Cl **00** *SC* **0** *P* *L* # 279

Diab, Wael Broadcom

Comment Type **ER** *Comment Status* **X**

The current terminology for referencing 802.1AS is not correct. Its a hybrid between a draft and a final standard. For a project in process we usually use the designation P802.1AS. Once it is approved it will become IEEE Std 802.1AS-2010 is it were to get approved this year, 2011 if it were to get done next year.

SuggestedRemedy

I would suggest:
- Using the draft terminology for now as we dont know when it will publish so change the references to IEEE P802.1AS
- Add an editor's note towards the beginning of the draft that you will check prior to publication
- Check prior to ratification or when AS publishes to change to the final nomenclature

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 291

Chalupsky, David Intel Corp.

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

Page numbering starts over with each clause. Also uses Roman numberals for introduction clause. It has been common practice in other task forces to use sequqntial numbering to avoid ambiguity between the .pdf page number and the number printed on the page.

SuggestedRemedy

Number all pages in the draft sequentially, starting with 1. Do not retsart at clause boundaries.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 287

Magee, Anthony ADVA Optical Network

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

It is my understanding that Time Synchronization Protocols such as the profile of IEEE 1588-2008 proposed by P802.AS are likely to be used only with Full-Duplex Phy modes.

SuggestedRemedy

We should mention somewhere in the draft, that half-duplex operation of the Phy is likely to cause variable delays for both transmit and receive. If the task force agrees, perhaps we could recommend use of Full Duplex operation for support of Time Synchronization.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 284

Diab, Wael Broadcom

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

Terms such as "outside of scope of IEEE Std 802.3" are often used in reference to the TimeSync Client. This seems pretty wordy to constantly use, redundant and raises the question of who's scope it is.

SuggestedRemedy

Either directly in 90.3 or a subsection of 90.3 address the scope of TimeSync Client and where it is defined directly. Eliminate the out of scope references all together after you do this in 90.3.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 276

Diab, Wael Broadcom

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

Why are we using colored text in the clean draft, specifically green. I understand the coloring when a diff is done but not on the base. For crefs we usually use special text to identify it so it is linked at then end; atleast that is what I *think* the green is for

SuggestedRemedy

Pls. remove the coloring on the clean document, specifically the green on the cross refs.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 249

D'Ambrosia, John Force10 Networks

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

90.1 states "Nothing in the existing specification
prevents support of the optional TimeSync capability in PHYs operating at 10 Mb/s, 100 Mb/s, 1000 Mb/s, 10 Gb/s or even 40/100 Gb/s. Support for future PHYs depends on the availability of the gRS sublayer as defined in 90.5."

However, 90.5 states
In the scope of this clause, the term generic Reconciliation Sublayer (gRS) is used to denote any type of IEEE Std 802.3 Reconciliation Sublayer used to interface MAC with any type of PHYs supporting the optional TimeSync capability through the xMII. Specifically, the following types of RS sublayer are part of
gRS: RS for 100 Mb/s operation as defined in Clause 22, RS for 1000 Mb/s operation as defined in Clause 35 and RS for 10 Gb/s operation as defined in Clause 46.

It is unclear if this standard is supposed to support 40GbE and 100GbE.

SuggestedRemedy

If 802.3bf is suppose to support 40GbE and 100GbE then the RS sublayer specified in Clause 81 should be included in 90.5. If 802.3bf does not support 40GbE / 100GbE, then the statement regarding support for it should be removed from 90.1.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 264

Anslow, Pete Ciena

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

The draft does not define exactly what instants the latency is measured between.

45.2.1.101 TimeSync PHY transmit latency and 45.2.1.102 TimeSync PHY receive latency state that the "latency is expressed in units of ns" but does not define the starting and stopping events precisely.

In the transmit direction, the latency definition start is presumably the detection of a valid SFD in the xMII transmit signals. Is this on the negative edge of the clock?

A more serious issue is - what is the latency definition end? What part of the outgoing signal passing the MDI?

For a latency expressed in units of ns, these must be defined much more precisely than currently.

SuggestedRemedy

Define the latency bounding events precisely.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* *L* # 246

Ganga, Ilango Intel

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

Is there any compliance requirements for P802.3bf. I do not see any "shall" statement in any of the Clause specifications.

SuggestedRemedy

Include compliance requirements, appropriate shall statements and corresponding PICS to the document.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **1** *L* **1** # 222

Frazier, Howard Broadcom Corporation

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

The word "shall" does not appear anywhere in the body of this draft (there is one instance in the "Patents" section of the frontmatter). A standard is supposed to state mandatory requirements, and identify these requirements with the word "shall". A document that does not contain any mandatory requirements should be classified as a recommended practice, or a guide, yet the PAR for this project says that a standard will be produced.

SuggestedRemedy

Either:
A) Identify mandatory requirements with the word "shall" (specific suggestions will be made in subsequent comments), or
B) Change the document to be a standalone recommended practice, rather than an amendment to IEEE Std 802.3.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **1** *L* **1** # 298

Barrass, Hugh Cisco

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

(this should be a "G" comment).

The page numbers in the draft are reset for each clause.

SuggestedRemedy

Assemble the clauses into a single book and paginate appropriately (pating attention to the frant matter) so that the draft has unique page numbers that correspond to the .pdf.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **1** *L* **1** # 205

Booth, Brad AppliedMicro

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

Draft is missing subclauses 1.3, 1.4 and 1.5.

SuggestedRemedy

Add 802.1AS to subclause 1.3.

Add TSSI to 1.4.

Add gRS, TimeSync, TSSI and TS to 1.5.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **1** *L* **33** # 204

Booth, Brad AppliedMicro

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

Reference is incorrect.

SuggestedRemedy

If 802.1AS is still a project, change the reference to be IEEE P802.1AS and add an editor's note to highlight that the reference will be updated upon ratification of the draft standard. If it is a standard, then reference should remove the "P" and indicate the correct year and the TM should be on the first reference.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **13** *L* **1** # 235

Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**

I see new title format (in bold) at the start of existing Clauses. E.g.
Changes to ANSI/IEEE Std. IEEE 802.3-2008, Clause 30
Changes to ANSI/IEEE Std. IEEE 802.3-2008, Clause 45

Is this a new format adopted/docuemnted in the style manual for IEEE amendments. I do not see this format used in the recently published amendments. Please clarify the new style.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **3** *L* **8** # 270

Thompson, Geoff GraCaSI

Comment Type **ER** *Comment Status* **X**

The draft is not formulated according to the Editor's note on Page 3 lines 8 - 11.
The page numbers as they show on each page do not match the the page numbers shown as PDF pages. There is nothing in the balloting instructions to indicate which set of numbers I should use. This leads to significant and unnecessary confusion.

SuggestedRemedy

Renumber the pages of all subsequent drafts according to the convention described in the Editor's note on Page 3 lines 8 - 11.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.5** *P* **1** *L* **1** # 221

Frazier, Howard Broadcom Corporation

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

Need to add to the list of abbreviations in subclause 1.5 to include:
gRS generic reconciliation sublayer
TS time synchronization
TSSI time synchronization service interface
xMII generic media independent interface

SuggestedRemedy

per comment

Proposed Response *Response Status* **O**

Cl **30** *SC* *P* *L* # 283

Diab, Wael Broadcom

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

Please check that you have the latest Figure 30-3 in Clause 30 and adjust the statement about the project that did the last modification as it is not correct. The order of the ammendments on IEEE 802.3-2008 is as follows:
- IEEE Std 802.3av™-2009
- IEEE Std 802.3bc™-2009
- IEEE Std 802.3at™-2009

We also had a Cor.

Figure 30-3 was touched by both av and at.

SuggestedRemedy

See Comment

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12** *P* **13** *L* **23** # 300

Barrass, Hugh Cisco

Comment Type **ER** *Comment Status* **X**

30.12 is a newly created subclause but it does not show up in this draft

SuggestedRemedy

Add heading for 30.12.

Also ass an appropriate change instruction to insert the new text.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.1** *P* **1** *L* **23** # 194

Marris, Arthur Cadence

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

Missing editing instruction and incorrect sublcause number number. Should noy this be added under 30.11 for PME?

SuggestedRemedy

Add text
"Insert new subclauses as follows:"

Renumber 30.12.1 to 30.11.3

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.1** *P* **13** *L* **23** # 237

Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**

Add missing Editing instructions for new subclauses 30.12.1 to 30.12.1.6

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.1.1** *P* **1** *L* **28** # 309

Kim, Yong Broadcom

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

aTimeSyncCapabilityTX -- and the next aTimeSyncCapabilityRX indicates that TimeSync capability is independent between TX and RX path. If it is, it is not clearly consisent w/ 45.2.1. (register 45.2.1.100)

SuggestedRemedy

Please Clarify

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.1.1** *P* **1** *L* **34** # 208

Booth, Brad AppliedMicro

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

Just came to the realization that while we are making the protocol to support 10M, 100M, 1G, 10G, 40G and 100G, etc., the register access is compatible with existing Clause 22 devices or their translators per Annex 45A. Need to make this register set available in the Clause 22 extension registers. Also, reference is to PCS, but it is the PMA/PMD registers that are referenced.

SuggestedRemedy

Change:
If a Clause 45 MDIO Interface to the PCS is present, then this attribute maps to register 1.1800.x (TimeSync PHY capability register, see 45.2.1.xxx).
To read:
If a Clause 45 MDIO Interface is present and the speed of PHY operation is 10 Gb/s or greater, then this attribute maps to register 3.1800.x (TimeSync PHY capability register, see 45.2.3.xxx). If a Clause 45 MDIO Interface is present and the speed of PHY operation is 1 Gb/s or less, then this attribute maps to register 29.1800.x (TimeSync PHY capability register, see 45.2.8.xxx).

This needs to be applied to all the attributes.

Move Clause 45 edits from the PMA/PMD to the PCS register set.

Duplicate the registers in the 45.2.8 for Clause 22 extension registers.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.1.1** *P* **13** *L* **34** # 240

Ganga, Ilango Intel

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

The MDIO register 1.1800.1 is a PMA/PMD register. Hence change "MDIO interface to the PCS is present" to "MDIO interface to the PMA/PMD is present".

Make similar changes to the description in 30.12.1.1 to 30.12.1.6

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.12.1.3** *P* **2** *L* **1** # 231

Frazier, Howard Broadcom Corporation

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

The Clause 30 attributes for TimeSyncLatency are directly mapped to the values of the PHY transmit latency registers in Clause 45, and explicitly include only the PHY latencies. What if the gRS sublayer TS_SFD_Detect functions involve additional latency? There is no way that a PHY can know how much, if any additional latency is imposed by the gRS sublayer TS_SFD_Detect functions, but it is reasonable to assume that the pervasive management entity has access to this information, and it makes sense to include this additional latency (if any) in the Clause 30 attributes.
In the transmit path, any latency associated with the TS_SFD_Detect_TX function must be subtracted from the PHY delay, while in the receive path, any latency associated with the TS_SFD_Detect_RX function must be added to the PHY delay.

SuggestedRemedy

Add the following sentence to the behavioural definition of aTimeSyncLatencyTXmax:
The value reported in this attribute shall be adjusted to account for any latency associated with the TS_SFD_Detect_TX function by subtracting this latency from the value reported by the PHY.

Also make the corresponding change in 30.12.1.4.

In 30.12.1.5, add the following sentence to the behavioural definition of aTimeSyncLatencyRXmax:
The value reported in this attribute shall be adjusted to account for any latency associated with the TS_SFD_Detect_RX function by adding this latency to the value reported by the PHY.

Also make the corresponding change in 30.12.1.6.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.2.1** *P* **13** *L* **16** # 236

Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**

insert in proper location is an ambiguous instruction. Change Editing instruction as follows:

Insert new managed object oTimeSync in 30.2.2.1 to the list in alphabetical, as follows:

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.4** *P* **13** *L* **21** # 299

Barrass, Hugh Cisco

Comment Type **ER** *Comment Status* **X**

Fig 30-3 is in subclause 30.2.4

SuggestedRemedy

Add subheading for subclause 30.2.4, put the editor's note immediately below the subheading, anchor the frame appropriately.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **1** *L* **21** # 220

Frazier, Howard Broadcom Corporation

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

Missing text that describes the "Support for Time Sync" package.

SuggestedRemedy

Add the following paragraph at the end of 30.2.5:
If the optional TimeSync function is implemented, then the oTimeSync managed object class shall be implemented in its entirety. All attributes of this managed object class are mandatory. TimeSync management is optional with respect to all other CSMA/CD management.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **1** *L* **21** # 199

Booth, Brad AppliedMicro

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

Editing instruction and figure are after the next subclause.

SuggestedRemedy

Anchor editing instruction and figure to follow the subclause 30.2.5 header.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **1** *L* **21** # 219
Frazier, Howard Broadcom Corporation

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

Subclause 30.2.5 Capabilities is instantiated here for the sake of capturing the change to the containment diagram (Figure 30-3), but I think we also need to add a capabilities table, similar to Table 30-4.

SuggestedRemedy

Insert Table 30-6 TimeSync Capabilities, listing each of the attributes of the oTimeSync managed object class. They should all be defined as "GET" access, and all be made members of a "Support for Time Sync" package.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **1** *L* **22** # 191
Marris, Arthur Cadence

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

Formatting
Missing page break before 30.2.5

SuggestedRemedy

Add page break before 30.2.5 so Figure 30-3 can appear immediately afterwards

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **13** *L* **17** # 241
Ganga, Ilango Intel

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

Editing instructions and changes missing in 30.2.5 Capabilities.

Add oTimeSync to Table 30-1 capabilities

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **13** *L* **22** # 303
Barrass, Hugh Cisco

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

There are no changes shown for table 30-1

SuggestedRemedy

Show changes to table 30-1 - including class, package and GET-SET as appropriate.

Proposed Response *Response Status* **O**

Cl **45** *SC* *P* *L* # 285
Diab, Wael Broadcom

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

Do you need any PICs for the newly defined material?

SuggestedRemedy

See Comment

Proposed Response *Response Status* **O**

Cl **45** *SC* **2.1.101** *P* **6** *L* **13** # 286
Magee, Anthony ADVA Optical Network

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

Regarding Table 45-65f and Table 45-65g
I question the use of 'lower' and 'upper' in the name field of the latency registers.

SuggestedRemedy

Propose to use LSB and MSB as appropriate.

Proposed Response *Response Status* **O**

Cl **45** *SC* **2.1.101** *P* **6** *L* **3** # 214
Zimmerman, George Solarflare Communica

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

Using 32 bits for the phy latency in nanoseconds seems excessive. No 802.3 PHYs have latency beyond microseconds. Additional latency would be above the PHY layer, in the MAC. 16 bits would allow 65 usec latency.

SuggestedRemedy

Consider reducing latency fields to 16 bits, or justify 32 bits.

Proposed Response *Response Status* **O**

Cl **45** *SC* **2.1.102** *P* **6** *L* **24** # 215
Zimmerman, George Solarflare Communica

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

32 bit latency seems excessive for PHYs. see previous comment on TX latency

SuggestedRemedy

Consider 16 bits or justify 32 bits

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **17** *L* **15** # 297
Barrass, Hugh Cisco

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

802.3ba is now a published standard.

SuggestedRemedy

Change the change instruction to identify 802.3ba as publiashed.

(also in other instances).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **5** *L* **14** # 277
Diab, Wael Broadcom

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

The correct reference to ba is IEEE Std 802.3ba-2010 and it is no longer a draft. Pls fix in all instances in Clause 45 and wherever else it may apply

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **5** *L* **15** # 192
Marris, Arthur Cadence

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

802.3ba is now published and incorrect editing instruction.

SuggestedRemedy

Throughout the document change all references to ba to "IEEE Std 802.3ba"

Throughout the document use "change" rather than "modify" in the editing instructions.

On line 15 change:
"Modify Table 45–3 from the form modified by IEEE 802.3ba latest draft."
To:
"Change Table 45–3 (as modified by IEEE Std 802.3ba) as follows:"
as modified by IEEE Std 802.3av

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **5** *L* **15** # 250
Hajduczenia, Marek ZTE Corporation

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

IEEE 802.3ba was published.
Replace "IEEE 802.3ba latest draft" with "IEEE Std 802.3ba-2010" here (line 15) and in line 32/33

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **5** *L* **15** # 259
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
IEEE 802.3ba is now approved

SuggestedRemedy
Change "IEEE 802.3ba latest draft" to "IEEE Std 802.3ba-2010"
Make the same change on line 33
Also on Page IV line 38 change "IEEE Std 802.3ba-201X" to "IEEE Std 802.3ba-2010"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **5** *L* **15** # 234
Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**
IEEE Std 802.3ba is already published. Change the Editing instruction as follows:

Change Table 45–3 (As modified by IEEE Std 802.3ba-2010) as follows:

Also change the next Editing instruction as follows:

Insert 45.2.1.100, 45.2.1.101, 45.2.1.102 after 45.2.1.99 (As modified by IEEE Std 802.3ba-2010)

Make similar changes to Editing instructions as appropriate throughout the document.

SuggestedRemedy
As per comment

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.100** *P* **17** *L* **35** # 302
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **X**
This MMD is PMA/PMD, it is inappropriate for the register to reflect the "PHY" capability.

SuggestedRemedy
Change "PHY" capability to "PMA/PMD" capability.

Also for other registers identified as "PHY" - change to "PMA/PMD"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.101** *P* **6** *L* **5** # 193
Marris, Arthur Cadence

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

SuggestedRemedy
Consider replacing ns with nanoseconds.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.101** *P* **6** *L* **5** # 228
Frazier, Howard Broadcom Corporation

Comment Type **TR** *Comment Status* **X**
The phrase "when the link is established" does not correspond to the wording used to describe the receive link status bit in 45.2.1.2.2. The receive link status bit indicates when the link is up or down, not when it "is established". Furthermore, the phrase "when the link is established" implies a point in time, rather than an ongoing condition. We want the PHY latency measurement values to be valid whenever the link is operational, not merely at the point in time when the link was established.

SuggestedRemedy
Change the last sentence of 45.2.1.101 to read:
The values contained in these registers shall be valid while the PMA/PMD receive link is up, as indicated by bit 2 in register 1.1 (see 45.2.1.2.2).
PHY latency measurement requirements are defined in 90.8.

Also make the corresponding change in 45.2.1.102.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.101** *P* **6** *L* **4** # 312
Dimitrios Giannakopoulos

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

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.101.1** *P* **6** *L* **4** # 256
Brown, Matt AppliedMicro

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

It is not clear between which points the latency value is relevant to. First, the end points are not explicitly defined. Second, the register is in device 1 and so may be assumed to be MDI to PCS. Third, in the case of a PHY that is in a different device than the MAC (a) the latency of the PHY device would be from MDI to PHY XGXS and (b) the latency of the XGXS is not accounted for and could not be reported in device 1 as this would conflict with the separate PHY device.

SuggestedRemedy

Several things are required:
(1) clearly define the start and end points for measuring latency
(2) include support for cases where PHY is integrated with the MAC or in a separate device
(3) For 10G PHYS clearly specify end points for various scenarios (a) MAC device with integrated PHY (b) MAC device with DTE XGXS (c) PHY device with PHY XGXS
(4) for MAC device with DTE XGXS specify registers for latency from XGXS to xMII
(5) for PHY device with XGXS specify latency (using currently defined registers) from MDIO to XGXS
(6) for MAC device with integrated PHY specify latency from MDI to xMII

Update 90.6 and 90.8, as well.

Proposed Response *Response Status* **O**

Cl **89** *SC* *P* *L* # 278
Diab, Wael Broadcom

Comment Type **ER** *Comment Status* **X**

Clause 89 is being defined in P802.3bg and is not being touched in P802.3bf. If P802.3bf were to be complete after P802.3bg (similar to what happening with az and ba for instance), then the statement there would conflict with the material in P802.3bg. Since you are not touching this clause, please delete the pages

SuggestedRemedy

Please delete Clause 89 from this draft (pages 7 and 8)

Proposed Response *Response Status* **O**

Cl **89** *SC* **89** *P* **19** *L* **1** # 301
Barrass, Hugh Cisco

Comment Type **ER** *Comment Status* **X**

Clause 89 is not part of this amendment.

SuggestedRemedy

Delete this clause.

Proposed Response *Response Status* **O**

Cl **89** *SC* **89** *P* **7** *L* **1** # 202
Booth, Brad AppliedMicro

Comment Type **ER** *Comment Status* **X**

Clause 89 is now in use by 802.3bg.

SuggestedRemedy

Delete Clause 89.

Proposed Response *Response Status* **O**

Cl **90** *SC* **0** *P* **9** *L* **13** # 310
Kim, Yong Broadcom

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

Consistency -- When refering to IEEE Std 802.3, some times we say "this standard" in some other clauses. Please use the consistent way, IEEE Std 802.3, IEEE 802.3, etc variations are used in this clause. Also IEEE Std P802.1AS versus IEEE Std P802.1AS-201x has specific meaning. -201x specifies that particular revision of the std, while 802.1AS would refer to the std itself. The context of this std is to refer to IEEE Std 802.1AS.

SuggestedRemedy

Consider and make use of the term consistent.

Proposed Response *Response Status* **O**

Cl **90** *SC* **1** *P* **8** *L* **13** # 216
Zimmerman, George Solarflare Communica

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

"Nothing in the existing specification prevents support of the optional TimeSync capability"... is both reaching and dates the document in a meaningful technical way.

SuggestedRemedy

Replace "Nothing in the existing specification prevents support of the optional TimeSync capability in PHYs operating at" with "The optional TimeSync capability is designed to be supported by PHYs operating at"

Proposed Response *Response Status* **O**

Cl **90** *SC* **1** *P* **8** *L* **15** # 213
Zimmerman, George Solarflare Communica

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

"even 40/100Gbps" dates this clause to the point where 40/100Gbps is new.

SuggestedRemedy

drop "even"

Proposed Response *Response Status* **O**

Cl **90** *SC* **1** *P* **8** *L* **8** # 212
Zimmerman, George Solarflare Communica

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

calling it a new service interface is time sensitive. As the standard ages, it won't be new anymore.

SuggestedRemedy

Replace "new" with an "additional" or "additional optional" service interface

Proposed Response *Response Status* **O**

Cl **90** *SC* **3** *P* **9** *L* **29** # 217
Zimmerman, George Solarflare Communica

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

It would be nice to say where the TimeSync client is specified, or, if its vendor specific, say that.

SuggestedRemedy

Add reference or specify vendor specificity

Proposed Response *Response Status* **O**

Cl **90** *SC* **5** *P* **12** *L* **26** # 218
Zimmerman, George Solarflare Communica

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

It is unclear whether extensions to RS in clauses 65 and 75 are to be included in the definition of gRS.

SuggestedRemedy

If they are included, place "including extensions to the RS in clauses 65 and 75" in the preceding paragraph. if they are not, then state this in the commented paragraph.

Proposed Response *Response Status* **O**

Cl **90** *SC* **5** *P* **12** *L* **42** # 288
Magee, Anthony ADVA Optical Network

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

Is the TS_TX.indiation signal synchronous to the Transmit Clock. The draft does not make this clear.

SuggestedRemedy

Propose that the draft indicates whether the TS_TX.indication signal is synchronous or asynchronous to a clock.

Proposed Response *Response Status* **O**

Cl **90** *SC* **5** *P* **12** *L* **52** # 289

Magee, Anthony ADVA Optical Network

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

Is TS_RX.indiucation synchronous to the receive clock?

SuggestedRemedy

Indicate whether or not the TS_RX.indication siangl is synchronous to a clock.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90** *P* **21** *L* **1** # 211

Law, David Hewlett-Packard

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

As the amendment will support time synchronization protocols other than IEEE P802.1AS, I believe the title and introduction of Clause 90 should be similar to the title of the amendment, '.. parameters to support time synchronization protocols'.

SuggestedRemedy

Change:

[1] 'Ethernet Support for the IEEE Std P802.1AS-201X Time Synchronization Protocol (TimeSync)' to read ' Ethernet Support Time Synchronization Protocols'.

[2] ' The optional support for the IEEE Std P802.1AS-201X Time Synchronization Protocol (TimeSync) ..' to read 'The optional support Time Synchronization Protocol (e.g. as for the IEEE Std P802.1AS-201X) ..'.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90** *P* **21** *L* **13** # 210

Law, David Hewlett-Packard

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

It is the interface that supports Time Synchronization Protocols at various rates. In addition refereeing to the 'existing specification' once this amendment has been folded in to the base standard will seem a bit odd.

SuggestedRemedy

Suggest this paragraph should be changed to read:

'The Time Synchronization Service Interface (TSSI) supports the IEEE 802.3 MAC operation at data rates of 10 Mb/s , 100 Mb/s, 1000 Mb/s, 10 Gb/s, 40 and 100 Gb/s. Support for future data rates is depend on the support of the gRS sublayer as defined in 90.5.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **21** *L* **7** # 296

Law, David Hewlett-Packard

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

In general I think that this clause should be structured more like Clause 79, and an overview provided as to how the TS Client should use the information provided by the TSSI. It should also be made clear that the TSSI can support any protocol that needs to know the ingress and egress times of packets.

Please get rid of lists that will have to modify ever time we implement a new speed as well as defining the new term gRS. The notes in 90.4.1 should be removed as this information is stated elsewhere in the standard. The note in relation xMII should be moved under the figure and made the same as the similar note under Figure 1-1.

In addition the text states that ' Nothing in the existing specification prevents support of the optional TimeSync capability in PHYs operating at 10 Mb/s, 100 Mb/s, 1000 Mb/s, 10 Gb/s or even 40/100 Gb/s. Support for future PHYs ..'. While the RS is part if the Physical Layer it is not part of the PHY (see right hand side IEEE Std 802.3-2008 Figure 1-1 marked >= 100 Mb/s).

SuggestedRemedy

[1] Replace the whole of 90.1 with:

90.1 Introduction

This clause specifies the Time Synchronisation Service Interface (TSSI). The TSSI can be used to support any protocol that requires knowledge of packet egress and ingress time.

[2] Replace 90.4.1 with:

90.4.1 Introduction

This subclause specifies services provided by an extension to the Reconciliation Sublayers specified elsewhere in this standard.

[3] Insert new 90.4.1.1 and 90.4.1.2 as follows:

90.4.1.1 Interlayer service interfaces

Figure 90-1 depicts the TS Client and the RS interlayer service interfaces.

[Include Figure 90-1 here]

Add note to figure that reads 'NOTE-In this figure, the xMII is used as a generic term for the Media Independent Interfaces for implementations of 100 Mb/s and above. For example: for 100 Mb/s implementations this interface is called MII; for 1 Gb/s implementations it is called GMII; for 10 Gb/s implementations it is called XGMII; etc.'.

90.4.1.2 Responsibilities of TS Client.

The TS Client can use the indication of egress and ingress of packets provided by the TSSI, combined with knowledge of the protocol frames, to select the egress and ingress times relevant to the protocol. Which frames are of interest to any particular protocol is beyond the scope of this standard.

The TS Client can use the indication of the egress and ingress of packets at the xMII provided by the TSSI, combined with the information provided by the TimeSync PHY transmit latency and TimeSync PHY receive latency if available (see 45.2.1.100, 45.2.1.101 and 45.2.1.102), to determine the egress and ingress of packets at the MDI.

[5] Replace 90.4.2 through 90.4.2.3 with:

90.4.2 TS Client service interface

The following specifies the service interface provided by the RS to the TS Client. These services are described in an abstract manner and do not imply any particular implementation. The model used in this service specification is identical to that used in 1.2.2.

The following primitives are defined:

TS_TX.indication
TS_RX.indication

[6] Replace 90.5 with:

90.5 Reconciliation Sublayer (RS)

For the purpose of the optional TimeSync capabilities, two new functions are defined in this subclause, namely TS_SFD_Detect_TX (see 90.5.1) and TS_SFD_Detect_RX (see 90.5.2), which are responsible for generation of the TS_TX.indication and TS_RX.indication service primitives, as defined in 90.4. Figure 90- 2 presents the TS_SFD_Detect_TX and TS_SFD_Detect_RX functions and their location within the RS sublayer.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **9** *L* **13** # 255

Brown, Matt AppliedMicro

Comment Type **ER** *Comment Status* **X**

The second paragraph appears to be an editor's note, not part of the standard. This paragraph would not be relevant in 802.3-xxxx as it is speculative.

SuggestedRemedy

Indicate that the 2nd paragraph is an editor's note.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **9** *L* **13** # 195

Marris, Arthur Cadence

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

Use of words such as "existing" is not good in a standard that will be used many years from now.

SuggestedRemedy

Change:
"TimeSync supports the IEEE 802.3 MAC operation at various data rates. Nothing in the existing specification prevents support of the optional TimeSync capability in PHYs operating at 10 Mb/s, 100 Mb/s, 1000 Mb/s, 10 Gb/s or even 40/100 Gb/s. Support for future PHYs depends on the availability of the gRS sublayer as defined in 90.5."

To:
"TimeSync supports the IEEE 802.3 MAC operation at different data rates. The MII, GMII, XGMII, XLGMII and CGMII specifications are all compatible with the gRS sublayer defined in 90.5."

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **9** *L* **15** # 266

Trowbridge, Steve Alcatel-Lucent

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

Given that IEEE Std 802.3ba-2010 is an approved amendment to the standard and the time sync capability seems to depend on the existance of the gRS layer rather than the signaling rate, it appears that this capability applies equally to 40 and 100Gb/s as it does to the other rates.

SuggestedRemedy

Change
"PHYs operating at 10 Mb/s, 100 Mb/s, 1000 Mb/s, 10 Gb/s or even 40/100 Gb/s"
to
"PHYs operating at 10 Mb/s, 100 Mb/s, 1000 Mb/s, 10 Gb/s, 40 Gb/s, or 100 Gb/s"

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **9** *L* **15** # 223

Frazier, Howard Broadcom Corporation

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

The word "even" adds no value. In addition, we should get away from the practice of listing a whole slew of operating speeds so that future projects don't feel compelled to come back and edit the list when they add a new operating speed.

SuggestedRemedy

Replace the second paragraph of 90.1 with a single sentence as follows:
The optional TimeSync function can be supported at any data rate defined by IEEE Std 802.3, depending on the availability of the gRS sublayer defined in 90.5.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **9** *L* **16** # 308

Kim, Yong Broadcom

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

Two issues -- don't you want to say full-duplex? Even EPON is full-duplex in operating model. Second issue: the use the word "even" on line 15 may wrongly indicate that some special technical issues exist at 40/100G for timesync, which is not the case.

SuggestedRemedy

Mention full-duplex only, and delete 'even'

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **9** *L* **7** # 206

Booth, Brad AppliedMicro

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

Too much overuse of the word "optional".

SuggestedRemedy

State once in 90.1 that support Time Synchronization is optional. Also, it would be good to state that if the Time Sync is supported, that there be compliance to this clause.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1, 90.2, 90.3** *P* **9** *L* **5-30** # 307

John Abbott Corning Incorporated

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

Line 15 "even 40/100 Gb/s". The "even" should be removed, it seems non-technical,subjective, and will make this look outdated in 5-10 years. More broadly, sections 90.1-90.2-90.3 don't give an adequate explanation of why this applies to all PHYS (from 10m to 20km) and all data rates.

SuggestedRemedy

(a) edit "even" in line 15. (b) in introduction explain which application provided the initial need for this change, and then explain that the change is expected to apply broadly in the future, even beyond 40/100 if the gRS sublayer is available.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.2** *P* **21** *L* **25** # 238

Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**

In 90.1 and in the Abstract "Time Synchronization Service Interface is referred to as Time Synchronization Service Interface(TSSI), however in 90.2 and later the interface is referred as Time Synchronization (TS) Service Interface, and TS service interface

Use a consistent notation throughout the document.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.2** *P* **9** *L* **18** # 196

Marris, Arthur Cadence

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

There is only one objective. Also missing comma.

SuggestedRemedy

Change subclause title from "Goals and objectives" to "Objective"

Change:
"The goals and objectives of this clause are to provide an accurate indication of the transmission and reception initiation times of all packets as required to support IEEE Std P802.1AS-201X."
To:
"The objective of this clause is to provide an accurate indication of the transmission and reception initiation times of all packets, as required to support IEEE Std P802.1AS-201X."

Change:
"Specific objectives met include:"
To:
"Specific objective:"

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.2** *P* **9** *L* **20** # 281

Diab, Wael Broadcom

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

The stated objective does not match what is on the website as the project objectives.

Moreover, there are two schools of thought on project objectives. One is to include the project objectives. The other is not to. I recomend the later as it makes it easier and less confusing to maintain and/or ammend in a future project.

In this case, since this might be a more refined goal of the clause, perhaps the easiest thing is to rename the section to overview and just use the word "goal" in the text of the section avoiding the term objective all together.

SuggestedRemedy

Rename the section to overview and just use the word "goal" in the text of the section avoiding the term objective all together

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.2** *P* **9** *L* **25** # 203
Booth, Brad AppliedMicro

Comment Type **ER** *Comment Status* **X**

There seems to be some confusing use of Time Synchronization (TS) service interface and TSSI and TimeSync. From my interpretation, TimeSync refers to the protocol. TS is an abbreviation for Time Synchronization. And TSSI is an abbreviation for Time Synchronization Service Interface.

SuggestedRemedy

Be consistent in the use of the abbreviations. For example, don't use Time Synchronization (TS) service interface when TSSI or the full name is required. I found that there are multiple uses of Time Synchronization (TS) service interface, when the first use of time synchronization to define TS should have been sufficient.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.2** *P* **9** *L* **25** # 257
Brown, Matt AppliedMicro

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

This standard also defines PHY management interface to indicate PHY latency.

SuggestedRemedy

Add second note:
(b) Addition of management registers to indicate the maximum and minimum PHY latencies for link latency estimation.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.2** *P* **9** *L* **25** # 313
Dimitrios Giannakopoulos

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

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.3** *P* **21** *L* **29** # 271
Thompson, Geoff GraCaSI

Comment Type **ER** *Comment Status* **X**

IEEE 802.1AS is not a standard.
If it were, then you should have added it to either the references sub-clause (1.4) or the Bibliography (Annex A)

SuggestedRemedy

Redesignate it as a draft standard or (better yet) put in an Editorial note (to be updated on a per draft basis and removed before publication) that fully describes (a) the status of 802.1AS and (b) the editorial action that will be taken here after it is published.)

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.3** *P* **9** *L* **29** # 232
Frazier, Howard Broadcom Corporation

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

It is important to mention that 802.3bf also supports IEEE 1588v2 in this subclause. For many markets, 1588 is far more important than 802.1AS. The omission of 1588 when discussing the relationship of 802.3bf to other IEEE standards might lead some to believe that 802.3 does not support 1588, even after undertaking this project.

SuggestedRemedy

Add the following sentence to 90.3:
IEEE 1588v2 could also directly use the TSSI for support of transparent clocks.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.3** *P* **9** *L* **29** # 251
Hajduczenia, Marek ZTE Corporation

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

"support for IEEE 802.1AS for PHYs" should read "support for IEEE Std 802.1AS-201X for PHYs", similar to what is included in line 21 on the same page

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4** *P* **9** *L* **32** # 253

Hajduczenia, Marek ZTE Corporation

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

Change title of 90.4 from "Time Synchronization (TS) service interface" to "Time Synchronization (TS) service interface (TSSI)"
Also change in line 37 from "across the Time Synchronization (TS) service interface" to "across the Time Synchronization (TS) service interface (TSSI)"
Change also (page / line)
Time Synchronization (TS) service interface > TSSI
9 / 45
10 / 45
11 / 1
11 / 5
11 / 15
12 / 51
12 / 42

SuggestedRemedy

Per comment. We have defined this actonym and not used it anywhere.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **10** *L* **4** # 200

Booth, Brad AppliedMicro

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

Previous text references 40G/100G, but when mentioning the xMIIs there is not mention of CGMII or XLGMII.

The following sentence probably won't make sense considering it will be added to the standard after 802.3ba:
Nothing in the optional TimeSync capability prohibits future extensions to any higher speed media independent interfaces.

SuggestedRemedy

Add information for XLGMII and CGMII.

Also add XLGMII and CGMII in 90.5.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **22** *L* **1** # 242

Ganga, Ilango Intel

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

Does the xMII include the interfaces in the recently approved IEEE Std 802.3ba amendment, if so include the following to the interface in this paragraph: "40 Gigabit and 100 Gigabit Media Independent Interface (XLGMII and CGMII, see Clause 81)". Please clarify

If this interface is implied in this xMII definition then also include this in the gRS description in 90.5.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **22** *L* **44** # 295

Law, David Hewlett-Packard

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

A note should be added to state that the optional Low Power Idle (LPI) Client service interface is not shown.

SuggestedRemedy

Add a note to Figure 90-1 that states 'Note - Optional Low Power Idle (LPI) Client service interface not shown'.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **22** *L* **9** # 294

Law, David Hewlett-Packard

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

Since the abbreviation for the Time Synchronization service interface is 'TS' suggest that the same is used for the client. This will also better parallel IEEE P802.3az where the client is the 'LPI Client'.

SuggestedRemedy

Change '(TimeSync)' to read '(TS)' and globally replace 'TimeSync Client' with 'TS Client'.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **22** *L* **9** # 272
Thompson, Geoff GraCaSI

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

Figure 90-1
The diagram does not include the MAC Control sub-layer. The inclusion of a depiction of MAC Control is conceptually important in this diagram because it is one of the key elements of the rationale as to why the timing point needs to be placed at the xMII

SuggestedRemedy

Add the depiction of MAC Control sub-layer to the diagram between the MAC and the MAC Client interface.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **9** *L* **36** # 260
Anslow, Pete Ciena

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

"by extensions to generic Reconciliation Sublayer" should be "by extensions to the generic Reconciliation Sublayer"

SuggestedRemedy

Change "to generic Reconciliation Sublayer" to "to the generic Reconciliation Sublayer"

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **9** *L* **38** # 261
Anslow, Pete Ciena

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

"The definition of TimeSync Client" should be "The definition of the TimeSync Client"

SuggestedRemedy

Change "of TimeSync Client" to "of the TimeSync Client"

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **9** *L* **42** # 311
Kim, Yong Broadcom

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

The sentence uses "notes", but the first line seems (TimeSync client) to be nomative specification. Notes are not nomative.

SuggestedRemedy

Please clarify/correct and reflect what was meant.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.1** *P* **9** *L* **52** # 267
Trowbridge, Steve Alcatel-Lucent

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

Since IEEE Std 802.3ba has been approved, xMII could presumably also describe XLGMII and CGMII.

SuggestedRemedy

Replace
"Gigabit Media Independent Interface (GMII, see Clause 35) and 10 Gigabit Media Independent Interface (XGMII, see Clause 46)."
with
"Gigabit Media Independent Interface (GMII, see Clause 35), 10 Gigabit Media Independent Interface (XGMII, see Clause 46), 40 Gigabit Media Independent Interface (XLGMII, see IEEE Std 802.3ba-2010 clause 81), and 100 Gigabit Media Independent Interface (CGMII, see IEEE Std 802.3ba-2010 clause 81)."

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.2.3.1** *P* **24** *L* **3** # 243
Ganga, Ilango Intel

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

As per semantics of the primitives TS_RX.indication(SFD) and TX_TX.indication (SFD), the SFD parameter can take either of the following two values: DETECTED or undefined.

What is the reason for the parameter to take a value of undefined. Undefined could also mean it could send DETECTED! So define the vlaue when the SFD is not detected. One possibility is the parameter could take a value of "NOT DETECTED"

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.1** *P* **9** *L* **11** # 314

Dimitrios Giannakopoulos

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

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.1.1** *P* **11** *L* **32** # 230

Frazier, Howard Broadcom Corporation

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

The SFD parameter should never have an undefined value, because "undefined" allows the parameter to have any value, including "DETECTED". Rather, the
SFD parameter should always have one of two values, "DETECTED" or "NOT DETECTED". This is analogous to the descriptions of the PLS indications in Clause 6.

SuggestedRemedy

Change the description of the semantics of the primitive to read:

The semantics of the primitive are as follows:

TS_TX.indication(SFD)

The SFD parameter can take either of the following two values: DETECTED or NOT DETECTED. When asserted (SFD = DETECTED), the TimeSync Client is notified that a valid SFD was detected by the gRS sublayer TS_SFD_Detect_TX function (see 90.5.1) in the xMII transmit signals. Otherwise, the SFD parameter takes the value NOT Detected.

Also make the corresponding change in 90.4.3.2.1.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.1.1** *P* **23** *L* **32** # 292

Chalupsky, David Intel Corp.

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

TS_TX.indication(SFD) semantics say that the SFD parameter can either be DETECTED or undefined. In other RS's, having an "undefined" parameter is not common. When SFD is not detetced, prefer a defined value that indicates SFD not detected. Also, in 90.5, the service primitice is only generated when SFD detected, undefined otherwise. Seems more consistent with other clauses to have the primitive always generated and take on two known values.

SuggestedRemedy

Change "undefined" to "NOT_DETECTED" in line 32 and line 36.
Also in 90.5.1 delete the second paragraph (lines 42-43) which begins with "The service primitive..."

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.1.1** *P* **9** *L* **11** # 258

Brown, Matt AppliedMicro

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

It is not clear what is meant by the SFD. SFD is explicitly specified in 3.1.1 and is normally detected by the MAC layer. However, each RS has a mechanism to detect the beginning of a packet. To simplify the implementation SFD in this context should be defined to employ the native method of detecting start of frame.

SuggestedRemedy

Clearly define that "valid SFD" is based upon mechanism native to RS as opposed to rules for detecting a valid SFD specifed for the MAC.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.1.3** *P* **11** *L* **45** # 263

Anslow, Pete Ciena

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

"The receipt of this primitive by the TimeSync Client is undefined" should be "The effect of receipt of this primitive by the TimeSync Client is undefined"
Same issue in 90.4.3.2.3

SuggestedRemedy

Change "The receipt of" to "The effect of receipt of"
Make the same change in 90.4.3.2.3

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.2** *P* **11** *L* **47** # 207

Booth, Brad AppliedMicro

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

What if the received SFD is corrupted?

SuggestedRemedy

The impending location of the SFD in most cases is detectable due to the preamble. Is it worth considering adding an ERROR value to this variable?

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.4.3.2.1** *P* **24** *L* **3** # 293

Chalupsky, David Intel Corp.

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

TS_RX.indication(SFD) semantics say that the SFD parameter can either be DETECTED or undefined. In other RS's, having an "undefined" parameter is not common. When SFD is not detetced, prefer a defined value that indicates SFD not detected. Also, in 90.5, the service primitive is only generated when SFD detected, undefined otherwise. Seems more consistent with other clauses to have the primitive always generated and take on two known values.

SuggestedRemedy

Change "undefined" to "NOT_DETECTED" in line 3 and line 6.
Also in 90.5.2 delete the second paragraph (lines 51-52) which begins with "The service primitive..."

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **12** *L* **21** # 262

Anslow, Pete Ciena

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

"used to interface MAC with any type of PHYs supporting" should be "used to interface the MAC with any type of PHY supporting"

On line 26, "Extensions to RS for 1000 Mb/s" should be "Extensions to the RS for 1000 Mb/s" and "and to RS for 10 Gb/s" should be "and to the RS for 10 Gb/s"

SuggestedRemedy

Change "MAC with any type of PHYs" to "the MAC with any type of PHY"
Change "Extensions to RS" to "Extensions to the RS"
Change "and to RS for 10 Gb/s" to "and to the RS for 10 Gb/s"

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **12** *L* **22** # 224

Frazier, Howard Broadcom Corporation

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

It's a bad idea to list a slew of specific RSs and their associated clauses, because future projects may feel compelled to come back and edit the list if
they add a new RS specification. Furthermore, the list provided here is already out of date because it omits the 802.3ba RS. I don't think that the list adds essential value.

SuggestedRemedy

Strike the second sentence of the first paragraph of 90.5.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **12** *L* **23** # 268

Trowbridge, Steve Alcatel-Lucent

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

With the approval of IEEE Std 802.3ba, there is now the RS for 40 and 100 Gb/s

SuggestedRemedy

Replace:
"the following types of RS sublayer are part of gRS: RS for 100 Mb/s operation as defined in Clause 22, RS for 1000 Mb/s operation as defined in Clause 35 and RS for 10 Gb/s operation as defined in Clause 46."
with
"the following types of RS sublayer are part of gRS: RS for 100 Mb/s operation as defined in Clause 22, RS for 1000 Mb/s operation as defined in Clause 35, RS for 10 Gb/s operation as defined in Clause 46 and RS for 40 Gb/s and 100 Gb/s operation as defined in IEEE Std 802.3ba-2010 clause 81."

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **12** *L* **33** # 252

Hajduczenia, Marek ZTE Corporation

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

Disable the linebreak on "-" symbol in Frame

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **24** *L* **20** # 269
Thompson, Geoff GraCaSI

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

I have a problem with designation "gRS" and its expansion "generic Reconciliation Sublayer" in terms of the capitalization being used. The use in this clause is intended to be reserved word, a precisely defined term and therefore should be treated as a proper noun. In this form it will be difficult to differentiate it (in the clause 90 meaning) from a reference elsewhere in the standard to a "generic" (small "g") RS that might be made.

SuggestedRemedy

Change to: "GRS" and "Generic Reconciliation Sublayer" throughout the draft.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **24** *L* **24** # 244
Ganga, Ilango Intel

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

Does the definition for gRS include the 40 Gb/s and 100 Gb/s operation specified in Clause 81. If so, clarify or describe the inclusion/exclusion in in 90.5.

SuggestedRemedy

As per comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5** *P* **24** *L* **25** # 304
Barrass, Hugh Cisco

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

The time sync capability is needed for 40/100G as well as inferior speeds.

SuggestedRemedy

Add to the end of the paragraph:

"and RS for 40/100 Gb/s operation as defined in Clause 81."

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5.1** *P* **12** *L* **43** # 229
Frazier, Howard Broadcom Corporation

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

"Otherwise, the status of TS_TX.indication is undefined" presents a problem, because "undefined" means that the value of the parameter passed by the indication could be anything, including "DETECTED". It doesn't make sense to add this sentence to the definition of the TS_SFD_Detect_TX function.

SuggestedRemedy

Delete the second sentence of the second paragraph of 90.5.1. Change the first sentence of the second paragraph of 90.5.1 to read:
The TS_TX.indication service primitive shall be generated only when the SFD sequence is detected on the transmit signals of the xMII.

Also make the corresponding change in 90.5.2.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5.1** *P* **12** *L* **48** # 254
Hajduczenia, Marek ZTE Corporation

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

strike 'sequence' from line 48 and 52 on page 12. They are not needed - SFD is unambiguous in the context of 802.3

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5.1** *P* **24** *L* **42** # 273
Thompson, Geoff GraCaSI

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

The sentences:
"The service primitive across the TS service interface i.e. TS_TX.indication is generated only when the SFD sequence is detected on the transmit signals. Otherwise, the status of TS_TX.indication is undefined."
are nonsensical. They say that TS_TX.indication can happen anytime when the SFD sequence is not detected as well as when the SFD is detected. That does not seem useful.

SuggestedRemedy

Say something else that will actually provide a useful indication

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5.2** *P* **12** *L* **38** # 197

Marris, Arthur Cadence

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

SFD and start of frame are not really the same thing. Arguably the preamble is the start of frame.

SuggestedRemedy

Change "Start of Frame" to "Start Frame Delimiter"

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5.2** *P* **24** *L* **51** # 274

Thompson, Geoff GraCaSI

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

The sentences:
"The service primitive across the TS service interface i.e. TS_RX.indication is generated only when the SFD sequence is detected on the receive signals. Otherwise, the status of TS_RX.indication is undefined."
are nonsensical. They say that TS_RX.indication can happen anytime when the SFD sequence is not detected as well as when the SFD is detected. That does not seem useful.

SuggestedRemedy

Say something else that will actually provide a useful indication

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.5.2** *P* **25** *L* **23** # 239

Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**

Figure 90-2: Currently the dotted lines for TS service interface and PLS service interface appear to merge in the figure. Provide enough separation between these two service interfaces or show the service interface at two different levels.

SuggestedRemedy

In Figure 90-2, move the dotted line for TS service interface further to the left of PLS service interface.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.6** *P* **13** *L* **30** # 280

Diab, Wael Broadcom

Comment Type **ER** *Comment Status* **X**

I believe the intent of this section is to point the reader to Clause 30 for management. The current structure suggests that this is providing some sort of definition for the objects and classes, furthermore the references are one more place that could go out of sync with C30 for maintenance (the information is redundant).

Same is true for 90.7

SuggestedRemedy

Suggest combining 90.6 and 90.7 into one section called "Overview of Managment Features". Provide some infromative text on what things are defined in the clauses like managed objects, registers and classes without reproducing the entire lists (a good example is all the registers listed in C45) and simply point to C30 and C45.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.7** *P* **14** *L* **17** # 282

Diab, Wael Broadcom

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

Is the intent of the statment that the support is optional truely a note (a note is not part of the normative text of the approved standard)?

Furthermore, is the intention to say that C45 registers are optional or that when implementing the optional features defined in C90 these registers are required vs. optional? If it is the first case, then you dont need a statement. If its any of the later, please clarify.

SuggestedRemedy

See comment

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.7** *P* **26** *L* **4** # 245

Ganga, Ilango Intel

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

Include the MDIO control variable, PMA/PMD control variable bits etc., in table 90-1 in 90.7 (See example tables in PMA/PMD clauses in base standard e.g. see Clause 88).

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **14** *L* **33** # 225

Frazier, Howard Broadcom Corporation

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

The location of MP1 is ambiguous. It appears to be somewhere in the RS. One could argue that the RS has zero delay, but this is not necessarily the case, and a PHY cannot know how much delay is associated with the RS. MP1 should correspond to the point at which the SFD_Detect_TX and SFD_Detect_RX functions are performed, which is defined to be the xMII.

SuggestedRemedy

Move MP1 to the bottom of the gRS, i.e. the xMII.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **14** *L* **40** # 201

Booth, Brad AppliedMicro

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

In Figure 90-3 the dashed line from the bottom of the OSI stack to the bottom of the MDI should be horizontal.

SuggestedRemedy

Fix per above.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **14** *L* **48** # 226

Frazier, Howard Broadcom Corporation

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

Here is a place where a "shall" statement is needed in order to ensure that the goal ("...provide an accurate indication of the transmission and reception initiation times of all packets...") is met.

SuggestedRemedy

Change the first sentence of the last paragraph of 90.8 to read:
The obtained PHY latency measurement shall be reported in the form of a quartet of values; the maximum PHY transmit latency, the minimum PHY transmit latency, the maximum PHY receive latency, and the minimum PHY receive latency, as described in 45.2.1.101 and 45.2.1.102.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **14** *L* **48** # 227

Frazier, Howard Broadcom Corporation

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

The PHY latency is reported with nanosecond granularity (per 45.2.1.101 and 45.2.1.102), but there are no bounds on either the precision or the accuracy of the measurement. It is hard to see how the project objective ("...provide an accurate indication of the transmission and reception initiation times of
all packets...") can be met without such bounds.

SuggestedRemedy

Replace the last sentence of 90.8 with the following:
The PHY latency measurements shall be accurate to within one nanosecond.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **26** *L* **21** # 306

Barrass, Hugh Cisco

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

This paragraph uses the term "requires" however there is no noramtive statement anywhere in this amendment.

Either the whole clause should be marked "informative" (and possibly moved to an annex). or else there should be some normative requirement.

SuggestedRemedy

Change the last paragraph in this clause as follows:

The obtained PHY latency measurement shall be reported in the form of pair of values, namely a minimum and a maximum PHY latency value. The process of selecting the minimum and maximum PHY latency values is outside the scope of this specification.

Add a PICS to include this (meagre) requirement.

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **26** *L* **23** # 275

Thompson, Geoff GraCaSI

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

It may be true that: The method used for the PHY latency measurement and the the process of selecting the minimum and maximum PHY latency values are outside the scope of this specification.
It is NOT true that the tolerances on those values are not in scope. Without required and standardized tolerances on measured vs. actual values, there can be no assurance of multi-vendor interoperability.

SuggestedRemedy

Establish and document the required accuracy on maximum and minimum latency measurements that is needed to support the higher level interaction functions in 802.1AS and include them in this sub clause.
(Since you seem to be gathering a max and min count for each as your data, you might be better off to define latency in count units rather than ns and then define the tolerances on the clock driving the counter.)

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **26** *L* **24** # 305

Barrass, Hugh Cisco

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

Some description of latency needs to be included:

SuggestedRemedy

Add the following at the end of the paragraph:

The PHY latency is defined as the maximum and minimum time taken for the SFD of a packet to travel from MP1 to MP2 (Tx) or vice-versa (Rx).

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.8** *P* **26** *L* **48** # 290

Chalupsky, David Intel Corp.

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

sentence structure

SuggestedRemedy

replace "in the form of pair of values"
with "in the form of a pair of values"

Proposed Response *Response Status* **O**

Cl **99** *SC* *P* **2** *L* **2** # 233

Ganga, Ilango Intel

Comment Type **ER** *Comment Status* **X**

Expand the acronyms in the abstract. Abstracts may be referenced in various bibliographic literature and hence expand the acronyms.

Start Frame Delimiter (SFD)
Medium Dependent Interface (MDI)
Physical Layer devices (PHY)

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **O**

Cl **99** *SC* *P* **4** *L* **38** # 247
Ganga, Ilango Intel

Comment Type **E** *Comment Status* **X**
Change IEEE Std 802.3ba™-201X to IEEE Std 802.3ba™-2010

SuggestedRemedy
As per comment

Proposed Response *Response Status* **O**

Cl **99** *SC* *P* **5** *L* **54** # 248
Ganga, Ilango Intel

Comment Type **E** *Comment Status* **X**
Incorrect URL link:

Change URL from http://standards.ieee.org/reading/ieee.interp/index.html

to:

http://standards.ieee.org/reading/ieee/interp/index.html

SuggestedRemedy
As per comment

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **3** *L* **8** # 209
Law, David Hewlett-Packard

Comment Type **E** *Comment Status* **X**
As stated in the editor's notes, in IEEE 802.3 we don't use lower case Roman numeral page numbers for the introduction text even though that is what the IEEE-SA Style Guide requires for published standards.

SuggestedRemedy
Replace the lower case Roman numeral page numbers with Arabic page numbers in the introduction so that the page numbers match the pdf page numbers.

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **4** *L* **38** # 198
Booth, Brad AppliedMicro

Comment Type **E** *Comment Status* **X**
Update IEEE Std 802.3ba to indicate 2010.

SuggestedRemedy
Change 201X to be 2010.

Proposed Response *Response Status* **O**

Cl **99** *SC* **NA** *P* **IV** *L* **38** # 265
Trowbridge, Steve Alcatel-Lucent

Comment Type **E** *Comment Status* **X**
IEEE Std 802.3ba-2010 has been pubished

SuggestedRemedy
Change "IEEE Std 802.3baTM-201X" to "IEEE Std 802.3baTM-2010"

Proposed Response *Response Status* **O**