C/ 00 SC 0 P36 L28 # 30 Cl 45 SC 45.2.3.51 P28 L21 Kobavashi, Shiqeru TE Connectivity Gilarranz. Aleiandra **KDPOF** Comment Status D Comment Type E Comment Type T Comment Status D Mix to use the words "optical fiber" and "POF" in spite of stated at the beginning as "POF". Table 45-164. Description column. Wrong description of 0 value for Rx LPI indication. Is there any different meaning? SuggestedRemedy SuggestedRemedy Replace text: "LPI not received by Rx PCS" with "LPI not generated by Rx PCS". Accommodate to use "POF" Proposed Response Response Status W Proposed Response Response Status W PROPOSED ACCEPT PROPOSED REJECT Cl 45 SC 45.2.3.51 P28 L 29 In general the draft cannot be accommodated to use "POF" in every place. Only a few places Gilarranz, Alejandra **KDPOF** might be OK, but not for example "fiber optic channel". The last term is extensively used in other optical PHYs standards and it is expected to be found in this draft. Comment Type T Comment Status D POF is one type of optical fiber, so usage of "optical fiber", "fiber optics channel", etc is Table 45-164. Description column. The description of 0 value for Remote OAM ability correct should refer to remote PHY. not to PHY. The same mistake appears in the same column. line 32, in the description of Remote EEE ability. Cl 45 SC 45.2.1.6 P23 L19 # SuggestedRemedy Gilarranz, Alejandra **KDPOF** Replace the text: "0=The PHY does not have OAM ability or it is disabled" with Comment Type E Comment Status D the text: "0=The remote PHY does not have OAM ability or it is disabled" Table 45-7. Description column. There are two bit assignments for 1000BASE-RHC Proposed Response Response Status W PMA/PMD, and none for 1000BASE-RHB PMA/PMD. PROPOSED ACCEPT IN PRINCIPLE. SugaestedRemedy Replace "100100 = 1000BASE-RHC PMA/PMD" by "100100 = 1000BASE-RHB PMA/PMD" Line 29: in table. Replace the text: "0=The PHY does not have OAM ability or it is disabled" with the text: "0=The remote PHY does not have OAM ability or it is disabled" Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE. Line 32: Replace the text: "0=The PHY does not have EEE ability or it is disabled" with Replace "110110 = 1000BASE-RHC PMA/PMD" by "110110 = 1000BASE-RHB PMA/PMD" the text: "0=The remote PHY does not have EEE ability or it is disabled" in table. C/ 45 SC 45.2.3.53.1 P31 L3 C/ 45 SC 45.2.1.6 P23 # 17 L19 Gilarranz, Alejandra **KDPOF KDPOF** Tapia, Pablo Comment Type E Comment Status D Comment Type E Comment Status D Typing error. Two values assigned to 1000BASE-RHC and none to 1000BASE-RHB. SuggestedRemedy SuggestedRemedy Replace text: "These bits reports the link margin..." Assign one value for 1000BASE-RHB and one for 1000BASE-RHC. with: "These bits report the link margin..."

Proposed Response

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn SORT ORDER: Clause, Subclause, page, line

Response Status W

Cl 45

Response Status W

Page 1 of 9 05/01/2016 8:54:21

SC 45.2.3.53.1

Se comment #1

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

C/ 114 SC 2.3.1 P**42** L19 # 10 Mendo. Carmen **KDPOF** Comment Type E Comment Status D For consistency, should specify when is the CRC logic reset. SuggestedRemedy "... are initialized to 0 at the beginning of each PHD." Proposed Response Response Status W PROPOSED ACCEPT C/ 114 SC 3.4 P64 L12 # 14 Mendo, Carmen **KDPOF** Comment Type E Comment Status D Typo, ".. with respect to minimum SNR to provided loc rcvr status=OK ..". SuggestedRemedy Should read: ".. with respect to minimum SNR to provide loc rcvr status=OK ..." (remove extra "d" in "provide"). Proposed Response Response Status W PROPOSED ACCEPT. C/ 114 SC 3.5.1 P66 L48 # 15 Mendo, Carmen **KDPOF** Comment Type E Comment Status D Typo: ".. clock is stable an phase adjusted ..". SuggestedRemedy Missing "d", should read: ".. clock is stable and phase adjusted ..".

Response Status W

Proposed Response

PROPOSED ACCEPT

C/ 114 SC 3.7.2 P**76** L41 # 11 Mendo, Carmen **KDPOF** Comment Type E Comment Status D Typo, ceil symbol instead of brackets. SuggestedRemedy Use brackets as in formula 114-22. Same typo on p.77 l.18. Proposed Response Response Status W PROPOSED ACCEPT C/ 114 SC 3.7.4 P**77** L40 Mendo, Carmen **KDPOF** Comment Type E Comment Status D Mention to state PMAMON SYNCH is unnecessary. SuggestedRemedy Should remove for clarity, leave only: "... to OK (state PMAMON_OK). After at least...". The assignment LOCPHD.RX.LINKSTATUS=OK in state PMAMON SYNCH does not appear in the diagram (figure 114-42); is implicit in PMAMON SYNCH and PMAMON UPDATE but not needed. Proposed Response Response Status W PROPOSED ACCEPT C/ 114 SC 5 P84 L13 # 13 Mendo, Carmen **KDPOF** Comment Type E Comment Status D Expression clarity: "... only change the data symbols ...". SuggestedRemedy

Suggest to remove "data" and add the missing "do":

"The test modes only change the symbols provided to the transmitter circuitry and do not alter the optical and jitter ... ".

Proposed Response Response Status W

PROPOSED ACCEPT.

C/ 114 SC 6 P L # 37
Stassar, Peter Huawei Technologies

Comment Type TR Comment Status D

General:

It should be emphasized that 2 out of 3 applications spaces, namely home and automotive, really will need plug-and-play devices on a standard type of POF, which implies that no additional requirements beyond a certain length of a specific type of POF should be necessary. Clause 114.6 contains requirements for transfer characteristics which seem to indicate more specific requirements than only a specific type of POF.

I haven't seen any presentation from the Task Force meetings, with some form of evidence, that a set of devices, when meeting these requirements, a will operate satisfactorily in the field on a standard version of POF, and that, when they fail these requirements, they do not operate in the field.

I remain therefore unconvinced that this Optical specification is sufficiently complete and therefore have the opinion that the Task Force has completed its work.

SuggestedRemedy

Need a proper specification enabling plug-and-play

Proposed Response Response Status W

PROPOSED REJECT.

See takahashi_3bv_02_0116.pdf page 2 which includes the measurement results for the frequency reponse of A4a.2 POF for different fiber manufacturers. As shown, the frequency response bounds are met for each channel type when MPD in TP2 meets an specified template. The performance of SI-POF in terms of attenuation and modal bandwidth depends a lot on the launching condition of the transmitter. Because of that, P802.3bv specifies the MPD bounds per EAF for TP2.

In general the most important part of POF manufacturers produce fibers that meet the frequency response specifications when transmitter launches per EAF spec of TP2 (takahashi_3bv_02_0116.pdf). However, there are providers in the market that produce very low cost and very poor quality POF that in spite of being A4a.2 compliant it does not fit the 802.3bv freq response and attenuation specs. In order to filling this gap, 802.3bv specifies bounds on the response and attenuation.

Failing to meet all 802.3bv specifications does not necessarily mean a given link will not operate (fail). In case of using in the field a low quality POF that does not fit 802.3bv freq response specs, the receiver will provide worse sensitivity. Depending on the ambient conditions (e.g. temperature) and how far of the specifications the POF is, the link could operate without any problem. It is common in specifying 802.3 PHYs that below specified performance links will continue to be available for use.

Automotive is not a plug and play market, like 100BASE-T1 and 1000BASE-T1 automotive is assumed to be an engineered network.

Cl 114 SC 6.3.1 P92 L23 # 33

Stassar, Peter Huawei Technologies

Comment Type ER Comment Status D

"the mode power distribution (MPD) shall be higher than the lower bound limit defined in Table 114-7 per measurement techniques defined in 114.6.4.".

This is an ambiguous requirement. Do you mean for "higher" for each of the rows in Table 114-7?

SuggestedRemedy

Replace "limit" by "limits"

Proposed Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

This is not an ambiguous requirement. As stated in 114.6.4.11, pg. 101, line 21:

"The used EAF measurement method conforms to IEC 61300-3-53 defined for step-index multi-mode fibers. A measured MPD meets the specification when it is higher than the lower bound limits defined for every angle. For the angle points not specified in Table 114–7, the EAF lower bound limit is calculated by linear interpolation."

Editor actions:

Replace "limit" by "limits" in:

- pg 92, line 23 (suggested remedy)
- title of Table 114-7.
- pg 101, lines 37, 40, and 45
- pg 102, lines 3, 5, title of Table 114-9
- pg 103, lines 3, 5, title of Table 114-10
- pg 104, lines 3, 5, title of Table 114-11

Add reference to 114.6.4.11 at the end of Pa. 92. line 24. as:

"Specification for transmit MPD is illustrated in Figure 114–48 and measurement method is provided in 114.6.4.11"

Comment Type ER Comment Status D

Table 114-8 contains Type I, Type II and Type III.

It is not clarified what these Types refer to. I am under the assumption these are related to the channel types defined in 114.6.5.1 - 144.6.5.3, but that is not obvious.

SuggestedRemedy

Clarify the intent of Type I, II and III in Table 114-8

Proposed Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The description is in 114.6.3.

Editor's actions:

- Pg 92, line 16, add after full stop:

"Fiber optic channel type I, type II and type III are defined in 114.6.5."

- Pg 93, line 46, add after full stop:

"Each 1000BASE-RHx PHY is specified for one or two of three specified fiber optic channels (type I, type II or type III)."

C/ 114 SC 6.4.4 P95 L44 # 35

Stassar, Peter Huawei Technologies

Comment Type TR Comment Status D

"Rise time is measured as the time needed to transition the optical signal from $(0.1 \cdot P1 + 0.9 \cdot P0)$ to $(0.1 \cdot P0 + 0.9 \cdot P1)$. The fall time is measured as the time needed to transition the optical signal from $(0.1 \cdot P0 + 0.9 \cdot P1)$ to $(0.1 \cdot P1 + 0.9 \cdot P0)$."

It is necessary to include a reference to what P0 and P1 are to be. I think I understand what is being "meant" but it needs to be specific.

Also "P1 is specified 15 ns after the rising-edge crossing of the optical signal with the average optical power (AOP) level. Similarly, P0 is specified 15 ns after the falling-edge AOP crossing."

Is this a definition or also a test?

Is the test point right at 15 ns or is there a "time range" or +/- range on 15 ns.

SuggestedRemedy

Improved specification is required

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Pg. 95, lines from 44 to 51, replace with:

"The PHY is configured in test mode 3 (see 114.5.3) to make these measurements.

Rise time is measured as the time taken for the optical signal to transition from value $(0.1 \cdot P1 + 0.9 \cdot P0)$ to value $(0.1 \cdot P0 + 0.9 \cdot P1)$ and stay above the second value. Fall time is measured as the time taken for the optical signal to transition from value $(0.1 \cdot P0 + 0.9 \cdot P1)$ to value $(0.1 \cdot P1 + 0.9 \cdot P0)$ and stay below the second value.

P1 is the steady state value that the optical signal reaches after a rising-edge transition and before the next falling-edge is produced. P1 is measured in mW 15 +/- 1 ns after the rising-edge crossing of the optical signal with the average optical power (AOP) level. Similarly, P0 is the steady state value that the optical signal reaches after a falling-edge transition and before the next rising-edge is produced. P0 is measured 15 +/- 1 ns after the falling-edge AOP crossing."

Pg 96 line 41, replace:

"ERmax is calculated based on P1 and P0 values where the envelope of the signal is minimum. P1 is specified 15 ns after the rising-edge crossing of AOP and P0 15 ns after the next falling-edge AOP crossing. Similarly, ERmin is calculated based on P1 and P0 where the signal envelope is maximum."

with:

"ERmax is calculated based on P1 and P0 values where the envelope of the signal is minimum. Similarly, ERmin is calculated based on P1 and P0 where the signal envelope is maximum. P0 and P1 are defined and measured as specified in 114.6.4.4."

P96 C/ 114 SC 6.4.6 L28 # 36 C/ 114 SC 114.2 P38 L5 Stassar, Peter Huawei Technologies Gilarranz. Aleiandra **KDPOF** Comment Type TR Comment Status D Comment Type E Comment Status D Transmitter overshoot measurement: Missign full stop. How to measure Pmax and Pmin is not provided. SuggestedRemedy SuggestedRemedy Full stop must be added. Add measurement method Proposed Response Response Status W Proposed Response Response Status W PROPOSED ACCEPT PROPOSED ACCEPT IN PRINCIPLE C/ 114 SC 114.2 P38 L**5** Pg. 96, line 28 to 30, replace with: Tapia, Pablo **KDPOF** "Pmax is the maximum measured value of the optical signal in the time interval between a rising-edge AOP crossing and next falling-edge AOP crossing. Similarly, Pmin is the Comment Type E Comment Status D minimum measured value in the time interval between consecutive falling and rising edges. Missing period at end of line: The transmitter overshoot (OS) is calculated as the maximum of OSrise and OSfall. P0 and "The symbols are transmitted at a nominal rate of 325 MHz" P1 are defined and measured as specified in 114.6.4.4." SuggestedRemedy C/ 114 SC 8.1 L6 # 16 P106 "The symbols are transmitted at a nominal rate of 325 MHz." Mendo, Carmen **KDPOF** Proposed Response Response Status W Comment Type E Comment Status D PROPOSED ACCEPT. Typo: "Bits TXO_TYPE of register 3.500 is copied ...". Same of comment #5 SuggestedRemedy SC 114.2.1 Should read: "Bits TXO TYPE of register 3.500 are copied ...". C/ 114 P38 L24 **KDPOF** Gilarranz. Aleiandra Proposed Response Response Status W Comment Type E PROPOSED ACCEPT. Comment Status D Missing parenthesis. C/ 114 SC 114 L11 P41 SuggestedRemedy **KDPOF** Gilarranz, Alejandra Parenthesis must be added. Comment Type E Comment Status D Proposed Response Response Status W Duplicated full stop. PROPOSED ACCEPT IN PRINCIPLE. SuggestedRemedy Add at end of next to last sentence of paragraph. Remove duplicated full stop.

Response Status W

Proposed Response

PROPOSED ACCEPT

Cl 114 SC 114.2.2.1 P40 L36 # 19
Tapia, Pablo KDPOF

Comment Type E Comment Status D

Using ASCII decimal value '48' of char '0' in code specification might be confusing.

SuggestedRemedy

Consider changing the code description to: double(dec2bin(hex2dec(seed))) - double('0');

or provide a name for constant '48' such as: ASCII_0=48; double(dec2bin(hex2dec(seed))) - ASCII_0;

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change to:

r = double(dec2bin(hex2dec(seed))) - double('0');

C/ 114 SC 114.2.4.1.1 P46 L9 # 24
Ortiz Rojo, David KDPOF

Comment Type E Comment Status D

There is an error in figure 114-15. The third octect that appears in the figure (after the OFS 'data' octets) have a CTRL information with subindex '1', however that row may correspond to more than a single octet, it would be better to replace the subindex '1' by subindex 'i' to indicate that.

SuggestedRemedy

Replace CTRL_1 in the figure by CTRL_i

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Replace CTRL 1 in the figure by CTRL x.

Add dotted line and other box below the previous one with CTRL LEN, OFS, LEN.

All the boxes except the first two ones (Type bit and CTRL_0) should be dotted to show possible but not guaranteed. For example, the first chunk of data extends OFS octets and OFS ranges from 0 to 7, both included. In case of OFS = 0 this data chuck does not exist.

C/ 114 SC 114.2.4.1.1 P46 L33 # 20 Tapia. Pablo KDPOF

Comment Type T Comment Status D

The first CB of a PDB.CTRL always corresponds to the first control sample of a GMII chunk. The following sentence is not correct:

"(This CB may encode the first control sample of GMII chunk, or the CB may correspond to another control sample of GMII chunk if it has been moved ahead of other data octets in the PDB.CTRL.)"

SuggestedRemedy

It might be replaced by:

"(This CB may encode the first 10-bit sample of the GMII chunk, or the CB may correspond to another 10-bit sample of the GMII chunk if it has been moved ahead of other data octets in the PDB.CTRL.)"

Proposed Response Response Status W
PROPOSED ACCEPT.

00 444 0 7 4

Comment Type E Comment Status D

Typing error.

SuggestedRemedy

Replace text: "OK: clock is stable an phase adjusted..." with: "OK: clock is stable and phase adjusted..."

Proposed Response Response Status W

PROPOSED ACCEPT.

C/ 114 SC 114.3.6.2 P**74** L27 # 22 C/ 114 SC 114.4.1 P81 L9 Tapia, Pablo **KDPOF** Gilarranz. Aleiandra **KDPOF** Comment Type T Comment Type TR Comment Status D Comment Status D In figure 114-40, loc the coef is updated in the same Transmit Block that is sending the The text does not mention that scramblers must preserve timing during guiet mode. new value of LOCPHD.TX.NEXT.THP.SETID (let's call this Transmit Block "i"). This will SuggestedRemedy cause a failure in the receiver that will not change the THP coef set until the next Transmit Block "i+1" The following text is suggested: "Payload binary scrambler and payload symbol scrambler also preserve timing during quiet mode. Scramblers value when PHY re-enters normal SuggestedRemedy operation is the same as it would have been in the absence of an LPI interval." 1) Remove the following assignment in THPTX ANNOUNCE REQ state. Proposed Response Response Status W LOCPHD.TX.NEXT.THP.SETID <= reg thp setid 2) Add the following assignment to THPTX RECEIVE REQ: PROPOSED ACCEPT IN PRINCIPLE. LOCPHD.TX.NEXT.THP.SETID <= REMPHD.RX.REQ.THP.SETID With modifications to suggested remedy, add: 3) To improve description clarity change the following sentence in page 74 line 51: "The payload binary scrambler and payload symbol scrambler also preserve timing during "Triggered with the start of a new Transmit Block a transition to THPTX ANNOUNCE REQ quiet mode. When the PHY re-enters normal operation, the scramblers values are the occurs, where the local PHY announces that requested coefficients will be used same as they would have been in the absence of an LPI interval." (LOCPHD.TX.NEXT.THP.SETID <= req_thp_setid)." C/ 114 SC 114.6.2.1 P89 L32 # 31 "Triggered with the start of a new Transmit Block a transition to THPTX ANNOUNCE REQ occurs, where the local PHY announces that requested coefficients will be used Kobayashi, Shigeru TE Connectivity (LOCPHD.TX.NEXT.THP.SETID <= reg thp setid assignment of previous state). Comment Type E Comment Status D Proposed Response Response Status W Generally do not use the word "Optical Fiber media" in Figure 114-46 PROPOSED ACCEPT. SuggestedRemedy P**75** C/ 114 SC 114.3.6.3 L30 # 23 Remove "media" or "Fiber" Tapia, Pablo **KDPOF** Proposed Response Response Status W Comment Type T Comment Status D PROPOSED ACCEPT IN PRINCIPLE. In figure 114-41, there is no reason to wait for a new txblock event to leap from Keep "Optical Fiber" and remove "media" THPREQ STORE state to THPREQ REQUEST state. An unneeded delay of 1 Transmit Block can be saved if the transition between states takes place unconditionally. P93 L20 C/ 114 SC 114.6.3.1 SuggestedRemedy Takahashi, Satoshi POF Pormotion Change state transition condition to UCT. Comment Type TR Comment Status D Proposed Response Response Status W Table 114-7. Transfer function lower bounds of A4a.2 POFs measured under launch PROPOSED ACCEPT. condition specified in Table 114-7 do not fulfill the transfer function lower bound limits in figure 114-49 through 114-51. EAF at TP2 shall be more lower modes launch condition. See "takahashi 3bv 02 0116.pdf" SuggestedRemedy Change Table 114-7 according to "takahashi 3bv 01 0116.pdf"

Proposed Response

PROPOSED ACCEPT.

Response Status W

C/ 114

SC 114.6.3.1

Cl 114 SC 114.6.3.1 P94 L24 # 32

Kobayashi, Shigeru TE Connectivity

Comment Type E Comment Status D

It would be good to have the information what this chart is.

SuggestedRemedy

Add "lower bound limit" between MPD and illustration of Figure 114-48 => Figure 114-48-Transmit MPD lower bound limit per EAF illustration according to Table 114-7

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE

Modify title as:

"Figure 114-48- Illustration of the transmit MPD lower bound limits per EAF of Table 114-7"

Comment Type TR Comment Status D

Figure 114-48. Transfer function lower bounds of A4a.2 POFs measured under launch condition specified in Table 114-7 do not fulfill the transfer function lower bound limits in figure 114-49 through 114-51. EAF at TP2 shall be more lower modes launch condition. See "takahashi 3bv 02 0116.pdf"

SuggestedRemedy

Change the figure according to the amended values in Table 114-7 in "takahashi_3bv_01_0116.pdf".

Proposed Response Response Status W PROPOSED ACCEPT.

Cl 114 SC 114.6.3.3 P94

POF Pormotion

L1

27

Comment Type E Comment Status D

The Figure 114-48 is transmitter optical specification

SuggestedRemedy

Takahashi, Satoshi

Place the figure in subclass 114.6.3.1

Proposed Response Status W

PROPOSED REJECT.

Figure 114-48 is properly anchored.

As text volume changes, available space on a page changes and a figure or table might not fit. In that case, the document tool places the figure or table the next place where it fits (tables and figures by default float). Over-ride of this floating of figures and tables is part of publication preparation which is done by IEEE editors after approval.

C/ 114 SC 114.6.4.8 P98 L8 # 21

Tapia, Pablo KDPOF

Comment Type **E** Comment Status **D**Variable "I0" might be confused with number "10".

SuggestedRemedy

Rename variable I0 (i.e. len0).

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 114 SC 114.6.5.4 P104 L48 # 38

Pérez-Aranda, Rubén KDPOF

Comment Type E Comment Status D

Subclause "Worst-case 1000BASE-RHx link power budget (informative)" relates to specifications of the optical tramitter, the optical receiver and the fiber optics channel. Therefore, it should be H3, out of the subclause 114.6.5.

SuggestedRemedy

Move subclause to new 114.6.6.

Proposed Response Status W

PROPOSED ACCEPT.

C/ 114 SC 114.12 P115 L10 # 25
Ortiz Rojo, David KDPOF

Comment Type T Comment Status D

Our implementation work indicates that 6000 bits times is feasible but meeting 6000 bit times delay requirement might be not easy.

SuggestedRemedy

Increase the delay requirement to 6500 bit times for greater implementation flexibility and margin that would benefit the market.

Proposed Response Status W

PROPOSED ACCEPT.

C/ 114 SC 114.12 P115 L16 # 26

Ortiz Rojo, David KDPOF

Comment Type T Comment Status D

The POF fiber typically introduces a delay of about 5 bit times per meter. This implies that a 50 meter POF link introduces a delay of 250 bit times, which is not neglible.

SuggestedRemedy

Remove the last part of the sentence, the sentence would be then:

"NOTE 2—The physical medium interconnecting two PHYs introduces additional delay in a link."

Proposed Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Modify note as:

"NOTE 2—The physical medium interconnecting two PHYs introduces additional delay in a link (approximately 5 bit-times per meter of POF.)"