolarFlare Communica
 Comment Type T Comment Status X
 Test Mode Register 7.9 does not seem to be auto-negotiation related.
 Suggested Remedy
 Place the test mode control register into another MMD (PMA or PCS), or explain the connection to auto-negotiation.
 Response Response Status O

Cl 55 SC 3.12 P165 L8 # 99
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Current Test pattern generator text was copied directly from Clause 49 as a reference, and values were replaced by TBD. The first test should be covered by the PMA electrical tests. The second test is not useful. The third test is intended to measure the link BER, but as described does not include the LDPC error correcting capability
 Suggested Remedy
 Eliminate the placeholder reference test 1 and 2 and update the last test to include the LDPC encoder and LDPC decoder. Moreover, to reduce the number of PRBS generators required, use the 58 bit PCS scrambler PRBS to generate pseudo random binary data.
 Response Response Status O

Cl 45 SC 45.2.7.9 P122 L123 # 25
 Thompson, Todd SolarFlare Communica
 Comment Type E Comment Status X
 These comments apply to pages 122-123, all sections and tables related to the registers below.
 The names are incorrect for registers 7.19-21 and 7.22-24. See previous comment regarding these names.
 Suggested Remedy
 Change the names as per previous comment.
 Response Response Status O

Cl 55 SC 3.16 P167 L22 # 100
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Repetition period for periodic PMA training sequence mode is TBD. For simplicity it should be a multiple of 256 the repetition period of the pair A sync bit which is aligned with the LDPC codeword boundary
 Suggested Remedy
 Replace TBDperiodic with $2^{16}=16384$
 Response Response Status O

Cl 55 SC 3.16.2 P169 L 10 # 101

Tellado, Jose Teranetics

Comment Type T Comment Status X

InfoField bits must be defined to indicate current local tx THP/PBO, future local tx THP/PBO desired remote tx THP/PBO, counters, SNR and loc_rcv_status.

Suggested Remedy

'4' bits for each THP index, '3' bits for each PBO index, 12 bits for each counter to indicate multiples of PMA training periods with a max time interval of $2^{14}/800e6 \cdot (2^{12}-1) = 335ms$, 5 bits for slicer SNR margin in 0.5dB increments from -5dB to 10.5dB. The number of counters should include remaining periods to Master THP/PBO increase, periods to THP update and periods to transition to data PCS mode

Response Response Status O

Cl 55 SC 3.16.3 P169 L 21 # 102

Tellado, Jose Teranetics

Comment Type E Comment Status X

This section header was copied from clause 40 and is not needed here. This section is currently empty

Suggested Remedy

Remove this header

Response Response Status O

Cl 55 SC 3.18.2 P173 L 39 # 103

Tellado, Jose Teranetics

Comment Type T Comment Status X

Error block counter is TBD

Suggested Remedy

Replace with 6 bit counter

Response Response Status O

Cl 55 SC 3.6 P163 L 1 # 98

Tellado, Jose Teranetics

Comment Type T Comment Status X

Master and Slave have different 58bit self sync scramblers. There is no need make sure the initial condition is different

Suggested Remedy

Make initial seeds implementer's choice

Response Response Status O

Cl 55 SC 4.2.4 P179 L 14 # 105

Tellado, Jose Teranetics

Comment Type T Comment Status X

PHY control defines the start-up sequence. Draft 1.3 has a baseline start-up that requires more details from THP and Power Backoff settings and timers for each state.

Suggested Remedy

Update PHY control diagram based on tellado_1_0205.pdf

Response Response Status O

Cl 55 SC 4.2.4 P179 L 27 # 8

Zimmerman, George Solarflare Communicat

Comment Type TR Comment Status X

Power backoff levels require definition to work with AFEXT and AFEXT scaling.

Suggested Remedy

Define 2 dB steps as in zimmerman_1_0205.pdf, as follows:
Power Backoff Schedule

Length (m)	IL 250 MHz (dB)	Backoff (dB)
0-25	<9.0	14
25-45	9.0-16.2	12
45-55	16.2-19.8	10
55-65	19.8-23.4	8
65-75	23.4-26.9	6
75-85	26.9-30.5	4
85-95	30.5-34.1	2
>95	>34.1	0

Response Response Status O

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Cl 55 SC 4.3.1 P180 L34 # 106
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 THP details are missing. Specifically FIR and IIR coefficients and number of sets
 Suggested Remedy
 Update THP details with updated THP proposal in tellado_1_0205.pdf
 Response Response Status O

Cl 55 SC 5.10 P195 L34 # 97
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Complete and approve 55.5.10
 Suggested Remedy
 On line 35, replace TBD with '2' and f1 with 80MHz
 Response Response Status O

Cl 55 SC 4.5.1 P182 L16 # 104
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Power backoff levels have been specified, but the required algorithm to select the appropriate PBO setting as a function a channel characteristics is missing
 Suggested Remedy
 Adopt PBO values from joint Power Back Presentation zimmerman_1_0205.pdf
 Response Response Status O

Cl 55 SC 5.2 P188 L10 # 93
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Test channel for transmitter jitter test is not approved
 Suggested Remedy
 Remove table
 Response Response Status O

Cl 55 SC 4.6.2 P185 L31 # 107
 Tellado, Jose Teranetics
 Comment Type E Comment Status X
 Figure reference to autoneg ref is not confirmed
 Suggested Remedy
 Eric L. should confirm
 Response Response Status O

Cl 55 SC 5.3 P189 L1 # 89
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 TBDnumbsym is unspecified. Setting this to 10 corresponds to an output frequency of 40MHz
 Suggested Remedy
 Replace TBDnumbsym by 10
 Response Response Status O

Cl 55 SC 5.1 P187 L10 # 88
 Tellado, Jose Teranetics
 Comment Type TR Comment Status X
 Review and approve text relating to isolation requirement. This text is similar to clause 40 text with references updated
 Suggested Remedy
 Review and approve text relating to isolation requirement. This text is similar to clause 40 text with references updated
 Response Response Status O

Cl 55 SC 5.3 P189 L19 # 90
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Specify frequencies for single tone nonlinearity test
 Suggested Remedy
 Frequencies shall be 800/1024*[13 23 53 101 167]
 Response Response Status O

Cl 55 SC 5.3 P189 L21 # 91
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Frequency pairs for two tone tests are not specified
 Suggested Remedy
 The following pairs shall be used for the two tone test:
 800/1024*{ [179,181], [277,281], [397,401]}
 Response Response Status O

Cl 55 SC 5.5 P192 L17 # 7
 Zimmerman, George Solarflare Communicat
 Comment Type E Comment Status X
 TX nonlinearity specification is overly complex. Specification requires synchronous maintenance of frequency breakpoints, slope and floor. Simplify.
 Suggested Remedy
 Replace equation 55-7 with form as in pagnanelli_4_0105.pdf, slide 1.
 Response Response Status O

Cl 55 SC 5.3 P192 L10 # 92
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Test setup for tx jitter measurements is not approved
 Suggested Remedy
 Replace figure 55-24 with figure in presentation tellado_1_0205.pdf
 Response Response Status O

Cl 55 SC 5.5 P193 L18 # 95
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Lower end of frequency range for nonlinearity measurement, Fo is not specified.
 Suggested Remedy
 Replace Fo with 5 MHz
 Response Response Status O

Cl 55 SC 5.4 P192 L42 # 94
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 Transmit voltage is provided as a range (2V,2.5V); recommend a specific voltage
 Suggested Remedy
 2V +- 15%
 Response Response Status O

Cl 55 SC 5.5 P193 L37 # 96
 Tellado, Jose Teranetics
 Comment Type T Comment Status X
 The draft calls out recommended nonlinearity specs, which are unspecified
 Suggested Remedy
 Set recommended values as Xnonlin=60, Xnlslope=0 or eliminate reference to recommended values.
 Response Response Status O

Cl 55 SC 5.4 P192 L42 # 6
 Zimmerman, George Solarflare Communicat
 Comment Type T Comment Status X
 Peak to peak voltage spec is redundant and unnecessary now that transmit power and PSD mask defined. Keeping this redundant spec also comes with the cost of an additional test mode.
 Suggested Remedy
 Delete peak-to-peak voltage specification.
 Response Response Status O

Cl 55 SC 5.5 P193 L37 # 5
Zimmerman, George Solarflare Communicat

Comment Type E Comment Status X

"Recommended" linearity specification is TBD. Values are internal to vendors' designs and are not required for interoperability by definition. Debate on simply the required (normative) specifications has highlighted significant differences in vendors' linearity requirements. Hence a general "recommendation" is unlikely to represent common design assumptions.

Suggested Remedy

Delete reference to "recommended" linearity specification. Provide only normative specification required for interoperability.

Response Response Status O

Cl 55 SC 55.1 P139 L12 # 9
Eisler, George Solarflare

Comment Type TR Comment Status X

Recommendation for testing all cabling systems prior to installation of equipment

Suggested Remedy

Add the following text:

"It is highly recommended that any cabling system, newly or previously installed, be measured/tested before the installation of 10GBASE-T equipment by following the guidelines in (proposed) ANSI/TIA/EIA TSB 155."

Response Response Status O

Cl 55 SC 55.1 P139 L35 # 32
Powell, Scott Broadcom

Comment Type TR Comment Status X

55m to 100m Class E objective is misleading as to support over the installed base. Alien FEXT measurements indicate that 10Gbps cannot be broadly supported over bundled class E cabling. No data has been presented to indicate what percentage of currently installed bundled class E cabling is capable of supporting 10GBASE-T.

Suggested Remedy

Change "Class E" in objective (f) to "cat 6a" (or the appropriate name for the new cable). Some portion of the installed Class E will meet cat 6a specifications and this portion can carry 10GBASE-T traffic. See presentation for measured AFEXT data.

Response Response Status O

Cl 55 SC 55.12 P219 L1 # 51
Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

PICS are incomplete, and in different format than other recent clauses.

Suggested Remedy

Commenter volunteers to help out with this.

Response Response Status O

Cl 55 SC 55.2.1.2.1 P146 L31 # 87
McClellan, Brett Solarflare

Comment Type T Comment Status X

The value link_status = READY is defined but never used.

Suggested Remedy

Remove this value.

Response Response Status O

Cl 55 SC 55.3.10 P164 L58 # 43
Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

The second figure reference does not contain a figure number.

Suggested Remedy

Replace with Figure 55-6.

Response Response Status O

Cl 55 SC 55.3.10 P164 L59 # 42
Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Missing period at end of sentence.

Suggested Remedy

Add period.

Response Response Status O

CI 55 SC 55.3.11 P165 L6 # 44
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Give full primitive name.
 Suggested Remedy
 Replace UNIDATA.request with PMA_UNITDATA.request.
 Response Response Status O

CI 55 SC 55.3.12 P165 L8 # 78
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 This test pattern section was copied from clause 49, but doesn't add any value for 10GBASE-T. 55.5.3 already specifies Transmitter test modes
 Suggested Remedy
 Remove this section.
 Response Response Status O

CI 55 SC 55.3.12 P165 L8 # 111
 Seki, Katsutoshi NEC Electronics
 Comment Type T Comment Status X
 I propose Pseudo random test pattern for BER monitor.
 The proposed pattern is useful to evaluate link including LDPC encoder/decoder, tx and rx AFE and cable.
 Test patterns for transmitter and thier control MDIO register are also defined in 55.5.3.
 Pseudo random test mode should be merged into MDIO register for transmitter test mode.
 Suggested Remedy
 See proposal in seki_1_0205.pdf
 Response Response Status O

CI 55 SC 55.3.12 P165 L9 # 45
 Lynskey, Eric UNH-IOL
 Comment Type TR Comment Status X
 Are additional test patterns needed besides the ones defined in 55.5.3? Presently, I am not aware of tests that are being defined that would require these test patterns. Currently, these test patterns are defined to bypass all of the scrambling and coding of the PCS, and connect directly to the PMA. Unless a proposal is brought forward to fully define these patterns, I recommend removing this section.
 Suggested Remedy
 Remove subclause 55.3.12.
 Response Response Status O

CI 55 SC 55.3.14 P166 L14 # 46
 Lynskey, Eric UNH-IOL
 Comment Type TR Comment Status X
 The sentence is incomplete. Also, the descrambler being used by the MASTER should be defined.
 Suggested Remedy
 Finish sentence with "...for the SLAVE, and shall produce the same result as the implementation shown in Figure 55-12 for the MASTER." Also, add figure 55-12 to show the MASTER descrambler.
 Response Response Status O

CI 55 SC 55.3.16 P167 L22 # 47
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Wrong word for Auto-Negotiation. Also occurs on line 30 on this same page and subclause.
 Suggested Remedy
 Replace autoneg with Auto-Negotiation.
 Response Response Status O

CI 55 SC 55.3.16 P167 L22 # 50
 Lynskey, Eric UNH-IOL
 Comment Type TR Comment Status X
 Currently, no bits exist that allow for the resetting of the scrambler state after TBD periods.
 Suggested Remedy
 Remove this from the Auto-Negotiation process or define these pages.
 Response Response Status O

CI 55 SC 55.3.16 P167 L29 # 49
 Lynskey, Eric UNH-IOL
 Comment Type TR Comment Status X
 Currently, there exists no page defined to transmit these 66 bit scrambler state seed values between link partners during Auto-Negotiation.
 Suggested Remedy
 Remove this from the Auto-Negotiation process or define these pages.
 Response Response Status O

CI 55 SC 55.3.16.2 P169 L8 # 80
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 The description of the info field is incomplete.
 Suggested Remedy
 Fill in complete description, see proposal.
 Response Response Status O

CI 55 SC 55.3.16.3 P169 L20 # 79
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 This section is a remnant from clause 40 and should be eliminated.
 Suggested Remedy
 Remove the section.
 Response Response Status O

CI 55 SC 55.3.18.2 P173 L39 # 81
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 Error blocks counter is defined in 45.2.3.12.4 to be 8 bits.
 Suggested Remedy
 Change TBD-bit to 8-bit.
 Response Response Status O

CI 55 SC 55.3.18.2 P174 L14 # 54
 Lynskey, Eric UNH-IOL
 Comment Type T Comment Status X
 Relating to Figure 55-13, the 125us_timer is not defined.
 Suggested Remedy
 Need to add subclause prior to the state diagrams.
 55.x.x.x Timers
 State diagram timers follow the conventions of 14.2.3.2.
 125us_timer
 Timer that is triggered every 125us +1%, -25%
 Response Response Status O

CI 55 SC 55.3.18.2 P174 L3 # 53
 Lynskey, Eric UNH-IOL
 Comment Type T Comment Status X
 As shown in Figure 55-13, the variable r_test_mode is not defined anyplace.
 Suggested Remedy
 If no PCS test modes are defined, then this variable can be removed from the state diagram. Or, if PCS test modes will be defined, then this variable needs to be defined. Recommend renaming to rx_test_mode and defining as such:
 rx_test_mode: Boolean variable controlling receive channel operating mode. When false, the receive channel operates in normal mode. When true, the receive channel operates in test-pattern mode.
 Response Response Status O

Cl 55 SC 55.3.18.2 P174 L4 # 55
Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

As shown in Figure 55-13 and Figure 55-15, the device will be stuck in the LFER_MT_INIT or RX_INIT states if !block_lock is true. None of the state diagrams in this clause define how the block_lock variable is set or used. Its definition states that it is set true when the receiver acquires block delineation, but this is never explicitly defined.

Suggested Remedy

Explicitly define the circumstances that set block_lock (and also how it is lost), preferably in a state diagram.

Response Response Status O

Cl 55 SC 55.3.18.2 P176 L2 # 56
Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

In Figure 55-15, there is a reset variable that brings you back to the RX_INIT state. It seems that there is no need to have both a pcs_reset (used in Figures 55-14 and 55-13) and the reset (used in Figure 55-15).

Suggested Remedy

Collapse into a single variable and make consistent throughout diagrams.

Response Response Status O

Cl 55 SC 55.3.18.3 P174 L52 # 82
McClellan, Brett Solarflare

Comment Type T Comment Status X

The Loopback mode register bit is located in 3.0.14.

Suggested Remedy

Change TBD to 3.0.14.
Also update 45.2.3.1.2 (see other comment).

Response Response Status O

Cl 55 SC 55.3.2.1 P154 L16 # 108
Seki, Katsutoshi NEC Electronics

Comment Type T Comment Status X

PMA_SIGNAL.indicates(SIGNAL_OK)" and "sync_status" are not defined and doesn't match the rest of Clause55

Suggested Remedy

Change "PMA_SIGNAL.indicates(SIGNAL_OK)" to "PMA_RXSTATUS.indicates(OK)"
Change "sync_status" to "block_lock"

Response Response Status O

Cl 55 SC 55.3.2.2 P154 L16 # 34
Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

The PMA_SIGNAL.indicate primitive used here is not defined anywhere.

Suggested Remedy

Change text to "...PMA_RXSTATUS.indicate(loc_rcvr_status). When loc_rcvr_status indicates OK..."

Response Response Status O

Cl 55 SC 55.3.2.2 P154 L17 # 35
Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

The PMA_UNITDATA primitive name is chopped off.

Suggested Remedy

Change to "PMA_UNITDATA.indicate primitive".

Response Response Status O

Cl 55 SC 55.3.2.2 P154 L20 # 36
Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

The sync_status flag is not defined anywhere.

Suggested Remedy

Define.

Response Response Status O

CI 55 SC 55.3.4.1 P155 L51 # 109

Seki, Katsutoshi NEC Electronics

Comment Type T Comment Status X

correspondence between DSQ symbols and air A/B/C/D should be defined

Suggested Remedy

Define correspondence as follow

Pair A : DSQ<4*n>

Pair B : DSQ<4*n+1>

Pair C : DSQ<4*n+2>

Pair D : DSQ<4*n+3>

Response Response Status O

CI 55 SC 55.3.4.6 P160 L11 # 110

Seki, Katsutoshi NEC Electronics

Comment Type T Comment Status X

The payload of invalid PHY frame and first 65B block of next PHY frame should be forced to error block in order to prevent undetected packet error.

Suggested Remedy

Add the following conditions for invalid block.

e) The payload of invalid PHY frame and the first block of next PHY frame

Response Response Status O

CI 55 SC 55.3.6 P162 L53 # 37

Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

No diagram currently exists for SLAVE scrambler.

Suggested Remedy

Add diagram for SLAVE scrambler.

Response Response Status O

CI 55 SC 55.3.6 P163 L1 # 77

McClellan, Brett Solarflare

Comment Type T Comment Status X

The scrambler initial states are TBD.

Suggested Remedy

Replace with:

"The master and slave scrambler initial values shall be set to ensure sufficient randomness between the remote and local device as well as adjacent devices."

Response Response Status O

CI 55 SC 55.3.6 P163 L1 # 39

Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

Since this is a self synchronizing scrambler, is it necessary to define initial values?

Suggested Remedy

Replace the first two sentences on this page with "There is no requirement on the initial value of the scrambler."

Response Response Status O

CI 55 SC 55.3.7 P163 L27 # 38

Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

No diagram currently exists for CRC8.

Suggested Remedy

Add diagram.

Response Response Status O

Cl 55 SC 55.3.8 P163 L32 # 41

Lynskey, Eric

UNH-IOL

Comment Type T Comment Status X

It is not clear, from my reading of the text, which bits are to be coded and which are to be uncoded. Figure 55-8 seems to show that 3 bits are uncoded, skip 4, then the next 3... However, this diagram appears to be informational, and not supporting mandatory text describes how this works. Since I am not exactly clear how the bits are split up, I cannot offer a detailed suggested remedy.

Suggested Remedy

Define how the scrambled bits enter the LDPC encoder.

Response Response Status O

Cl 55 SC 55.3.8 P163 L42 # 40

Lynskey, Eric

UNH-IOL

Comment Type E Comment Status X

Wrong word

Suggested Remedy

Change Appendix to Annex.

Response Response Status O

Cl 55 SC 55.3.8.2 P173 L39 # 52

Lynskey, Eric

UNH-IOL

Comment Type E Comment Status X

Since 8 bits are defined for this counter, maybe it should be an 8-bit counter.

Suggested Remedy

Change TBD to 8.

Response Response Status O

Cl 55 SC 55.4.2.2 P178 L48 # 138

Booth, Brad

Intel

Comment Type T Comment Status X

Insert text for transmit fault.

Suggested Remedy

Insert the following paragraph:

The PMA transmit fault function is optional. The faults detected by this function are implementation specific. If the MDIO interface is implemented, then this function shall be mapped to the transmit fault bit as specified in 45.2.1.7.4.

Response Response Status O

Cl 55 SC 55.4.2.3 P179 L9 # 140

Booth, Brad

Intel

Comment Type T Comment Status X

Interest text for receive fault function.

Suggested Remedy

Insert the following paragraph:

The PMA receive fault function is optional. The PMA receive fault function is the logical OR of link_status = FAIL and any implementation specific fault. If the MDIO interface is implemented, then this function shall contribute to the receive fault bit specified in 45.2.1.7.5.

Response Response Status O

Cl 55 SC 55.4.3.1 P180 L40 # 48

Lynskey, Eric

UNH-IOL

Comment Type E Comment Status X

Wrong word for Auto-Negotiation.

Suggested Remedy

Replace with Auto-Negotiation.

Response Response Status O

Cl 55 SC 55.4.4.1 P181 L15 # 59
 Lynskey, Eric UNH-IOL
 Comment Type T Comment Status X
 No state diagram is defined for 10GBASE-T Automatic MDI/MDI-X operation.
 Suggested Remedy
 Define a new state diagram in Clause 55 or reference the diagram from Clause 40.
 Response Response Status O

Cl 55 SC 55.4.4.1 P181 L16 # 112
 Seki, Katsutoshi NEC Electronics
 Comment Type T Comment Status X
 Figure of Automatic MDI/MDI-X state machine are missing
 Suggested Remedy
 Refer to Figure 40-17 "1000BASE-T Auto Crossover state diagram", or copy it.
 Response Response Status O

Cl 55 SC 55.4.5.2 P182 L35 # 86
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 The "A_timer" defines a timer for a state diagram not included in the draft.
 Either the Clause 40 Auto Crossover state diagram (Fig 40-17) needs to be added to clause 55 or this timer should be removed.
 I propose that this text be removed and have 55.4.4 refer to 40.4.4 rather than repeat the same text in clause 55.
 Suggested Remedy
 Delete A_timer text.
 Remove text in 55.4.4, 55.4.4.1 and 55.4.4.2 and instead place a reference that the PHY shall comply with 40.4.4.
 Response Response Status O

Cl 55 SC 55.4.5.2 P182 L42 # 57
 Lynskey, Eric UNH-IOL
 Comment Type T Comment Status X
 In case vendors want to support both 1000BASE-T and 10GBASE-T, there is no need to have different values for A_TIMER.
 Suggested Remedy
 This timer shall have a period of 1.3s +/- 25%.
 Response Response Status O

Cl 55 SC 55.4.5.2 P183 L7 # 58
 Lynskey, Eric UNH-IOL
 Comment Type T Comment Status X
 In case vendors want to support both 1000BASE-T and 10GBASE-T, there is no need to have different values for sample_timer.
 Suggested Remedy
 This timer shall have a period of 62 +/- 2ms.
 Response Response Status O

Cl 55 SC 55.4.6 P185 L1 # 85
 McClellan, Brett Solarflare
 Comment Type T Comment Status X
 The Link Monitor state diagram does not match the text on page 182 ln 52 (loc_rcvr_status vs. PCS_status)
 Furthermore, this state diagram allows only 558 ms for startup (see page 36: link_fail_inhibit_timer).
 I propose a new state diagram that corrects these issues.
 See presentation.
 Suggested Remedy
 Update state diagram per the presentation.
 Response Response Status O

Cl 55 SC 55.4.6.1 P184 L1 # 84
McClellan, Brett Solarflare

Comment Type T Comment Status X

The PHY Control state diagram has missing transitions, unused timers, missing timer start and endless loops.
Additionally, the maxwait and minwait timers on page 182 are TBD.
See presentation for proposed state diagram and timers.

Suggested Remedy

Update section with proposed state diagram and timers.

Response Response Status

Cl 55 SC 55.5.2 P187 L # 117
Chris, Pagnanelli Solarflare Communicat

Comment Type TR Comment Status X

The test channel specified in paragraph 55.5.2 (see Figure 55-20 and Table 55-2) is not required for measuring Master/Slave timing jitter and distortion. Master and Slave timing jitter and distortion can be measured using the simplified procedures given in recent contributions addressing the subject of timing jitter and distortion. These simplified procedures only require that connections be made to resistive terminations or Master/Slave terminals using short lengths of UTP cabling.

Suggested Remedy

Delete paragraph 55.5.2.

Response Response Status

Cl 55 SC 55.5.3 P188 L35 # 64
Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

In Table 55-3, the test mode bits can be defined. This also applies to the TBD in line 28 on this same page.

Suggested Remedy

For line 28: "...shall be enabled by setting bits 7.9.15:13...)

For Table, replace bit 3 with 7.9.13; bit 2 with 7.9.14; and bit one with 7.9.15.

Response Response Status

Cl 55 SC 55.5.3 P189 L # 114
Chris, Pagnanelli Solarflare Communicat

Comment Type TR Comment Status X

Need to specify frequencies for single-tone and two-tone tests. Frequencies are currently TBD.

Suggested Remedy

Replace TBDs with test frequencies proposed in contribution titled "Proposal for Transmitter Linearity Specification". Test frequencies below 40 MHz are not required to ensure linearity requirements are met.

Response Response Status

Cl 55 SC 55.5.3 P192 L # 116
Chris, Pagnanelli Solarflare Communicat

Comment Type TR Comment Status X

Test set up (Figure 55-24) for transmitter timing jitter measurement is not suitable and lacks sufficient detail. Figure does not show connection between Master and Slave necessary for loop timing and does not show means of isolating Master and Slave output signals.

Suggested Remedy

Replace Figure 55-24 with figure provided in contribution titled "Proposal for Transmitter Timing Jitter Specification."

Response Response Status

Cl 55 SC 55.5.5 P103 L18 # 119
Halder, Bijit Plato Networks

Comment Type T Comment Status X

The distortion specifications should be calculated so that there is no significant loss of receiver SNR, say no more than a small fraction of a dB.

Suggested Remedy

Given the reduction in average PSANEXT and new PSAFEXT model, we recommend the following values for the 4 TBDs in equation 55-7:

1. X_nonlin =52
2. X_slope =20
3. f1= 50 MHz
4. f0 = 1MHz

This setting is to be applied for full power operation, that is with 0dB power back off. The specified values results in 0.4dB loss in SNR for 100m Class E cable.

Response Response Status

Cl 55 SC 55.5.5 P193 L # 113
Chris, Pagnanelli Solarflare Communicat

Comment Type TR Comment Status X

Transmitter linearity specification based on SFDR and IMD does not properly address distortion due to jitter and noise, and TBDs make specification incomplete: lower end of range (fo) and breakpoint for frequency roll off (f1) are not specified; distortion upper limit (Xnonlin) and distortion slope (NLslope) are not specified.

Suggested Remedy

Specify transmitter linearity in terms of frequency-dependent signal-to-noise-plus distortion ratio over 5 MHz to 400 MHz band, using single equation with appropriate lower limit and slope. Tabulate specifications for clarity. Replace existing transmitter linearity specification text with new text as proposed in contribution titled "Proposal for Transmitter Linearity Specification."

Response Response Status O

Cl 55 SC 55.5.6 P193 L # 115
Chris, Pagnanelli Solarflare Communicat

Comment Type TR Comment Status X

Transmitter timing jitter specification is incomplete. Text is needed. Specification is needed for maximum jitter introduced by Slave loop timing function.

Suggested Remedy

Adopt specification proposed in contribution titled "Proposal for Transmitter Timing Jitter Specification"

Response Response Status O

Cl 55 SC 55.5.7 P194 L17 # 118
Halder, Bijit Plato Networks

Comment Type T Comment Status X

The definition of lower PSD mask starts from 5MHz. This allows transformer 3dB high pass cut off to be at least 5 MHz. Transformer with such high 3dB cutoff will produce excessive droop. The range of transformer allowed by the current specifications is too loose and pose significant problem for interoperability.

Suggested Remedy

Reduce the start frequency for lower mask to no larger than 500KHz.

Response Response Status O

Cl 55 SC 55.6 P197 L35 # 151
Booth, Brad Intel

Comment Type T Comment Status X

Table 55-4 references Clause 22 register set.

Suggested Remedy

Delete CLause 22 register references from the table.

Response Response Status O

Cl 55 SC 55.6 P198 L # 20
Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

Table 55-4 is missing several registers defined in 45.2.7.

Suggested Remedy

Add the missing registers into Table 55-4.

For example, 7.2, 7.3, 7.5, 7.6.

Response Response Status O

Cl 55 SC 55.6.1 P197 L21 # 60
Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Another purpose of Auto-Negotiation for 10GBASE-T is to negotiate loop timing.

Suggested Remedy

Add item mentioning loop timing to list.

Response Response Status O

Cl 55 SC 55.6.1 P197 L24 # 61
Lynskey, Eric UNH-IOL

Comment Type T Comment Status X

With the addition of loop timing negotiation, this statement is not correct.

Suggested Remedy

Recommend removing these 3 sentences.

Response Response Status O

Cl 55 SC 55.6.1.1 P197 L36 # 26
 Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X
 Table 55-4 Register 0, Type should be R/W.

Suggested Remedy
 Control register 0 is a writeable register. Change it to R/W.

Response Response Status O

Cl 55 SC 55.6.1.1 P198 L1 # 27
 Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X
 Table 55-4 is inconsistent with Clause 45.2.7.

Suggested Remedy
 Make the register numbering, Names, and descriptions match 45.2.7. There are mistakes in the Description/paragraph numbers, numbering, some AN registers are missing that are defined in 45.2.7, and the name of AN LP XNP NP TX register should be AN LP XNP NP ability register.

Response Response Status O

Cl 55 SC 55.6.1.2 P198 L45 # 152
 Booth, Brad Intel

Comment Type T Comment Status X
 Table 55-5 is a bit confusing.

Suggested Remedy
 Change table headings to be Bit, Name and Description.

Under base page: D15 is next page as per 28.2.1.2.5, D14 is acknowledge as per 28.2.1.2.4, D13 is remote fault as per 28.2.1.2.3, D12 is extended next page as per a new reference based on a Clause 28 comment, D11:D5 is the technology ability field as per 28.2.1.2.2, and D4:D0 is the selector field as per 28.2.1.2.1.

Under extended next page: M10:M0 is the message code as per Annex 28C, T is toggle as per 28.2.3.4.7, Ack2 is acknowledge 2 as per 28.2.3.4.6, MP is message page as per 28.2.3.4.5, Ack is acknowledge as per 28.2.3.4.4 and NP is next page as per 28.2.3.4.3.

The unformatted portion looks okay other than specifying the register, give the subclause reference.

Response Response Status O

Cl 55 SC 55.6.1.3 P199 L55 # 62
 Lynskey, Eric UNH-IOL

Comment Type T Comment Status X
 Referring readers to Annex 40C may not be the best thing to do. This is an informative Annex written to talk about sending normal next pages following a 1000BASE-T page negotiation. Going back to this Annex could lead to reader confusion. I think there are two ways to proceed with this.

Suggested Remedy
 Option A: We could write a new informative Annex that shows several examples of auto-negotiation (extended next page negotiating with regular next page; sending extra extended next pages; ...)

Option B: We can simply remove most of this text, as Clause 28 does define how to send additional pages.

Response Response Status O

Cl 55 SC 55.6.2 P200 L1 # 28
 Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X
 Comment applies to 55.6.2 in its entirety.

There are a number of TBD's that should now be resolved.

Suggested Remedy
 Remove TBD's and replace with appropriate register/bit definitions.

Response Response Status O

Cl 55 SC 55.6.2 P200 L20 # 63
 Lynskey, Eric UNH-IOL

Comment Type E Comment Status X
 Since only a single page is being sent, it is not correct to refer to "unformatted page 1".

Suggested Remedy
 Replace with "10GBASE-T Technology Message Code".

Response Response Status O

IEEE P802.3an Comments

Cl 55 SC 55.6.2 P200 L5 # 29
 Thompson, Todd SolarFlare Communica

Comment Type E Comment Status X

There are several TBDs in this section.

On page 201 line 42 there is a reference to 10.15 which should be changed to refer to the new fault bit.

Suggested Remedy

Replace the TBD's below with the text indicated:

Page	Line	New Value
200	5	Table 55-6
200	6	Table 55-5
200	28	Table 55-6
201	42	Is 10.15 should be 7.8.15
201	46	7.7.15
201	47	7.7.14
201	51	7.8.15
201	57	55.4.2.4
202	1	7.7.15
202	9	First occurrence 7.8.15 second 7.8.14
202	13	55.2.4
202	16	7.8.15

Response Response Status O

Cl 55 SC 55.6.2 P201 L42 # 65
 Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Wrong bit reference.

Suggested Remedy

Change 10.15 to 7.8.15.

Response Response Status O

Cl 55 SC 55.6.2 P201 L46 # 66
 Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Replace TBD.

Suggested Remedy

Replace TBD with 7.7.15.

Response Response Status O

Cl 55 SC 55.6.2 P201 L47 # 67
 Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Replace TBD.

Suggested Remedy

Replace TBD with 55.4.2.4.

Response Response Status O

Cl 55 SC 55.6.2 P201 L51 # 68
 Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Replace TBD.

Suggested Remedy

Replace TBD with 7.8.15.

Response Response Status O

Cl 55 SC 55.6.2 P201 L57 # 69
 Lynskey, Eric UNH-IOL

Comment Type E Comment Status X

Replace TBD.

Suggested Remedy

Replace TBD with 7.8.14.

Response Response Status O

IEEE P802.3an Comments

Cl 55 SC 55.6.2 P202 L1 # 70
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Replace TBD.
 Suggested Remedy
 Replace TBD with 7.7.15.
 Response Response Status O

Cl 55 SC 55.6.2 P202 L23 # 74
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Change note to include 1000BASE-T.
 Suggested Remedy
 Modify to "...if 10GBASE-T or 1000BASE-T is selected..."
 Response Response Status O

Cl 55 SC 55.6.2 P202 L10 # 71
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Replace TBDs.
 Suggested Remedy
 Replace first TBD on this line with 7.8.15, and replace second TBD with 7.8.14.
 Response Response Status O

Cl 55 SC 55.7 P203 L9 # 10
 Eisler, George Solarflare
 Comment Type TR Comment Status X
 Recommendation for testing all cable installations
 Suggested Remedy
 Add the following paragraph:
 "It is highly recommended that any cabling system, newly or previously installed, be measured/tested before the installation of 10GBASE-T equipment by following the guidelines in (proposed) ANSI/TIA/EIA TSB 155."
 Response Response Status O

Cl 55 SC 55.6.2 P202 L13 # 72
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Replace TBD.
 Suggested Remedy
 Replace TBD with 55.2.4.
 Response Response Status O

Cl 55 SC 55.7.2 P203 L37 # 1
 Alan Flatman LAN Technologies
 Comment Type TR Comment Status X
 We need to reference the ISO/IEC specification for installed cabling.
 Suggested Remedy
 Insert the following editor's note at the end of this subclause:
 "Editor's Note: ISO/IEC TR-24750: Assessment of installed Class E and Class F cabling beyond their maximum specified frequencies, should be available before 802.3an is approved. In which case, it will replace the above reference to TIA/EIA TSB-155."
 Response Response Status O

Cl 55 SC 55.6.2 P202 L17 # 73
 Lynskey, Eric UNH-IOL
 Comment Type E Comment Status X
 Replace TBD.
 Suggested Remedy
 Replace TBD with 7.8.15.
 Response Response Status O

IEEE P802.3an Comments

2

Cl 55 SC 55.7.3.1.2 P208 L56 # 153
 Booth, Brad Intel
 Comment Type T Comment Status X
 Note c is not applicable as Class F IL does not need to be extrapolated to 500 MHz.
 Suggested Remedy
 Remove note c.
 Response Response Status O

Cl 55 SC 55.7.3.1.2 P209 L4 # 2
 Alan Flatman LAN Technologies
 Comment Type TR Comment Status X
 We need to reference the ISO/IEC specification for installed cabling.
 Suggested Remedy
 Insert the following editor's note at the end of this subclause:
 "Editor's Note: ISO/IEC TR-24750: Assessment of installed Class E and Class F cabling beyond their maximum specified frequencies, should be available before 802.3an is approved. In which case, it will replace the above reference to TIA/EIA TSB-155."
 Response Response Status O

Cl 55 SC 55.7.3.2.2 P210 L45 # 31
 Powell, Scott Broadcom
 Comment Type TR Comment Status X
 The PS AELFEXT constant for 55m Category 6 cabling is substantially better than measured data previously reported to the task force (vanderlaan_1_0303.pdf).
 Suggested Remedy
 See presentation for independent confirmation of measured data. Suggest operation over Cat 6 be optional, rather than required, for 10GBASE-T compliance. Cat 6 specifications could be included as informative.
 Response Response Status O

Cl 55 SC 55.7.3.2.2 P210 L53 # 3
 Alan Flatman LAN Technologies
 Comment Type TR Comment Status X
 We need to reference the ISO/IEC specification for installed cabling.
 Suggested Remedy
 Insert the following editor's note at the end of this subclause:
 "Editor's Note: ISO/IEC TR-24750: Assessment of installed Class E and Class F cabling beyond their maximum specified frequencies, should be available before 802.3an is approved. In which case, it will replace the above reference to TIA/EIA TSB-155."
 Response Response Status O

Cl 55 SC 55.7.3.2.2 P211 L1 # 30
 Powell, Scott Broadcom
 Comment Type TR Comment Status X
 Comment implies (to me, anyway) that the currently envisioned system with identical AFEXT on each wire pair will perform the same as the same system with unequal AFEXT on each wire pair - as long as the "identical" AFEXT is equal to the average of the "unequal" AFEXT. No presentation has been made to support the accuracy of this implied claim.
 Suggested Remedy
 Remove this claim. A more accurate statement is that simulations should assume one worst case wire pair with AFEXT that is 4dB higher than the average AFEXT over all 4 pairs. See presentation with simulations comparing performance under unequal SNR/pair situation to equal SNR/pair situation.
 Response Response Status O

CI 55 SC 55.7.3.2.2 P211 L2 # 120

Halder, Bijit Plato Networks

Comment Type T Comment Status X

The Note states for calculating the system margin we must use an average improvement of 4dB over the limit line for PSAFEXT. Since the cable are certified based on the limit line and system are designed with the 4dB margin, it is not clear how the standard guarantees the 4dB average improvement. In other words, in the event the 4dB gain due to averaging is not seen in practice, how does the standard guarantees operation of 10G system given the slim system margin even with the 4dB improvement.

Similar comment applies to 3.5 dB improvement for PSANEXT number in Section 55.7.3.1.2, page 209, line 11.

Suggested Remedy

Either change the limit line to match the improvement, or require the cable to qualify a test for average PSAFEXT lines in addition to the worst case limit line.

Response Response Status

CI 55 SC 55.8.3.1 P214 L37 # 4

Cobb, Terry Systemax

Comment Type T Comment Status X

Return loss requirements and measurements do not use a reference that has a tolerance.

Suggested Remedy

Remove the +/- TBD % and replace "an impedance" with "a nominal differential characteristic impedance"

Response Response Status