Cl **01** *SC* **1.4** *P* **1** *L* **1** # **120**

Healey, Adam — Agere Systems

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

Add definition of terms introduced in Backplane Ethernet to subclause 1.4.

Suggested Remedy

Create a section to hold changes to clause 1. At a minimum, amend subclause 1.4 to include a definition of 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR. Other terms may be included as deemed necessary.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.5.1.1.2** *P* **1** *L* **1** # **121**

Healey, Adam — Agere Systems

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

Add Backplane Ethernet port types to aMAUType attribute.

Suggested Remedy

Create a section to hold changes to clause 30 and add 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR to the enumerated list of 30.5.1.1.2.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30B** *SC* **30B.2** *P* **1** *L* **1** # **122**

Healey, Adam — Agere Systems

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

Add Backplane Ethernet port types to the enumerated list ""TypeValue"".

Suggested Remedy

Create a section to hold changes to Annex 30B. Add 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR to ""TypeValue"".

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E** *P* **11** *L* **1** # **83**

Thaler, Pat — Agilent Technologies

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

This has content of a full clause and it isn't clear why it should be an annex, especially since there are already so many Clause 28 Annexes.

Suggested Remedy

Change this to a Clause.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **1** *P* **11** *L* **24** # **1**

Szczepanek, Andre — Texas Instruments

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

""Manchester encoding provides a DC balanced signal.""

Suggested Remedy

change to : ""Differential Manchester encoding provides a DC balanced signal."" or ""DME provides a DC balanced signal.""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **.1** *P* **11** *L* **36** # **35**

Moore, Charles — Agilent Technologies

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

I believe that Auto-Negotiation is manditory therefore devices which do not provide it are not compatible.

Suggested Remedy

Change end of sentance to read:
""to allow otherwise 1000BASE-KX or 10BBASE-KX4 compatible devices to be recognized, even though they do not provide Auto-Negotiation or have Auto-Negotiation disabled.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E.2** *P* **12** *L* **23** # **129**

Spagna, Fulvio — Intel

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

The acronym MDI is defined in Fig. 28E caption, but is not used in the figure itslef.

Suggested Remedy

Remove

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E.2** *P* **12** *L* **23** # **153**

Alping, Arne — Ericsson AB

Comment Type **E** *Comment Status* **X**

Figure 28E-1: (1) MDI is not shown in figure (2) Acronyms AN, TBI, and XSBI is not explained

Suggested Remedy

Response *Response Status* **O**

Cl **28E** *SC* **28E.5.1** *P* **13** *L* **9** # **92**

Thaler, Pat — Agilent Technologies

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

Add the missing Figures here and in Figure 28E-2

Suggested Remedy

I am willing to produce figures

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **5.1.1** *P* **13** *L* **28** # **38**

Moore, Charles — Agilent Technologies

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

electrical idle is refered to but not defined.

Suggested Remedy

replace ""should be driven to electrical idle as specified in x.x.x"" with ""should be disabled by setting the appropriate PMD_transmit_disable_n variable to one."" With possible reference to Clause 71.5.7.
Also: change 71.5.7 (page 88 line 43) to make ""PMD_transmit_disable_n function"" manditory.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **5.1.1** *P* **13** *L* **29** # **73**

Joergensen, Thomas — Vitesse semiconductor

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

There shoould be no requirement for electrical idle.

Suggested Remedy

Remove the requirement for electrical idle and replacd it with a requirement to have no transitions.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **5.1.1** *P* **13** *L* **29** # **78**

Joergensen, Thomas — Vitesse semiconductor

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

There shoould be no requirement for electrical idle.

Suggested Remedy

Remove the requirement for electrical idle and replacd it with a requirement to have no transitions.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **5.1.1** *P* **13** *L* **29** # **55**

Gaither, Justin — Xilinx, Inc

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

One of the main reasons to switch to DME was to eliminate the need for electrical idle. We should specify an idle pattern for the other lanes.

Suggested Remedy

change to ""Lane 1 to Lane 3 should be driven with a DME pattern of ""0000"".

Response *Response Status* **W**

PROPOSED REJECT.

Cl **28E** *SC* **28E.5.1.1** *P* **13** *L* **29** # **93**

Thaler, Pat — Agilent Technologies

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

Add a definition for electrical idle either here or in 10GBASE-KR4 definition.

Suggested Remedy

We could use:
During electrical idle the transmitter shall output differential voltage of 0 mV +/- x mV and common mode voltage within the requirements of 71.6.1.3.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **5.2** *P* **14** *L* **1** # **2**

Szczepanek, Andre — Texas Instruments

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

""The value of the pseudo-random bit shall be derived from a random or a pseudo-random source"".
Failing to specify the pseudo-random source for this bit will make compliance testing dificult - how can we determine that the bit is truly random or pseudo-random. If the bit was explicitly stated to be the result of a defined generator polynomial checking compliance would be straightforward

Suggested Remedy

Explicitly define the pseudo-random counter generator polynomial. The polynomials used in 48.2.4.2 may suffice. For simplicity the counter should increment once per DME page.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **5.2** *P* **14** *L* **2** # **56**

Gaither, Justin — Xilinx, Inc

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

We should specify the exact psuedo random polynomial.

Suggested Remedy

copy the text and polynomial from KX4 to here.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **28E.5.2** *P* **14** *L* **14** # **111**

Healey, Adam — Agere Systems

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

Picture associated with 28E-2 is missing.

Suggested Remedy

Incorporate the appropriate picture.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **5.3** *P* **14** *L* **43** # **57**

Gaither, Justin — Xilinx, Inc

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

Need a diagram or reference to diagram illustrating T1-T5 timing.

Suggested Remedy

suggest start with Figure 28-5 and modify as required for DME

Response *Response Status* **W**

PROPOSED ACCEPT.
Pat to provide timing

Cl **28E** *SC* **6** *P* **15** *L* **46** # **53**

Gaither, Justin — Xilinx, Inc

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

vectors should be represented in similar form as rest of 802.3 document.
ie. D[4:0] not as D[0:4]

Suggested Remedy

Change vector descriptions accordingly

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E.6** *P* **15** *L* **47** # **94**

Thaler, Pat — Agilent Technologies

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

Pause capability only has one bit. Other negotiations use two bits to allow negotiation of bidirectional or unidirectional pause. There is no statement that only unidirectional pause is allowed and no description of the resolution of the pause negotiation in 28#.7.6.

Suggested Remedy

Make pause capbility two bits and reference (or copy) descriptions of the meanings of those bits and priority resolution of those bits from 28B.
An acceptable alternative would be to only allow bidirectional pause. If that is the case, state that is what the bit means. In priority resolution, state that pause is enabled if both sides advertise pause capability.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **.6.2** *P* **16** *L* **29** # **36**

Moore, Charles — Agilent Technologies

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

Previously in this section bit arrays were listed with the lower limit before the colon here the upper limit is before the colon without any clear reason for the destinction. Consistancy here might be of some value.

Suggested Remedy

on line 29, change A[31:0] to A[0:31]
on line 38, change A[31:3] to A[3:31]

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **Table 28E-3** *P* **17** *L* # **66**

Bar-Niv, Amir — Mysticom

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

Set the order of the bits in the lines according to the order of the bits in the base word. Make sure no confusion on the order of the bits in the base word.

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **7** *P* **18** *L* **37** # **54**

Gaither, Justin — Xilinx, Inc

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

data should be stored in rx_link_code_word[47:0] not [48:1]

Suggested Remedy

Change text accordingly.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **7.1** *P* **18** *L* **43** # **3**

Szczepanek, Andre — Texas Instruments

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

I do not understand what this paragraph means, as currently worded.
In particular I do not understand the relevance of ""transmitter operating at less than its highest supported baud rate"" to the receiver. The receiver must be capable of receiving DME signals sent with any of the electrical specifications of 802,3ap (1000BASE-KX,10GBASE-KX4 or 10GBASE-KR).
My suggested remedy is what I think it should be saying …

Suggested Remedy

""To be able to detect the DMEs, the receiver should have the capability to receive DME signals sent with the electrical specifications of any IEEE802.3 backplane Ethernet PHY (1000BASE-KX,10GBASE-KX4 or 10GBASE-KR).""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **7.1** *P* **18** *L* **43** # **101**

Brink, Robert — Agere Systems

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

""at operating at"" - wording problem

Suggested Remedy

""at operating at"" should be reworded to ""operating at""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E.7.1** *P* **18** *L* **44** # **67**

Bar-Niv, Amir — Mysticom

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

Says: ""... oparating at less than its highest supported baud rate"". If this is a KX PHY, it is not true.

Suggested Remedy

Add a comment that says that for KX PHY it should support KX electrical specifications.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **7.1** *P* **18** *L* **44** # **58**

Gaither, Justin — Xilinx, Inc

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

This seems to indicate that a KR RX must also implement a KX Receiver. I dont believe this is required. We need to specify exactly what is required here..

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **.7.4.1** *P* **19** *L* **17** # **37**

Moore, Charles — Agilent Technologies

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

Parallel Detect function also allows Link partners which partially support 1000BASE-KX and 10GBASE-KX4 but do not have any Auto-Negotiation functionality at all (ie legacy devices)

Suggested Remedy

Add: ""or have no Auto-Negotiation capability but are otherwise 1000BASE-KX or 10GBASE-KX4 capable.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E.7.4.1** *P* **19** *L* **19** # **68**

Bar-Niv, Amir — Mysticom

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

It says that the Autonegotiation support parallel detect for KR, while in page 11, line 36, it says that parallel detect is only for KX and KX4.

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7.2** *P* **19** *L* **53** # **77**

Joergensen, Thomas — Vitesse semiconductor

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

The receive switch needs to connect the MDI to the supported PMAs to support parallel detect.

Suggested Remedy

Modify to the following:
During Auto-Negotiation, the Receive Switch function shall connect the DME page receiver controlled by the Receive state diagram to the MDI and the Receive Switch function shall also connect the 1000BASE-KX, 10GBASE-KX4 and 10GBASE-KR PMA receivers to the MDI if the PMAs are present.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7.2** *P* **19** *L* **53** # **82**

Joergensen, Thomas — Vitesse semiconductor

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

The receive switch needs to connect the MDI to the supported PMAs to support parallel detect.

Suggested Remedy

Modify to the following:
During Auto-Negotiation, the Receive Switch function shall connect the DME page receiver controlled by the Receive state diagram to the MDI and the Receive Switch function shall also connect the 1000BASE-KX, 10GBASE-KX4 and 10GBASE-KR PMA receivers to the MDI if the PMAs are present.

Response *Response Status* **W**

PROPOSED REJECT.
Repeat comment!

Cl **28E** *SC* **28E.7.7.1** *P* **21** *L* **23** # **69**

Bar-Niv, Amir — Mysticom

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

While text describe bits up to 47, the srawing show only up to 32 bits.

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **28E** *SC* **28E.7.7.1** *P* **21** *L* **44** # **95**

Thaler, Pat — Agilent Technologies

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

Should also allow for unformatted next pages (for the case where a message requires more than 32 unformatted bits).

Suggested Remedy

Add unformatted next page format.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7.7.1** *P* **21** *L* **2239** # **39**

Moore, Charles — Agilent Technologies

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

Surely this is not Unformatted Code. Or does ""Unformatted Code Field"" have some specalized meaning?

Suggested Remedy

I would prefer that D[47:16] be described as data whose specific format depend on the message code.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **28E.7.7.1** *P* **22** *L* **11** # **96**

Thaler, Pat — Agilent Technologies

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

Add a subclause to define the Next Page Message Code Field definitions.

Suggested Remedy

At a minimum define a null message code (see 28C.2) and that the remaining code space is reserved for future use. One also could define message codes similar to 28C.6 and 28C.7 to allow for OUI specific message pages and a PHY identifier code.
Also could define an remote fault code as in 28C.5 but if this functionality is desired it would be more efficient to incorporate a small (2 or three bit) field in the base page.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **28E.9.1** *P* **28** *L* **19** # **97**

Thaler, Pat — Agilent Technologies

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

Need to add a definition for sync_status, either by referencing 36, 48 and 49 clauses directly from here or by adding a primitive definition.
For KR4, should it depend on sync_status of the four lanes which indicates that the K28.5 has been found on all lanes or on alignment status which indicates that the alignment has been found across the lanes? - I think the latter is appropriate.

Suggested Remedy

Create a primitive clause similar to what was done in Clause 28.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7** *P* **35** *L* **14** # **79**

Joergensen, Thomas — Vitesse semiconductor

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

What is ""manchester_receive_idle""? - This signal is not explained anywhere. I assume an_receive_idle is meant here (page 25, line 32)

Suggested Remedy

Replace ""manchester_receive_idle"" with an_receive_idle

Response *Response Status* **W**

PROPOSED REJECT.
Repeat comment!

Cl **28E** *SC* **7** *P* **35** *L* **14** # **74**

Joergensen, Thomas — Vitesse semiconductor

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

What is ""manchester_receive_idle""? - This signal is not explained anywhere. I assume an_receive_idle is meant here (page 25, line 32)

Suggested Remedy

Replace ""manchester_receive_idle"" with an_receive_idle

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7** *P* **35** *L* **19** # **80**

Joergensen, Thomas — Vitesse semiconductor

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

I cannot see when the data is transferred to the registers.

Suggested Remedy

In the COMPLETE AKNOWLEDGE state add a mr_lp_adv_ability <= rx_link_code_word

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7** *P* **35** *L* **19** # **75**

Joergensen, Thomas — Vitesse semiconductor

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

I cannot see when the data is transferred to the registers.

Suggested Remedy

In the COMPLETE AKNOWLEDGE state add a mr_lp_adv_ability <= rx_link_code_word

Response *Response Status* **W**

PROPOSED REJECT.
Repeat comment

Cl **28E** *SC* **7** *P* **35** *L* **35** # **76**

Joergensen, Thomas — Vitesse semiconductor

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

In state AN_GOOD and AN_GOOD_CHECK signal an_good is set. This signal is not explained anywhere neither used in rx or tx state machine.
I assume, that an_good has to be replaced by an_link_good (see also page 25, line 27)

Suggested Remedy

Replace an_good by an_link_good

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **28E** *SC* **7** *P* **35** *L* **35** # **81**

Joergensen, Thomas — Vitesse semiconductor

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

In state AN_GOOD and AN_GOOD_CHECK signal an_good is set. This signal is not explained anywhere neither used in rx or tx state machine.
I assume, that an_good has to be replaced by an_link_good (see also page 25, line 27)

Suggested Remedy

Replace an_good by an_link_good

Response *Response Status* **W**

PROPOSED REJECT.
Repeat comment!

Cl **36** *SC* **Figure 36-0** *P* **37** *L* **1** # **98**

Thaler, Pat — Agilent Technologies

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

I don't understand why we are modifying a Clause 36 state diagram which will modify the requirements on existing implementations. Also, the figure is labeled as KX-4 but the text would mak it mandatory for 1000BASE-X.

Suggested Remedy

Move this material to Clause 70 which should describe any modifications of Clause 36 for KX4.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **45** *SC* **45.1** *P* **39** *L* **21** # **85**

Thaler, Pat — Agilent Technologies

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

Why has Ethernet been struck? Presumably the MDIO is only applicable to Ethernet implementations that operate at speeds of 10 Gb/s and above.

Suggested Remedy

Either restore the word or add ""of Ethernet"" to bullet a after ""implementations"".

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **41** *L* **50** # **16**

Ilango, Ganga Intel

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

Change 1.151

Suggested Remedy

Change 1.151 to 1.150

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **42** *L* **1** # **17**

Ilango, Ganga Intel

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

Delete line 1 at beginning of the page

Suggested Remedy

Delete

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-3** *P* **43** *L* **45** # **84**

Thaler, Pat Agilent Technologies

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

It would be better to not reproduce the whole table so we don't have to track 10GBASE-T changes. This comment also applies to other tables with 10GBASE-T entries.

Suggested Remedy

Change the editing instructions to ""add these entries to the table"" and only put in the entries that this work is adding.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **44** *L* **16** # **19**

Ilango, Ganga Intel

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

Add the following header, "45.2.1.1 PMA/PMD control 1 register (Register 1.0)"

Suggested Remedy

Add header

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **44** *L* **25** # **18**

Ilango, Ganga Intel

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

Delete sentence "More specific mode selection is performed using the 1000BASE-KX PMA control register (45.2.1.x)"

Suggested Remedy

Delete the sentence.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **45** *L* **4** # **20**

Ilango, Ganga Intel

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

There is a repetition of table number 45-3

Suggested Remedy

Change table number to read as "Table 45-4" and renumber subsequent table tables to Table 45-5, 45-6, and so on.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **Table 45-3** *P* **45** *L* **28** # **87**

Thaler, Pat Agilent Technologies

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

The new bit pattern should be 1 Gb/s. That is more consistant with the name for these bits, ""speed selection,"" and with what was done for 10 Gb/s.
10PASS-TS and 10BASE-TL did something different because they operate over a range of speeds.
Also, there are two tables labeled 45-3.

Suggested Remedy

Replace 1000BASE-KX with 1 Gb/s.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **46** *L* **40** # **21**

Ilango, Ganga Intel

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

Change table number to read as "Table 45-6"

Suggested Remedy

Change table #

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **47** *L* **24** # **22**

Ilango, Ganga Intel

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

Change sentence.

Suggested Remedy

Change sentence to read as "Change Bit 1.7.2:0 in Table 45û8 to read as follows:"

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **47** *L* **29** # **23**

Ilango, Ganga Intel

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

Change table number to read as "Table 45-8"

Suggested Remedy

Change table number

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **48** *L* **3** # **24**

Ilango, Ganga Intel

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

Change 802.3ah to 802.3am

Suggested Remedy

Change

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **48** *L* **25** # **25**

Ilango, Ganga Intel

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

Change table number to "Table 45-12"

Suggested Remedy

Change

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **2.1.10** *P* **48** *L* **39** # **40**

Moore, Charles Agilent Technologies

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

typo has ""10GBASE-KX4 ability"" controling 10GBASE-KR instead of 10BASE-KX4

Suggested Remedy

fix typo

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **2.1.63.7** *P* **50** *L* **47** # **4**

Szczepanek, Andre Texas Instruments

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

Do we really need the ability to select coefficient resolutions that are not powers of 2 ?.

Suggested Remedy

Replace with a 3 bit field that directly encodes the number of implemented bits in the coeffecient registers.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **45** *SC* **2.1.63.7** *P* **50** *L* **47** # **41**

Moore, Charles Agilent Technologies

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

Line states that maximum resolution that can be represented is 0.25 but my arithmatic says that the maximum is 0.484375. Is the intent that exactly one of bits 12:8 will be set to 1?

Suggested Remedy

specify inTable 45-10ao Page 50 line 12, that exactly one of bits 12:8 shall be set to 1.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **45** *SC* **2.1.64.9** *P* **51** *L* **26** # **130**

Spagna, Fulvio Intel

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

Table 45-10ap. Coefficient update definition.

Suggested Remedy

Change coefficient update so that:
0 1 => increment
1 0 => decrement

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **2.1.66.11** *P* **52** *L* **36** # **138**

Spagna, Fulvio Intel

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

Each coefficient, k, is represented by an 8-bit signed value.

Suggested Remedy

Each coefficient, k, is represented by an 8-bit 2's complement value.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **2.1.66.11** *P* **52** *L* **53** # **128**

Spagna, Fulvio Intel

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

Change description of coefficient value from Sign/Magnitude to 2's complement.

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **54** *L* **2** # **27**

Ilango, Ganga Intel

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

Insert the editors note above table 45-117 "Modify table 45-117 from draft 802.3an-D1.3 to read as follows, insert backplane Ethernet specific Auto-Negotiation registers"

Suggested Remedy

Insert the editors note

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **54** *L* **6** # **26**

Ilango, Ganga Intel

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

Change sentence to read as "Table 45-117-Auto-Negotiation MMD Registers"

Suggested Remedy

Change

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **56** *L* **12** # **28**

Ilango, Ganga Intel

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

Change sentence to read as "The assignment of bits in the Auto-Negotiation Status register is shown in Table 45û119"

Suggested Remedy

Change sentence

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **57** *L* **1** # **29**

Ilango, Ganga Intel

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

All the register numbering is messed up starting at page 57. Please fix this as per the AN MMD register definitions on page 54 and correct the subsequent regersters.
The following comments are related to renumbering.

Suggested Remedy

Change register numbering

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **57** *L* **1** # **30**

Ilango, Ganga Intel

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

Insert the following sentence "45.2.7.12 Backplane Ethernet status (Register 7.29)", and re-number the subsequent sections accordingly.

Suggested Remedy

Insert the sentence

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **57** *L* **4** # **32**

Ilango, Ganga Intel

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

1) Renumber table 45-120 to "Table 45-126" and renumber the subsequent tables accordingly and
2) change the table title to read as "Table 45-126 Backplane Ethernet status register (Register 7.29) bit definitions"

Suggested Remedy

Renumber tables

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **57** *L* **8** # **33**

Ilango, Ganga Intel

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

Page 57 In column 1 of this table find and replace 7.1 with 7.29, repeat the same in subsequent sub sections that defines these bits.

Suggested Remedy

Change numbers

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **57** *L* **26** # **31**

Ilango, Ganga Intel

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

Renumber the sub section numbers to start with 45.2.7.12.1

Suggested Remedy

Renumber

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* *P* **58** *L* # **34**

Ilango, Ganga Intel

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

Page 58 in table title change (Register 7.6) to read as (Register 7.30) find and replace 7.6 to 7.30 repeat the find/replace operation for all the text in the table and subsections

Suggested Remedy

Change numbers

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.2.2** *P* **58** *L* **1** # **88**

Thaler, Pat Agilent Technologies

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

It isn't clear why this register is a backplane Ethernet register. The items here seem all to apply equally to auto-negotiation as defined in Clause 28 and Annex 28E.
Also the formating is different than most register definitions where each bit or field ndefinition has its own subclause.

Suggested Remedy

Delete Backplane Ethernet and apply this register across autonegotiation if my comment is correct. In any case, make the format consistant by putting in sub clauses for the bit/field definitions.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **45** *SC* **45.2.7.2** *P* **58** *L* **12** # **99**

Thaler, Pat Agilent Technologies

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

This register should have separate bits to indicate abilities for Backplane Ethernet (or Clause 28E) auto-negotiation or FLP autonegotiation (or Clause 28).
For FLP autonegotiation, there should be an extended next page ability bit unless there is a statement requiring all devices that support this clause to provide auto-negotiation ability. The extended next page ability bit part of the comment has been submitted to 10GBASE-T which should handle it and is only submitted here for information

Suggested Remedy

See comment.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **45** *SC* **45.2.7.2.3** *P* **59** *L* **1** # **86**

Thaler, Pat — Agilent Technologies

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

The format of subclauses for extended page values should be harmonized with the descriptions of extended next pages in 10GBASE-T. For example, the lower numbered register, 7.9 should be at the top of the table followed by 7.10 and 7.11.

Suggested Remedy

Correct format.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.2.3** *P* **59** *L* **1** # **100**

Thaler, Pat — Agilent Technologies

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

For all multi-register values, something similar to the handling of multi-register counters needs to be added. Otherwise inconsistant values may be retrieved or sent. When the first (e.g. 7.9) register is read, the other register values should be latched.
For the multi-register values that are writeable, the value should only be transferred to the state machine when the first register is written. It might seem more logical to do this when the third register is written, but there are times when only the first register needs to be updated so it is more efficient to have the write to this register trigger action.

Suggested Remedy

Put in text similar to that for counter values that says that the value of the three registers is latched when the first register is read and reads of the second and third registers return the latched value rather than the current value.
For writeable registers, indicate that the value is only used by the state machine when the first register is written. For the base page, the value is transferred to mr_adv_ability when the first word is written. For next pages, the value is transferred to mr_np_tx and mr_next_page_loaded is set when the first word is written. Therefore, when writting all three registers the second and third registers should be written before the first register.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.2.5** *P* **60** *L* **28** # **89**

Thaler, Pat — Agilent Technologies

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

It is not clear to me why backplane needs a separate set of autonegotiation next page registers. Can't it share those defined for 10GBASE-T10? The flags and such are all the same.

Suggested Remedy

Please explain or change to using one set of registers.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **69** *SC* **69.1.2** *P* **63** *L* **34** # **90**

Thaler, Pat — Agilent Technologies

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

""improved FR-4"" should be removed since FR-4 does not have a formal (e.g. standard) definition of signal characteristics and it is a general material classification covering a wide variety of electrical performance.

Suggested Remedy

Replace with ""printed circuit boards meeting the requirements of 69.3"".

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **69** *SC* **1.2** *P* **63** *L* **34** # **51**

Gaither, Justin — Xilinx, Inc

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

Change to total length 1m

Suggested Remedy

see comment

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **69** *SC* **1.2** *P* **63** *L* **35** # **146**

D'Ambrosia, John — Tyco Electronics

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

Reference to number of traces per objectives is inappropriate in relation to what the formal objectives are.

Suggested Remedy

a 1 Gb/s PHY
a 10 Gb/s PHY
a 4-lane 10 Gb/s PHY

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **69.1.3** *P* **65** *L* **27** # **154**

Alping, Arne — Ericsson AB

Comment Type **E** *Comment Status* **X**

Figure 69-1: (1) MDI is not shown i figure (2) The acronyms AN, TBI, and XSBI is not explained

Suggested Remedy

Response *Response Status* **O**

Cl **69** *SC* **69.1.3** *P* **65** *L* **35** # **155**

Alping, Arne — Ericsson AB

Comment Type **E** *Comment Status* **X**

Change ""implementations"" to ""implementors""

Suggested Remedy

Response *Response Status* **O**

Cl **69** *SC* **2.3** *P* **66** *L* **16** # **143**

D'Ambrosia, John — Tyco Electronics

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

Description of number of traces

Suggested Remedy

over two differential, controlled impedance pairs of traces (one pair for transmit, one pair for receive)

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **2.3** *P* **66** *L* **21** # **142**

D'Ambrosia, John — Tyco Electronics

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

Reference to number of traces is confusing.

Suggested Remedy

Use verbiage from XAUI
There are four differential paths in each direction for a total of eight pairs, or sixteen connections.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **2.3** *P* **66** *L* **27** # **144**

D'Ambrosia, John — Tyco Electronics

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

Description of number of traces

Suggested Remedy

over two differential, controlled impedance pairs of traces (one pair for transmit, one pair for receive).

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **69.3** *P* **67** *L* **26** # **162**

Alping, Arne — Ericsson AB

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

Should there be any additional requirements on differential trace length mismatch ?

Suggested Remedy

Response *Response Status* **O**

Cl **69** *SC* **3.2** *P* **68** *L* **18** # **42**

Moore, Charles — Agilent Technologies

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

Should define (recommended) impedence in terms of SDD11 and SDD22. That is how it will be measured and +/-x% is of unclear meaning for complex quantities.
Similarly for 69.3.3 Connector impedance

Suggested Remedy

say:
69.3.2
The differential characteristic impedance of the circuit board trace pairs should be 100 Ohms. The trace S11 and S22 should be better than TBD from 100MHz to TBD GHz.
69.3.3
The recommended impedance of any connectors, such as between circuit board subsystems 1s 100 Ohms with S11 and S22 better than TBD from 100MHz to TBD GHz. . . .
69.3.5
It is recommended that the channel S11 measured at TP1 and S22 measured at TP4 be better than TBD from 50MHz to 15 GHz.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **69** *SC* **3.4** *P* **68** *L* **27** # **147**

D'Ambrosia, John Tyco Electronics

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

Information regarding insertion loss is informative.

Suggested Remedy

Move Section 69.3.4 into an annex of Clause 69

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **69** *SC* **3.4** *P* **69** *L* **1** # **148**

D'Ambrosia, John Tyco Electronics

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

Figure 69.3 shows the knee of frequency for insertion loss with F2 at approximately 6 GHz. This is a TBD.

Suggested Remedy

Edit Figure 69.3 and show as an informative line if F2 = 6 GHz.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **69.3.4** *P* **69** *L* **1** # **156**

Alping, Arne Ericsson AB

Comment Type **E** *Comment Status* **X**

Figure 69-3: The complete figure is not visible.

Suggested Remedy

Response *Response Status* **O**

Cl **69** *SC* **69.3.4.2** *P* **69** *L* **50** # **152**

Alping, Arne Ericsson AB

Comment Type **E** *Comment Status* **X**

Missing word: ""the""

Suggested Remedy

Change ""...to be difference between..."" to ""...to be the difference between...""

Response *Response Status* **O**

Cl **69** *SC* **3.4.2** *P* **70** *L* **43** # **145**

D'Ambrosia, John Tyco Electronics

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

Figure 69.4 shows values for Insertion Loss Deviation and Frequency. These values should have been left TBD.

Suggested Remedy

On Y Axis, only show 0
on X Axis, delete all numbers. At 1000 MHz, put F1, at 6000 MHz, put F2.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **69.4** *P* **71** *L* **52** # **116**

Healey, Adam Agere Systems

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

Eliminate TBD in round-trip delay budget (Table 69-3). Set round-trip delay for 1000BASE-KX to 8 bit times (match 1000BASE-CX).

Suggested Remedy

Set round-trip delay for 1000BASE-KX to 8 bit times.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **69.4** *P* **72** *L* **19** # **114**

Healey, Adam Agere Systems

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

Eliminate TBD for 10GBASE-KX4 round-trip delay constraints.

Suggested Remedy

Set the maximum 10GBASE-KX4 PMD round-trip delay to 512 bit times (including media delay).

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.3** *P* **74** *L* **2** # **117**

Healey, Adam Agere Systems

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

Fill-in placeholder for 1000BASE-KX delay constraints.

Suggested Remedy

Set the round-trip delay for the 1000BASE-KX PMD to 8 bit times. Remove editor's note.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.4** *P* **74** *L* **13** # **118**

Healey, Adam — Agere Systems

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

Fill-in placeholder for 1000BASE-KX PMD MDIO function mapping. This first requires that bits supporting -KX PMD functions be defined.
At the January interim meeting, PMD transmit disable, loopback, transmit and receive fault functions were added. There are no bits in the clause 45 register set to support these functions. Signal detect for 1000BASE-KX is also not supported in the clause 45 register set.

Suggested Remedy

Allocate bits in the clause 45 registers linked to the 1000BASE-KX signal detect, transmit disable, loopback, transmit, and receive fault functions. Define mapping in subclause 70.4.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.2** *P* **74** *L* **42** # **49**

Moore, Charles — Agilent Technologies

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

This subclaus was to directly leveraged from an Optical spec. Need to use electrical definition.

Suggested Remedy

replace ""The higher power level shall correspond to tx_bit = ONE.""
with ""A positive output voltage of SLn<p> minus SLn<n> (differential voltage) shall correspond to tx_bit = ONE""
A similar change in 75.5.3 is also needed.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **5.4** *P* **75** *L* **1** # **59**

Gaither, Justin — Xilinx, Inc

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

Signal detect was not approved by the task force.

Suggested Remedy

Either approve SD as part of KX or Remove Signal detect section

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **70.5.4** *P* **75** *L* **1** # **91**

Thaler, Pat — Agilent Technologies

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

Also 71.5.4 and 72.5.4.
See my proposal at the meeting for another approach to signal detect.

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **70.5.4** *P* **75** *L* **46** # **72**

Luke, Chang — Intel

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

The text suggests other implementations of Signal Detect functions are permitted. Is this a place holder for defining a digital version of Signal Detect function?

Suggested Remedy

Define how to do Signal Detect function digitally.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **70.5.6** *P* **76** *L* **9** # **70**

Luke, Chang — Intel

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

The text calls for loopback mode for 10GBASE-KX PMD. There is no such thing as 10GBASE-KX PMD.

Suggested Remedy

Change to 1000BASE-KX PMD.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **5.5.c and 5.6** *P* **76** *L* **512** # **43**

Moore, Charles — Agilent Technologies

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

70.5.5.c specifies that Loopback not be affected by Global_PMD_transmit_disable. 70.5.6 says that the transmitter shall not be disabled when a loopback mode is enabled. This would seem to be a way to guarentee that Global_PMD_transmit_disable will not affect loopback but i am not sure that this is what is intended.

Suggested Remedy

In 70.5.6 line 12 change:
""The transmitter shall not be disabled when loopback mode is enabled.""
to
""Whether the trnasmitter is enabled or not is independent of Loopback mode.""

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **6.1.1** *P* **77** *L* **42** # **104**

Brink, Robert — Agere Systems

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

Page 77 figure 70-1 Transmit Test Fixture for 1000BASE-KX
The capacitors are not specified in the test fixture.

Suggested Remedy

Specify capacitor to be < 470ps to be consistent with other text such as page 81 line 8.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **6.1.2** *P* **78** *L* **13** # **125**

Sawyer, Shannon — Agilent

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

The differential return loss of ""lower than 26dB from 50MHz to 625MHz"" for the TX test fixture is too difficult to actually manufacture.

Suggested Remedy

Recommend changing to greater than 15dB down from 50MHz to 625MHz

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **6.2** *P* **80** *L* **40** # **52**

Gaither, Justin — Xilinx, Inc

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

Crosstalk spec was added as optional. It cant be in a required table.

Suggested Remedy

remove crosstalk spec from table 70-5

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **6.2.3** *P* **81** *L* **8** # **44**

Moore, Charles — Agilent Technologies

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

also 71.6.2.3 and 72.6.2.3
This recommends a maximum of 470pF to ""limit the inrush current to the receiver""
It is unlikely that this limiting is of much value and work done for the channel ad-hoc indicates that transmission is optimized when 4.7nF is used.

Suggested Remedy

in 70.6.2.3, 71.6.2.3, and 72.6.2.3 delete the Note.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **70** *SC* **70.6.2.8** *P* **82** *L* **122** # **112**

Healey, Adam — Agere Systems

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

The section placeholder should be removed. Crosstalk will be covered as part of the interconnect specifications.

Suggested Remedy

Remove section.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **1** *P* **85** *L* **19** # **150**

D'Ambrosia, John — Tyco Electronics

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

Market awareness of XAUI for backplane applications is common. We should add verbiage that distinguishes this.

Suggested Remedy

Add verbiage ""The XAUI, defined by Clause 47, is intended for chip-to-chip applications for lengths up to approximately 50cm. 10GBASE-KX4 is intended for backplane applications up to 1m in length.""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **1** *P* **85** *L* **25** # **149**

D'Ambrosia, John — Tyco Electronics

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

Mis-spelling of 10GBASE-KX4 in heading

Suggested Remedy

Delete ""a"" in 10GBASAE-KX4 in title

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **71.3** *P* **86** *L* **5** # **115**

Healey, Adam — Agere Systems

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

Set maximum round trip media delay for 10GBASE-KX4 to 512 bit times (including media delay), as written. Elimate editor's note.

Suggested Remedy

Eliminate editor's note.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **.3** *P* **86** *L* **12** # **47**

Moore, Charles — Agilent Technologies

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

Editor ask if media delay should be included. The answer is yes. The media delay will be up to around 60BT. Someone needs to take this into account and who else is there?
This also applies to 72.3

Suggested Remedy

change ""The sum of the transmit and the receive delays contributed by the 10GBASE-KX4 PMD""
to:
""The sum of the transmit and the receive delays contributed by the 10GBASE-KX4 PMD plus media delay""
Also change 72.3 in a similar way.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **5.4** *P* **87** *L* **25** # **60**

Gaither, Justin — Xilinx, Inc

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

Signal detect was not adopted by the taskforce

Suggested Remedy

Either adopt signal detect or remove the section

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **5.4** *P* **87** *L* **31** # **105**

Brink, Robert — Agere Systems

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

1) The Signal Detect electrical specifications were derived from CX4, a cable standard.
2) Analog Signal detectors are tricky to design robustly across Process, Voltage, and Temperature.
3) The Signal_Detect is not the ultimate authority on the quality of the data but rather it signals that there is sufficient energy at the receiver inputs.
I would like to propose modifying the SIGNAL_DETECT section to make it less timing and level critical. Specifically, I propose a longer time constant for detecting valid signal levels and a higher threshold for SIGNAL_DETECT = FAIL to account for the additional crosstalk that is expected in a backplane v.s. a cabled system.

Suggested Remedy

reword this section to read:
SIGNAL_DETECT is a global indicator of the presence of electrical signals on all four lanes. The PMD receiver is not required to verify whether a compliant 10GBASE-KX4 signal is being received, however, it shall assert SIGNAL_DETECT=OK within 100us after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded 175mV for a period of at least 100UI (10 code group ordered sets).
The PMD shall not assert SIGNAL_DETECT = FAIL until at least 250usecs after any event causing the assertion or reassertion of SIGNAL_DETECT = OK. The PMD shall have asserted SIGNAL_DETECT = FAIL when the absolute differential peak-to-peak input voltage on any of the four lanes at the MDI has dropped below 75mV and has remained below 75mV for longer than 500us.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **71.4** *P* **88** *L* **27** # **119**

Healey, Adam — Agere Systems

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

Define 10GBASE-KX4 PMD MDIO function mapping.

Suggested Remedy

Add tables and supporting text explaining the mapping of 10GBASE-KX4 functions to MDIO registers and bits.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **5.8** *P* **89** *L* **3** # **131**

Spagna, Fulvio — Intel

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

Clarify the behavior of loopback mode with respect to autonegotiation and training signals. Are these expected to go through the loopback path?

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **6.1.1** *P* **91** *L* **14** # **106**

Brink, Robert — Agere Systems

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

specify capacitors for the test fixture to be consistant with other text.

Suggested Remedy

specify capacitors to be <470pF. per 71.6.2.3

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **6.1.2** *P* **91** *L* **40** # **126**

Sawyer, Shannon — Agilent

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

The differential return loss of ""greater than 20dB from 100MHz to 2000MHz"" for the TX test fixture is too difficult to actually manufacture.

Suggested Remedy

Recommend greater than 15dB down from 50MHz to 1.5625GHz

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **6.1.4** *P* **92** *L* **1** # **151**

D'Ambrosia, John — Tyco Electronics

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

Figure 71-3 is listed as informative, but this is not indicated in the clause.

Suggested Remedy

Resolve, and correct in manner meant.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **6.1.3** *P* **92** *L* **2** # **5**

Szczepanek, Andre — Texas Instruments

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

Typo : ""with respect to Signal Shield""

Suggested Remedy

Change to ""with respect to backplane ground""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **69** *SC* **Eq. (71-1)** *P* **92** *L* **20** # **64**

Mellitz, Richard — Intel

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

625MHz is too low for KX4. Will widen interoperable vulnerability.

Suggested Remedy

Change to 1.567GHz

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **71.6.1.4** *P* **92** *L* **34** # **71**

Luke, Chang — Intel

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

The max frequency for 10GBASE-KX4 transmitter return loss should be 3.125GHz rather than 2GHz. This matches the PICMG specification.

Suggested Remedy

Change max frequency to 3.125GHz.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **69** *SC* **eq. 71.2** *P* **92** *L* **37** # **65**

Mellitz, Richard — Intel

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

625MHz is too low for KX4. Will widen interoperable vulnerability.

Suggested Remedy

change to 1.567GHz

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **6.1.5** *P* **93** *L* **24** # **6**

Szczepanek, Andre — Texas Instruments

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

Bad reference ""Figure 71-3""

Suggested Remedy

Change to : ""Figure 71-2""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **6.1.6** *P* **95** *L* **1** # **48**

Moore, Charles — Agilent Technologies

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

Transition time is already sufficiently constrained by the Normalized transmit template.

Suggested Remedy

Delete subclause 71.6.1.6 Transition time.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **71** *SC* **6.2** *P* **95** *L* **26** # **7**

Szczepanek, Andre — Texas Instruments

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

Bad reference ""Table 71-3""

Suggested Remedy

Change to : ""Table 71-5""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **Table 72-1** *P* **97** *L* **25** # **102**

Brink, Robert — Agere Systems

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

misspelled word

Suggested Remedy

In the figure title.
10GBASAE-KR should be 10GBASE-KR

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **1** *P* **97** *L* **25** # **132**

Spagna, Fulvio — Intel

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

Type in Table 72-1 header

Suggested Remedy

Header should read 10GBASE-KR-PMD and not 10GBASAE-KR-PMD

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5** *P* **99** *L* **7** # **61**

Gaither, Justin — Xilinx, Inc

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

Signal detect has not been adopted by task force. Also, the PMD does not perform an encode or decode function.

Suggested Remedy

Either adopt signal detect or remove
remove or redraw figure 72-1 to make it more obvious that the encode/decode function is part of training control function.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **5.2** *P* **99** *L* **45** # **8**

Szczepanek, Andre — Texas Instruments

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

""The higher power level shall correspond to tx_bit = ONE.""
In a differential signalling system the power level does not indicate the signalled level.

Suggested Remedy

""The higher power level on the positive line of the transmit differential pair shall correspond to tx_bit = ONE.""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.3** *P* **99** *L* **52** # **10**

Szczepanek, Andre — Texas Instruments

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

""The higher optical power level shall correspond to rx_bit = ONE""

Suggested Remedy

""The higher power level on the positive line of the receive differential pair shall correspond to tx_bit = ONE.""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.6** *P* **100** *L* **27** # **139**

Spagna, Fulvio — Intel

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

I am unclear on what this means.

Suggested Remedy

I think loopback should be a requirement.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2** *P* **102** *L* **1** # **9**

Szczepanek, Andre — Texas Instruments

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

""The control channel is .. transmitted at one quarter of the 10GBASE-KR signaling rate.""
However line 42 on the same page states ""the 32 bit control channel is communicated in 256 symbols at 10.3125Gbaud"" which is a factor of 8 not 4.

Suggested Remedy

""The control channel is .. transmitted at one eighth of the 10GBASE-KR signaling rate.""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2** *P* **102** *L* **12** # **133**

Spagna, Fulvio — Intel

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

Type: Frame Maker

Suggested Remedy

Frame Marker

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2** *P* **102** *L* **12** # **103**

Brink, Robert — Agere Systems

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

misspelled word

Suggested Remedy

""Maker"" should be ""Marker""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2.3** *P* **103** *L* **4** # **137**

Spagna, Fulvio — Intel

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

Table has double identifier (72-1 and 72-3). So there are now two Table 72.3 ...

Suggested Remedy

Correct Table header.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2.3** *P* **103** *L* **15** # **134**

Spagna, Fulvio — Intel

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

Change increment/decrement definition

Suggested Remedy

01 => increment
10 => decrement

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2.4** *P* **103** *L* **33** # **136**

Spagna, Fulvio — Intel

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

Table 72-3 does not show the encoding of the update gain field

Suggested Remedy

Refer to correct table if it exists, or create placeholder tabler.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.2.4** *P* **103** *L* **33** # **11**

Szczepanek, Andre — Texas Instruments

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

bad reference : ""Table 72-3""
This appears to be caused by the multiple labels on Table 72-1, which is labelled as ""Table 72-1---Table 72-3 - Coefficient update field""
There is another bad reference on the same page on line 42.

Suggested Remedy

Fix table label
Fix references to be ""Table 72-1""(SvD 72-1 should be 72-2)

Response *Response Status* **W**

PROPOSED ACCEPT.
Fixed bad auto table numbering algorithem. Table 72-1 appeared twic.

Cl **72** *SC* **5.10.2.6.1** *P* **104** *L* **24** # **12**

Szczepanek, Andre — Texas Instruments

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

Bad grammar and bad table reference :
""The format of the receiver ready bit that be as shown in Table 72-4""
There seems to be a continued +2 offset on all table references in this section. There is another bad reference on the same page - line 28.

Suggested Remedy

""The format of the receiver ready bit shall be as shown in Table 72-2""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **5.10.4.2** *P* **106** *L* **122** # **13**

Szczepanek, Andre — Texas Instruments

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

Orphan word ""Functions"" at end of line

Suggested Remedy

delete

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **Figure 72-3** *P* **107** *L* # **15**

Szczepanek, Andre — Texas Instruments

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

The (Training) frame lock state diagram is modelled on the 10GBASE-KR frame sync mechanism rather than the AN frame sync mechanism.
However given that the sync pattern does not appear in the control channel or the training pattern an ""instant sync on sync-pattern"" approach as used for the AN sync would seem more appropriate.

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **72.5.10.5** *P* **107** *L* **1** # **113**

Healey, Adam — Agere Systems

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

Figures 72-3 and 72-4 use the wrong fonts and are somewhat difficult to read.

Suggested Remedy

Re-draw Figures 72-3 and 72-4.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **Figure 72-4** *P* **108** *L* **46** # **14**

Szczepanek, Andre — Texas Instruments

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

Figure 72-4 is mislabelled ""Frame lock state diagram""

Suggested Remedy

relabel ""Training state diagram""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6** *P* **109** *L* **1** # **63**

Gaither, Justin — Xilinx, Inc

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

The transmitter is incompletely specified. We must specify the minimum number of TX FFE taps; the resolution (bits) of such taps; the total magnitude of such taps; and we must specify a method to verify how they should be tested.

Suggested Remedy

propose we specify minimum of 3 FFE taps (-1) (0) and (+1). We should add a table with resolution and magnitude of such taps with TBD in the fields.
Further; I suggest an editors note be added to show the need for mask testing until such a template can be descided.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **6.1** *P* **109** *L* **31** # **107**

Brink, Robert — Agere Systems

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

To the Editor's comment.
I think a max transition time is redundant to a Transmitter Data Dependant Jitter specification.
If we have a TX DJ spec, we don't need a max transition time spec.

Suggested Remedy

discussion

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **6.1.1** *P* **110** *L* **15** # **108**

Brink, Robert — Agere Systems

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

specify capacitors to be consistant with other text.

Suggested Remedy

specify capacitors to be <470pF

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **6.1.2** *P* **110** *L* **40** # **127**

Sawyer, Shannon — Agilent

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

The differential return loss of ""greater than 20dB from 100MHz to 15GHz"" for the TX test fixture is too difficult to actually manufacture.

Suggested Remedy

Recommend either greater than 10dB down from 50MHz to 5GHz, or greater than 15dB down from 50MHz to 2GHz, and greater than 10dB down from 2GHz to 5GHz

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **72.6.1.3** *P* **110** *L* **45** # **123**

Healey, Adam — Agere Systems

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

Reference to Annex 48A.2 is not appropriate (10GBASE-KR is not 8B10B encoded). Test patterns based on the facilities provided in 49.2.8 should be utilized. One of these patterns is a square-wave pattern.

Suggested Remedy

Change reference to be the square-wave pattern defined in 49.2.8.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6.1.5** *P* **112** *L* **32** # **135**

Spagna, Fulvio — Intel

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

Typo (?): between 24 pS and 24 pS

Suggested Remedy

Put different min and max limits.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **6.1.5** *P* **112** *L* **32** # **109**

Brink, Robert — Agere Systems

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

max transition time is redundant to Transmit DJ jitter specification.

Suggested Remedy

reword sentence ""edge transition time shall be no less than 24ps as measured at the ...""

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6.1.7** *P* **112** *L* **47** # **140**

Spagna, Fulvio — Intel

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

There is no CJPAT specified for 64/66 coding. Does this mean that the 8B10B version is to be used?

Suggested Remedy

Replace with TBD pattern as we decide what to do with Jitter Tolerance.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6.2** *P* **113** *L* **20** # **62**

Gaither, Justin — Xilinx, Inc

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

The receiver must also work with amplitudes of 1600mV during Autonegotiation

Suggested Remedy

We must leave table 72-5 with 1600mV limit or change wording to illustrate actual limits we expect and the functionality required.

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72** *SC* **72.6.1.7** *P* **113** *L* **44** # **124**

Healey, Adam — Agere Systems

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

Reference to Annex 48A test patterns is not appropriate for 10GBASE-KR (not 8B10B encoded). Annex 48B may also not be directly applicable.

Suggested Remedy

Identify alternate test pattern, using the facilities of 49.2.8. Review Annex 48B methodology to identify what modifications are necessary to yield a transmit jitter test for 10GBASE-KR.

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6.2.4** *P* **113** *L* **52** # **50**

Moore, Charles — Agilent Technologies

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

quotes a value of 1600mV from 72.6.1.3 but 72.6.1.3 gives 1200mV

Suggested Remedy

change 1600mV to 1200mV

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6.2.4** *P* **113** *L* **52** # **110**

Brink, Robert — Agere Systems

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

maximum differential pk-pk voltage is incorrect

Suggested Remedy

change maximum differential pk-pk voltage to match page 113 line 16 (1200mVp-pdiff)

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **6.2.6.1** *P* **114** *L* **13** # **141**

Spagna, Fulvio — Intel

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

Should the upper limit of 20 MHz move out? What is the reason for that number ?

Suggested Remedy

Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **72A** *SC* **72A.1** *P* **115** *L* **12** # **157**

Alping, Arne — Ericsson AB

Comment Type **E** *Comment Status* **X**

Misspelt word: ""Introduction""

Suggested Remedy

Response *Response Status* **O**

Cl **72A** *SC* **72A.1** *P* **115** *L* **30** # **158**

Alping, Arne — Ericsson AB

Comment Type **E** *Comment Status* **X**

Change wording

Suggested Remedy

Change ""...very high performance channel..."" to ""...very high-speed channel...""

Response *Response Status* **O**

Cl **72A** *SC* **.2** *P* **116** *L* **52** # **45**

Moore, Charles — Agilent Technologies

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

Equation 72A-1 is missing and called (69-2)

Suggested Remedy

in line 51, change ""(69-2)"" to ""(72A-1)""
After line 51, add:
|S21| <= S21limit = -20*log(e)*(bh*sqrt(f)+b1*f+b2*f^2+b3*f^3) (72a-1)
and add table 72A-1

parameter	value
bh	6.5*10^-6
b1	3.3*10^-10
b2	3.2*10^-20
b3	-1.4*10^-30

{note to the editor: I am using ^ to indicate superscript}

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72A** *SC* **4.1** *P* **118** *L* **25** # **46**

Moore, Charles — Agilent Technologies

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

Here, inconsistently, i used ** to indicate a super script.

Suggested Remedy

Could you change the notation from ** to suberscript here and on lines 36 and 39, also in 72A-4.2, page 119 line 50 and page 120 line 2

Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72A** *SC* **72A.4.1** *P* **118** *L* **25** # **160**

Alping, Arne — Ericsson AB

Comment Type **E** *Comment Status* **X**

Change in text

Suggested Remedy

(1) Change all ""2**7-1"" to ""27-1"" (2) Change all ""2**23-1"" to ""223-1""

Response *Response Status* **O**

Cl **72A** *SC* **72A.4.1** *P* **118** *L* **36** # **159**

Alping, Arne Ericsson AB

Comment Type **E** *Comment Status* **X**

Misspelt word

Suggested Remedy

Change ""...often that every..."" to ""...often than every..""

Response *Response Status* **O**

Cl **72A** *SC* **72A.4.1** *P* **118** *L* **43** # **161**

Alping, Arne Ericsson AB

Comment Type **E** *Comment Status* **X**

Change in text

Suggested Remedy

(1) Change all ""1e-10"" to 10-10 (2) Change all ""1e-17"" to 10-17

Response *Response Status* **O**