Cl **0** *SC* **0** *P* **0** *L* **0** # 341

Geoff Thompson GraCaSI S.A.

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

The capability to carry OAM information in addition to the 1Gb/s data is beyond and outside the scope of the project as defined in the PAR.

SuggestedRemedy

Modify the scope of the PAR to include this function and get it approved ASAP (i.e. by 12/2015) so this can not become an issue at Sponsor Ballot.

Response *Response Status* **U**

REJECT.

1000BASE-T1-specific Operations, Administration, and Maintenance (1000BASE-T1 OAM) link is critical for the proper operation of a 1000BASE-T1 link. The scope of the PAR already includes management aspects of the 1000BASE-T1 link.

Cl **00** *SC* **0** *P* **1** *L* **17** # 64

Booth, Brad Microsoft

Comment Type **ER** *Comment Status* **R**

Use of twisted pair and twisted-pair should be made consistent with definitions in 1.4.396 and 1.4.397, respectively. The former is in reference to two wires that create a pair; whereas the latter refers to a cable.

FYI... it's either a twisted pair or a single twisted-pair cable... there is no such thing as a single twisted pair as that's implied.

As a side note, while single twisted-pair cable is the term used in the specification, wouldn't it be more accurate to call it one-pair twisted-pair cable?

SuggestedRemedy

Review the draft for text that uses "single balanced twisted-pair" and insert "cable" after twisted-pair.
Review the draft for "single twisted pair" or "single twisted-pair" and replace with "single twisted-pair cable".

Response *Response Status* **U**

REJECT.

Per discussion in TF, there are multiple different applications, in which 1000BASE-T1 will be operated over a pair of twisted wires, no exterior cable jacket will be present, especially in the middle of cable bundles. The requirement to include exterior cable jacket for all 1000BASE-T1 applications would increase the bundle size, which is highly undesirable.

Cl **00** *SC* **45.2.1** *P* **35** *L* **13** # 154

Grow, Robert RMG Consulting

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

The change to the reserved row conflicts with changes made in P802.3bw (it is defining registers 1.2100 through 1.2102), P802.3bn (1.1900 through 1.1957), etc.

SuggestedRemedy

Indicate in the editing instruction that publication editor should adjust reserved register ranges to reflect registers defined by other approved amendments.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change editorial instruction to read: "Change reserved register space (1.1809 through 1.32767) in Table 45-3 as shown below, with changes per P802.3bn and P802.3bw"

Update changes to Reserved rows in Table 45–3 to accommodate changes per P802.3bn and P802.3bw

Cl **34** *SC* **34.1** *P* **31** *L* **14** # 155

Grow, Robert RMG Consulting

Comment Type **TR** *Comment Status* **A** *Changes to 34.1; EZ*

This change also is not appropriate for inclusion in the draft. Please do not start another port type list that projects will need to come back and edit because you want to list 1000BASE-T1, and then subsequent projects will similarly then feel obligated to add to (e.g., P802.3bv). Adding applications to the introduction will similarly cause one more thing that might cause other projects to add their applicatons because this introduced a specific application. The edits also make the statement read as untrue because of adding the port type list. 1000BASE-T1 does not deliver similar topologies as those specifed for 100BASE-T. Link length is a big part of topology and 100BASE-FX, 100BASE-TX and 100BASE-T4 all support at least 100m.

SuggestedRemedy

Remove edit to paragraph. Also edit or remove the editing instruction as appropriate for other comments being accepted.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change
Change the second and third paragraph of 34.1, adding references to 1000BASE-T1 PHY
to
Change the second paragraph of 34.1, adding references to 1000BASE-T1 PHY

Remove second para altogether (lines 11-19)

Cl **34** *SC* **34.1** *P* **31** *L* **7** # 151

Grow, Robert RMG Consulting

Comment Type **ER** *Comment Status* **A** *Changes to 34.1; EZ*

Clause 34 base text has been changed by P802.3bx. Changes to the second paragraph are not appropriate.

SuggestedRemedy

Remove change to second paragraph and correct editing instruction.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Remove editing instruction in line 5 and text in lines 7-8. Leave 34.1 header with title

See also comment #155

Cl **34** *SC* **34.1.2** *P* **31** *L* **20** # 152

Grow, Robert RMG Consulting

Comment Type **ER** *Comment Status* **A** *Changes to 34.1.2; EZ*

Clause 34 base text has been changed by P802.3bx. This change is no longer appropriate nor desirable.

SuggestedRemedy

Delete the complete change (subclause title, editing instruction and changed paragraph).

Response *Response Status* **W**

ACCEPT.

Cl **34** *SC* **34.1.3** *P* **31** *L* **30** # 153

Grow, Robert RMG Consulting

Comment Type **ER** *Comment Status* **A** *Changes to 34.1.3; EZ*

Clause 34 base text has been changed by P802.3bx. The new P802.3/D2.2 text includes the sentence: "Topologies composed of full duplex only devices do not allow repeaters." The change to add the proposed sentence is not needed, nor is adding a port type list desirable.

SuggestedRemedy

Delete the complete change (subclause title, editing instruction and changed paragraph).

Response *Response Status* **W**

ACCEPT.

See also comment #312

Cl **45** *SC* **45.2.1.130a.1** *P* **36** *L* **27** # 75

Remein, Duane Huawei

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

If bit 1.2304.15 is indeed a copy of 1.0.15 then it should display identical functionality.

SuggestedRemedy

Change sentence at line 27 to read "During a reset, the 1000BASE-T1 PMD/PMA shall respond to reads from register bits 1.2304.15, 1.8.15:14, and 1.0.15."

Add change instruction to 45.2.1.1.1 Reset (1.0.15) as follows:
"Change the last 2 sentences of the first paragraph of 45.2.1.1.1 to read as follows:
During a reset, a PMD/PMA shall respond to reads from register bits 1.0.15, 1.8.15:14, and 1.2304.15. All other register bits should be ignored."
Use appropriate mark up text for changed sentence. Original wording (per 802.3bx D3.2) is: "During a reset, a PMD/PMA shall respond to reads from register bits 1.0.15 and 1.8.15:14. All other register bits should be ignored."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change sentence at line 27 to read "During a reset, the 1000BASE-T1 PMD/PMA shall respond to reads from register bits 1.2304.15, 1.8.15:14, and 1.0.15."

Update PICS as needed.

No changes needed in 45.2.1.1.1

Cl **45** *SC* **45.2.3.50a.1** *P* **42** *L* **6** # 78

Remein, Duane Huawei

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

If bit 3.2304.15 is indeed a copy of 3.0.15 then it should display identical functionality.

SuggestedRemedy

Change sentence at line 6 to read "During a reset, a PCS shall respond to reads from register bits 3.0.15, 3.8.15:14, and 3.2304.15."

Add change instruction to 45.2.3.1.1 Reset (3.0.15) as follows:
"Change the last 2 sentences of the first paragraph of 45.2.3.1.1 to read as follows:
During a reset, the 1000BASE-T1 PCS shall respond to reads from register bits 3.0.15, 3.8.15:14, and 3.2304.15. All other register bits should be ignored."
Use appropriate mark up text for changed sentence. Original wording (per 802.3bx D3.2) is: "During a reset, a PCS shall respond to reads from register bits 3.0.15 and 3.8.15:14."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change sentence at line 6 to read "During a reset, a PCS shall respond to reads from register bits 3.0.15, 3.8.15:14, and 3.2304.15."

Update PICS as needed.

No changes needed to 45.2.3.1.1 - this project does not change behavior of legacy devices.

Cl **45** *SC* **45.2.3.50b.6** *P* **43** *L* **35** # 77

Remein, Duane Huawei

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

Given that bit 3.2305.2 is a latching low bit you cannot say that "When read as a zero, bit 3.2305.2 indicates that the BASE-T1 PCS receive link is down." As it may currently be in the link up state. The instantaneous status, for which this discription would be correct, is bit 3.2306.10.

SuggestedRemedy

Change to read:
"When read as a zero, bit 3.2305.2 indicates that the BASE-T1 PCS receive link was down since the last time this register was read."

Response *Response Status* **U**

REJECT.

See response to #41 against D1.5:
http://www.ieee802.org/3/bp/comments/8023bp_D15_approved.pdf

Cl **97** *SC* **97..7** *P* **126** *L* **43** # 330

Geoff Thompson GraCaSI S.A.

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

The text: "The OAM information is exchanged in-band between
two PHYs without using any of the normal data bandwidth." is less than fully forthcoming.

SuggestedRemedy

Change the text to read: "The OAM information is exchanged in-band between two PHYs using a small fixed amount of the link bandwidth."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

The point is that the use of OAM does not consume any of the link bandwidth, i.e., it is still 1000 Mb/s that is available to MAC. OAM is running in *spare* bandwidth.

Reword the text to read: "The OAM information is exchanged in-band between two PHYs using excess bandwidth available on the link."

Cl **97** *SC* **97.1** *P* **57** *L* **24** # 336

Geoff Thompson GraCaSI S.A.

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

Change text of the last sentence in this sub-clause to reflect the optionality of EEE.

SuggestedRemedy

Change text to read: "Optionally, this allows the PHY to enter a low power mode..."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Insert "optional" in line 23, in front of "Low Port Idle" - no changes to line 24/25.

Cl **97** *SC* **97.1.2** *P* **57** *L* **41** # 292

Geoff Thompson GraCaSI S.A.

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

Comment:The term "automotive link segment" is too application specific here and in many places throughout the draft. This text needs to be broadened here and elsewhere. It is expected that this type of link will find broad use beyond the automotive application space (e.g. inside large complex machines such as large copiers).

SuggestedRemedy

See suggested wording in previous comment for a suggested solution.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add sentence after "The 1000BASE-T1 PHY is one of the Gigabit Ethernet family of high-speed full-duplex network specifications, capable of operating at 1000 Mb/s and intended to be operated over a single balanced twisted-pair, referred to as an automotive link segment (Type A) or additional link segment (Type B), defined in 97.5.5. " as follows: "The automotive link segment specifications defined in 97.5.5 may also be used for other applications that have similar link segment requirements."

Cl **97** *SC* **97.1.2.1** *P* **59** *L* **30** # 343

Geoff Thompson GraCaSI S.A.

Comment Type **ER** *Comment Status* **R** *Parity*

Regarding the wording: "The RS encoder adds 396 RS FEC parity bits and..."
The term "parity" according to the dictionary is only used to indicate odd or even and, thus, is not an appropriate term for a larger correction term.

SuggestedRemedy

Change text to read: "The RS encoder adds a 396 RS FEC bit term and..."
(other candidates instead of "term" would be "word" or "polynomial")

Response *Response Status* **U**

REJECT.

The word "parity" is used in mutliple clauses in the meaning of FEC parity data

Cl **97** *SC* **97.10.2.1** *P* **141** *L* **19** # 44

Dawe, Piers Mellanox

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

5C Broad Market Potential says "Other applications include... Industrial automation solutions using Ethernet for factory automation and process automation... currently have about 100 million installed Ethernet nodes on the market, with a growth of about 43% per year... new applications in industrial automation are expected."
This says "The 1000BASE-T1 PHY is designed to operate in the automotive environment", and seeks to apply specifications specifically for road vehicles.

SuggestedRemedy

Change the draft to agree with the 5C responses or vice versa.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change the wording: "Automotive environmental conditions are generally more severe than those found in many commercial environments." to read: "Automotive environmental conditions are generally more severe than those found in many commercial>> and industrial<< environments."

Cl **97** *SC* **97.7.3** *P* **132** *L* **8** # 74

Remein, Duane Huawei

Comment Type **ER** *Comment Status* **R**

The content of Table 97-15 is very similar to various tables in Section 6 such as Tables 82–10, 82–11, 84-2, ,84-3, 85-2, 85-3, 86-3, 86-4, 84-2, 84-3, 87-2, 87-3, 88-2, 88-3, 89-2, 89-3, 95-2, and 95-3. The structure and style should match as well to help maintain consistency in the standard.

SuggestedRemedy

Change table format (header & columns) to align with the tables listed in the comment.
Change headings for Table 97-15 to:
MDIO control variable | PCS register name | Register/ bit number | PCS control variable

Response *Response Status* **U**

REJECT.

See comment #27 on D1.5
(http://www.ieee802.org/3/bp/comments/8023bp_D15_approved.pdf) - nothing has changed since then.

Cl **97.5.** *SC* **00** *P* **117** *L* **37** # 112

Rossbach, Martin Nexans Cabling Soluti

Comment Type **TR** *Comment Status* **R** *Class F*

General : Type B Link describes a 40m shielded channel up to 600MHz. There is already an existing cabling spec for 600MHz shielded cabling, defined by ISO/IEC 11801 / Class F. These requirements shall be used.

SuggestedRemedy

Response *Response Status* **W**

REJECT.

See comment #109 for rationale

Cl **97.5.** *SC* **97.5.5.1** *P* **114** *L* **50** # 355

Horrmeyer, Bernd Phoenix Contact

Comment Type **ER** *Comment Status* **R**

The link type A insertion loss includes 4 connections. It does not say anythinc about cords at either end so it is assumed they are included.
formula 97-14
Type B uses a different formula

SuggestedRemedy

Use the same format for both types.
Type B preferred

Response *Response Status* **W**

REJECT.

Unclear what the expected change is. In addition, automotive cabling is not structured cabling and the use of patch cable is not part of required cabling topology.

This is really a technical comment!

Cl **97.5.** *SC* **97.5.5.1.3** *P* **115** *L* **38** # 357

Horrmeyer, Bernd Phoenix Contact

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

The retun loss Formula 97-15 does not match the general 4 connetcor formulas used elsewhere. It resembles more a 2 connector channel.

SuggestedRemedy

Replace from 40 MHz onwards
40 to 250 with 32-10logf
250 to 600 MHz with 8 dB

Response *Response Status* **W**

REJECT.

See herman_3bp_01_1113.pdf for basis of accepted RL i.e., for very short link segments with multiple connectors in close proximity. Both type A and type B can be applied to automotive configurations.

Cl **97.5.** *SC* **97.5.5.1.4** *P* *L* # 359

Horrmeyer, Bernd Phoenix Contact

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

For return loss type B link the same reasoning as for type A applies

The retun loss Formula 97-18 does not match the general 4 connector formulas used elsewhere. It resembles more a 2 connector channel

SuggestedRemedy

Replace from 40 MHz onwards
40 to 250 with 32-10logf
250 to 600 MHz with 8 dB

Response *Response Status* **W**

REJECT.

See herman_3bp_01_1113.pdf for basis of accepted RL i.e., for very short link segments with multiple connectors in close proximity. Both type A and type B can be applied to automotive configurations.

Cl **97.5.** *SC* **97.5.5.1.4** *P* **116** *L* **27** # 358

Horrmeyer, Bernd Phoenix Contact

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

The differential to common mode conversion limits are extremly high.
In an installed link near ground in a car they will not be reachable.
Why not using the 3 Mice levels from ISO/IEC , the customer could then choose.
This would allow a much broader usage of this standard.

SuggestedRemedy

If the values are kept a note should be added that the limits are for laboratory measurements only.

or introduce the mice concept (as allready done in class B links)
Class E1:30-20logf
Class E2:40-20logf
Class E3:50-20logf 40 max

E3 limit is a little lower than the proposed values in D2.0

Response *Response Status* **W**

REJECT.

The balance requirements are supported by system EMC Testing. See tazebay_3bp_01a_0913.pdf

Cl **97.5.** *SC* **97.5.5.3.2** *P* **120** *L* **33** # 361

Horrmeyer, Bernd Phoenix Contact

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

Coupling parameters between link segments.

The limits for type A are rather low compared to type B. As the Protocol is the same this is not understandable.

As the unbalance limits are rather high the coupling parameters should be increased to at least the Ea values used for 10G. For PSAACRF they should be upgraded to the shorter lengh.

SuggestedRemedy

For type A use the formula withouth the get out clause for shorter lengh. It was introduced for four pair systems.

PSANEXT 54-15log(f/100) for f> 100 MHz 4 dB more than Ea

Response *Response Status* **W**

REJECT.

The Type B link segment is assumed to be shielded or screened consistent with the specifications. The Type A link segment is assumed unshielded consistent with the specifications.

Cl **97.5.** *SC* **97.5.5.4.2** *P* **123** *L* **4** # 360

Horrmeyer, Bernd Phoenix Contact

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

The limits of > 65 dB for PSANEXT for type B are much higher than type A. The same limit should be used .

As coupling attenuation is specified it takes care of alien noise.

SuggestedRemedy

Use the same limit as type A without get out.

PSANEXT 54-15log(f/100) for f> 100 MHz 4 dB more than Ea

Response *Response Status* **W**

REJECT.

The Type B link segment is assumed to be shielded or screened consistent with the specifications. Measurement data confirming alien crosstalk performance in diminico_3bp_01b_0714.pdf

Cl **98** *SC* **98.2.3** *P* **166** *L* **35** # 65

Booth, Brad Microsoft

Comment Type **ER** *Comment Status* **R**

I really dislike the term "Half Duplex" as used in the clause. Half duplex is a defined term in 1.4.216 and is associated with the MAC. I believe it would be worthwhile for the task force to consider terminology that doesn't create confusion with existing terminology.

SuggestedRemedy

Change the use of half duplex in the draft to be handshake.

Response *Response Status* **U**

REJECT.

The term "half-duplex" is associated with the general concept of telecommunication links operating in a specific manner, and not tied to MAC only. The use of this term is correct in the current draft and as intended by TF.

This is a technical comment!