

## IEEE P802.3xx draft Y.Z Comments

CI 69 SC 69.1.2 P49 L31 # 14  
Flatman, Alan LAN Technologies

Comment Type T Comment Status A  
Item c) should also refer to noise immunity, in line with 70.8.4, 71.8.4 and 72.8.4.

*SuggestedRemedy*

add "rf emission and noise immunity" to end of text in item c)

Proposed Response Response Status C  
ACCEPT IN PRINCIPLE.

Change to  
"c) Not preclude compliance to CISPR/FCC Class A for RF emission and noise immunity."

CI 70 SC 70.5 P70 L37 # 21  
Abbott, John

Comment Type T Comment Status A test\_points  
Section 70.5.1 p. 70 lines 37-38 states a recommendation that "it is therefore recommended that this path be carefully designed to achieve an accurate measurement." Some thought should be given to the possibility of an informative annex or other reference explaining how to determine if the measurement is accurate or whether there are general design principles which can be used as an example. This same wording also occurs on p.106 in 72.5.1

*SuggestedRemedy*

Include a reference or example showing the need for careful design and a possible approach (at a minimum a previous standard where the same wording is used)

Proposed Response Response Status C  
ACCEPT IN PRINCIPLE.

Refer to comment #523

CI 01 SC 01.5 P13 L50 # 27  
Marris, Arthur

Comment Type T Comment Status D revisit  
Insert more abbreviations

*SuggestedRemedy*

Insert these abbreviations:

EIT Extrapolated Interference Tolerance  
BREIT Baseline Receive Extrapolated Interference Tolerance  
TP Test Point

Proposed Response Response Status W  
PROPOSED ACCEPT.

CI 69 SC 69.1.1 P49 L20 # 30  
Marris, Arthur

Comment Type T Comment Status A kx\_halfduplex  
Why have the paragraph ""Backplane Ethernet supports point-to-point topologies in the full-duplex mode of operation. Since there are no modifications to the IEEE 802.3 MAC or 1000BASE-X PCS, and the network radius is limited to the modular chassis backplane, the half-duplex mode of operation may also be supported at 1000 Mb/s.""?

This paragraph is not helpful, irrelevant in a PHY spec, and potentially confusing.

*SuggestedRemedy*

Consider deleting the above paragraph.

Proposed Response Response Status C  
ACCEPT.

Refer to comments #440 and #443

IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.2.3 P51 L30 # 31  
Marris, Arthur

Comment Type T Comment Status D revisit

I think this is the first time the word ""nomenclature"" has been used in the 802.3 spec. Conforming to a nomenclature does not sound right. Consider changing the word ""nomenclature"" to ""PHY type"".

SuggestedRemedy

Change the word ""nomenclature"" to ""PHY type"" throughout subclause 69.2.3 (lines 30,31 and 34).

Proposed Response Response Status W

PROPOSED REJECT.

Table leveraged from IEEE P802.3ae-2002.

Cl 72 SC 72.6.2.1 P125 L25 # 35  
Marris, Arthur

Comment Type T Comment Status A

Change ""inference"" to ""Interference"".

SuggestedRemedy

Change ""inference"" to ""Interference"".

Proposed Response Response Status C

ACCEPT.

Cl 73 SC 73.8.1 P145 L19 # 37  
Marris, Arthur

Comment Type T Comment Status X

The MMD should be 7 rather than 6.

SuggestedRemedy

Change 6.16.15:0 to 7.16.15:0

Proposed Response Response Status O

Cl 73 SC 73.9.5 P158 L # 38  
Claseman, George Micrel Semiconductor

Comment Type T Comment Status X

Multipel lines: There is no definition of page\_test\_min\_timer\_done / \_not\_done. Perhaps this should be page\_test\_min\_timer=done / !done.

SuggestedRemedy

?

Proposed Response Response Status O

Cl 73 SC 73.9.5 P157 L40 # 55  
Claseman, George Micrel Semiconductor

Comment Type T Comment Status X

There is no definition of interval\_timer\_done. Perhaps this should be interval\_timer=done.

SuggestedRemedy

?

Proposed Response Response Status O

Cl 73 SC 73.9.5 P158 L # 56  
Claseman, George Micrel Semiconductor

Comment Type T Comment Status X

Multipel lines: There is no definition of page\_test\_max\_timer\_done / \_not\_done. Perhaps this should be page\_test\_max\_timer=done / !done.

SuggestedRemedy

?

Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

Cl 73 SC 73.9.5 P158 L # 57  
 Claseman, George Micrel Semiconductor

Comment Type T Comment Status X

Multipel lines: There is no definition of clock\_detect\_min\_timer\_done / \_not\_done. Perhaps this should be clock\_detect\_min\_timer=done / !done.

SuggestedRemedy

?

Proposed Response Response Status O

Cl 73 SC 73.9.5 P158 L # 58  
 Claseman, George Micrel Semiconductor

Comment Type T Comment Status X

Multipel lines: There is no definition of clock\_detect\_max\_timer\_done / \_not\_done. Perhaps this should be clock\_detect\_max\_timer=done / !done.

SuggestedRemedy

?

Proposed Response Response Status O

Cl 73 SC 73.9.2 P154 L43 # 59  
 Claseman, George Micrel Semiconductor

Comment Type T Comment Status X

Value = 0 is not stated. This would seem to be included in the not\_done condition.

SuggestedRemedy

?

Proposed Response Response Status O

Cl 69A SC 69A.2 P64 L10 # 84  
 Weiner, Nick

Comment Type T Comment Status X

This subclause defines the ""Compliance Channel"", which appears to be the block in Figure 69A-1 labeled ""Frequency dependant attenuator"". Assuming that I have understood this correctly ...

SuggestedRemedy

Please use consistent name for the block.

Proposed Response Response Status O

Cl 69A SC 69A.5 P66 L40 # 85  
 Weiner, Nick

Comment Type T Comment Status X

I found the sentence..  
 ""The difference between the EIT baseline and EIT for lowest EIT relative to the EIT baseline is the baseline relative EIT (BREIT).""  
 rather difficult to read.

SuggestedRemedy

If I have grasped it correctly, how about something along the lines of ...  
 ""The smallest difference between the EIT and the EIT baseline is the baseline relative EIT (BREIT).""

Proposed Response Response Status O

Cl 69A SC 69A.2 P64 L25 # 86  
 Weiner, Nick

Comment Type TR Comment Status X

Equation 69A-1 specifies an amplitude response bound for the of the ""compliance channel"". No phase response is specified. Is a phase response spec needed?

SuggestedRemedy

Add note to the effect that the phase response is not important.  
 Or else include spec for phase response.

Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

Cl 69A SC 69A.2 P64 L37 # 87

Weiner, Nick

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

""The insertion loss of the compliance channel above f2 should be greater than Amin(f2).""  
However Amin() has not been defined.

SuggestedRemedy

Define Amin().

Proposed Response Response Status **O**

Cl 69A SC 69A.5 P66 L34 # 88

Weiner, Nick

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

First of the two equations defining EIT baseline does so over a range that overlaps with that of the second.

SuggestedRemedy

I believe the top end of range was intended to be 0.6fbaud.

Proposed Response Response Status **O**

Cl 72 SC 72.6.2.1 P125 L45 # 89

Weiner, Nick

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

Footnote to Table 72-10 specifies minISloss with respect to Amin() values as per Equation 69A-1. Amin() is not defined by Equation 69A-1.

SuggestedRemedy

Define Amin() in annex 69A.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

A\_min() should be IL\_min(). Same mistake exists in clauses 70 and 71 and should be corrected there also.

Cl 72 SC 72.6.1.4 P119 L48 # 90

Weiner, Nick

Comment Type **TR** Comment Status **R** kr\_txout

Measurement of transmitted peak-to-peak voltage:

I believe that the largest output voltage occurs for isolated ONE and ZERO bits. This does not occur during a square wave pattern and so the test specified does not measure the mission mode peak-to-peak transmit voltage.

From page 124, line 23: ""... 2A shall be within the peak-peak differential output voltage range specified in Table 72û5....""

From the definition of A, this implies that the measured peak-to-peak voltage is intended to account for the isolated ONE and ZERO bit voltages.

SuggestedRemedy

Use a PRBS pattern to measure the peak-to-peak transmitted voltage, and adjust Figure 72-7 to show the occurrence of the peak voltages for the isolated ONE and ZERO bits. (Alternatively, change the transmit equalizer to a two tap, by removing the C-1 tap. Then Vpst would become the peak value, Figure 72-7 would not require adjustment, but a few other changes would be needed).

Proposed Response Response Status **W**

REJECT.

The largest output voltage occurs for a 1010 transmitted pattern. This voltage is taken into account in the test methodology in 72.6.1.10.

IEEE P802.3xx draft Y.Z Comments

Cl 00 SC 00 P L # 93

Healey, Adam

Comment Type T Comment Status X dme

The IEEE P802.3ap/Draft 2.0 definition of ""differential Manchester encoding"" is not consistent with the textbook definition or the definition used in Token Ring (IEEE Std 802.5-1998). Specifically, the P802.3ap definition calls for a guaranteed transition at the beginning of the symbol, and a data-dependent transition at the middle of the symbol. In the ""textbook"" definition, the guaranteed transition is at the middle of the symbol and the data-dependent transition is at the beginning of the symbol.

The definition of the IEEE P802.3ap encoding scheme should be made consistent with the academic/industry definition.

*SuggestedRemedy*

1. Modify definition to reflect the text in IEEE Std 802.5-1998 and alter the encoding rules in clauses 72 and 72 to match...

-or-

2. Rename the encoding scheme used by P802.3ap and modify the definition and terminology in the document accordingly.

Proposed Response Response Status O

Cl 70 SC 70.5.4 P71 L33 # 94

Healey, Adam

Comment Type T Comment Status A kx\_sd

SIGNAL\_DETECT is defined to be set to OK when the input voltage exceeds the minimum differential sensitivity. However the minimum differential sensitivity is not defined.

Also, the signal detect definition for 10GBASE-KX4 is much more clearly defined than the 1000BASE-KX version, for no obvious reason.

*SuggestedRemedy*

While signal detect is an optional feature, it needs to be defined completely, or removed from the specification entirely.

To solidify the definition, it would seem appropriate to leverage the 10GBASE-KX4 SIGNAL\_DETECT definition, and define 1000BASE-KX specific values for "SIGNAL\_DETECT = OK" level and "SIGNAL\_DETECT = FAIL" level.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Delete existing definition.

The signal detect function will not be defined for 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR.

The value of signal detect, "SIGNAL\_DETECT" will be set to "OK" for purposes of management and signaling of the primitive.

Related comments: #94, 341, 342, 343, 568, 570, 170.

Cl 71 SC 71.5.4 P88 L15 # 95

Healey, Adam

Comment Type T Comment Status A kx\_sd

In Table 71-4, the "SIGNAL\_DETECT = OK" and "SIGNAL\_DETECT = FAIL" levels seem to be copied from 10GBASE-CX4. Are these values also appropriate for backplane environments?

*SuggestedRemedy*

The Task Force needs to confirm that the signal detect parameters are applicable to the backplane environment (for example, the "FAIL" level is above the level of ambient noise and crosstalk, "OK" is below the signal level at the output of a maximum attenuation channel).

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Signal Detect functional description removed from the document. Refer to #94.

## IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.3.3.2 P55 L13 # 96

Healey, Adam

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

Text does not agree with equations.

*SuggestedRemedy*

Change ""It is recommended that the insertion loss magnitude, IL(f), be greater than the lower limit..."" to ""It is recommended that the insertion loss magnitude, IL(f), be no greater than the lower limit...""

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Noted comment by line number calls out A(f), See #240.

For suggested remedy, it is interpreted to mean line number 29, page 55.

See #96.

Cl 69 SC 69.3.3.3 P55 L29 # 97

Healey, Adam

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

Text does not agree with equations.

*SuggestedRemedy*

Change ""It is recommended that the insertion loss magnitude, IL(f), be greater than..."" to ""It is recommended that the insertion loss magnitude, IL(f), be no greater than...""

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

See #96.

Cl 70 SC 70.4 P70 L05 # 98

Healey, Adam

Comment Type **TR** Comment Status **X** *kx\_mdio*

The MDIO/PMD status and control variable mappings for 1000BASE-KX are broken. Registers 1.8, 1.9, and 1.10 are currently 10G specific and text associated with these registers provides no guidance on how to support 1000BASE-KX operation.

*SuggestedRemedy*

1. Modify the definition of 1.8, 1.9, and 1.10 to be more generic so that 1000BASE-KX behavior is included.

-or-

2. Define a new set of register(s) that mirrors the functions of the bits in 1.8, 1.9, and 1.10, but for the 1000BASE-KX port type (or perhaps 1G port types in general) and redefine the mapping accordingly.

For both solutions, modifications to both clause 45 and clause 70 are required.

Proposed Response Response Status **O**

Cl 73 SC 73.9.4.1 P155 L08 # 99

Healey, Adam

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

The technology dependent interface defines PMA\_LINK.indication and PMA\_LINK.request primitives. Unfortunately, these primitives are not defined in the clause 36 (1000BASE-X), clause 48 (10GBASE-X), or clause 51 (10GBASE-R/W) PMAs. This interface definition is broken and the auto-negotiation function is rendered unusable since it has no means to check the status of, or enable/disable the different port types.

*SuggestedRemedy*

1. The technology dependent interface needs to be re-defined in terms of existing services primitives (PCS, PMA, or PMD)...

-or-

2. The PMA\_LINK.indication or PMA\_LINK.request primitives need to be added to the clause 36, 48, and 51 PMAs, and the behavior of these PMAs with respect to those primitives must be defined.

Option #1 is preferred if it proves to be feasible. Otherwise, major work will have to be done to amend (or perhaps create backplane specific versions of) the PMA sublayers.

Proposed Response Response Status **O**

IEEE P802.3xx draft Y.Z Comments

Cl 69A SC 69A.4 P65 L34 # 100

Gao, Xiao Ming Intel

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

Line 34-37

The interference generation using sweep sine waves is not an accurate simulation of real-world crosstalk interferences.

*SuggestedRemedy*

New interference generation methods need to be investigated. The methods must be accurate and practical to implement in testing.

Proposed Response Response Status **O**

Cl 69A SC 69A.2 P64 L21 # 103

Moore, Charles

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

Similarly with defining the main channel, small amounts of ripple may put the Compliance channel out of spec even though it is basically what we want. It will be as stressful (or more stressful because of the ripple) as the speced channel. I would like to specify a smoothed version of the compliance channel insertion loss be below the worst-case insertion loss.

*SuggestedRemedy*

change lines 21-23 and equation (69A-1) to:

The insertion loss of the compliance interconnect shall be generally greater than the worst-case insertion loss. This is assured by subtracting the worst-case insertion loss from the compliance interconnect insertion loss. A linear fit to the difference from F1 to F2 shall be greater than 0 from F1 to F2.

$$\text{diff} = \text{IL}(f) - \text{IL}_{\text{min}} = \text{IL}(f) - 20 \log(e) * (b_1 * \sqrt{f} + b_2 * f + b_3 * f^2 + b_4 * f^3)$$

The general method for performing a linear fit is described in 69.3.3.2.

Proposed Response Response Status **O**

Cl 69A SC 69A.5 P64 L21 # 104

Moore, Charles

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

If a large number of data points are measured in the interference tolerance plot the minimum of the plot represent a BER significantly lower than the standard BER. To compensate for this, extrapolate to a target BER greater than 1e-12.

*SuggestedRemedy*

add text:

Define a target BER based on the system target spec of 1e-12. This target will be higher than 1e-12 by the number of sample points within each region of the frequency range of the test. The number of regions is taken to be 10.

$$\text{target BER} = 1e-12 * N/10$$

where N is the total number of equally spaced frequencies where interference tolerance is measured.

(also change any reference to BER of 1e-12 in the description of the extrapolation to ""target BER"")

Proposed Response Response Status **O**

Cl 69A SC 69A.3.3.5 P59 L11 # 105

Moore, Charles

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

ICR spec is largely guesswork. We should tie the spec to the Receiver Interference Tolerance test. I will present on this at the September meeting.

*SuggestedRemedy*

Will provide text and diagrams if needed as part of presentation.

Proposed Response Response Status **O**

IEEE P802.3xx draft Y.Z Comments

CI 69A SC 69A.5 P66 L21 # 106

Moore, Charles

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

Method described to extrapolate from standard BER to 1e-12 is

1. likely to difficult to impliment by some
2. not the only valid way, or even necessarily the best
3. as written, mathematically nonsense since it involves taking the square root of a negative number.

*SuggestedRemedy*

Require extrapolation to BER=1e-12 but only suggest a method, not prescribe one.

Try:

Extrapolate the interference-BER data to a BER of 1e-12. The difference between the interference at standard BER and the extrapolated value at 1e-12 is the extrapolation off-set. The extrapolation can be done several ways. Fitting the tail of the interference-BER data using a quadratic in interference to match the log of BER is one. This is illustrated in figure (69A-3)

(i will provide point pairs for the plot)

Proposed Response Response Status **O**

CI 72 SC 72.6.2.1 P125 L27 # 107

Moore, Charles

Comment Type **TR** Comment Status **X** *kr\_test\_pattern*

Test pattern is specified as the PRBS test pattern from 49.2.8, periodically re-seeded. This pattern is less than 34000 bits long. Interference sensitivity increases with pattern length up to severall million and beyond. We need a longer pattern. Most existing tranceivers impliment PRBS31, we should use it.

*SuggestedRemedy*

change text from:

The test pattern for this measurement shall be the pseudo-random test pattern of 49.2.8 with the seed values shown in Table 72.8.

The test pattern for this measurement shall be a 31 bit pseudo-random bit pattern with a generating polynomial  $X^{31}+X^{28}+1$ .

Proposed Response Response Status **W**

Straw Poll 3  
Option A - Keep pattern as specified  
Option B - Change test pattern to PRBS31

Option A - 7  
Option B - 6  
Abstain - 1

CI 72 SC 72.6.1.5 P120 L01 # 110

Liu, Cathy

Comment Type **T** Comment Status **R** *kr\_txrl*

Based on Figure 72-8, the transmit differential output return loss, we can see that at 5GHz the return loss is about -4dB, which seems huge. I doubt that it will work.

*SuggestedRemedy*

Is there any simulation or analysis to prove the system work under that bad reflection?

Proposed Response Response Status **C**

REJECT.

Refer to comment #573.

Related comments: #110, 274, 573



IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.1.10 P122 L42 # 111

Liu, Cathy

Comment Type T Comment Status R kr\_txout

Based on the specifications on transmit equalizer taps range and resolution, we can see that it requires at least 14 settings for c1 with the range up to -0.35 and at least 6 settings for c-1 with the range up to -0.14. That makes total of  $14 \times 6 = 84$  states. Should we really need to specify in that detailed such as resolution, especially requiring such a large number of states like 84? Using larger stepsize than 0.0263 for c1 may cause performance degradation. However, we do have DFE taps at the receiver which is doing the same job in terms of removing post-cursor ISI. It is a trade of between the DFE resolution and c1 resolution which I think it is an implementation issue, and should be beyond the scope of this standard. Furthermore, for some applications without TX training, it is very difficult for people to set TX equalizer coefficients due to the large number of states.

*SuggestedRemedy*

Remove or reduce the requirement on tap resolution.

Proposed Response Response Status C

REJECT.

Resolution requirements effectively relaxed by corrections adopted in Comment 258.

Commenter is invited to provide data to Task Force to demonstrate benefits of reduced resolution and a more complete assessment of the performance impact.

CI 69 SC 69.3.3.1 P53 L27 # 112

Brown, Kevin

Comment Type TR Comment Status R normative\_channel

An informative specification for channel parameters cannot be used to determine interoperability, which is the primary purpose of communications standards.

*SuggestedRemedy*

Specify required channel characteristics.

Proposed Response Response Status W

REJECT.

Refer to 318, 294

CI 72 SC 72 P105 L01 # 120

Andre, Szczepanek

Comment Type TR Comment Status X kr\_pcs

There is a general expectation that 10GBASE-KR receivers will use Decision Feedback Equalizers (DFEs). DFEs have an implicit capability to cause error propagation. As explained in szczepanek\_01\_0705 the error propagation capabilities of DFEs and the 10GBASE-R PCS self-synchronous scrambler have a negative impact on the Ethernet MTTFPA (Mean Time To False Packet Acceptance) criteria. Similar problems in 10GBASE-T and EFM were addressed by adding additional CRC8 protection to frames.

*SuggestedRemedy*

Follow the precedent set by 10GBASE-T and EFM and add an additional CRC8 protection to frames.

This will require creation of a modified 10GBASE-R PCS (new clause) for use with 10GBASE-KR.

I have included a document (10GbaseKR-changes.pdf) with this ballot that indicates the changes I think necessary to clause 49 to create the new clause.

Proposed Response Response Status O

CI 72 SC 72.6.2.1 P125 L30 # 121

Andre, Szczepanek

Comment Type TR Comment Status X

Annex 69A allows receiver interference tolerance to be tested against any compliant transmitter, rather than a worst case one. This would allow a receiver to be compliant based solely on testing with an extremely good transmitter. This is not really what we are trying to achieve here. What we want is that a receiver should be able to pass the interference tolerance test with all transmitters that are compliant not just a hand-picked golden units.

I am not sure whether this is editorial or technical hence the TR

*SuggestedRemedy*

Add the following paragraph to 72.6.2.1, 70.6.2.1, & 71.6.2.1.

""A receiver shall not be compliant if it fails to meet the interference tolerance test parameters when tested against any compliant transmitter.""

I believe this closes the loop-hole.

Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.3.3.5.4 P59 L18 # 128

John, D'Ambrosia

Comment Type **TR** Comment Status **D** channel\_icr

use of calculated ICR increases ambiguity of informative channel model results. See dambrosia\_01\_005 for reference.

*SuggestedRemedy*

Use log fit of calculated ICR to compare against equation 69-20  
See dambrosia\_01\_0705 for reference.  
See dambrosia contribution for September Interim

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Review of equations to be performed.

Cl 69 SC 69.3.3 P53 L26 # 129

John, D'Ambrosia

Comment Type **TR** Comment Status **A** channel\_rl

Channel return loss is not factored into informative channel model

*SuggestedRemedy*

see september contribution from dambrosia

Proposed Response Response Status **C**

ACCEPT.

Refer comment 446

Cl 72 SC 72.6.2.1 P125 L25 # 137

John, D'Ambrosia

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

Receiver Inference Tolerance Testing per Annex 69A for 10GBASE-KR with a real world device implementation has not been demonstrated.

*SuggestedRemedy*

Need real world device implementation tested per Annex 69A.

Proposed Response Response Status **O**

Related comments: #137, 629

Cl 72 SC 72.6.1.10 P124 L22 # 146

Anderson, Stephen

Comment Type **T** Comment Status **A** kr\_txout

These sections are not clear. Lines 22 and 23 of page 124 imply that the amplitude must always end up in the range of 800 mV to 1200 mV, and that there is no independent control over all 3 equalizer taps. Lines 1-3 of page 123 imply that the amplitude could be set to as low as 100 mV.

*SuggestedRemedy*

Suggested Remedy is to add a note to section 72.6.1.11:

NOTE: This section defines parts of the test waveform and does not specify the full range of output amplitude of which the transmitter must be capable, as defined in section 72.6.1.10.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.2.3 P126 L01 # 147

Anderson, Stephen

Comment Type **TR** Comment Status **A** ac\_coupling

It is not sufficiently clear what is meant by AC-coupled. There are no receiver specifications that would distinguish between a device that is AC-coupled versus one that is direct-coupled. Most of the existing specifications begin at 100 MHz.

If AC-coupled means that there must be capacitors between TP4 and the termination resistors, this may not work. In 72.6.2.1 it is stated that the receiver test pattern is defined in 49.2.8. This seems to be a PRBS-31 pattern, which would require either DC coupling or a very long time constant. Coupling capacitors would have to be on the order of 0.1 ufd (see presentation). This forces the capacitors off-chip; resulting in signal integrity problems, added assembly, more vias, higher cost.

*SuggestedRemedy*

Provide specifications that define AC coupling.

Proposed receiver text:

The resistance from either RXP or RXN to ground shall be greater than 10 kohm, when measured with a common-mode input voltage of between 0.5 volt and 1.5 volt.

Proposed transmitter text:

1. The transmitter common-mode output voltage shall be within the range of 0.5 volt to 1.5 volt when loaded (differentially) by any resistance greater than 80 ohm. NOTE: 80 ohm is chosen because this is probably the low end of the tolerance limit for on-chip resistors.

2. The transmitter output amplitude requirements shall apply when the transmitter is loaded (differentially) by any resistance greater than 80 ohm.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

Change Tx common mode range to (0 to 1.9V) and change the recommended cap value in 72.6.2.3 from 4.7nF to 100nF

Motion #3

Type - Technical (75%)

Description - For Clause 72, change the recommended AC coupling capacitor from 4.70nF to 100nF.

M: Tom Palkert

S: Shannon Sawyer

All Y- 10 N- 3 Abstain- 6

Motion Passes

Motion #4

Type - Technical (75%)

Description - Change the Tx common mode specification from (-0.4 to 1.9V) to (0.0 to 1.9V).

M:Tom Palkert

S: Shannon Sawyer

All Y- 14 N-1 Abstain-9

Motion Passes

CI 72 SC 72.6.2.4 P126 L11 # 148

Anderson, Stephen

Comment Type **TR** Comment Status **R** kr\_txout

Because KR relies heavily on equalization, the linearity of the received signal is important. If the Rx input amplitude becomes excessive, there is little or no head room to amplify or otherwise process the signal. It is likely that the signal will be clipped, leading to a loss of linearity. The problem is particularly acute in devices operating from a 1.0 volt rail and future devices operating from a 0.8 volt rail. To preserve linearity we believe that the input amplitude (72.6.2.4) must not be allowed to go above 600 mV ppd when equalization is being used.

*SuggestedRemedy*

Proposed Text for 72.6.2.4

10GBASE-KR receivers shall accept differential input signal peak-to-peak amplitudes produced by compliant transmitters connected without attenuation to the receiver, and still meet the BER requirement specified in 72.6.2.1; with the exception that a compliant transmitter may be directed to operate in such a way that the received signal does not exceed 600 mV ppd when equalization (either transmit equalization or receive equalization or both) is used; and 1200 mV ppd when no equalization (neither transmit equalization nor receive equalization) is used. Since the Channel is AC-coupled, the absolute voltage levels with respect to the receiver ground are dependent on the receiver implementation.

NOTE 1: Section 72.6.1.10 provides a means for the receiver to control the transmitter amplitude as part of, or in addition to, transmitter equalization.

Proposed Response Response Status **C**

REJECT.

The test condition is specified to be a direct connection without attenuation, so linearity is not a primary concern.

IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.7.5 P40 L46 # 157  
 Spagna, Fulvio INTEL  
 Comment Type **T** Comment Status **X**  
 Incorrect reference to BP AN Ability bit.  
 SuggestedRemedy  
 Change 7.48 into 7.48.0  
 Proposed Response Response Status **O**

Cl 45 SC 45.2.7.6 P41 L26 # 159  
 Spagna, Fulvio INTEL  
 Comment Type **T** Comment Status **X**  
 Incorrect reference to BP AN Ability bit.  
 SuggestedRemedy  
 Change 7.48 into 7.48.0  
 Proposed Response Response Status **O**

Cl 69A SC 69A.2 P64 L25 # 164  
 Spagna, Fulvio INTEL  
 Comment Type **TR** Comment Status **X**  
 The inserion loss, IL(f), needs to be compared against the template which is represented by Amin(f) and not Ilmin(f).  
 SuggestedRemedy  
 In Equation 69A-1 replace ILmin(f) with Amin(f).  
 Proposed Response Response Status **O**

Cl 69A SC 69A.3 P66 L21 # 169  
 Spagna, Fulvio INTEL  
 Comment Type **TR** Comment Status **X**  
 Log(mBER) is a negative number so taking the square root of Log(mBER) is not appropriate.  
 SuggestedRemedy  
 Will be presented in a separate ppt at the September meeting.  
 Proposed Response Response Status **O**

Cl 70 SC 70.6.1 P73 L15 # 171  
 Spagna, Fulvio INTEL  
 Comment Type **TR** Comment Status **R** kx\_tr  
 Make minimum KX transition time consistent with KR.  
 For consistency with KX4 and KR, add RJ entry to Output Jitter specification.  
 SuggestedRemedy  
 (1) Change Transition Time (min) from 60 pS to 24 pS in Table 70-5.  
 (2) Change transition Time limits in 70.6.1.7 (lines 38 and 40, page 76)  
 Proposed Response Response Status **C**  
 REJECT.

While consistency is desirable, the impact on the crosstalk environment must be carefully studied before such a change can be made.

Cl 71 SC 71.6.1 P90 L25 # 172  
 Spagna, Fulvio INTEL  
 Comment Type **TR** Comment Status **R**  
 In KR, TJ = RJ + DJ. Use same approach in this case.  
 SuggestedRemedy  
 Change Random Jitter limit from 0.27 U<sub>lpp</sub> to 0.28 U<sub>lpp</sub>.  
 Proposed Response Response Status **C**  
 REJECT.

It was noted that commenter intended to change random jitter limit from 0.27U<sub>lpp</sub> to 0.18U<sub>lpp</sub>.

Note - Correct reference in Table 71-5 to 71.6.1.8.

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.5.10.2.5 P112 L26 # 174  
 Spagna, Fulvio INTEL

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

The existing coefficient update process does not contemplate the case where the new coefficient set, if updated, violates the requirements of 72.6.1.11 namely the limit on the minimum value of Vss.

This information can be transferred to the LP in two ways:

(1) augmenting each coefficient status field by 1 bit to provide allow encoding of the new state

(2) use the existing status bits and return {minimum, minimum, minimum} when such a condition is encountered

*SuggestedRemedy*

Add to existng text:

""The default state for a given tap is not\_updated. Upon implementation of a received increment or decrement request, the status is reported as updated, maximum, or minimum. Maximum is reported if a received increment request causes the tap value to reach its maximum limit, or if it is already at that limit. Minimum is reported if a received decrement request causes the tap value to reach its minimum limit, or if it is already at that limit.""

the following:

""The condition by which a change request causes the coefficient values to violate the minimum steady-state voltage requirements defined in 72.6.1 will be reported by setting the status field for all the coeffeicints to minimum.

The algorithm employed by the receiver adaptation process to deal with these occurrences is beyond the scope of this standard>""

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Overtaken by events. See Comment 258

CI 72 SC 72.6.1.10 P122 L42 # 175  
 Spagna, Fulvio INTEL

Comment Type **TR** Comment Status **A** *kr\_txout*

The requirement that the conditions a - i be met for all possible configurations of the transmit equalizer seem inconsistent with the requirements in 72.6.1.11 (ref. Line #22, page 124).

The proposal is to group these conditions in two sets:

+ the first set (a,b,c,d,g,h) will be tested under all the possible equalizer configurations such that A= const and within the peak-peak differential output voltage range specified in Table 72-5

+ the second set (e,i) should be verified for all possible configurations of the transmit equalizer.

*SuggestedRemedy*

Change text as follows:

""For all possible configurations of the transmit equalizer such that the peak differential output voltage A shall be within the peak-peak differential output voltage range specified in Table 72-5:

- a) Rpst shall not be less than 3.25 for any c1 decrement request that returns status ôminimumö with pre-cursor equalization disabled (Rpre no greater than 1.38).
- b) Rpst shall not be greater than 1.08 for any c1 increment request that returns status ômaximumö with pre-cursor equalization disabled (Rpre no greater than 1.08).
- c) Rpre shall not be less than 1.39 for any c-1 decrement request that returns status ôminimumö with post-cursor equalization disabled (Rpst no greater than 1.13).
- d) Rpre shall not be greater than 1.08 for any c-1 increment request that returns ômaximumö with post-cursor equalization disabled (Rpst no greater than 1.08 dB).
- e) For adjacent post-cursor settings (k) and (k-1) resulting from a single increment or decrement operation on tap c-1, Dpst shall be greater than 0 and less than 0.0263.
- f) For adjacent pre-cursor settings (k) and (k-1) resulting from a single increment or decrement operation on tap c1, Dpre shall be greater than 0 and less than 0.0263.
- g) Adjacent main tap settings (k) and (k-1) resulting from a single increment or decrement operation on tap c0, Dmain shall be greater than 0 and less than 50 mV.

In addition, for all possible configurations of the transmit equalizer:

- h) With both pre- and post-cursor equalization disabled (Rpre no greater than 1.08 and Rpst no greater than 1.08), the value of Vss shall be no greater than 100 mV for any c0 decrement request that returns status ôminimumö.
- i) For any tested transmitter state (k), the magnitude of Vss shall not be less than 40 mV.""

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

IEEE P802.3xx draft Y.Z Comments

Overtaken by events. Refer to comment 258

Cl 45 SC 45.2.7.1.2 P36 L49 # 188

Spagna, Fulvio INTEL

Comment Type T Comment Status A

Incorrect reference to AN ability bit.

SuggestedRemedy

Change 7.48.3 into 7.48.0

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

See also #421

Cl 45 SC 45.2.7.1.2 P36 L52 # 189

Spagna, Fulvio INTEL

Comment Type T Comment Status A

Incorrect reference to AN ability bit.

SuggestedRemedy

Change 7.48.3 into 7.48.0

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Ref. deleted

See #421

Cl 45 SC 45.2.7.1.3 P36 L49 # 190

Spagna, Fulvio INTEL

Comment Type T Comment Status A

Incorrect reference to AN ability bit.

SuggestedRemedy

On lines #3 and #4, change 7.48.3 into 7.48.0

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

See #421

Cl 69 SC 69.3.2 P53 L23 # 213

Grow, Robert Intel

Comment Type T Comment Status R channel\_skew

Recommended or assumed?

SuggestedRemedy

I think the clause assumes the specified maximum skew.

Proposed Response Response Status C

REJECT.

Maximum skew is an informative recommendation.

Cl 69 SC Table 69-3 P60 L15 # 217

Grow, Robert Intel

Comment Type TR Comment Status D delay

As delay constraints are specified for pause operation, why isn't there a pause quanta column?

SuggestedRemedy

Add a pause\_quanta column. Add a row for total delay and enter total bit times and the corresponding 2 for pause quanta.

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 69A SC 69A.5 P66 L34 # 231

Dudek, Mike Picolight

Comment Type T Comment Status X

EIT baseleine equation condition seems wrong (conflicting numbers for f>0.6fbaud)

SuggestedRemedy

Change to EIT Baseleine = EITbase, for f1<=f<=0.6fbaud

Proposed Response Response Status O

IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.3.3.2 P55 L12 # 240  
 Dudek, Mike Picolight

Comment Type T Comment Status A  
 Words say greater than. Symbol in equation 69-6 is less than. I think the words should be less than

SuggestedRemedy  
 Change greater than to less than

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

Change verbiage from "greater than" to "less than or equal to"

Cl 69 SC 69.3.3.3 P55 L29 # 241  
 Dudek, Mike Picolight

Comment Type T Comment Status A  
 Words say greater than. Symbols in equation 69-7 and 69-8 are less than.

SuggestedRemedy  
 change ""greater than the lower limit to ""less than the higher limit""

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

Refer to comment #96.

Cl 70 SC 70.6.2 P77 L22 # 242  
 Dudek, Mike Picolight

Comment Type T Comment Status D  
 I don't see a minimum input amplitude for the Rx in Table 70-7 and am not sure that the interference test has a normative minimum input. Same issue for Table 71-7

SuggestedRemedy  
 If there is a problem here, fix it.

Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.

Related comments: #242, #249

Cl 72 SC 72.6.1.9 P121 L49 # 243  
 Dudek, Mike Picolight

Comment Type T Comment Status A  
 The value of the tap weights is not specified for the Transmitter jitter test

SuggestedRemedy  
 Define what the tap weights should be for the test in 72.6.1.9

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

Equalization should be "off": c(-1) at maximum, c(1) at maximum.

Add statement that equalization shall be "off" to 72.6.1.9.

Cl 72 SC 72.6.1.10 P122 L45 # 244  
 Dudek, Mike Picolight

Comment Type T Comment Status A kr\_txout  
 The conditions a,b,c and d appear to be wrong.

SuggestedRemedy  
 Fix if a problem exists.

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.

Cl 72 SC 72.6.1.11 P124 L23 # 245  
 Dudek, Mike Picolight

Comment Type T Comment Status A kr\_txout  
 It is impossible to achieve exactly the same value of A over all transmitted states, however this is required with a ""shall"" statement.

SuggestedRemedy  
 Option 1 Add a tolerance ""the c0tap shall be adjusted to yield the same value of A within a tolerance of +/-TBDmv""

Option 2 add the word approximatelyh ""yield approximately the same value of A""

Option 3 Change ""Shall"" to ""Should""

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.

IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.2.5 P126 L 23 # 246  
 Dudek, Mike Picolight

Comment Type T Comment Status A

In this section the differential input return loss is defined to 15GHz by equations 72-3 and 72-4. However these equations are conditioned to only 7.5GHz.

SuggestedRemedy

Option 1 repeat the equations with the appropriate conditions in this section, Option 2 point out that equation 72-4 should be used with a change to the upper frequency, Option 3 change 15GHz to 7.5GHz on line 24.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Refer to comment #383

Related comments #246, 383

CI 70 SC 70.5.5 P71 L 50 # 247  
 Dudek, Mike Picolight

Comment Type TR Comment Status A kx\_disable

The Transmit disable requires the signal to be turned off such that the output does not exceed the max signal in Table 70-5. The only max signal in table 70-5 is 1600mV which is obviously wrong. The same problem applies to table 71-5 and table 72-7

SuggestedRemedy

Add extra linea to tablea 70-5,71-5, and 72-7 for Tx disable max output.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Replace text with -

"When a Global\_PMD\_transmit\_disable variable is set to ONE, this function shall turn off the transmitter such that the transmitter drives a constant level (i.e. no transitions)."

It is assumed that 76.1.5 will cover the relevant requirements for transmitter output amplitude.

Related comments: #247, 344

CI 72 SC 72.6.1.4 P119 L 48 # 248  
 Dudek, Mike Picolight

Comment Type TR Comment Status A kr\_txout

In this section the differential peak to peak output voltage is defined to be between 800mV and 1200mV (and based on the fact that nothing is said about tap weights I would expect that this must be true for all tap weights.). It is also shown in Fig 72-7

In section 72.6.1.11 the value of A = Vpst-Vpre-Vss is called the peak differential output voltage. It appears to me that these values are different (For the Fig 72-10 picture the differential peak to peak output voltage would be 2Vpst). This is at least confusing to have such similar names defined differently. Also with the requirement to keep A constant for all tap weights I suspect that keeping the differential peak to peak output voltage within the required range may not be possible for all combinations of tap weights.

SuggestedRemedy

Fix it. (sorry I'm not close enough to this work to suggest an appropriate change), except possibly stating that section 72.6.1.4 only applies when the pre and post cursor taps are set to zero.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Refer to Comments #258 and 272

CI 73 SC Figure 73-10 P159 L 38 # 252  
 Joergensen, Thomas Vitesse Semiconducto

Comment Type T Comment Status X

Signal an\_good is not defined, has to be replaced by an\_link\_good.

SuggestedRemedy

Replace an\_good with an\_link\_good.

Proposed Response Response Status O



## IEEE P802.3xx draft Y.Z Comments

CI 73 SC 73.8 P145 L04 # 253  
 Joergensen, Thomas Vitesse Semiconducto

Comment Type T Comment Status X

The electrical part of the Clause 45 MDIO management interface should be optional. As it is written here it requires the electrical interface to be present (there is a ""shall"").

## SuggestedRemedy

Change the sentence to read: ""The clause 45 Management Data Input/Output (MDIO) interface shall be used to access the device registers for Auto-Negotiation and other Management purposes.""  
 and add: ""The MDIO electrical interface is optional. Where no physical embodiment of the MDIO exists, provision of an equivalent mechanism to access the registers is recommended.""

Proposed Response Response Status O

CI 73 SC 73.10.4.6 P165 L40 # 254  
 Joergensen, Thomas Vitesse Semiconducto

Comment Type T Comment Status X

The use of Clause 45 electrical interface should be optional, see other comment from me.

## SuggestedRemedy

Replace ""Interface used for logical and electrical access"" with ""Interface used to access the device registers""

Proposed Response Response Status O

CI 72 SC 72.6.1.10 P122 L44 # 258  
 Healey, Adam Agere Systems

Comment Type TR Comment Status A kr\_txout

The requirements listed in this subclause are not the correct translation of the systems requirements outlined in healey\_01\_0505 and adopted as part of brink\_04\_0505.

1. Dpre and Dpst upper limits are defined to be 0.0263. This was supposed to be the sum of the step size and tolerance, which were defined to be 0.0250 and 0.0125 respectively. Therefore, this number should be 0.0375.
2. Dmain upper limit is listed as 50 mV but this should have the same step size requirements as the pre- and post-cursor taps. The absolute voltage is dependent the peak differential output voltage, which would be 15.0 mV for an 800 mVpp output and 22.5 mVp for a 1200 mVpp output. It is not clear where the 50 mV step size originated.
3. Rpre, Rpst, Dpre, Dpst were specified ratiometrically to eliminate dependence on differential output voltage. The assumption behind these equations is that peak-peak differential output voltage (2A) is kept constant throughout the test. The specification states that this is a measurement requirement but allows a 3% tolerance across test conditions. While this is a realistic provision, the specifications on the ratios should be checked with this 3% tolerance in mind to ensure that specifications are not too strict or too forgiving.

## SuggestedRemedy

Check the requirements to ensure consistency with the agreed upon requirements and ensure appropriate margins are included measurement tolerances. At a minimum, the listed items need to be corrected, but a more detailed investigation may reveal other issues.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

see healey\_01\_0905

## Motion 2

Type Technical (75%)

Description - Adopt healey\_01\_0905 slides 18 and 19, as the basis for resolution of Comment 258.

Moved Charles Moore

Seconded Fulvio Spagna

All Y-19 N-1 Abstain-8

Motion Passes

## IEEE P802.3xx draft Y.Z Comments

CI 69A SC 69A.1 P64 L05 # 259  
Healey, Adam Agere Systems

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

I am not sure that the term "compliant transmitter" is precise. What the test is looking for, I assume, is a "worst-case" compliant transmitter that pushes the boundaries of the all of the specifications that we have specified and can control.

1. The transmitter output amplitude should be constrained to 800 mVp-p, as higher output voltages may yield optimistic results
2. The transmit jitter should be pushed to the worst-case values (or a reasonable approximation thereof, such as an "equivalent" amount of sinusoidal jitter). A "clean" jitter transmitter may yield optimistic results.
3. The range and resolution of the transmit equalizer should be a close to the worst-case values allowed by the standard as possible.

Unless the transmitter is specified in this way, it is possible for a supplier to claim compliance to the specification after meeting the requirements with a "best-case" transmitter yet interoperability is not guaranteed when that device is connected to a "worst-case" transmitter.

*SuggestedRemedy*

Define a complete set of specification for the compliant transmitter. This will naturally be a function of the port type being tested.

Proposed Response Response Status **O**

CI 72 SC 72.5.10.2 P109 L09 # 260  
Brink, Robert Agere Systems

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

New training pattern should be 548 Octets in length.  
4 - Frame Delimiter  
32 - Control Channel  
512 - Training Pattern

*SuggestedRemedy*

Change text to reflect the new training pattern length

Proposed Response Response Status **C**

ACCEPT.

Refer to comment #306.

Related comments: #263, 306

CI 69A SC 69A.5 P65 L47 # 261  
Brink, Robert Agere Systems

Comment Type **T** Comment Status **D** *it\_igen*

Need to precisely specify that the interference generator be off rather than ""off or a very low value""

Also applies to page 66 line 7

*SuggestedRemedy*

Specify interference generator OFF

eliminate ""or a very low value""

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Define the interference generator to be "off" and define what "off" means.

"To measure interference tolerance, first turn interference generator off (interference is less than XXX mVp-p) and allow the compliant transmitter and the DUT to complete auto-negotiation (if enabled) and, for 10GBASE-KR, training (if enabled)."

CI 69A SC 69A.1 P63 L04 # 262  
Brink, Robert Agere Systems

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

This testing should be done at the maximum ppm offset excursions required by the standard (+/-100ppm)

*SuggestedRemedy*

Specify that the testing be done at the maximum ppm offset excursions required by the standard (+/-100ppm).

Proposed Response Response Status **O**

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.5.10.2 P109 L22 # 263

Brink, Robert Agere Systems

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

Training pattern length is incorrect. Should be 512 Octets.

*SuggestedRemedy*

Change Figure 72-2 to have Training pattern length of 512 Octets

Proposed Response Response Status **C**

ACCEPT.

Refer to comment #306.

Related comments: #263, 306

CI 72 SC 72.5.10.2.6 P113 L03 # 264

Brink, Robert Agere Systems

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

Training Pattern length is incorrect

*SuggestedRemedy*

Change training pattern length to 512 Octets

Proposed Response Response Status **C**

ACCEPT.

Refer to comment #307

Related comments: #264, 307

CI 72 SC 72.5.10.2.6 P113 L08 # 265

Brink, Robert Agere Systems

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

Training pattern needs to be redefined.

*SuggestedRemedy*

Update Training pattern to be two PN11 patterns padded with a single trailing 'zero' at the end of each PN11. This results in 512 Octets that are DC balanced. 2047 bits + 0 + 2047 bits + 0 = 512 Octets. Also specify that at the beginning of each training sequence, the PRBS pattern should be reseeded.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Refer to comment 307.

CI 72 SC 72.5.10.4.2 P115 L53 # 266

Brink, Robert Agere Systems

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

Transmit Equalization presets are needed to assist in the initial part of the training startup and to guarantee training convergence.

*SuggestedRemedy*

Define Transmit Equalization taps [c-1 c0 c+1 ] to be [-2 27 -11 ] resulting in ~9.1dB gain. See supporting presentation.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Define Rpre and Rpst initial values per brink\_01\_0905, Slide #11. These requirements will be normative.

These are the values the transmitter shall have when the training state diagram enters the "INITIALIZE" state.

CI 70 SC 70.6.1.7 P76 L38 # 267

Powell, Scott Broadcom

Comment Type **TR** Comment Status **A** kx\_tr

There is no max transition time specified. Extremely slow edges from the transmitter are therefore permitted. These slow edges can cause undue ISI thereby causing system interoperability problems

*SuggestedRemedy*

Add a maximum transition time spec.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

See comment #347.

Related comments: #267, 347

IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.1.2 P119 L39 # 271  
 Telang, Vivek Broadcom

Comment Type TR Comment Status D

The Return Loss of the Test fixture impedance is not specified for the frequencies greater than 5GHz. This will allow badly designed test fixtures to still claim standards compliance. Test fixtures which have poor high frequency RL may have unintended effects on the measurements. Although 5GHz is the Nyquist frequency, we do care what happens to signals above that frequency.  
 Suggest that the RL be specified by a limit line (at 11.95dB) beyond 5GHz

SuggestedRemedy

Add this line:  
 ReturnLoss(f) > 11.95dB, for f > 5GHz

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Refer to comment #579

Related comments: #579, 604

CI 72 SC 72.6.1.4 P119 L48 # 272  
 Telang, Vivek Broadcom

Comment Type TR Comment Status A kr\_txout

For a given transmitter transmitting a square wave, there will be a unique value of differential peak-to-peak output voltage. It is not clear what the qualifiers "maximum" and "minimum" mean in this context.  
 If it is intended that the transmitter differential peak-to-peak output voltage be in the range 800mV-1200mV, then the text should simply state that.

SuggestedRemedy

Replace lines 48 and 49 with

""The transmitter differential peak-to-peak output voltage shall be in the range 800mV to 1200mV""

This seems like a very large transmit amplitude range, so I'm not sure that the intent has been captured correctly.

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

The differential output voltage requirements are redundant with the transmitter waveform requirements as adopted in Comment #258.

Update Table 72-7

Cross reference differential output voltage to 72.6.1.10 (transmitter waveform requirements).

For values- cross reference the tables in 72.6.1.10 (Editor's note - Table numbers are yet to be determined).

In 72.6.1.4 remove differential output requirements and add cross-reference to 72.6.1.10.

Related comment #258

CI 72 SC 72.6.1.5 P120 L32 # 273  
 Telang, Vivek Broadcom

Comment Type TR Comment Status A

The base of the logarithm is not specified.

SuggestedRemedy

Replace ""log"" with ""log10""

Proposed Response Response Status W

ACCEPT.

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.1.5 P120 L36 # 274

Telang, Vivek

Broadcom

Comment Type **TR** Comment Status **R** kr\_txrl

The Return Loss of the Transmitter is not specified for the frequencies greater than 7.5GHz. This will allow badly designed transmitters to still claim standards compliance. Transmitters which have poor high frequency RL may have unintended effects on the receiver.

*SuggestedRemedy*

Add this line after line 36:

returnLoss(f) >= 2dB for f > 7500MHz

Proposed Response Response Status **W**

REJECT.

Return loss limits were set based on feasibility of construction. Performance benefits to be gained not demonstrated.

Related comments: #110, 274, 573

CI 45 SC 45.2.1.6.1 P28 L12 # 284

McClellan, Brett

Solarflare

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

10GBASE-T specifies a PMA but not a PMD

*SuggestedRemedy*

change ""1 0 0 1 = 10GBASE-T PMA/PMD type""  
to: ""1 0 0 1 = 10GBASE-T PMA type""

Proposed Response Response Status **W**

REJECT.

Given the response to Comment 434, this comment is no longer relevant.

CI 45 SC 45.2.7.4 P40 L28 # 285

McClellan, Brett

Solarflare

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

""7.20.15:5 Technology Ability Field A[0:10] See 73.6.4""  
The bits A[10:0] are listed in reverse order.

*SuggestedRemedy*

change text to:

""7.20.15:5 Technology Ability Field A[10:0] See 73.6.4""

Proposed Response Response Status **O**

CI 45 SC 45.2.7.5 P41 L10 # 286

McClellan, Brett

Solarflare

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

""7.23.15:0 Unformatted Code Field U[0:15] or U[26:11] See 73.7.7.1""  
The bits U[0:15] are listed in reverse order.

*SuggestedRemedy*

change text to:

""7.23.15:0 Unformatted Code Field U[15:0] or U[26:11] See 73.7.7.1""

Proposed Response Response Status **O**

CI 45 SC 45.2.7.6 P42 L10 # 287

McClellan, Brett

Solarflare

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

""7.26.15:0 Unformatted Code Field U[0:15] or U[26:11] See 73.7.7.1x""  
The bits U[15:0] are listed in reverse order.

*SuggestedRemedy*

change text to:

""7.26.15:0 Unformatted Code Field U[15:0] or U[26:11] See 73.7.7.1x""

Proposed Response Response Status **O**

CI 73 SC 73.5.2 P136 L01 # 288

McClellan, Brett

Solarflare

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

It is not clear exactly what is being referenced in 48.2.4.2.  
Can the pseudo-random source be explicitly defined in clause 73?

*SuggestedRemedy*

Specify the pseudo-random source in this clause.

Proposed Response Response Status **O**

## IEEE P802.3xx draft Y.Z Comments

CI 73 SC 73.5.3 P137 L07 # 289  
McClellan, Brett Solarflare

Comment Type T Comment Status X

In Table 73-2, it appears that the timing spec for T1 conflicts with T2 and T3. I assume that T1 is supposed to be the average period while T2 and T3 allow for instantaneous jitter, but this is not explicitly stated.

## SuggestedRemedy

Clarify the difference between T1 and T2/T3 timing specs.

Proposed Response Response Status O

CI 69 SC 69.3.3 P53 L25 # 294  
Zimmerman, George Solarflare Communicat

Comment Type TR Comment Status R normative\_channel

There appear to be no requirements on the channel, only a bunch of loose recommendations. This seems insufficient to allow a designer either of PHYs or of backplanes to allow interoperable devices, without concurrent engineering.

## SuggestedRemedy

Agree on requirements that would allow interoperable devices and media or explain why backplane ethernet is different.

Proposed Response Response Status W

REJECT.

Refer to comment #318

CI 69 SC 69.3.3.5.4 P59 L23 # 300  
Abler, Joe IBM

Comment Type T Comment Status X channel\_icr

ICR for KX and KX4 is specified to 2x the fundamental frequency, whereas the spec for KR doesn't even extend to 1x it's fundamental. This doesn't make much sense given the impact of crosstalk at higher operating ranges.

## SuggestedRemedy

Extend the range for KR ICR to 6000MHz. This would have all 3 specs consistently set relative to their IL f2 parameter. Alternatively, set all 3 specs to their relative fundamental frequency (625MHz for KX, 1.5625GHz for KX4, 5.15625GHz for KR).

Proposed Response Response Status O

CI 69A SC 69A.5 P66 L27 # 301  
Abler, Joe IBM

Comment Type T Comment Status X

There's no definition of how many samples should be taken

## SuggestedRemedy

Define a minimum of 20 samples equally spaced between f1 and fbaud

Proposed Response Response Status O

CI 69A SC 69A.4 P65 L35 # 302  
Abler, Joe IBM

Comment Type T Comment Status X

Since measurements are taken at fbaud, the phase of the interference relative to the data will have a difference on results. There is no specification on the phase relationship

## SuggestedRemedy

Add an additional statement: The path of the interfering signal to the DUT should be calibrated at fbaud such that the interfering signal is in phase with the Data.

Proposed Response Response Status O

CI 69A SC 69A.5 P66 L34 # 303  
Abler, Joe IBM

Comment Type T Comment Status X

freq range is wrong

## SuggestedRemedy

change range from f1 to 0.6fbaud

Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.1.10 P122 L52 # 304  
Abler, Joe IBM

Comment Type T Comment Status A kr\_txout

Shows Rpst expressed as 108 dB. I believe this should be a straight ratio

## SuggestedRemedy

delete dB

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.2.1 P125 L29 # 305  
Abler, Joe IBM

Comment Type T Comment Status X kr\_test\_pattern

Use of pseudo-random test pattern of 49.2.8 is specified. However, the Itol test procedure is intended to allow use of a compliant transmit, but most transmitters don't have this test pattern capability built in. Clause 49.2.8 also calls out an optional PRBS31 pattern. This pattern is more commonly built into transceivers, so it's usage should also be allowed.

## SuggestedRemedy

Add a statement that optionally allows the use of PRBS31.

Proposed Response Response Status O

CI 72 SC 72.5.10.2 P109 L31 # 306  
Abler, Joe IBM

Comment Type TR Comment Status A

Training pattern is too short to efficiently gather sufficient statistics to calculate coeff update.

## SuggestedRemedy

Change training pattern length in Fig 72-2 to 512 octets. Change line 9 to indicate a total length of 548 octets

Proposed Response Response Status C

ACCEPT.

Related comments: #263, 306

CI 72 SC 72.5.10.2.6 P113 L03 # 307  
Abler, Joe IBM

Comment Type TR Comment Status A

Training pattern content does not contain sufficient random content to gather statistics and is too short.

## SuggestedRemedy

Change length to 512 octets. Change pattern to a PRBS11 pattern. The pattern would start with an all ones seed at the beginning of each pattern cycle. There would be 2 iterations of the pattern. Following the completion of the second iteration, the final 2 bits of the 512 octet field would be set to '00' to provide DC balance.

Proposed Response Response Status C

ACCEPT.

Related comments: #264, 307

CI 69 SC 69.3.3.3 P56 L03 # 310  
Seemann, Brian Xilinx

Comment Type T Comment Status R model\_scaling

"The insertion loss limit is illustrated in Figures 69-3, 69-4 and 69-5."

We should use the same channel model between 1000BASE-KX, 10GBASE-KX4, and 10GBASEKR.

This project's value was to make a 10Gb single lane PHY that can also operate at other speeds. The 1G and 10G 4-lane PHYs should be included for compatibility, not as stand-alone applications. Inclusion of other insertion loss limits perpetuates bad channels.

## SuggestedRemedy

"The insertion loss limit is illustrated in Figure 69-5."

Eliminate figures 69-3 and 69-4

Proposed Response Response Status C

REJECT.

Insertion loss limit is based on the same model using frequency range as defined by f1 and f2 appropriate to port type.

IEEE P802.3xx draft Y.Z Comments

Cl 69A SC 69A.2 P64 L22 # 311  
 Seemann, Brian Xilinx

Comment Type T Comment Status X

""The insertion loss should be greater than or equal to the worst-case insertion loss limit as described by the inequality: ...""

Our normative test should be within the required operating range. This is specifying a test beyond the worst-case insertion loss limit. This is essentially an Insertion Loss to Crosstalk Ratio test. And the ICR concept presumes a trade-off between crosstalk and loss. So it is inappropriate to perform the test beyond the absolute limit of loss.

SuggestedRemedy

""The insertion loss should be no more than x dB better than, and not worse than the worst-case insertion loss limit as described by the inequality: ...""

OR

""The insertion loss should be within x dB better or worse than the worst-case insertion loss limit as described by the inequality: ...""

Proposed Response Response Status O

Cl 45 SC Table 45-11 P29 L16 # 312  
 Baumer, Howard Broadcom

Comment Type TR Comment Status R

Missing 1000BASE-KX PMD/PMA

SuggestedRemedy

Add 1000BASE-KX PMD/PMA type

Proposed Response Response Status W

REJECT.

This reg. is only for 10G PMA/PMD's

Cl 45 SC Table 45-55 P31 L17 # 314  
 Baumer, Howard Broadcom

Comment Type TR Comment Status A

Vendor specific register bits should be in IEEE standard register bit space. There are 32k+ vendor specific registers for these bits.

SuggestedRemedy

Remove these vendor specific bits from this register and relabel these as reserved.

Proposed Response Response Status W

ACCEPT.

Refer to comment 451.

Cl 45 SC Table 45-56 P32 L14 # 315  
 Baumer, Howard Broadcom

Comment Type TR Comment Status A

Vendor specific register bits should be in IEEE standard register bit space. There are 32k+ vendor specific registers for these bits.

SuggestedRemedy

Remove these vendor specific bits from this register and relabel these as reserved.

Proposed Response Response Status W

ACCEPT.

Refer to comment 451.

Cl 45 SC Table 45-57 P33 L25 # 316  
 Baumer, Howard Broadcom

Comment Type TR Comment Status A

Vendor specific register bits should be in IEEE standard register bit space. There are 32k+ vendor specific registers for these bits.

SuggestedRemedy

Remove these vendor specific bits from this register and relabel these as reserved.

Proposed Response Response Status W

ACCEPT.

Refer to comment 451.



IEEE P802.3xx draft Y.Z Comments

Cl 45 SC Table 45-58 P34 L14 # 317

Baumer, Howard Broadcom

Comment Type TR Comment Status A

Vendor specific register bits should be in IEEE standard register bit space. There are 32k+ vendor specific registers for these bits.

SuggestedRemedy

Remove these vendor specific bits from this register and relabel these as reserved.

Proposed Response Response Status W

ACCEPT.

Refer to comment 451.

Cl 69 SC 69. P49 L01 # 318

Baumer, Howard Broadcom

Comment Type TR Comment Status R normative\_channel

Draft is technically incomplete. The minimum that is required for a technically complete standard is to specify the transmitter, the channel / media (Cu cable, optical fiber, backplane, etc.) and the receiver. The transmitter and receiver for each PMD type are specified in Clause 70, 71, & 72. The channel is defined as informative in Clause 69 where there are ZERO "shall" statements. This makes it such that any channel can be used.

SuggestedRemedy

Change this clause to a normative clause adding in all the appropriate "shall" statements and setting all the limits to the appropriate values as determined by the task force.

Proposed Response Response Status U

REJECT.

IEEE 802.3 chip-to-chip interfaces (including Clause 47 XAU) do not specify the channel. The only time channels are specified in IEEE 802.3 specifications are for box-to-box interconnects where the user may acquire the DTEs and media from independent entities.

In addition, the test points used to verify silicon compliance may not be available in a backplane environment.

Motion #5

Type - Technical (75%)

Description - Move to reject comment for reasons described above.

M: Charles Moore

S: Fulvio Spagna

All Y-20 N-1 Abstain- 1

Motion Passes

Related comment 294

Cl 69A SC 69A.2 P64 L11 # 322

Baumer, Howard Broadcom

Comment Type TR Comment Status X

There is no return loss definition for the compliance channel. Without this how are the compliant transmitter return loss to compliance channel return loss interactions taken into account and controlled?

SuggestedRemedy

Define return loss for the compliance channel

Proposed Response Response Status O

Cl 69A SC 69A.2 P64 L37 # 323

Baumer, Howard Broadcom

Comment Type TR Comment Status X

Amin is not defined.

SuggestedRemedy

Define Amin

Proposed Response Response Status O

Cl 69A SC 69A.4 P65 L36 # 325

Baumer, Howard Broadcom

Comment Type TR Comment Status X

What is meant by accurately? 10%, 25%, 0.00001%?

SuggestedRemedy

Define accurately

Proposed Response Response Status O

IEEE P802.3xx draft Y.Z Comments

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CI 69A SC 69A.4 P65 L36 # 326  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **X**  
 There is no defined method on how to combine the interference signal and the attenuated data signal  
 SuggestedRemedy  
 Define a method  
 Proposed Response Response Status **O**

---

CI 69A SC 69A.5 P66 L23 # 333  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **X**  
 Linear part of the data isn't defined.  
 SuggestedRemedy  
 Define which points are the linear part of the data  
 Proposed Response Response Status **O**

---

CI 69A SC 69A.5 P66 L08 # 331  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **X**  
 What is meant by "very low"?  $10^{-10}$ ,  $10^{-11}$ ,  $10^{-15}$ ,  $10^{-378.56}$ ? and how many seconds are "several seconds"?  
 SuggestedRemedy  
 Define "very low" and "several seconds"  
 Proposed Response Response Status **O**

---

CI 69A SC 69A.5 P66 L23 # 334  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **X**  
 Repeated word "data"  
 SuggestedRemedy  
 Delete on of the "data"s  
 Proposed Response Response Status **O**

---

CI 69A SC 69A.5 P66 L21 # 332  
 Baumer, Howard Broadcom  
 Comment Type **T** Comment Status **X**  
 This equation does not match Figure 69A-3. Equation says  $\sqrt{\log(mBER)}$  whereas the figure shows BER  
 SuggestedRemedy  
 Proposed Response Response Status **O**

---

CI 69A SC 69A.5 P66 L23 # 335  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **X**  
 Extrapolation method isn't defined.  
 SuggestedRemedy  
 Define the extrpolation method  
 Proposed Response Response Status **O**

IEEE P802.3xx draft Y.Z Comments

Cl 70 SC 70.5.4 P71 L24 # 341  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx\_sd  
 Conflict between text wording and Table 70-4 wording. Text says SIGNAL\_DETECT doesn't have to check for a compliant 1000BASE-X signal, however, the table does.  
 SuggestedRemedy  
 Pick one and make the text and table match  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment #94.  
 Related comments: #94, 341, 342, 343, 568, 570, 170.

Cl 70 SC 70.5.4 P71 L33 # 342  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx\_sd  
 Vinput is not defined anywhere  
 SuggestedRemedy  
 Define Vinput  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment #94.  
 Related comments: #94, 341, 342, 343, 568, 570, and 170.

Cl 70 SC 70.5.4 P71 L38 # 343  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx\_sd  
 Note claims SIGNAL\_DETECT may not activate with an "1010a" pattern, however, there is no specific threshold defined for SIGNAL\_DETECT therefore claim can't be made.  
 SuggestedRemedy  
 Delete note  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment #94.  
 Related comments: #94, 341, 342, 343, 568, 570, and 170.

Cl 70 SC 70.5.5 P71 L52 # 344  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx\_disable  
 Reference is made to Table 70-3, however, sub-clause 70.6.1.4 is what sets the PICS compliance with its "shall". The reference should be to the sub-clause.  
 SuggestedRemedy  
 Change "voltage in Table 70-5." to "voltage in section 70.6.1.4."  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Refer to Comment #247.  
 Related comments: #247, 344

Cl 70 SC 70.6.1 P73 L04 # 345  
 Baumer, Howard Broadcom  
 Comment Type TR Comment Status A  
 There is a potential conflict between text and table wording.  
 SuggestedRemedy  
 Do one of the following: Add text stating which prevails if there is a conflict (text or table wording) or have the text reference the table or label the table as informative.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 If the text and table are in conflict, then the conflict should be resolved.  
 There is currently no reference that implies the table is normative. The "shall" statements associated with each requirement are in the text.

Cl 70 SC 70.6.1.4 P74 L43 # 346  
 Baumer, Howard Broadcom  
 Comment Type TR Comment Status A  
 There is no differential output template referenced here. The references are to the transmit eye diagram mask.  
 SuggestedRemedy  
 Relabel section "Differential Output Eye Mask" and change wording to say eye mask instead of template. Change inflection points to mask points.  
 Proposed Response Response Status C  
 ACCEPT.

## IEEE P802.3xx draft Y.Z Comments

Cl 70 SC 70.6.1.7 P76 L36 # 347  
Baumer, Howard Broadcom

Comment Type **TR** Comment Status **A** kx\_tr

There is no max transition time, therefore allowing extremely slow edges from the transmitter. These slow edges can cause undue ISI thereby causing system interoperability problems.

*SuggestedRemedy*

Specify a maximum transition time with limits as determined by the Task Force.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

The rise time of a sinusoid of period 2 baud is 0.4097 baud. This would imply a rise time upper limit of 327 ps. Propose an upper limit of 320 ps.

Related comments: #267, 347

Cl 70 SC 70.6.2 P77 L09 # 348  
Baumer, Howard Broadcom

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

There is a potential conflict between text and table wording.

*SuggestedRemedy*

Do one of the following: Add text stating which prevails if there is a conflict (text or table wording) or have the text reference the table or label the table as informative.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

See comment #345

Cl 70 SC 70.6.2.1 P77 L25 # 349  
Baumer, Howard Broadcom

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

This section is incomplete as it references Annex 69A that has ZERO "shall" statements in it making it an "Informative" Annex.

*SuggestedRemedy*

Add appropriate "shall" statements to Annex 69A and label it as Normative.

Proposed Response Response Status **U**

ACCEPT.

In addition, it is also necessary to investigate the impact on the PICS.

Changes to be made and sent to Howard for review.

Cl 70 SC 70.6.2.6 P78 L27 # 350  
Baumer, Howard Broadcom

Comment Type **TR** Comment Status **A** common\_mode\_rl

A common mode return loss specifications forces designs to use single ended terminations. This eliminates a purely differentially terminated implementation. Common mode interference is already limited by EMI specifications making this section redundant.

*SuggestedRemedy*

Delete section 70.6.2.6

Proposed Response Response Status **C**

ACCEPT.

Also, delete common-mode return loss in Table 70-7.

Cl 71 SC 71.5.4 P87 L52 # 351  
Baumer, Howard Broadcom

Comment Type **T** Comment Status **A** kx4\_sd

at least 7UI" is not clearly defined. Does it mean continuous UI or any 7 continuous or discontinuous UI

*SuggestedRemedy*

State whether 7 UI means 7 continuous UI or any 7 continuous or discontinuous UI

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Signal Detect functional description removed from the document. Refer to #94.

IEEE P802.3xx draft Y.Z Comments

CI 71 SC 71.5.4 P88 L01 # 352  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx4\_sd  
 at least 7UI" is not clearly defined. Does it mean continuous UI or any 7 continuous or discontinuous UI  
 SuggestedRemedy  
 State whether 7 UI means 7 continuous UI or any 7 continuous or discontinuous UI  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Signal Detect functional description removed from the document. Refer to #94.

CI 71 SC Table 71-4 P88 L16 # 353  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx4\_sd  
 Conflict between table and text. Text says 7UI table says 1UI  
 SuggestedRemedy  
 Pick one and make both the same.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. See Comment #94.

CI 71 SC Table 71-4 P88 L20 # 354  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx4\_sd  
 Conflict between table and text. Text says 50, table says 75  
 SuggestedRemedy  
 Pick one and make both the same.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events.  
 Refer to comment #94

CI 71 SC 71.5.5 P88 L35 # 355  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A kx4\_sd  
 There is no need to not allow lane by lane signal detect just because there is no global signal detect.  
 SuggestedRemedy  
 Make this optional if global is not present.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Signal Detect functional description removed from the document. Refer to #94.

CI 71 SC 71.6.1 P90 L08 # 356  
 Baumer, Howard Broadcom  
 Comment Type TR Comment Status A  
 There is a potential conflict between text and table wording.  
 SuggestedRemedy  
 Do one of the following: Add text stating which prevails if there is a conflict (text or table wording) or have the text reference the table or label the table as informative.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 If the text and table are in conflict, then the conflict should be resolved.

CI 71 SC Table 71-5 P90 L18 # 357  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status A  
 This is output return loss not input return loss  
 SuggestedRemedy  
 Change to output  
 Proposed Response Response Status C  
 ACCEPT.

## IEEE P802.3xx draft Y.Z Comments

CI 71 SC 71.6.2 P95 L31 # 358  
Baumer, Howard Broadcom

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

There is a potential conflict between text and table wording.

*SuggestedRemedy*

Do one of the following: Add text stating which prevails if there is a conflict (text or table wording) or have the text reference the table or label the table as informative.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

If the text and table are in conflict, then the conflict should be resolved.

There is currently no reference that implies the table is normative. The "shall" statements associated with each requirement are in the text.

CI 71 SC 71.6.2.1 P96 L01 # 359  
Baumer, Howard Broadcom

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

This section is incomplete as it references Annex 69A that has ZERO "shall" statements in it making it an "Informative" Annex.

*SuggestedRemedy*

Add appropriate "shall" statements to Annex 69A and label it as Normative.

Proposed Response Response Status **U**

ACCEPT.

In addition, the impact the on the PICS must be evaluated.

Changes will be reviewed with commenter upon completion.

CI 71 SC 71.6.2.6 P97 L01 # 360  
Baumer, Howard Broadcom

Comment Type **TR** Comment Status **A** *common\_mode\_rl*

A common mode return loss specifications forces designs to use single ended terminations. This eliminates a purely differentially terminated implementation. Common mode interference is already limited by EMI specifications making this section redundant.

*SuggestedRemedy*

Delete section 71.6.2.6

Proposed Response Response Status **C**

ACCEPT.

Also, delete common mode input return loss in Table 71-7.

CI 72 SC 72.5.4 P107 L40 # 361  
Baumer, Howard Broadcom

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

The definition of SIGNAL\_DETECT as the state of the training state machine will be confusing to implementors. This definition does not indicate whether there is a signal present or not. If the intent is to show that a signal is present then define SIGNAL\_DETECT in a similar fashion to clause 70 or 71. If the intent is to show that training between two phys has completed then relabel with another name to avoid the confusion.

*SuggestedRemedy*

Redefine to detect the presence of a signal or relabel to indicate the tie to the training state machine.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change the following text

PMD\_SIGNAL.indication  
is intended to be an indicator of the presence of a valid electrical signal at the receiver input.

To

PMD\_SIGNAL.indication, while normally intended to be an indicator of signal presence, is used by 10GBASE-KR to indicate the successful completion of the start-up protocol.

## IEEE P802.3xx draft Y.Z Comments

Cl 72 SC 72.5.10.2 P109 L12 # 362

Baumer, Howard

Broadcom

Comment Type T Comment Status A

These numbers don't add up. What is meant by DME signaling rate? Is it the rate which the transition positions occur or the rate at which information occurs?

*SuggestedRemedy*

Change "Since each DME symbol is two baud, one control channel bit is transmitted every 8 10GBASE-KR baud" to "Since each DME symbol contains 2 DME transition positions and each transition positions is 4 10GBASE-KR bauds 1 control channel bit is transmitted every 8 10GBASE-KR bauds."

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

"Since each DME symbol contains 2 DME transition positions and each transition position is 4 10GBASE-KR UI, 1 control channel bit is transmitted every 8 10GBASE-KR UI."

Related comments: #362, 528

Cl 72 SC 72.5.10.2.3.1 P110 L48 # 364

Baumer, Howard

Broadcom

Comment Type TR Comment Status A

Explanation lacking. How does one know they can use these bits?

*SuggestedRemedy*

Some wording that the meaning of these bits shall be communicated during auto-neg via MP5 or MP6.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Refer to comment 451.

Cl 72 SC 72.5.10.2.3.3 P111 L07 # 365

Baumer, Howard

Broadcom

Comment Type TR Comment Status R

Unclear on how the coefficient update is done when an inc or dec command is transmitted. The wording of the 4th sentence implies that multiple training frames can be exchanged with a coefficient update command of inc or dec but nothing is said on how the receiving end is to interpret or respond to these multiple frames. It could be interpreted that only one update is to happen.

*SuggestedRemedy*

Explicitly state how the receiving end is to respond to the inc and dec commands. For example: The transmitter shall only update its coefficients once when receiving an inc or dec command and not to another update until it has received a hold command prior to the next update.

Proposed Response Response Status C

REJECT.

The receiver's behavior in response to coefficient update commands is explained in 72.5.10.2.5. Adding similar text to this subclause would be redundant.

Cl 72 SC 72.5.10.2.4 P112 L04 # 366

Baumer, Howard

Broadcom

Comment Type TR Comment Status A

Explanation lacking. How does one know they can use these bits?

*SuggestedRemedy*

Some wording that the meaning of these bits shall be communicated during auto-neg via MP5 or MP6.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Vendor specific bits will be designated as "reserved."

Delete subclause 72.5.10.2.4.2

See related comment #364.

IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.1 P118 L33 # 370  
 Baumer, Howard Broadcom

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

There is a potential conflict between text and table wording.

*SuggestedRemedy*

Do one of the following: Add text stating which prevails if there is a conflict (text or table wording) or have the text reference the table or label the table as informative.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

If the text and table are in conflict, then the conflicts should be resolved.

There is currently no reference that implies the table is normative. The "shall" statements associated with each requirement are in the text.

CI 72 SC 72.6.1.7 P121 L32 # 371  
 Baumer, Howard Broadcom

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

There is no max transition time, therefore allowing extremely slow edges from the transmitter. These slow edges can cause undue ISI thereby causing system interoperability problems.

*SuggestedRemedy*

Specify a maximum transition time with limits as determined by the Task Force.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

The rise time of a sinusoid of period 2 baud is 0.4097 baud. This would imply a rise time upper limit of 40 ps. Propose an upper limit of 40 ps.

Add to Table 72-7 and Section 72.6.1.7.

CI 72 SC 72.6.1.10 P122 L45 # 372  
 Baumer, Howard Broadcom

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

kr\_txout

Missing shall. In order to force the spcified condition a shall is required.

*SuggestedRemedy*

Change "Rpre no greater" to "Rpre shall be no greater"

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P122 L45 # 373  
 Baumer, Howard Broadcom

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

kr\_txout

With a FIR implementation Rpre isn't affected by Rpst therefore the off deffinition of Rpre s/b the same regardless of testing for Rpst min or max.

*SuggestedRemedy*

Change 1.38 to 1.08

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P122 L47 # 374  
 Baumer, Howard Broadcom

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

kr\_txout

Missing shall. In order to force the spcified condition a shall is required.

*SuggestedRemedy*

Change "Rpre no greater" to "Rpre shall be no greater"

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

Overtaken by events. Refer to comment 258.



## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.1.10 P122 L49 # 375  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **A** kr\_txout  
 Missing shall. In order to force the spcified condition a shall is required.  
 SuggestedRemedy  
 Change "Rpst no greater" to "Rpst shall be no greater"  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P122 L49 # 376  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **A** kr\_txout  
 With a FIR implementation Rpst isn't affected by Rpret therefore the off deffinition of Rpst s/b the same regardless of testing for Rpre min or max.  
 SuggestedRemedy  
 Change 1.13 to 1.08  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P122 L51 # 377  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **A** kr\_txout  
 Missing shall. In order to force the spcified condition a shall is required.  
 SuggestedRemedy  
 Change "Rpst no greater" to "Rpst shall be no greater"  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P123 L08 # 378  
 Baumer, Howard Broadcom  
 Comment Type **T** Comment Status **A** kr\_txout  
 Vss is dependent on all tap values so a change on C-1 or C1 would affect Dmain  
 SuggestedRemedy  
 Specify Dmain is to be measured with C-1 & C1 held constant at any valid value  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P124 L07 # 379  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **A** kr\_txout  
 No hard requirement for the definition of Dpre  
 SuggestedRemedy  
 Change "à Dpre is defined to be:" to "à Dpre shall be defined to be:"  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment 258.

CI 72 SC 72.6.1.10 P124 L14 # 380  
 Baumer, Howard Broadcom  
 Comment Type **TR** Comment Status **A** kr\_txout  
 No hard requirement for the definition of Dpst  
 SuggestedRemedy  
 Change "à Dpst is defined to be:" to "à Dpst shall be defined to be:"  
 Proposed Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment 258.

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.2 P125 L03 # 381  
Baumer, Howard Broadcom

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

There is a potential conflict between text and table wording.

*SuggestedRemedy*

Do one of the following: Add text stating which prevails if there is a conflict (text or table wording) or have the text reference the table or label the table as informative.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

If the text and table are in conflict, then the conflict should be resolved.

There is currently no reference that implies the table is normative. The "shall" statements associated with each requirement are in the text.

CI 72 SC 72.6.2.1 P125 L25 # 382  
Baumer, Howard Broadcom

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

This section is incomplete as it references Annex 69A that has ZERO "shall" statements in it making it an "Informative" Annex.

*SuggestedRemedy*

Add appropriate "shall" statements to Annex 69A and label it as Normative.

Proposed Response Response Status **U**

ACCEPT.

Need to also evaluate the impact on the PICS.

CI 72 SC 72.6.2.5 P126 L23 # 383  
Baumer, Howard Broadcom

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

Equations 72-3 & 72-4 do not cover the range specified here of 100M - 15G they go from 100MHz to 7500MHz

*SuggestedRemedy*

Change 15G to 7500MHz or get rid of "For frequencies from 100 MHz to 15 GHz,"

Proposed Response Response Status **C**

ACCEPT.

Related comments #246, 383

CI 72 SC 72.6.2.6 P126 L28 # 384  
Baumer, Howard Broadcom

Comment Type **TR** Comment Status **A** common\_mode\_rl

A common mode return loss specifications forces designs to use single ended terminations. This eliminates a purely differentially terminated implementation. Common mode interference is already limited by EMI specifications making this section redundant.

*SuggestedRemedy*

Delete section 71.6.2.6

Proposed Response Response Status **C**

ACCEPT.

Also, delete common-mode return loss in Table 72-9.

Related comments: #384, 577

CI 73 SC 73.1 P133 L07 # 385  
Baumer, Howard Broadcom

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

Having a mandatory function who's use is optional doesn't make sense. Providing parallel detection for legacy devices that don't support AN implies an 802.3ap phy without AN, a contradictory statement. Further more there is nothing in the any of the PMA/PMD type definitions that require auto-negotiation.

*SuggestedRemedy*

Make AN implementation optional for all PMA/PMD types

Proposed Response Response Status **O**

CI 73 SC 73.1 P133 L36 # 388  
Baumer, Howard Broadcom

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

There is no conflict between Clause 73 auto-negotiation and Clause 37 auto-negotiation. If a Clause 73 enabled device is connected to a Clause 37 enabled device that wishes to transfer information through auto-negotiation the Clause 37 device will not be able to as it is prohibited from enabling its Clause 37 auto-negotiation.

*SuggestedRemedy*

Delete this sentence.

Proposed Response Response Status **O**

## IEEE P802.3xx draft Y.Z Comments

CI 73 SC 73.3 P134 L44 # 389  
Baumer, Howard Broadcom

Comment Type T Comment Status X

If the phy types aren't limited to these then what others are allowed? Any PMA/PMD types added in the future will modify this sentence to include them, therefore "but not limited to" is not needed.

SuggestedRemedy

Remove ", but are not limited to,"

Proposed Response Response Status O

CI 73 SC 73.5.3 P137 L09 # 391  
Baumer, Howard Broadcom

Comment Type T Comment Status X

T2 will always be met if T1 is met so why not make T2 = 6.4 +/- 0.02%?

SuggestedRemedy

Make T2 = 6.4 +/- 0.02%

Proposed Response Response Status O

CI 73 SC 73.5.3 P137 L11 # 392  
Baumer, Howard Broadcom

Comment Type T Comment Status X

Why is T3 looser than T1? Per T1 T3 will always be met.

SuggestedRemedy

Make T3 = T1

Proposed Response Response Status O

CI 73 SC 73.5.3 P137 L15 # 393  
Baumer, Howard Broadcom

Comment Type T Comment Status X

T5 will always be met if T1 is met so just make T5 = 339.2 +/- 1.06%

SuggestedRemedy

Make T5 = 339.2 +/- 1.06%

Proposed Response Response Status O

CI 73 SC 73.5.3 P137 L17 # 394  
Baumer, Howard Broadcom

Comment Type T Comment Status X

T6 will always be met if T1 is met so just make T6 = 12.8 +/- 0.04%

SuggestedRemedy

Make T6 = 12.8 +/- 0.04%

Proposed Response Response Status O

CI 73 SC 73.7.1 P141 L01 # 399  
Baumer, Howard Broadcom

Comment Type TR Comment Status X

Is this a recommendation or should this be a "shall"?

SuggestedRemedy

If this is a requirement then change "should" to "shall"

Proposed Response Response Status O

CI 73 SC 73.7.1 P141 L03 # 400  
Baumer, Howard Broadcom

Comment Type TR Comment Status X

Is this a recommendation or should this be a "shall"?

SuggestedRemedy

If this is a requirement then change "should" to "shall"

Proposed Response Response Status O

IEEE P802.3xx draft Y.Z Comments

CI 73 SC 73.8.1 P145 L18 # 402  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 Wrong register reference  
 SuggestedRemedy  
 Change "6.16.15:0" to "7.16.15:0"  
 Proposed Response Response Status O

CI 73 SC 73.9.4.1.1 P155 L20 # 405  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 PMA\_CARRIER.indication and PMA\_UNITDATA.indication are undefined  
 SuggestedRemedy  
 Either define these or delete "READY, the PMA\_CARRIER.indication and PMA\_UNITDATA.indication primitives are undefined"  
 Proposed Response Response Status O

CI 73 SC 73.9.1 P150 L38 # 403  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 The transmitted nonce from the link partner is highly unlikely to match the transmitted nonce of the local device. Section 73.6.2 discusses an echoed nonce field that is intended to match the transmitted nonce field.  
 SuggestedRemedy  
 Change "à the transmitted nonce received à" to "à the echoed nonce received à"  
 Proposed Response Response Status O

CI 73 SC 73.9.4.2.1 P155 L42 # 406  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 SCAN\_FOR\_CARRIER mode is undefined  
 SuggestedRemedy  
 Either define SCAN\_FOR\_CARRIER mode of delte this value and its description  
 Proposed Response Response Status O

CI 73 SC 73.9.2 P153 L15 # 404  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 The data\_det\_min\_timer has a range of 1.4ns but the data\_detect\_max\_timer only has a range of 0.8ns. Making these ranges the same, 1.4ns, allows for implementations using the KX baud time.  
 SuggestedRemedy  
 Make the data\_detect\_max\_timer range 3.4-4.8ns as in table 73-7.  
 Proposed Response Response Status O

CI 73 SC 73.9.4.2.3 P156 L13 # 407  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 link integrity test function is not defined for any of the PMAs KX, KX4, KR.  
 SuggestedRemedy  
 Define the link integrity test function  
 Proposed Response Response Status O

CI 73A SC 73A P169 L02 # 409  
 Baumer, Howard Broadcom  
 Comment Type T Comment Status X  
 An equivalent table to Table 28C-1 needs to be created here since Clause 28 message codes are 16 bits where Clause 73 message codes are 48 bits.  
 SuggestedRemedy  
 Add in equivalent table to Table 28C-1 and update all succeeding descriptions  
 Proposed Response Response Status O

IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.7.2.1 P36 L05 # 414  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status A e

This register has clearly been defined to be (largely) compatible with Clause 22, register 0. Also, a dual speed (10G/1G) device might be implementing both Clause 22 and Clause 45 registers in order to operate at both speeds. A single speed 1G device might be operating using only the Clause 22 interface, with the extended access for Clause 45 registers to support 1000BASE-KX.

There needs to be a note to tie the bits of this register and Clause 22 register 0 together.

*SuggestedRemedy*

Add the following at the end of the paragraph:

""A device that supports multiple port types may implement both Clause 22 control register operation and Clause 45 control register operation. Some control functions have been duplicated in both definitions. The register bits to control these functions are simply echoed in both locations, any reads or writes to these bits behave identically whether made through the Clause 22 location or the Clause 45 location.""

Proposed Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.1.1 P25 L31 # 415  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status R

Table 45-2, Speed selection

The format of these bits is not currently specific to individual PHYs, it is generic to speeds. Therefore the inserted line should not be "1000BASE-KX" it should be "1Gbps."

This will also help the poor souls of 802.3an who have forgotten about the need for this line in their draft (for compatibility with 10G/1G negotiation).

*SuggestedRemedy*

For 45.2.1.1 (P.25, line 31) and for 45.2.1.1.3 (P.25, line 45):

change "1000BASE-KX" to "1Gbps."

Proposed Response Response Status C  
 REJECT.

This field is only used by one PHY (1G) type.

Straw Poll #1

Option A - accept in principle "1000 Mb/s"  
 Option B - reject and maintain status quo

Option A - 4  
 Option B - 11

Motion #1

Type - Technical, 75% required.

Description - Move to reject comment 415 with proposed response above.

Moved by - Schelto van Doorn

Secounded by - Andre Szczepanek

All: Yes- 19, No- 3, Abstain - 5  
 802.3: Yes-17, No- 3, Abstain - 3  
 Motion Passes

IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.1.2 P26 L19 # 416  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A

A register bit to indicate the presence of a mandatory function is, by definition, redundant. If the PMA/PMD type field denotes a Backplane Ethernet PHY then the Backplane Ethernet extension registers must be present.

SuggestedRemedy

Delete all changes to Table 45-5 and subclause 45.2.1.2.2 (and associated PICS entry - if it exists!)

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.4 P27 L12 # 417  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status R

1000BASE-KX is not a speed, it is a PHY. Since this is a speed ability register, the codpoint should be a speed.

SuggestedRemedy

Change Table 45-6 ""1000BASE-KX"" to ""1G capable"" and ""...as 1000BASE-KX"" to ""at 1Gb/s""

Also, change subclause 45.2.1.4.1 title to ""1G capable (1.4.3)"" and body to:

""When read as a one, bit 1.4.3 indicates that the PMA/PMD is able to operate at a data rate of 1 Gb/s. When read as a zero, bit 1.4.3 indicates that the PMA/PMD is not able to operate at a data rate of 1 Gb/s.""

Proposed Response Response Status C

REJECT.

There is only one 1G PHY type that can be controlled through Clause 45. This is consistent with the def. of 1.4.2:1.

Cl 45 SC 45.2.1 P24 L09 # 418  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status R

Assuming that the references to 1000BASE-KX as a speed are removed, then there is a need to add a new register for 1G PMA/PMD type. It would be useful for this to indicate either 1000BASE-KX or 1000BASE-T (for the benefit of 10G/1G UTP implementations).

SuggestedRemedy

Add another register:

Register 1.20 ""1G PMA/PMD control 2""

The definition of this register is very similar to register 1.7

1.20.15:1 always 0, writes ignored

1.20.15.0 = 0 1000BASE-T PMA/PMD type  
= 1 1000BASE-KX PMA/PMD type

Then a following description in the same manner as 45.2.1.6.1

Proposed Response Response Status C

REJECT.

Based on resolution of comment 415, this comment is no longer relevant.

Refer to comment #415.

Cl 45 SC 45.2.7.1.1 P36 L36 # 419  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status R

This function is identical to Clause 22, register 0, bit 15.

SuggestedRemedy

Add the following at the end of the paragraph:

""This bit is echoed in Clause 22, register 0, bit 15 (see 22.2.4). Any read or write to this register or to Clause 22, register 0 has identical effects and all changes are reflected identically in both locations.""

Proposed Response Response Status C

REJECT.

The register function is not the same as Clause 22 register

## IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.7.1.2 P36 L47 # 420  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A e

This function is identical to Clause 22, register 0, bit 12.

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is echoed in Clause 22, register 0, bit 12 (see 22.2.4). Any read or write to this register or to Clause 22, register 0 has identical effects and all changes are reflected identically in both locations.""

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.7.1.2 P36 L49 # 421  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A

This statement is not true!

A 10GBASE-T PHY might lack the ability to support Backplane Ethernet and yet it will set this bit to 1. Both the second and third paragraph of this subclause are wrong and the information in them would be redundant even if it were corrected.

*SuggestedRemedy*

Remove the second and third paragraph of the subclause.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Changed text to:

"If a PMA/PMD lacks the ability to perform AN, the PMA/PMD shall return a value of zero in bit 7.0.12, any attempt to write a one to bit 7.0.12 shall be ignored. The default value of bit 7.0.12 is one, unless the PHY reports that it lacks the ability to perform AN, in which case the default value is zero."

See also #190, 477, 494, 188, 189

Cl 45 SC 45.2.7.1.3 P37 L04 # 422  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A

This sentence says that all writes shall be ignored, then recommends that it should be written as zero. This is clearly redundant.

The 802.3an wording for the whole subclause appears to be better.

*SuggestedRemedy*

Replace the entire subclause with:

""If the PMA/PMD reports via bit 7.1.3 that it lacks the ability to perform auto-negotiation, or if auto-negotiation is disabled, the PMA/PMD shall return a value of zero in bit 7.0.9 and any attempt to write a one to bit 7.0.9 will be ignored.

Otherwise, the auto-negotiation process shall be restarted by setting bit 7.0.9 to a logic one. This bit is selfclearing, and a PMA/PMD shall return a value of one in bit 7.0.9 until the auto-negotiation process has been initiated. If a PMA/PMD reports via bit 7.1.3 that it lacks the ability to perform auto-negotiation, then this bit will have no meaning, and should be written as zero. If auto-negotiation was completed prior to this bit being set, the process shall be reinitiated. The auto-negotiation process shall not be affected by clearing this bit to logic zero. This bit is echoed in Clause 22, register 0, bit 9 (see 22.2.4). Any read or write to this register or to Clause 22, register 0 has identical effects and all changes are reflected identically in both locations.""

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

See 478

Cl 45 SC 45.2.7.2.1 P38 L05 # 423  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status D 5

This register is a copy of Clause 28, register 6.2

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is a copy of Clause 28, register 6, bit 2 (see 28.2.4.1.5).""

Proposed Response Response Status W

PROPOSED ACCEPT.

## IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.7.2.2 P38 L11 # 424  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A  
This register is a copy of Clause 28, register 6.3

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is a copy of Clause 28, register 6, bit 3 (see 28.2.4.1.5).""

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

This funtion is mandatory therefore the ability indication is redundant.

Delete 45.2.7.2.1 and 45.2.7.2.2 and all associated references and change state diagrams.

Cl 45 SC 45.2.7.2.4 P38 L24 # 425  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A e  
This register is a copy of Clause 28, register 6.1

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is a copy of Clause 28, register 6, bit 1 (see 28.2.4.1.5).""

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.7.2.5 P38 L33 # 426  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status A e  
This register is a copy of Clause 22, register 1.5

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is a copy of Clause 22, register 1, bit 5 (see 22.2.4.2.10).""

Proposed Response Response Status C

ACCEPT.

Cl 45 SC 45.2.7.2.6 P38 L41 # 427  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status D e  
This register is a copy of Clause 22, register 1.4

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is a copy of Clause 22, register 1, bit 4 (see 22.2.4.2.11).""

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 45 SC 45.2.7.2.7 P38 L47 # 428  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status D e  
This register is a copy of Clause 22, register 1.3

*SuggestedRemedy*

Add the following at the end of the paragraph:

""This bit is a copy of Clause 22, register 1, bit 3 (see 22.2.4.2.12).""

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 45 SC 45.2.7.100 P43 L18 # 429  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status X  
The AN ability bit is already defined in 7.1.3, there is no need for another location.

*SuggestedRemedy*

Delete the definition for 7.48.0

Proposed Response Response Status O



IEEE P802.3xx draft Y.Z Comments

CI 69 SC 69.1.1 P49 L 23 # 430  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status A kx\_halfduplex

This statement says that half-duplex is supported but there does not appear to be any mechanism to select, negotiate or control this mode.

Most sentient beings accept that half-duplex modes are a historical aberration and should be discouraged wherever possible.

SuggestedRemedy

Remove mention of half-duplex mode.

Proposed Response Response Status C

ACCEPT.

Refer to comments #30 and #443

CI 69 SC 69.1.3 P50 L 44 # 431  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status R kx\_mdio

A 1Gbps MAC device (interfacing using GMII) would most likely prefer to use a Clause 22 MDIO interface.

SuggestedRemedy

Change ""Clause 45"" to ""Clause 45 or Clause 22 (for 1Gbps devices)""

Proposed Response Response Status W

REJECT.

If the reader follows Clause 45 text, then provisions for Clause 22 compatibility are provided there.

CI 69 SC 69.2.2 P51 L 11 # 432  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status X kx\_mdio

A 1Gbps MAC device (interfacing using GMII) would most likely prefer to use a Clause 22 MDIO interface.

SuggestedRemedy

Add a sentence:

""Systems that do not implement 10Gbps interfaces may use the Clause 22 definition for the MDIO/MDC management interface.""

Proposed Response Response Status O

CI 70 SC 70.1 P69 L 09 # 433  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status X kx\_mdio

A 1Gbps MAC device (interfacing using GMII) would most likely prefer to use a Clause 22 MDIO interface.

SuggestedRemedy

Change ""Clause 45,"" to ""Clause 45, Clause 22,""

Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

CI 45 SC 45.2.7 P35 L19 # 434  
Barrass, Hugh Cisco Systems

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

There appears to be a significant disconnect between the 802.3an and 802.3ap usage of registers 7.16 through 7.27

The advertisement and next page transfer functions are defined locally for BP operation so these registers need to be defined as BP specific registers.

*SuggestedRemedy*

Move all of 802.3ap registers 7.16 through 7.27 to 7.36 through 7.47. Change the names to reflect the BP specific nature of these registers.

Make associated changes throughout the Clause.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

Re-write clause 45 as change instructions based on Draft 2.3 of P802.3an (and 802.3REVam 2.2 or 802.3-2005 as applicable).

This will make the registers mentioned by the commenter consistent.

802.3ap used to have separate registers for AN Advertisement. Since the AN advertisement functions are similar and use the 48-bit page format they were merged as per agreement from both TFs. The definitions of technology functions are interpreted as per other controlbits.

CI 70 SC 70.5.6 P72 L03 # 435  
Kim, Yong Broadcom

Comment Type **T** Comment Status **A** *kx\_lb*

Multiple problems in this clause.

1. Loopback SHALL be implemented, but method of implementing loopback mode is not defined by this standard -- SHALL is a keyword for PICS, and if the feature can be tested via conformance test point, it will.

2. "Transmitter shall not be disabled when loopback is enabled". "Asserting the transmit disable bit shall deactivate the transmitter output" contradicts each other, and they both use SHALL. Which is it?

*SuggestedRemedy*

1. Need to remove SHALL or specify HOW loopback is implemented.  
2. Fix the contradiction by removing one of the shall, e.g. Transmitter should not be disabled... transmit disable bit shall deactivate the transmitter output.

Proposed Response Response Status **C**

ACCEPT IN PRINCIPLE.

1. The requirement for PMD loopback is that the transmit requests be shunted directly to the receiver, overriding any signal at the receiver input. The precise loopback path cannot be specified as there is no way to verify it based on externally available signals.

The real issue is that the PMA service interface is the closest exposed interface and this leaves ambiguity as to where the loopback is actually occurring (it could be in the PMA).

Loopback mode will remain normative.

Change "Loopback mode shall be provided for the 1000BASE-KX PMA / PMD."

Note- The exact loopback path is not specified.

2. The intention of this text is to decouple the operation of loopback and transmit disable. The behavior of transmit disable is independent of the state of loopback (i.e. the transmitter will not be disabled by the act of activating loopback). If transmit disable is not asserted, then the transmitter will transmit even when in loopback. This text could be improved to communicate this concept better.

Change Text -

The transmitter shall not be disabled when loopback mode is enabled. Asserting the transmit disable bit shall deactivate the transmitter output.

To

"Transmitter operation shall be independent of loopback mode."

Review relevant PICS.

Related comments: #344, #435

IEEE P802.3xx draft Y.Z Comments

Cl 28A SC 28A P14 L26 # 439  
 Kim, Yong Broadcom

Comment Type TR Comment Status D revisit

Sorry for a bit ignorant question -- why is Clause 73 need a selector field value, when it is NOT intended NOR allowed to be on RJ45?

*SuggestedRemedy*

Please provide justification or delete this selector field revision. If the justification also applies to the Clause 37, it ought to be rolled into 73 (I believe CX-4 was rolled in to this draft).

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Original selector field applies to both 28 and 37. Since Clause 55 uses Clause 28 algorithms and signaling, and the new auto-negotiation register set (Clause 45 MDIO, MMD 7), it was deemed to be valuable to indicate the managing entity, what type of device is utilizing the auto-negotiation register set.

Ammend selector field description to read "IEEE 802.3, Clauses 28 and 37"

Unclear what is intended by the reference to 10GBASE-CX4

Cl 44 SC 44.1.1 P19 L23 # 440  
 Kim, Yong Broadcom

Comment Type TR Comment Status D half-duplex

Not in the prior style (editorial) and need to add full-duplex only requirement (Technical Required) of 802.3ap.

*SuggestedRemedy*

Second paragraph in 34.1 to read ""Gigabit Ethernet uses the extended ISO/IEC 8802-3 MAC layer interface, connected through a Gigabit Media Independent Interface layer to Physical Layer entities (PHY sublayers) such as 1000BASE-LX, 1000BASE-SX, and 1000BASE-CX, 1000BASE-T, and 1000BASE-KX"" Similar change to line 35 (10G) makes sense also, if this comment is accepted.

Third Paragraph in 34.1 to read ""Gigabit Ethernet extends...in bandwidth. In full duplex mode, the ... 100BASE-T full duplex mode. [new sentence] Gigabit Ethernet connected through PHY type 1000BASE-KX shall operate only in full-duplex mode"".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

There is not obvious reason to require that 1000BASE-KX not use half-duplex mode. Since the clause 36 PCS is used in its entirety, no additional work is required to support half-duplex.

However, 1000BASE-KX half-duplex mode is not advertised during auto-negotiation.

IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.1 P21 L 23 # 441  
Kim, Yong Broadcom

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

deleting ""Ethernet"" from line 21 and adding ""Ethernet"" to line 23, seems to demote b) 10PASS-TS and 2BASE-TL and c) 10, 100 or 1000 as non-Ethernet -- does not look like intended change nor 802.3ap specific change.

*SuggestedRemedy*

Please provide rationale for this change, or fix the text to address my concern, or undo the revision,

Proposed Response Response Status **U**

ACCEPT IN PRINCIPLE.

The D802.3am has already removed the word "Ethernet" from this line. Since 802.3ap is providing editing instructions to 802.3am, this line need not be changed by 802.3ap.

Also 802.3am paragraph 3 adequately covers the application of Clause 45 MDIO access to Backplane Ethernet, therefore the changes are not necessary. Delete editing instructions to 45.1 paragraph 3.

Related #410

Cl 45 SC 45.2.7.100 P43 L 11 # 442  
Kim, Yong Broadcom

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

""This bit is an exact copy of bit 1.11.2"" (referring to 7.48.3 10GBASE-KT). Looking at 1.11.2:1 (45.2.1.10, pg 29), it is Reserved.

*SuggestedRemedy*

Please delete the line, or correct so that all are consistent

Proposed Response Response Status **O**

Cl 69 SC 69.1.2 P49 L 29 # 443  
Kim, Yong Broadcom

Comment Type **TR** Comment Status **A** kx\_halfduplex

""a) Support the CSMA/CD MAC"" - Confusing, since 802.3ap is full-duplex only, and there is no carrier sense nor collision detection in full-duplex.

*SuggestedRemedy*

Change the text to read"" a) Support the 802.3 MAC""

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

Change the text to  
"a) Support full duplex operation only."

Refer to comments #30 and #430

Cl 69 SC 69.1.2 P49 L 31 # 444  
Kim, Yong Broadcom

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

""c) Meet or exceed CISPR/FCC Class A"" is a fine goal for product but not has been the objective of IEEE 802.3 specification. Instead, spec requires that you meet regional applicable regulatory requirements.

*SuggestedRemedy*

Delete and re-number. See other PHY sections under Environmental Requirements. BTW, you probably do not want to use the word ""exceed"" in any case :-)

Proposed Response Response Status **W**

REJECT.

This is a project objective of 802.3ap.  
Reference Comment #14 for new wording.

IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.4 P 60 L 08 # 445  
 Kim, Yong Broadcom

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

Delay constraints from MAC Pause versus propagation delay of 1 m PCB traces + any PHY electronics are orders of magnitude apart. This clause, while friendly, seems not relevant. If the intent is to allow re-timing, re-clocking devices, it may be appropriate to add it in form of informative annex. If this is not the intent, I would prefer to see just link latency max per segment type.

*SuggestedRemedy*

Either 1) add informative annex, or 2) specify link max latency including PHY, or provide justification why this clause is needed.

Proposed Response Response Status **W**

Cl 69 SC 69.3 P 52 L 23 # 446  
 Thaler, Pat Agilent Technologies

Comment Type **TR** Comment Status **A** channel\_rl

I don't find any parameters for return loss even though that is a parameter which can exert a significant impact on the received signal and which can be heavily influenced by implementation choices. Given the potential for impedance mismatches with minimal attenuation between them (e.g. a reflection between the transmitter and first mated connector in Figure 69-2), guidance on this parameter should be given.

*SuggestedRemedy*

Add a specification for channel return loss.

Proposed Response Response Status **W**

ACCEPT IN PRINCIPLE.

Add to Section 69.3.1.1 the following verbiage after the sentence on lines 39-40.

"Any specific implementation is beyond the scope of this specification. The informative techniques and parameters, defined by 69.3.3.3 through 69.3.3.5, may be employed on the specific implementation of the full interconnect (inclusive of the transmitter, TP1 to TP4, and receiver), and would allow further assessment of the complete interaction of these elements."

See dambrosia\_01\_0905

No relationship between explicit limits and / or constraints solely on return loss on the results observed from analysis performed by the Task Force has been found.

Therefore, return loss can be accounted for by constraining the overall system interconnect using the informative model methodology.

Refer to comment 129

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.5.10.4.1 P116 L29 # 447  
Thaler, Pat Agilent Technologies

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

The operation of new\_marker isn't clear from the state machine plus variable definitions. Is it intended to operate by looking at a specific time (which the use of SLIP to test alternate locations implies) or does the circuit look for something that matches the marker pattern. The state machine appears to be designed for testing a certain time position (similar to the 64/66 frame sync), but that could take significantly longer to get sync than something looking only for the pattern. That type of operation made sense for 64/66 because the sync bits were only distinct when looked at over multiple blocks and blocks were very short so testing multiple positions could be done quickly. It doesn't make sense where the marker is a pattern that doesn't occur outside the marker position and where the frame size is much larger.

*SuggestedRemedy*

Suggest going to a state machine with a marker detect that triggers when a valid marker occurs. When the initial marker is detected, then a frame timer is started (a timer that measures the duration of the frame). If a marker detect detects another valid marker as the timer expires, then one has frame lock. (If one wants to be extra careful, one could test for that a couple of times before declaring frame lock.) When looking for frame lock and in frame lock, look for marker detect outside the proper time and detect that as loss of sync and restart the process. Also, failure to detect markers in the proper time should cause a restart of the process of looking for sync.

Proposed Response Response Status **W**

REJECT.

Frame lock state diagram is modeled after the 64/ 66 block lock state machine, including usage of the SLIP function.

Suggested remedy may improve acquisition time, but existing diagram is still functional. More information on suggested remedy is required.

Commenter is invited to provide a detailed state machine diagram or changes to the existing state machine diagram.

CI 72 SC 72.5 P106 L32 # 448  
Thaler, Pat Agilent Technologies

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

This PMD should have a table describing the conditions that control or are controlled by various MDIO bits like table 71-2

*SuggestedRemedy*

Add a table so that MDIO information is consistent.

Proposed Response Response Status **U**

ACCEPT.

Table 72-2 and 72-3 (refer to Draft 2.0, page 106) contain the requested information.

CI 72 SC 72.5.10.2.5 P112 L26 # 449  
Thaler, Pat Agilent Technologies

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

The text "upon implementation of a received increment or decrement request" mean? Usually when we talk about implementation we are talking about something done when we design and make a part.

Also, something should be inserted to make it clear that successive updates will only be acted upon if they are received when the state is not\_updated.

*SuggestedRemedy*

You could say ""Upon execution of a received increment or decrement request"".

Before that sentence, insert ""An increment or decrement request will only be acted upon when the state of the tap is not\_updated.""

Proposed Response Response Status **U**

ACCEPT.

CI 72 SC 72.5.10.4.3 P116 L03 # 450  
Thaler, Pat Agilent Technologies

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

This makes it sound like there is only one Coefficient Update state machine, but the state machine is operating per tap according to 72.5.10.2.5.

*SuggestedRemedy*

"For each tap, the 10GBASE-KR PMD shall implement an instance of the Coefficient Update state machine...."

Proposed Response Response Status **U**

ACCEPT.

IEEE P802.3xx draft Y.Z Comments

Cl 72 SC 72.5.10.2.3.2 P110 L50 # 451  
 Thaler, Pat Agilent Technologies

Comment Type TR Comment Status A

Safe, interoperable use of a vendor specific field requires either a way to identify the vendor uniquely in the frame or a way to identify that the vendor before the fields are used.

SuggestedRemedy

Either delete the vendor specific field and make the bits reserved or put in a mechanism to exchange a unique id to ensure both sides support the same feature. The simplest way to do this would be to put in a statement that the vendor specific field should only be used if it is negotiated during auto-negotiation. 802.3an has an example of this for using vendor specific information in their training.

Proposed Response Response Status U

ACCEPT IN PRINCIPLE.

Remove the vendor specific fields. Bits will be reserved.

Cl 30 SC 30 P16 L47 # 460  
 Dawe, Piers Agilent

Comment Type T Comment Status A revisit

Does the phrase 'If Clause 28 or Clause 37 Auto-Negotiation is operational' have to be extended to include clause 73?

SuggestedRemedy

?

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Yes basically "A SET operation to one of the possible enumerations indicated by aMAUTypeList will force the MAU into the new operating mode (which includes 10GBASE-KX, KX4 or KR)".

Hence the phrase should be corrected in subclause to include clause 73 as follows,

If Clause 28, or Clause 37 or Clause 73, Auto-Negotiation is operational, then this will change the advertised ability to the single enumeration specified in the SET operation, and cause an immediate link renegotiation. A change in the MAU type will also be reflected in aPHYType.

In addition to the above the following phrase should also be changed for subclause 30.3.2.1.3 aPhyTypeList

A read-only list of the possible types that the PHY could be, identifying the ability of the PHY. If

Clause 28, or Clause 37 or Clause 73, Auto-Negotiation, is present, then this attribute will map to the local technology ability or advertised ability of the local device.

Cl 45 SC 45.2.7 P35 L28 # 473  
 Dawe, Piers Agilent

Comment Type T Comment Status A e

Reserved for 802.3ap? This is 802.3ap!

SuggestedRemedy

At least by sponsor ballot, decide what to do with these registers

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Registers are now marked as reserved.

## IEEE P802.3xx draft Y.Z Comments

CI 45 SC 45.2.7 P35 L 22 # 474  
Dawe, Piers Agilent

Comment Type T Comment Status R

AN LD NP: alphabet soup. Using 'NP' as an abbreviation here is not a good idea: you have spelled out 'base page' just above (and you can't change that to BP)

*SuggestedRemedy*

Change 'NP' to 'next page' for these register names

Proposed Response Response Status W

REJECT.

All abbreviations are defined in 1.5 as amended by 802.3an. This was done to keep the register names managable.

CI 45 SC 45.2.7.1 P36 L 12 # 475  
Dawe, Piers Agilent

Comment Type T Comment Status A e

Confusion with bit 1.0.15, reset.

*SuggestedRemedy*

Change bit 7.0.15's name to 'AN reset'. Also in title of 45.2.7.1.1.

Proposed Response Response Status C

ACCEPT.

CI 45 SC 45.2.7.1 P36 L 02 # 476  
Dawe, Piers Agilent

Comment Type T Comment Status A e

Incomplete description. What if AN completes successfully?

*SuggestedRemedy*

(I think) 0 = AN in progress, completed, disabled or not supported

Proposed Response Response Status C

ACCEPT.

CI 45 SC 45.2.7.1.2 P36 L 49 # 477  
Dawe, Piers Agilent

Comment Type T Comment Status A

If a PMA/PMD reports that it lacks an ability, saying that bit 7.0.12 'should always be written as zero' (but it won't work) seems inappropriate.

*SuggestedRemedy*

Change to 'If ..., the PMA/PMD shall return a value of zero in bit 7.0.12, and any attempt ...'

Proposed Response Response Status C

ACCEPT.

See also #421

CI 45 SC 45.2.7.1.3 P37 L 04 # 478  
Dawe, Piers Agilent

Comment Type T Comment Status A

Shorten, leave out the bad 'should be written'. Does it matter whether we say 'PMA/PMD' or 'PHY' here?

*SuggestedRemedy*

Change to 'If a PMA/PMD reports via bit 7.1.3 or 7.48.3 that it lacks the ability to perform AN, or if AN is disabled, the PMA/PMD shall return a value of zero in bit 7.0.9, and any attempt to write a one to bit 7.0.9 shall be ignored.'

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Changed text to:

"If a PMA/PMD reports via bit 7.1.3 or 7.48."0" that it lacks the ability to perform AN, or if AN is disabled, the PMA/PMD shall return a value of zero in bit 7.0.9, and any attempt to write a one to bit 7.0.9 shall be ignored."

Related 422



## IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.7.2.6 P38 L35 # 483  
Dawe, Piers Agilent

Comment Type T Comment Status X

If bit 7.1.4 really is the one and only remote fault, then does it map into aMediaAvailable? (if it isn't, change its name to 'AN remote fault') Does .3ap need to modify aAutoNegLocalTechnologyAbility?

SuggestedRemedy  
?

Proposed Response Response Status O

Cl 45 SC 45.2.7.2.6 P38 L40 # 484  
Dawe, Piers Agilent

Comment Type T Comment Status X

When do you want to clear this RF bit? Draft says 'Bit 7.1.4 shall be cleared each time register 7.1 is read via the management interface, and shall also be cleared by a AN reset.' This isn't the way a non-AN link can start up - first RF on, then clears itself. Would this clearing be better a little later in the AN process when the PHY has established that it can hear another PHY? Also, would you want an AN restart (as opposed to AN reset) to be able to release the RF?

SuggestedRemedy  
?

Proposed Response Response Status O

Cl 45 SC 45.2.7.2.8 P38 L52 # 485  
Dawe, Piers Agilent

Comment Type T Comment Status D e

'Bit 7.1.2 will be set to one when...' Are you observing, predicting, recommending, requiring?

SuggestedRemedy

Remove the 'will be' language from clause 45. I guess this sentence should be 'Bit 7.1.2 shall be set to one when the variable link\_status = OK or link\_status = READY and be cleared to zero otherwise.'

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 45 SC 45.2.7.3 P39 L35 # 487  
Dawe, Piers Agilent

Comment Type T Comment Status X

Which bit? And, might be better not to say 'BP' if we intend to use this AN elsewhere in future.

SuggestedRemedy

'If an AN ability bit', 'If any AN ability bit', 'If a BP AN ability bit' or 'If any BP AN ability bit'. Similarly in following subclauses.

Proposed Response Response Status O

Cl 45 SC 45.2.7.4 P40 L12 # 488  
Dawe, Piers Agilent

Comment Type T Comment Status X

Could 'contain the LP base page ability of the BP Ethernet PHY' be made easier to understand?

SuggestedRemedy

Is this better: 'contain the advertised base page ability of the PHY's link partner'

Proposed Response Response Status O

Cl 45 SC 45.2.7.4 P40 L19 # 489  
Dawe, Piers Agilent

Comment Type T Comment Status X

Last sentence is nothing to do with this subclause.

SuggestedRemedy

Move it to 45.2.7.2.5. May be able to shorten or combine it. Move/change PICS AM34 in step.

Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.7.6 P42 L09 # 491  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 R/W?  
 SuggestedRemedy  
 RO, I think  
 Proposed Response Response Status O

Cl 45 SC 45.2.7.1.2 P36 L49 # 494  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 'Wrong bit in 'via bit 7.48.3 that it lacks the ability to perform Backplane Ethernet AN'  
 SuggestedRemedy  
 7.48.0 ? Search for more occurrences.  
 Proposed Response Response Status O

Cl 45 SC 45.2.7.100 P43 L11 # 492  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 'This bit is an exact copy of bit 1.11.2': not. And it shouldn't be exact copy of bit 1.11.4.  
 SuggestedRemedy  
 ?  
 Proposed Response Response Status O

Cl 69 SC 69.1.3 P41 L18 # 501  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 PCS is part of PHY  
 SuggestedRemedy  
 Extend the PHY bracket to top of upper PCSs.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.7.2.7 P38 L45 # 493  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Bit 7.48.0 seems to duplicate 7.1.3.  
 SuggestedRemedy  
 If 7.1.3 could apply to other types of AN, spell it out: 'clause 28, clause 37 or clause 73 auto-negotiation', or whatever the case is. If they are duplicates, get rid of 7.48.0 or justify the duplication.  
 Proposed Response Response Status O

Cl 69 SC 69.1.3 P51 L10 # 502  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 This statement 'The MDIO/MDC management interface (Clause 45) provides ...' contradicts 45.1 'The MDIO electrical interface is optional.'  
 SuggestedRemedy  
 Change to 'can provide', 'may provide', 'may conveniently provide', or 'is intended to provide'.  
 Proposed Response Response Status O

IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.2.3 P51 L18 # 503  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Missing a key fact, especially when below you say 'This embodiment is based on XAUI with 10GBASE-CX4 extensions'  
 SuggestedRemedy  
 Add extra sentence 'The 1000BASE-KX PMD is defined in Clause 70.' Similarly for 10GBASE-KX4 and 10GBASE-KR.  
 Proposed Response Response Status O

Cl 69 SC 69.3.1 P52 L28 # 504  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 I doubt that a backplane for a big switch would be 'low-cost'. They are pretty high technology.  
 SuggestedRemedy  
 Delete 'low-cost'.  
 Proposed Response Response Status C  
 ACCEPT.

Cl 69 SC 69.3.2 P53 L23 # 505  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A channel\_skew  
 I doubt that a common skew spec from 1G to 10G is correct.  
 SuggestedRemedy  
 Qualify the statement.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Text for Option B  
 "The total differential skew from TP1 to TP4 is recommended to be no more than 0.2UI."  
 Straw Poll  
 Option A - Reject comment  
 Option B - Accept proposed resolution described above.  
 Option C - "The total differential skew from TP1 to TP4 is recommended to be less than the minimum transition time for the respective port type."  
 Option A - 4  
 Option B - 3  
 Option C - 17  
 Change  
 "The total differential skew from TP1 to TP4 is recommended to be no more than 20ps."  
 to  
 "The total differential skew from TP1 to TP4 is recommended to be less than the minimum transition time for the respective port type."

IEEE P802.3xx draft Y.Z Comments

Cl 69 SC 69.3.3.2 P54 L44 # 509  
 Dawe, Piers Agilent

Comment Type TR Comment Status A

Attenuation is a well known word with an established meaning. You cannot change its meaning. You'll have to change the name of your quantity A(f).

SuggestedRemedy

Change to 'attenuation trend line' or 'linear fitted attenuation' (or 'insertion loss trend line' if you prefer).

Proposed Response Response Status W

ACCEPT IN PRINCIPLE.

Change "Attenuation, A(f)" to "Fitted Attenuation, A(f)."

Note to editor - change all occurrences referring to the variable "Attenuation, A(f)"

Cl 69 SC 69.3.3.2 P55 L13 # 510  
 Dawe, Piers Agilent

Comment Type T Comment Status A

greater than?

SuggestedRemedy

less than?

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Refer to comment #96.

Cl 69 SC 69.3.3.5.1 P58 L36 # 511  
 Dawe, Piers Agilent

Comment Type T Comment Status A

Equation missing  $10^{(x/10)}$  portion

SuggestedRemedy

Correct two equations

Proposed Response Response Status C

ACCEPT.

Cl 69 SC 69.3.3.5.4 P59 L13 # 512  
 Dawe, Piers Agilent

Comment Type T Comment Status D channel\_icr

Don't you want the product of IL and crosstalk (not the ratio) to be less than a limit?

SuggestedRemedy

?

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Insertion loss to crosstalk ratio is related to the signal-to-noise ratio of the channel. Therefore, larger number are preferred.

Also, since IL(f) and PSXT(f) are expressed in dB, the difference of the two values yields the ratio, expressed in dB, of the linear equivalents.

It is the intent to edit the crosstalk specifications to have crosstalk expressed in terms of crosstalk loss (to be consistent with insertion loss).

Effected sections included

- 69.3.3.5
- 69.3.3.5.1
- 69.3.3.5.2
- 69.3.3.5.3
- 69.3.3.5.4

Cl 69 SC 69.4 P60 L23 # 513  
 Dawe, Piers Agilent

Comment Type T Comment Status D delay

Need to mention 44.3, which is the normative source of this information.

SuggestedRemedy

per comment

Proposed Response Response Status W

PROPOSED REJECT.

Subclause 44.3 is not normative. Normative delay constraints for each sublayer are listed as part of the appropriate sublayer clause. This table, as it was in 44.3, is a summary provided for convenience.

## IEEE P802.3xx draft Y.Z Comments

Cl 69A SC 69A.2 P64 L25 # 516  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 IL\_min has already been named: it's A\_max. There is no A\_min.  
 SuggestedRemedy  
 If min and max are confusing, change all three names to A\_limit.  
 Proposed Response Response Status O

Cl 69A SC 69A.2 P65 L22 # 520  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Figure caption could be misleading: need to say it's the test channel not a service channel.  
 SuggestedRemedy  
 Change to e.g. 'Response and limits of example compliance channel'  
 Proposed Response Response Status O

Cl 69A SC 69A.2 P64 L19 # 517  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Need to say what you mean by minISloss  
 SuggestedRemedy  
 Might copy back something from later in the document.  
 Proposed Response Response Status O

Cl 69A SC 69A.2 P65 L20 # 521  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 'fbaud' needs defining or avoiding.  
 SuggestedRemedy  
 Suggest change to 'signaling frequency'.  
 Proposed Response Response Status O

Cl 69A SC 69A.1 P64 L03 # 518  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 It's worth pointing out which port types are required to have such BIST.  
 SuggestedRemedy  
 Per comment  
 Proposed Response Response Status O

Cl 69A SC 69A.2 P64 L31 # 519  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Don't redefine b1...b4  
 SuggestedRemedy  
 Remove these four equations, refer to table 69-2.  
 Proposed Response Response Status O

## IEEE P802.3xx draft Y.Z Comments

Cl 70 SC 70.3 P69 L43 # 522  
Dawe, Piers Agilent

Comment Type T Comment Status A revisit

PMD implementer can't know how much the 'media delay' is, he doesn't control the size of his customer's backplane!.

*SuggestedRemedy*

Either; leave out the delay of the medium, like CX4; or (perhaps not very accurate) leave in a defined length of medium, like the optical PMDs. Similarly in clauses 71, 72.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Assume a medium delay of 80 BT at 10GBASE-KR. Scale this delay for the 1000BASE-KX (8) and 10GBASE-KX4 (20) speeds.

In each subclause change requirement to read, "the sum of transmit and receive delays contributed by the XXX PMD shall be no more than YYY bit times. It is assumed that the delay through the medium is ZZZ bit times."

XXX = 1000BASE-KX, YYY = 24, ZZZ = 8  
XXX = 10GBASE-KX4, YYY = 492, ZZZ = 20  
XXX = 10GBASE-KR, YYY = 432, ZZZ = 80

Correct Table 69-3 to indicate "1000BASE-KX PMD and medium"

Correct Table 69-4 to indicate "10GBASE-KX4 PMD and medium" and "10GBASE-KR PMD and medium"

Cl 70 SC 70.5.1 P70 L37 # 523  
Dawe, Piers Agilent

Comment Type T Comment Status A test\_points

Agree with issue, disagree with reason. Anything behind TP1 or TP4 is part of the PMD under test, so the measurement is accurate. But performance might be bad.

*SuggestedRemedy*

Change to 'The electrical path from the transmitter block to TP1, and from TP4 to the receiver block, will affect link performance and the measured values of electrical parameters used to verify conformance to this specification. It is therefore recommended that this path be carefully designed.' Similarly in clauses 71, 72.

Proposed Response Response Status C

ACCEPT.

Related comments: #21, 523

Cl 70 SC 70.1 P69 L12 # 525  
Dawe, Piers Agilent

Comment Type T Comment Status R revisit

Table does not list (the complete set of) physical layer clauses associated with the 1000BASE-KX PMD. Note text at line 8.

*SuggestedRemedy*

Change to 'PHY (physical layer device) clauses associated ...' Similarly in clauses 71, 72.

Proposed Response Response Status W

REJECT.

The RS and XGMII, PCS, PMA, and PMD do constitute a complete PHY.

The title of the Table states that the contents are the clauses associated with the 1000BASE-KX PMD. Addition of the word "device" does not appear to add any clarity or value.

Cl 71 SC 71.5.4 P87 L51 # 526  
Dawe, Piers Agilent

Comment Type T Comment Status A kx4\_sd

This sounds too biased to 'OK' if taken literally: 'within 100 us after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded 175 mV for at least 7 UI in any 20 UI interval (unit interval). So if in 100 us (>10\*5 UI) we have just 7 in a row that exceed the threshold, we should set SD=OK? If there's bad electrical noise then SD will chatter, which I suspect is the opposite of what we want.

*SuggestedRemedy*

Make the SD criterion less hair-trigger.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Signal Detect functional description removed from the document. Refer to #94.

IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.5.6 P106 L09 # 527  
 Dawe, Piers Agilent

Comment Type T Comment Status D

If I were using loopback, it would be because I was suspicious about the PHY in hand. I would like to be able to check it out before it transmits to another station that might be connected. The requirement 'The transmitter shall not be disabled when loopback mode is enabled.' makes this difficult. This way of doing things may be too established to change now, but it just seems like bad practice.

SuggestedRemedy

Can it be reduced to e.g. 'The transmitter is not necessarily disabled when loopback mode is enabled.'? Or, give me a reason for the current way.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The intent of the text is to indicate that the state of the transmitter (enabled/disabled) is a function of the transmit disable bit and not the loopback bit. In other words, whether or not the transmitter is disabled is independent of the state of the loopback bit.

The text will be modified to clarify.

CI 72 SC 72.5.10.2 P109 L12 # 528  
 Dawe, Piers Agilent

Comment Type T Comment Status A

Don't think this 'two baud' is correct usage.

SuggestedRemedy

Suggest 'Since each DME symbol is made of two parts, one control channel bit is transmitted every 8 10GBASE-KR UI.'

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

Refer to #362.

CI 72 SC 72.5.10.2 P109 L39 # 529  
 Dawe, Piers Agilent

Comment Type TR Comment Status A

This 0xFFFF0000 is the only use of 0x in the whole of 802.3ap, apart from a table you copied and shouldn't. You shouldn't burden the reader with having to know unnecessary notations that, unlike actual words, cannot be looked up in a dictionary. Misleading: I read this as zero, don't care, 1111,1111 and so on. Just say what you mean in English. Editorials at end of sentence.

SuggestedRemedy

Change to 'pattern, hexadecimal FFFF0000 as expressed in 10.3125 Gbd symbols.'

Proposed Response Response Status U

ACCEPT.

CI 72 SC 72.5.10.2 P109 L40 # 530  
 Dawe, Piers Agilent

Comment Type T Comment Status A

When transmitting this FFFF0000, which end goes first, the 111s or the 000s?

SuggestedRemedy

Please specify.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

In 72.5.10.2.1 specify that the ones are transmitted first  
 In 72.5.10.2.3 specify that cell 15 is transmitted first.  
 In 72.5.10.2.4 specify that cell 15 is transmitted first.  
 The encoding rules for each cell are in 72.5.10.2.2

CI 73 SC 73.5 P135 L08 # 536  
 Dawe, Piers Agilent

Comment Type T Comment Status X

Need more info (in particular, the signaling rate).

SuggestedRemedy

Cross-reference to 72.5.10.2.2.

Proposed Response Response Status O

IEEE P802.3xx draft Y.Z Comments

Cl 73 SC 73.7.6 P135 L47 # 537  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 You can't put a 'shall' in one of these NOTES, they are informative.  
 SuggestedRemedy  
 If you mean it, make it into regular text.  
 Proposed Response Response Status O

Cl 73 SC 73.7.6 P135 L47 # 538  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Can't parse 'Clause 73 Auto-Neg(management function shall use MMD7) function.' Should spell out 'negotiation'  
 SuggestedRemedy  
 ?  
 Proposed Response Response Status O

Cl 73 SC 73.8 P145 L04 # 539  
 Dawe, Piers Agilent  
 Comment Type TR Comment Status X  
 You can't say 'The clause 45 Management Data Input/Output (MDIO) interface shall be used ...' because per 45.1, 'The MDIO electrical interface is optional.'  
 SuggestedRemedy  
 Change to 'may be used', 'may conveniently be used', 'is recommended' or similar.  
 Proposed Response Response Status O

Cl 73 SC 73.8 P145 L46 # 541  
 Dawe, Piers Agilent  
 Comment Type T Comment Status X  
 Variable name, last row of table 73-6, seems wrong.  
 SuggestedRemedy  
 ?  
 Proposed Response Response Status O

Cl 70 SC Table 70-4 P71 L33 # 568  
 Grow, Robert Intel  
 Comment Type T Comment Status A kx\_sd  
 This is difficult to read (the comma) and even more difficult to understand what the Receive Condition is.  
 SuggestedRemedy  
 Write as either a consistent logical or math expression, not the current hybrid.

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment #94.  
 Related comments: #94, 341, 342, 343, 568, 570, and 170.

Cl 00 SC 00 P L # 569  
 Grow, Robert Intel  
 Comment Type TR Comment Status D  
 The draft does not use the same names for service primitives as REVam. IEEE Std 802.3-2002 included some primitives as ""indicate"" and others as ""indication"". REVam correct this inconsistency by changing all occurrences of ""indicate"" to ""indication"".  
 SuggestedRemedy  
 Search Clauses 70, 71 and 72 on .indicate and replace with ""indication"" (18 occurrences in the .pdf search).  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 70 SC 70.5.4 P71 L34 # 570  
 Grow, Robert Intel  
 Comment Type TR Comment Status A kx\_sd  
 ""compliant 1000BASE-X signal input"" is not defined, especially since 1000BASE-X is an aggregation of port types using the same PCS.  
 SuggestedRemedy  
 Define what it is either in supporting text or by reference.  
 Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Overtaken by events. Refer to comment #94.  
 Related comments: #94, 341, 342, 343, 568, 570, and 170.



IEEE P802.3xx draft Y.Z Comments

Cl 70 SC 70.5.6 P72 L13 # 571

Grow, Robert Intel

Comment Type TR Comment Status A kx\_lb

The use of transmitter and receiver in specifying the loopback is inappropriate. Loopback occurs from the transmitter block and the receiver block, presumably, the transmitter and receiver only being subsets thereof.

*SuggestedRemedy*

Add block when describing the loopback function. Clarify in line 6 that it is the transitions of SL<p> and SL<n> that are not disabled in loopback mode. Clarify that disable affects the block and the SL signal transitions.  
Make consistent changes in 71.5.8 and 72.5.6.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.  
Add the word "block" to transmit and receive references. Other two items addressed by comment #344.

Related comments: #344, #435

Cl 72 SC Table 72-5 P111 L31 # 572

Grow, Robert Intel

Comment Type TR Comment Status A

I don't find any value in the Bit(s) column, and since a cell is always 8 bits, it is an easy conversion for the implementer if you care to counting bits. Including it though in the standard only creates an unnecessary probability of error as in the 14:10 and 9:6 rows, where the bound is off by 10 bits (not even a cell boundary).

*SuggestedRemedy*

Delete the bits column is this and in Table 72-4.

Proposed Response Response Status C

ACCEPT.

Cl 72 SC 72.6.1.5 P120 L33 # 573

Ghiasi, Ali Broadcom

Comment Type TR Comment Status R kr\_txrl

The return loss defined for 10GBASE-KR only provides about 4 dB of return loss at half the baudrate this equates to 63% reflection! The combination of the loose return loss and stressor that does not incorporates reflections will cause significant interoperability issues and failures

*SuggestedRemedy*

Propose the following return loss mask  
from 10 MHz to 2000 MHz RL<=9 dB  
RL = 9 - 16.67xLOG10(f/5.16 GHz), 2 GHz<= f<=10.3125 GHz

Proposed Response Response Status C

REJECT.  
The task force requires more information - feasibility of construction and system performance benefits.

Related comments: #110, 274, 573

Cl 72 SC 72.6.1.6 P121 L30 # 574

Ghiasi, Ali Broadcom

Comment Type TR Comment Status A common\_mode\_rl

The transmitter common mode return loss has been specified tighter than differential for some frequencies. Generally speaking the common mode return loss is little worse.

*SuggestedRemedy*

Propose the following return loss mask for common mode return loss  
from 10 MHz to 2000 MHz RL<=6 dB  
RL = 6 - 16.67xLOG10(f/5.16 GHz), 2 GHz<= f<=10.3125 GHz

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

From 10 MHz to 2000 MHz RL<=6 dB  
RL = 6 - 16.67xLOG10(f/5.16 GHz), 2 GHz<= f<=7.5 GHz

insert figure and table entry.

IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.6.2.6 P125 L18 # 575  
 Ghiasi, Ali Broadcom

Comment Type **TR** Comment Status **R** kr\_rxml

Input return loss defined for 10GBASE-KR only provides about 4 dB of return loss at half the baudrate this equates to 63% reflection! The combination of the loose return loss and stressor that does not incorporate reflections will cause significant interoperability issues and failures.

*SuggestedRemedy*

Propose the following return loss mask  
 from 10 MHz to 2000 MHz RL<=9 dB  
 RL = 9 - 16.67xLOG10(f/5.16 GHz), 2 GHz<= f<=10.3125 GHz

Proposed Response Response Status **W**  
 REJECT.

The task force requires more information - feasibility of construction and system performance benefits.

Related comments: #110, 274, 573

CI 72 SC 72.6.2 P125 L12 # 576  
 Ghiasi, Ali Broadcom

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

The receiver is missing maximum non equalizable jitter

*SuggestedRemedy*

Propose total non equalizable jitter to be 0.6 UI which include PJ, RJ, and DCD. In addition propose to put a maximum 0.15 UI limit on the DCD.

Proposed Response Response Status **C**  
 REJECT.

The concept of the non-equalizable jitter requires (1) a definition for non-equalizable jitter, (2) a procedure that may be used to measure non-equalizable jitter, (3) some justification regarding why 0.6 UI is the correct value.

A limit on DCD may be useful, but one would hope that it is considerably less than 0.15 UI (most simulations presented to date have assumed 0 to 0.05 UI DCD).

CI 72 SC 72.6.2.6 P126 L30 # 577  
 Ghiasi, Ali Broadcom

Comment Type **TR** Comment Status **A** common\_mode\_rl

The receiver common mode return loss has been specified tighter than differential for some frequencies. Generally speaking the common mode return loss is little worse.

*SuggestedRemedy*

Propose the following return loss mask for common mode return loss  
 from 10 MHz to 2000 MHz RL<=6 dB  
 RL = 6 - 16.67xLOG10(f/5.16 GHz), 2 GHz<= f<=10.3125 GHz

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

Overtaken by events. See comment #384.

Related comments: #384, 577

CI 69A SC 69A.1 P63 L40 # 578  
 Ghiasi, Ali Broadcom

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

Interference tolerance test does not stress the CDR to frequency sensitivity.

*SuggestedRemedy*

propose to add Sinusoidal Jitter (SJ) through the BERT to the channel with the following mask parameters  
 40 KHz - 5 UI  
 400 KHz - 0.5 UI  
 4 MHz - 0.1 UI

Proposed Response Response Status **O**

## IEEE P802.3xx draft Y.Z Comments

Cl 72 SC 72.6.1.2 P119 L37 # 579  
Ghiasi, Ali Broadcom

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

Test fixture has inadequate performance .

*SuggestedRemedy*

Propose Return Loss (f) >15 dB from 10MHz to 5.16 GHz  
and Return Loss(f)> 15 - 0.5xf for 5.16GHz<=f<=10.3125 GHz.  
A fast rising driver if tested with poor fixture can possibly meet  
the min rise time.

Proposed Response Response Status **W**

PROPOSED ACCEPT.

Related comments: #579, 604

Cl 69A SC 69A.1 P63 L41 # 581  
Ghiasi, Ali Broadcom

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

The channel is defined by an ideal frequency dependent attenuator.

*SuggestedRemedy*

The channel must be defined based on realistic impulse response. The channel stressor  
can be created using an FIR filter adequately defining the channel. Current channel  
stressor does not resemble real hardware with discontinuity and reflections

Proposed Response Response Status **O**

Cl 69A SC 69A.1 P63 L18 # 603  
Booth, Brad Intel

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

Different uses of terminology. This draft seems to use the term ""foreign"" whereas  
""alien"" is more commonly used.

*SuggestedRemedy*

Recommend changing the draft to use the term ""alien"".

Proposed Response Response Status **O**

Cl 72 SC 72.6.1.1 P119 L01 # 604  
Booth, Brad Intel

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

The test fixture appears to be very similar for Clauses 70, 71 and 72 with the exception of  
the number of lanes. These seems to be overkill.

*SuggestedRemedy*

Place test fixture in a normative annex (recommend Annex 69B) that all three clauses can  
reference. Add information that permits the reader to understand that 1000BASE-KX and  
10GBASE-KR are one lane and 10GBASE-KX4 is four lanes.

Proposed Response Response Status **C**

REJECT.

Test fixture performance requirements are a function of port type and should be handled  
accordingly.

Future changes to test fixturing could cause further divergence and may make a  
centralized annex more difficult to manage.

Cl 69 SC 69.1.3 P50 L17 # 605  
Booth, Brad Intel

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

In Figure 69-1, information on the interfaces is incorrect and the figure is a bit misleading  
about the medium.

*SuggestedRemedy*

This figure should provide an overview of the architectural positioning. The specific  
information should be contained in each port type clause; therefore, duplicate the figure in  
each port type clause and delete irrelevant information.

For this figure, remove the TBI and XSBI. While AN is applied to all port types, this implies  
that AN should support all port types via one MDI to one MEDIUM. This is not accurate.  
Break AN into 3 parts and change the name from AN to AN\*. Put a MEDIUM under each  
port type.

Proposed Response Response Status **W**

ACCEPT.

## IEEE P802.3xx draft Y.Z Comments

CI 72 SC 72.5.10.4 P116 L12 # 606

Booth, Brad

Intel

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

Variable reset is used in state diagrams in Figures 72-3 and 72-4, but it is undefined.

*SuggestedRemedy*

Define reset variable as below:

reset

Boolean variable that controls the resetting of the PMA/PMD. It is true whenever a reset is necessary including when reset is initiated from the MDIO, during power on, and when the MDIO has put the PMA/PMD into low-power mode.

Proposed Response Response Status **W**

ACCEPT.

In addition

In Figure 72-5 add "reset+mr\_restart\_training" entry condition to NOT\_UPDATED state.

In Figure 72-4 rename entry condition to mr\_reset\_training to mr\_restart\_training.

CI 73 SC 73.2 P134 L01 # 607

Booth, Brad

Intel

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

Incorrect figure. The figure is meant to show the placement of AN relative to the other sublayers and the OSI reference model.

*SuggestedRemedy*

Delete TBI and XSBI. Ensure PHY bracket on the right completely encompasses from the bottom of AN to the top of the PCS. Unshade the PMDs. Divide AN into three blocks and label each block AN\*. Unshade MDI, and place a MDI and MEDIUM under each of the three PHYs.

Proposed Response Response Status **O**

CI 73A SC 73A P169 L01 # 608

Booth, Brad

Intel

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

Incorrect format for annex heading as information is missing about the normative nature of the annex.

*SuggestedRemedy*

Heading format should be as follows:

Annex 73A

(normative)

Next page message code field definitions

Proposed Response Response Status **O**

CI 71 SC 71.6.2.1 P96 L12 # 612

Diab, Wael

Cisco

Comment Type **TR** Comment Status **R** *ber\_min*

Was the BER here set to match the 1G or can we do better than 10e-12 on the 10GBASE-KX4 interface?

*SuggestedRemedy*

Raise the BER requirements to 10e-15 or better

Proposed Response Response Status **W**

REJECT.

BER target based on the Task Force's expectation of what could be measured with confidence and in a timely manner. Actual implementations may exceed this objective.

CI 72 SC 72.6.2.1 P125 L36 # 613

Diab, Wael

Cisco

Comment Type **TR** Comment Status **R** *ber\_min*

Was the BER here set to match the 1G or can we do better than 10e-12 on the 10GBASE-KR interface?

*SuggestedRemedy*

Raise the BER requirements to 10e-15 or better

Proposed Response Response Status **W**

REJECT.

BER target based on the Task Force's expectation of what could be measured with confidence and in a timely manner. Actual implementations may exceed this objective.

IEEE P802.3xx draft Y.Z Comments

CI 00 SC 00 P L # 614

Ganga, Ilango

Intel

Comment Type TR Comment Status X kr\_fec

Include Forward Error Correction (FEC) for the 10GBASE-KR PHY to increase the link budget and to meet or exceed BER performance of 10-12 on a broader set of backplane channels(defined in clause 69).

SuggestedRemedy

Request TF to include Forward Error Correction (FEC) for 10GBASE-KR PHY as proposed in supporting documents ganga\_01\_0905 and supporting presentation ganga\_02\_0905.

Proposed Response Response Status W

Straw Poll #2 (Healey)

Option #1 - Adopt FEC for 10GBASE-KR using Ganga\_01\_0905 as a basis  
Option #2 - Do not adopt Ganga proposal.

Option #1- 12  
Option #2- 8

CI 69A SC 69A.1 P63 L16 # 615

Beaudoin, Denis

Texas Instruments

Comment Type T Comment Status X

Expected implementations of 10GBASE-KR receivers will use a Decision Feedback Equalizer (DFEs). DFEs can cause significant error propagation. The presentation szczepanek\_01\_0705 demonstrates the error propagation of DFEs and the 10GBASE-R PCS self-synchronous scrambler which may have a severe impact on the false packet acceptance criteria.

SuggestedRemedy

Initially identified in 10GBASE-T and later in EFM an addition of a CRC8 to the PCS layer was used to improve the protection to frames.

Follow this precedent set by 10GBASE-T and EFM and add the CRC8 protection to frames.

This will require creation of a modified 10GBASE-R PCS (new clause) for use with 10GBASE-KR.

Proposed Response Response Status O

CI 69A SC 69A.1 P63 L # 627

Kundu, Aniruddha

Intel

Comment Type T Comment Status X

Figure 69A-1: The test configuration diagram needs correction. The separate return path for optimization is not implementable. The reason is that in actual implementation, the DUT receiver, and the TX will not have a separate pins to send and receive the feedback back for optimization.

SuggestedRemedy

Direct connection back from Data (line) from input of DUT to the output data line of TX.

Proposed Response Response Status O

CI 69A SC 69A.4 P65 L36 # 628

Kundu, Aniruddha

Intel

Comment Type TR Comment Status X

Interference generator needs to add a phase shift to the variable amplitude as well to create random noise environment.

SuggestedRemedy

Add the following text: ... "from f1 to fbaud with adjustable amplitude from with adjustable amplitude to ðfrom f1 to fbaud with adjustable amplitude from with adjustable amplitude and phase shift"

Proposed Response Response Status O

CI 72 SC 72.6.2.1 P125 L38 # 629

Kundu, Aniruddha

Intel

Comment Type TR Comment Status X

Interference generator needs to add a phase EITbase Value of 15mV p-p is too restrictive for system vendors to ensure for proper receiver operation. Unclear how this data was derived. Need background data for justification.

SuggestedRemedy

Gathering data from different platform vendors as well as Silicon vendors to verify this value or specify a better EITbase value is on going. Should be reviewed at the plenary meeting.

Proposed Response Response Status O

Related comments: #137, 629

## IEEE P802.3xx draft Y.Z Comments

Cl 45 SC 45.2.7.1 P36 L15 # 641  
 David V James JGG  
 Comment Type **TR** Comment Status **A** e  
 DVJ-30  
 Wrong table lines.  
 SuggestedRemedy  
 Very thin between rows, thin around the boundary, here and throughtout.  
 Proposed Response Response Status **W**  
 ACCEPT.

Cl 45 SC 45.2.7.3 P39 L19 # 644  
 David V James JGG  
 Comment Type **TR** Comment Status **X**  
 DVJ-33  
 All names should be one word, possibly run-together. Otherwise, they are abused when used in code or equations and hard to parse within sentences.  
 SuggestedRemedy  
 NoRemedySupplied  
 Proposed Response Response Status **O**

Cl 45 SC 45.5.3.5 P46 L54 # 649  
 David V James JGG  
 Comment Type **TR** Comment Status **X**  
 DVJ-38  
 Bad break at bottom of page, leading to a blank line between table rows.  
 SuggestedRemedy  
 Use debugged templates, at:  
<http://grouper.ieee.org/groups/msc/WordProcessors.html>  
 Proposed Response Response Status **O**

Cl 69 SC 69.1.2 P50 L11 # 650  
 David V James JGG  
 Comment Type **TR** Comment Status **X** t\_editorial  
 DVJ-39  
 Don't intermix all caps; its against the style manual, confusing, and obfuscates the meaning of capitalized special words.  
 SuggestedRemedy  
 Remove ALL CAPS notation within figures, here and throughtout.  
 Proposed Response Response Status **O**

Cl 45 SC 45.2.1.1 P25 L09 # 776  
 David V James JGG  
 Comment Type **TR** Comment Status **R**  
 DVJ-16  
 R/W has to meanings in the same table.  
 SuggestedRemedy  
 Entries in the table should be RW.  
 Do so, here and elsewhere.  
 Proposed Response Response Status **W**  
 REJECT.  
 Accepting the change would be inconsistent with 802.3REVam.

Cl 45 SC 45.2.1.1 P25 L12 # 777  
 David V James JGG  
 Comment Type **TR** Comment Status **A**  
 DVJ-17  
 IEEE styles are to center small columns.  
 SuggestedRemedy  
 Do so, here and elsewhere.  
 Proposed Response Response Status **W**  
 ACCEPT IN PRINCIPLE.  
 Will consult with the publication editor.