*Cl* **00** *SC* *P* *L* # **49001**

Thaler, Pat

*Comment Type* **E** *Comment Status* **A** *test pattern*

The test pattern recommendations from the jitter test pattern ad hoc need to be applied to the draft.

*SuggestedRemedy*

See the proposal from the ad hoc.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **00** *SC* *P* *L* # **255**

Dallesasse, John Molex

*Comment Type* **T** *Comment Status* **A** *cross-clause 45-53*

Clauses 45 and 53:For both transmit disable and signal detect functions, bit "0" in the corresponding MDIO register should provide global action/reporting. This bit should not be shared with a lane "0" of the WWDM PMD. The operation for individual lanes 0-3 should take place in bits 1-4 of these registers. Justification:
1) Global functionality is of primary importance to the end user. For all other PMD types, global function is provided through bit "0." The same should be true for WWDM.
2) Under normal operation, all lanes of the WWDM PMD will be in use. The main purpose of individual lane functionality for WWDM is manufacturing test, diagnostics, and proprietary implementations. These functions are thus not absolutely required on a per lane basis. This should be reflected in how they are handled by the MDIO.
3) A general rule of good engineering is to keep parts that are intended to be interchanged as similar as possible. Since hot swappability is likely in many implementations of these PMDs, working within the standard to provide an interface that is as similar as possible at the base level of functionality is good practice and makes sense. If a user wants to disable transmitter function or determine if a signal is present, they should have one place to go for all of the PMD types.
4) My recollection of the intent of the committee was that functions pertaining to the WWDM PMD would be required to be global if implemented, and could optionally be reported on a per-lane basis. As things stand currently, per lane reporting is not optional, but required if these functions are implemented.

*SuggestedRemedy*

In Tables 45-7 and 45-8, Bit "0" will become a global function for all PMD types, bit 1 will correspond to WWDM lane 0, bit 1 will correspond to lane 1, bit 2 will correspond to lane 3, and bit 4 will correspond to lane 3. Minor text editing will be needed in Sections 45.2.1.6 and 45.2.1.7. Minor text edits will also be required in Sections 53.3 and 53.4, as well as Tables 53-2 and 53-3.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **00** *SC* *P* *L* # **724**

Dawe, Piers Agilent

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

Signal detect should mean what it says. Need to distinguish between at least three things:Optical power received?Sync ok?Data path thought to contain good data for onward transmission?Each of these may cause different protection " maintenance or other action and should not be muddled up or overwritten by loopback "jitter" or other test activities. This may affect clauses 30" 44 45 49 50 51 52 53

*SuggestedRemedy*

See other comments.

*Proposed Response* *Response Status* **C**

ACCEPT.
The TF decided to do the following:
* move the OR gate from PMD to PMA
* PMD primitive called signal_detect
* Other primitives are qualified by loopback and lower signal detects, and are therefore called signal_ok
* Register in PMD MMD is now called signal_ok (qualified version)
* Separate PMA & PMD loopbacks

*Cl* **00** *SC* *P* *L* # **698**

Dawe, Piers Agilent

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

Let's put the zombie "power down function" to rest! At present the draft has a "MDIO-mandatory" power down feature which is not defined and may be implemented as "don't power down"" as is usual in transceiver optics. This silliness does the standard and its customers a disservice. Let's agree whether anyone wants PMD power down at 10G. If they do declare capability. If not remove it from Cl.45. This comment is repeated against 00 45 " 52 and 53.

*SuggestedRemedy*

Agree optional PMD "power down" or no PMD "power down". Minor mods to clauses 45" 52 and 53.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Task Force voice voted unanimously to remove power down from all P802.3ae clauses.

*Cl* **00** *SC* *P* **405** *L* # **703**

Dawe, Piers Agilent

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

Let's put the zombie "power down function" to rest! At present the draft has a "MDIO-mandatory" power down feature which is not defined and may be implemented as "don't power down"" as is usual in transceiver optics. This silliness does the standard and its customers a disservice. Let's agree whether anyone wants PMD power down at 10G. If they do declare capability. If not remove it from Cl.45. This comment is repeated against 00 45 " 52 and 53.

*SuggestedRemedy*

Agree optional PMD "power down" or no PMD "power down". Minor mods to clauses 45" 52 and 53.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Delete powerdown reference from Clauses 45, 52 and 53

12:0

*Cl* **00** *SC* **0** *P* **243** *L* **50** # **866**

Jonathan Thatcher World Wide Packets

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

Through the document, layer diagrams show the RS as part of the Physical layer or layer 1. In the text for the XGMII in clause 46.1.4, it states that the XGMII is the place where layer 2 and layer 1 are cleanly separated. I agree.

*SuggestedRemedy*

Put the RS back in layer 2 of the OSI stack in all stack diagrams.

*Proposed Response* *Response Status* **C**

REJECT.
This would involve opening other clauses within 802.3.

*Cl* **00** *SC* **0** *P* **391** *L* **30** # **742**

Dawe Piers Agilent

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

The "Signal Indicate Logic" is inappropriate here for two reasons:1. It isn't in SFI-42. It destroys useful information for answerering the question: is an optical signal available? The PCS can integrate these facts to decide if the data is bad.Do you still want to use !(PMD_SIGNAL.indicate) to use REFCLK on Rx side?

*SuggestedRemedy*

Pass PMD_SIGNAL.indicate straight through to PCS" undamaged (apparently WIS 50.3.2.5 doesn't use it or 50.3.6 does it?). Pass PMA_LOS to PCS. Change text about PMA_LOS<P> top of p 392.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Use alexander_2_0501.pdf drawing as the basis to resolve comments regarding PMA_SIGNAL.indicate, PMD_SIGNAL.detect, loopback function and Sync_Err in clause 51. The structure of the drawing is mandatory, loopback is optional and drawing shows name changes to signals and primitives. The PMD_Signal_detect register bit now reflects PMD_Signal_OK in the drawing. The MDIO register structure remains the same,I.e. no splitting of MDIO registers between PMA and PMD.

This comment affects clauses49,50,51,52,and 53.

*Cl* **00** *SC* **00** *P* *L* # **932**

Law, David 3Com

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

Please add the 'Micro', 'Lambda' and 'Omega' symbols to the Special symbols and operators test page.

*SuggestedRemedy*

Add 'Micro', 'Lambda' and 'Omega' symbols to the Special symbols and operators test page.

*Proposed Response* *Response Status* **Z**

*Cl* **00** *SC* **00** *P* *L* # **623**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Please add the 'Micro', 'Lambda' and 'Omega' symbols to the Special symbols and operators test page.

*SuggestedRemedy*

Add 'Micro', 'Lambda' and 'Omega' symbols to the Special symbols and operators test page.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **00** *SC* **52.10.1** *P* **438** *L* **16** # **162**

Stoltz, Mario ChipIng.de, an Intel co

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

Text reads "...shall comply with applicable local and national codes..."Using this expression, international bodies' EMC standards - like those of the IEC - would not be covered by the subclause. This can not be the intention of 802.3.See identical comment against 53.10.1.

*SuggestedRemedy*

Change to "...shall comply with applicable local, national and international codes..."

*Proposed Response* *Response Status* **C**

REJECT. National codes refer to international codes. No change is needed. (talk to clause 53 about comment 167).

*Cl* **00** *SC* **52.13.3** *P* **440** *L* **33** # **19**

Cobb, Terry Lucent Technologies

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

Examples are not consistent with cabling model in Figure 52-19 and the paragraph is not clear on its meaning.

*SuggestedRemedy*

Remove examples and change first line (39) under examples to:When the MDI is connected to the fiber optic cabling through a connector, the MDI mated connection shall .....

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 214 and 216 for removal of first example and new standards and use rewording presented.

12 for
1 against

*Cl* **00** *SC* **52.3.4** *P* **407** *L* **611** # **204**

Dawe, Piers Agilent

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

The table here destroys the information we really want to know, which is: is there an optical signal there? The other question: is this putative data signal to be forwarded? is of no interest to PMD or PMA. The mention of loopback in this table is therefore undesirable and unnecessary. May need change to clause 49 to complete the fix.

*SuggestedRemedy*

Delete "AND PMD_loopback not asserted" in line 6 and "OR PMD_loopback asserted" in lines 10-11

*Proposed Response* *Response Status* **C**

ACCEPT. See 742.

*Cl* **00** *SC* **52.3.4** *P* **407** *L* **611** # **692**

Dawe, Piers Agilent

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

The table here destroys the information we really want to know which is: is there an optical signal available? The other question: is this putative data signal to be forwarded? is of no interest to the PMD. The mention of loopback in this table is therefore undesirable and unnecessary. May need change to clause 49 and a pass-through clause 51 " 50 to complete the fix.

*SuggestedRemedy*

Delete "AND PMD_loopback not asserted" in line 6 and "OR PMD_loopback asserted" in lines 10-11

*Proposed Response* *Response Status* **C**

ACCEPT. See 742.

*Cl* **00** *SC* **52.7.1.2** *P* **422** *L* **47** # **716**

Dawe, Piers Agilent

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

We have no hard evidence yet that special patterns are required for jitter measurements to assure interoperability; they aren't needed for any other measurements to assure interoperability. I'm open to reasoned arguments " still waiting to hear them....

*SuggestedRemedy*

Change "The test pattern used to test transmitter shall be the test pattern specified in 49.2.8." to "A representative pattern should be used. For example" " a 10GBASE-SR/LR/ER transmitter may use its normal mode of operation or transmit "LF". A 10GBASE-SW/LW/EW may use its normal mode of operation" a suitable SONET/SDH pattern or the G.957 consecutive identical digit pattern. A pattern which can be checked and which contains occasional long runs " is highly desirable."

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn, superceded by motion. Affects clause 49 and 50.

In 52.7 and 52.8.9-11, 13 use language representing the following:
The [jitter|stressed sensitivity|DP&|S|] test pattern shall be stressful test pattern defined in 52.8.xxx or 50.xxx for LAN and WAN PHY PMDs respectively
Create new subclause 52.8.xxx which defines seed to create test patterns using clause 49 PCS.
Two patterns, one stressful, one typical
This resolves comments: 725, 727, 716, 717, 718 and satisfies TR commenter.

*Cl* **00** *SC* **52.7.2** *P* **423** *L* **41** # **717**

Dawe, Piers Agilent

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

We have no hard evidence yet that special patterns are required for jitter measurements to assure interoperability; they aren't needed for any other measurements to assure interoperability. I'm open to reasoned arguments " still waiting to hear them....

*SuggestedRemedy*

Change "the appropriate test pattern" to "an appropriate test pattern".

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn, superceded by motion. Affects clause 49 and 50.

In 52.7 and 52.8.9-11, 13 use language representing the following:
The [jitter|stressed sensitivity|DP&|S|] test pattern shall be stressful test pattern defined in 52.8.xxx or 50.xxx for LAN and WAN PHY PMDs respectively
Create new subclause 52.8.xxx which defines seed to create test patterns using clause 49 PCS. Two patterns, one stressful, one typical
This resolves comments: 725, 727, 716, 717, 718 and satisfies TR commenter.

*Cl* **00** *SC* **52.7.2.1** *P* **423** *L* **46** # **718**

Dawe, Piers Agilent

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

We have no hard evidence yet that special patterns are required for jitter measurements to assure interoperability; they aren't needed for any other measurements to assure interoperability. I'm open to reasoned arguments " still waiting to hear them....

*SuggestedRemedy*

Change "The data pattern used to test receiver jitter tolerance is the pattern specified in 49.2.12." to "A representative pattern should be used. For example" a 10GBASE-SR/LR/ER transmitter may use the pattern specified in 49.2.12 its normal mode of operation " or transmit "LF" as coded by the PCS. A 10GBASE-SW/LW/EW may use its normal mode of operation" a suitable SONET/SDH pattern or the G.957 consecutive identical digit pattern. A pattern which can be checked and which contains occasional long runs " is highly desirable."

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn, superceded by motion. Affects clause 49 and 50.

In 52.7 and 52.8.9-11, 13 use language representing the following:
The [jitter|stressed sensitivity|DP&|S|] test pattern shall be stressful test pattern defined in 52.8.xxx or 50.xxx for LAN and WAN PHY PMDs respectively
Create new subclause 52.8.xxx which defines seed to create test patterns using clause 49 PCS. Two patterns, one stressful, one typical
This resolves comments: 725, 727, 716, 717, 718 and satisfies TR commenter.

*Cl* **00** *SC* **52.8.10.1** *P* **432** *L* **30** # **727**

Dawe, Piers Agilent

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

We have no hard evidence yet that special patterns are required for jitter measurements to assure interoperability; they aren't needed for any other measurements to assure interoperability. I'm open to reasoned arguments " still waiting to hear them....

*SuggestedRemedy*

Change "The receiver of the system under test is tested for conformance by putting the PCS in test mode as specified in 49.2.12. A suitablepattern generator is used to continuously generate the test pattern defined in 49.2.8." to "The receiver of the system under test may be tested for conformance by putting the PCS in test mode as specified in 49.2.12. A pattern generator may be used to generate a suitable test pattern as descibed in 52.7.2.1 [becomes 52.8.9 if another comment to reorganise the txt is accepted]. Change "As defined in section 49.2.12" " the PCS is capable of detecting the data pattern and reporting any errors received." to "As described in section 49.2.12 and 50.x" " the PCS and WIS may be capable of detecting the data pattern and counting any errors received."

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn, superceded by motion. Affects clause 49 and 50.

In 52.7 and 52.8.9-11, 13 use language representing the following:
The [jitter|stressed sensitivity|DP&|S|] test pattern shall be stressful test pattern defined in 52.8.xxx or 50.xxx for LAN and WAN PHY PMDs respectively
Create new subclause 52.8.xxx which defines seed to create test patterns using clause 49 PCS. Two patterns, one stressful, one typical
This resolves comments: 725, 727, 716, 717, 718 and satisfies TR commenter.

*Cl* **00** *SC* **52.8.9.1** *P* **431** *L* **6** # **725**

Dawe, Piers Agilent

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

We have no hard evidence yet that special patterns are required for jitter measurements to assure interoperability; they aren't needed for any other measurements to assure interoperability. I'm open to reasoned arguments " still waiting to hear them....

*SuggestedRemedy*

Change "is" to "may be". May need more language for LAN vs. WAN.

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn, superceded by motion. Affects clause 49 and 50.

In 52.7 and 52.8.9-11, 13 use language representing the following:
The [jitter|stressed sensitivity|DP&|S|] test pattern shall be stressful test pattern defined in 52.8.xxx or 50.xxx for LAN and WAN PHY PMDs respectively
Create new subclause 52.8.xxx which defines seed to create test patterns using clause 49 PCS. Two patterns, one stressful, one typical
This resolves comments: 725, 727, 716, 717, 718 and satisfies TR commenter.

*Cl* **00** *SC* **53.4.4** *P* **452** *L* **27** # **734**

Dawe, Piers — Agilent

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

The table 53-4 here destroys the information we really want to know " which is: is there an optical signal available? The other question: is this putative data signal to be forwarded? is of no interest to the PMD. The mention of loopback in this table is therefore undesirable and unnecessary. May need minor changes to other clause 49 to complete the fix.

*SuggestedRemedy*

Delete "OR PMD_loopback". Do the "OR" in a higher sublayer e.g. where the "remote fault" is generated.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The TF decided to do the following:
* move the OR gate from PMD to PMA
* PMD primitive called signal_detect
* Other primitives are qualified by loopback and lower signal detects, and are therefore called signal_ok
* Register in PMD MMD is now called signal_ok (qualified version)
* Separate PMA & PMD loopbacks

*Cl* **00** *SC* **Table 51-6** *P* **396** *L* **18** # **661**

Stephen Haddock — Extreme Networks

*Comment Type* **TR** *Comment Status* **A** *20 ppm*

We have objectives to define a WAN PHY with a data rate compatible with the payload rate of OC-192c/SDH VC-4-64c, and to define a mechanism for adapting the MAC-PLS data rate to the data rate of the WAN PHY. To achieve this objective we must be compatible with the tolerance as well as the nominal rate of OC-192c. This does not violate 802.3 precedent of specifying 100 ppm clock tolerance because the mechanism that adapts the MAC-PLS rate to the WAN PHY rate is sufficiently flexible to accomodate a 100 ppm tolerance on the MAC/RS/XGMII side and a 20 ppm tolerance on the WAN PHY side of the 64B/66B endec.

*SuggestedRemedy*

Change "622.08 +/- 100ppm" to "622.08 +/- 20ppm". Make analogous change in tables 52-7, 52-9, 52-12, 52-14, 52-17, and 52-18.

*Proposed Response* *Response Status* **C**

ACCEPT.
Comment re-issued as 44000 and 44001 to permit clause 51 and 52 editors to track closure of this comment.

Motion to accept the comment:
802.3 voters
Y: 45 N: 5 A: 17 (Technical >75%) PASSES

All voters
Y: 65 N: 6 A: 29 (Technical >75%) PASSES

*Cl* **01** *SC* **1** *P* **4** *L* **18-25** # **476**

Lisa Buckman — Agilent Technologies

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

Replace "gigabit" with "gigabit/sec" or "Gb/s" to be correctly using the term (multiple places). May be acceptable to leave interface names as is, such as, "10 Gigabit Media Independent Interface", but should correct the descriptions.

*SuggestedRemedy*

Replace "10 gigabit-capable MAC" with "10 gigabit/sec-capable MAC", and "10 gigabit speeds" with "speeds of 10 gigabit/sec".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Correct the descriptions of the interfaces to read "10 Gb/s" in multiple places in bullets f) and g).
Also, do the same for bullet d) (GMII).

*Cl* **01** *SC* **1.1** *P* **2** *L* **14** # **912**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typos listed -> shown section -> listed in subclause

*SuggestedRemedy*

Sugest the text '... are listed in Figure 1-1 and section 4.4.2.' should read '... are shown in Figure 1-1 and listed in subclause 4.4.2.'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **01** *SC* **1.1** *P* **2** *L* **14** # **603**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typos listed -> shownsection -> listed in subclause

*SuggestedRemedy*

Sugest the text '... are listed in Figure 1-1 and section 4.4.2.' should read '... are shown in Figure 1-1 and listed in subclause 4.4.2.'.

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #912.

*Cl* **01** *SC* **1.2.1** *P* **5** *L* **5** # **605**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The modification to the fifth paragraph of 1.2.1 shown is not a modification to the published standard but a modification to the 1998 edition.

*SuggestedRemedy*

Please update the change to show the IEEE Std 802.3-2000 text modified as required.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **01** *SC* **1.2.1** *P* **5** *L* **5** # **914**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The modification to the fifth paragraph of 1.2.1 shown is not a modification to the published standard but a modification to the 1998 edition.

*SuggestedRemedy*

Please update the change to show the IEEE Std 802.3-2000 text modified as required.

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #605.

*Cl* **01** *SC* **1.4** *P* **6** *L* **1** # **916**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R**

Definition '1.4.xxx Anomaly' (line 1) and '1.4.xxx Defect' (line 13) use the term 'Item' which does not seem to be defined anywhere.

*SuggestedRemedy*

Please either update the definition to use a different term than 'Item' or add and additional definition for 'Item'.

*Proposed Response* *Response Status* **C**

REJECT.

The commenter is invited to provide a better alternative to "item" at the next recirculation.

*Cl* **01** *SC* **1.4** *P* **6** *L* **1** # **607**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R**

Definition '1.4.xxx Anomaly' (line 1) and '1.4.xxx Defect' (line 13) use the term 'Item' which does not seem to be defined anywhere.

*SuggestedRemedy*

Please either update the definition to use a different term than 'Item' or add and additional definition for 'Item'.

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate of comment #916.

*Cl* **01** *SC* **1.4.89** *P* **5** *L* # **915**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The definition '1.4.89 compatibility interfaces' seems to need updated to take into account the new compatibility interfaces added in items f) to h) of 1.1.2.2

*SuggestedRemedy*

Update the definition '1.4.89 compatibility interfaces' to include the new compatibility interfaces added in items f) to h) of 1.1.2.2

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

This definition is outdated and needs to change. However, the new definition should be made more general with a reference to subclause 1.1.2.2, so that it does not have to change every time a new interface is defined.

*Cl* **01** *SC* **1.4.89** *P* **5** *L* # **606**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The definition '1.4.89 compatibility interfaces' seems to need updated to take into account the new compatibility interfaces added in items f) to h) of 1.1.2.2

*SuggestedRemedy*

Update the definition '1.4.89 compatibility interfaces' to include the new compatibility interfaces added in items f) to h) of 1.1.2.2

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate of comment #915.

*Cl* **01** *SC* **1.5** *P* *L* # **151**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Abbreviation list lacks some items from Clause 52 and Annexes 48A, 48B and 50A

*SuggestedRemedy*

Insert the following abbreviations into the list:
BERT - bit error ratio tester
BIP - bit interleaved parity
CDR - clock and data recovery circuit
CJPAT - continuous jitter test pattern
CRPAT - continuous random test pattern
DCD - duty cycle distortion
DDJ - data dependent jitter
DJ - deterministic jitter
PLL - phase locked loop
RJ - random jitter
SERDES - serializer and deserializer circuit
SES - severely errored second

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **01** *SC* **1.5** *P* **7** *L* # **428**

Satoshi Obara — Fujitsu Laboratories of

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

Add abbreviation of MDIO and MDC

*SuggestedRemedy*

Add following text in clause 1.5
MDC Management Data Clock
MDIO Management Data Input/Output

*Proposed Response* *Response Status* **C**

REJECT.

MDIO and MDC are abbreviations for signal names on a well specified interface (MII/GMII/XGMII). Traditionally we refrained from specifying these abbreviations in 1.5.

---

*Cl* **01** *SC* **5** *P* **7** *L* **30** # **477**

Lisa Buckman — Agilent Technologies

*Comment Type* **E** *Comment Status* **A**

Is VC "virtual container" rather than "virtual circuit"? ) WWDM prefer to say "wide wavelength division multiplexing" rather than "wide wavelength division multiplexed". In either case, should be consistent - in introduction stated that it was "wide wavelength division multiplexing".

*SuggestedRemedy*

Check VC abbreviation. Correct abbreviation for WWDM to be "Wide Wavelength Division Multiplexing"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change WWDM to be "Wide Wavelength Division Multiplexing".
We checked the VC part and it is correct.

---

*Cl* **01** *SC* **Figure 1-1** *P* **3** *L* **26** # **604**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typo 10Gb/s -> 10 Gb/s

*SuggestedRemedy*

10Gb/s -> 10 Gb/s

*Proposed Response* *Response Status* **C**

ACCEPT.

The typo is on line 28.
Also, fix the same typo on line 27 for 1Gb/s.

---

*Cl* **01** *SC* **Figure 1-1** *P* **3** *L* **26** # **913**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typo 10Gb/s -> 10 Gb/s

*SuggestedRemedy*

10Gb/s -> 10 Gb/s

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #604.

*Cl* **02** *SC* **2.1** *P* **10** *L* **9** # **608**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The text reads '... of the MAC (MAC client) (see Figure 1-1).' yet Figure 1-1 does not have a sublayer labelled 'MAC client' as Figure 2-1a has, only a sublayer labelled 'HIGHER LAYERS'.

*SuggestedRemedy*

Please either update that text or the figure to be consistent.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The current draft is no different than what the original standard was. Neither one of the figures had a "MAC Client" sublayer.

* Delete "(MAC Client)" from the sentence.
* Also, the changes to this paragraph were made based on the 1998 edition of the standard, which has different figure numbering than the 2000 edition. Fix it.

*Cl* **02** *SC* **2.1** *P* **10** *L* **9** # **917**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The text reads '... of the MAC (MAC client) (see Figure 1-1).' yet Figure 1-1 does not have a sublayer labelled 'MAC client' as Figure 2-1a has, only a sublayer labelled 'HIGHER LAYERS'.

*SuggestedRemedy*

Please either update that text or the figure to be consistent.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate of comment #608.

*Cl* **02** *SC* **2.3.1.2** *P* **10** *L* **22** # **37**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **R**

With the renaming of m_sdu to mac_service_data_unit, addition of frame_check_sequence, and removal of service_class, it is assumed that such changes also apply to clause 43 (beginning with 43.2.3.1.2 and Figure 43-3) and are not included in this project in order to provide fodder for the gist mill of a future maintenance project. Also applies to 2.3.2.2.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT.

The commenter has not provided a suggested remedy, but seems to imply that this should be handled through the maintenance process. In any case, no action is required at this time.

However, the comment does have merit and is already on the editor's TO DO list for a future maintenance project. Requires changes to clause 43 in 24 instances.

*Cl* **02** *SC* **2.3.1.5** *P* **11** *L* **13** # **918**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R**

Typo.

*SuggestedRemedy*

'M_UNITDATA' should read 'MA_UNITDATA'

*Proposed Response* *Response Status* **C**

REJECT.

ISO/IEC 15802-3 uses the M_UNITDATA notation for service primitives. See related comment #38.

*Cl* **02** *SC* **2.3.1.5** *P* **11** *L* **13** # **609**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R**

Typo.

*SuggestedRemedy*

'M_UNITDATA' should read 'MA_UNITDATA'

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate of comment #918.

*Cl* **02** *SC* **2.3.1.5** *P* **11** *L* **16** # **38**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

The text MA_UNITDATA in lines 16 to 22 makes better sense as M_UNITDATA to match line13. (This may be copy/paste text error from lines 7 to 11.)

*SuggestedRemedy*

Change text MA_UNITDATA in lines 16 to 22 to M_UNITDATA

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **02** *SC* **2.3.2.5** *P* **12** *L* **23** # **610**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R**

Typo.

*SuggestedRemedy*

'M_UNITDATA' should read 'MA_UNITDATA'

*Proposed Response* *Response Status* **C**

REJECT.

ISO/IEC 15802-3 uses the M_UNITDATA notation for service primitives. See related comment #39.

*Cl* **02** *SC* **2.3.2.5** *P* **12** *L* **23** # **919**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R**

Typo.

*SuggestedRemedy*

'M_UNITDATA' should read 'MA_UNITDATA'

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate of comment #610.

*Cl* **02** *SC* **2.3.2.5** *P* **12** *L* **26** # **39**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

The text MA_UNITDATA in lines 26 to 33 makes better sense as M_UNITDATA to match line 23.

*SuggestedRemedy*

Change text MA_UNITDATA in lines 26 to 33 to M_UNITDATA

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **2** *P* **20** *L* **48** # **478**

Lisa Buckman Agilent Technologies

*Comment Type* **E** *Comment Status* **R**

Do not approve of term "promiscuous receive mode".

*SuggestedRemedy*

Replace with "flexible receive mode" or "nondiscerning receive mode".

*Proposed Response* *Response Status* **C**

REJECT.

The term "promiscuous mode" may not be politically correct, but it has been extensively used for many years to describe this mode of operation in many MAC protocol standards, including 802.3 (see clauses 5 and 30, annexes H and 30A). Furthermore, many Ethernet implementors use this term in the documentation that accompanies their products.

*Cl* **04** *SC* **4.1.2.1.1** *P* **15** *L* **4** # **920**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The change to correct 'Clauses 7' to read 'Clause 7' has already been performed in IEEE Std 802.3-2000.

*SuggestedRemedy*

Change the text to read as published in IEEE Std 802.3-2000 and remove the change as it is not required.

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #611.

*Cl* **04** *SC* **4.1.2.1.1** *P* **15** *L* **4** # **611**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The change to correct 'Clauses 7' to read 'Clause 7' has already been performed in IEEE Std 802.3-2000.

*SuggestedRemedy*

Change the text to read as published in IEEE Std 802.3-2000 and remove the change as it is not required.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **4.1.2.1.2** *P* **15** *L* **29** # **990**

William G. Lane CSU, Chico

*Comment Type* **E** *Comment Status* **A**

"Type/Length" field name is inconsistent with the rest of the standard

*SuggestedRemedy*

Change to "Length/Type"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **4.2.3.1** *P* **19** *L* **4** # **921**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typos

*SuggestedRemedy*

Suggest the text '... on the medium in the half duplex mode ...' should read '... on the medium in half duplex mode ...'

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #612.

*Cl* **04** *SC* **4.2.3.1** *P* **19** *L* **4** # **612**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typos

*SuggestedRemedy*

Suggest the text '... on the medium in the half duplex mode ...' should read '... on the medium in half duplex mode ...'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **4.2.3.2.2** *P* **19** *L* **19** # **922**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Suggest 'bit-times' should read 'bit times' (see 1.4.50).

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #613.

*Cl* **04** *SC* **4.2.3.2.2** *P* **19** *L* **19** # **613**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Suggest 'bit-times' should read 'bit times' (see 1.4.50).

*Proposed Response* *Response Status* **C**

ACCEPT.

Do a global search on all clauses and fix per suggested remedy.

*Cl* **04** *SC* **4.2.3.2.7** *P* **19** *L* **48** # **614**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest a better cross refernce for the burstLimit is 4.4.2 rather than just 4.4.

*SuggestedRemedy*

Change the text '... in 4.4' to read '... in 4.4.2'.

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #923.

*Cl* **04** *SC* **4.2.3.2.7** *P* **19** *L* **48** # **923**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest a better cross refernce for the burstLimit is 4.4.2 rather than just 4.4.

*SuggestedRemedy*

Change the text '... in 4.4' to read '... in 4.4.2'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **4.2.7.2** *P* **23** *L* **39** # **615**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest global replace of 'bit-times' with 'bit times', see 1.4.50 and new text of 4.4.2.

*SuggestedRemedy*

Change the text 'bit-times' to read 'bit times'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **4.2.7.2** *P* **23** *L* **39** # **924**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest global replace of 'bit-times' with 'bit times', see 1.4.50 and new text of 4.4.2.

*SuggestedRemedy*

Change the text 'bit-times' to read 'bit times'.

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #615.

*Cl* **04** *SC* **4.2.7.4** *P* **25** *L* **34** # **987**

Shimon Muller Sun Microsystems, Inc

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

The current clause 04 is based on the 1998 edition of the standard. It therefore re-introduces a problem in the Pascal code that was supposed to be fixed in the 2000 edition.

*SuggestedRemedy*

1. In 4.2.7.4 (p-25, l-34) remove the variable wasTransmitting from the I/F to the Physical Layer.
2. In 4.2.8 (p-30, l-47) define wasTransmitting as a local variable in the Deference process. This is missing in the 2000 edition as well.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **04** *SC* **4.2.8** *P* **30** *L* **12** # **40**

Tom Mathey Independent

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

Since the line

var maxBackOff:2..1024; {Working variable of BackOff}

is only used by the procedure BackOff (as confirmed by a text search of surrounding text), it seems like the line should be after the call to the procedure to keep the variable local to the procedure.

*SuggestedRemedy*

Change from:

```
var maxBackOff:2..1024;{Working variable of BackOff}
procedure BackOff;
begin
```

to:

```
procedure BackOff;
var maxBackOff:2..1024;{Working variable of BackOff}
begin
```

*Proposed Response* *Response Status* **C**

REJECT.

It is true that this variable is only used by the procedure BackOff. However, its use implies behavior that requires a global variable, for the following reasons:

Local variables in a procedure retain their values only during the execution in the procedure itself. Once the execution exits the procedure, the value of the local variable is lost.
The variable maxBackOff may be used across multiple invocations of BackOff (consecutive collisions). Therefore, if this variable is made local to BackOff, after the first collision (attempts > 1), its value will be undefined, and the execution of the "else" statement will fail.

*Cl* **04** *SC* **4.2.8** *P* **30** *L* **20-37** # **318**

Shimon Muller Sun Microsystems, Inc

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

The BurstTimer process is more complicated than necessary. Rather than using a local counter it can take advantage of the Wait() procedure, similar to what was done for timing the IPG.

*SuggestedRemedy*

Change the BurstTimer process and the associated text to read as follows:

"BurstTimer is a process that does nothing unless the bursting variable is true. When bursting becomes true, this process waits for a burstLimit number of bit times, whereupon it assigns the value false to the bursting variable:

```
process BurstTimer;
begin
  cycle
    while not bursting do nothing;   {Wait for a burst}
    while bursting do Wait(burstLimit);   {Time out the burstLimit}
    bursting := false
  end {burstMode cycle}
end; {BurstTimer}
```

"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The following is the correct fix:

```
process BurstTimer;
  begin
    cycle
      while not bursting do nothing;   {Wait for a burst}
      Wait(burstLimit);   {Time out the burstLimit}
      bursting := false
    end {burstMode cycle}
  end; {BurstTimer}
```

*Cl* **04** *SC* **4.2.9** *P* **35** *L* **50** # **41**

Tom Mathey Independent

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

The change from RecognizeAddress to LayerMgntLayerMgmtRecognizeAddress has introduced the variable "promiscuous receive enabled" into clause 4. However, this variable is not defined in clause 4, nor is it defined in clause 5 (even though it is used in clause 5) This parameter is from the management variable 5.2.2.1.16 aPromiscuousStatus.

*SuggestedRemedy*

At following places:

4.2.7.3 Receive state variables
provide variable definition
4.2.7.5 State variable initialization
provide variable initialization
5.2.4.3 Receive variables and procedures
provide variable definition with note {set by MAC action}

*Proposed Response* *Response Status* **C**

REJECT.

The use of "promiscuous receive enabled" in this function is not intended as a variable but rather as descriptive text. In that respect it is no different than the rest of this function, or what this function was before the last change. This is why it is using different semantics than a regular Pascal function would have. If this comment is accepted, we would probably have to re-write it to become a "real" Pascal function and define several additional variables used in this function. Furthermore, we would also need to make similar changes to clause 5, which is currently outside the scope of this project. This seems to be a good comment for the next maintenance project.

*Cl* **04** *SC* **4.2.9** *P* **36** *L* **1** # **794**

Henry Hinrichs Pulse Inc.

*Comment Type* **E** *Comment Status* **A**

Formatting inconsistent with other sections of clause.

*SuggestedRemedy*

Capitalize the "O" in the first word "one".

*Proposed Response* *Response Status* **C**

ACCEPT.

Also for the rest of this function.

*Cl* **04** *SC* **4.4.2** *P* **41** *L* **53** # **910**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Subclauses 4.4.2.1, 4.4.2.2, 4.4.2.3 and 4.4.2.4 are deleted by this change yet subclause 32.1.3.3 refers to subclause 4.4.2.3 'The 100BASE-T2 PHY, in conjunction with the MAC specified in Clauses 1 through 4 (including parameterized values in 4.4.2.3 to support 100 Mb/s operation) may be used at both ends of a link for point-to-point applications between two DTEs.' A similar problem also exists with subclauses 8.6.1, 9.1, 10.7.1, 13.1, 13.4.2, 14.6, 19.2.6.1.4, 19.2.6.1.6, 19.2.6.1.7, 19.2.6.1.8, 29.1.1 (twice) and 42.1.1 which all reference 4.4.2.1, subclauses 12.2.3.1, 12.9.5 and B.2.2 which all refernce 4.4.2.2, subclause 23.1.5.3 which references 4.4.2.3 and subclause 42.1.1 which references 4.4.2.4.Please fix these so that these do not appear as cross-reference errors when we come to publish IEEE P802.3ae as part of a combined IEEE Std 802.3 edition.

*SuggestedRemedy*

In all cases change the refernce to 4.4.2

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate of comment #601.

*Cl* **04** *SC* **4.4.2** *P* **41** *L* **53** # **601**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Subclauses 4.4.2.1, 4.4.2.2, 4.4.2.3 and 4.4.2.4 are deleted by this change yet subclause 32.1.3.3 refers to subclause 4.4.2.3 'The 100BASE-T2 PHY, in conjunction with the MAC specified in Clauses 1 through 4 (including parameterized values in 4.4.2.3 to support 100 Mb/s operation) may be used at both ends of a link for point-to-point applications between two DTEs.'

A similar problem also exists with subclauses 8.6.1, 9.1, 10.7.1, 13.1, 13.4.2, 14.6, 19.2.6.1.4, 19.2.6.1.6, 19.2.6.1.7, 19.2.6.1.8, 29.1.1 (twice) and 42.1.1 which all reference 4.4.2.1, subclauses 12.2.3.1, 12.9.5 and B.2.2 which all refernce 4.4.2.2, subclause 23.1.5.3 which references 4.4.2.3 and subclause 42.1.1 which references 4.4.2.4.

Please fix these so that these do not appear as cross-reference errors when we come to publish IEEE P802.3ae as part of a combined IEEE Std 802.3 edition.

*SuggestedRemedy*

In all cases change the refernce to 4.4.2

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

In order to implement the suggested remedy, we would need to open 11 additional clauses that we currently do not have to touch. It seems that this should be left to the next maintenance project. In the interim, the following action plan would be appropriate:

1. Resurrect subclauses 4.4.2.1, 4.4.2.2, 4.4.2.3 and 4.4.2.4.
2. Replace all the text in the above subclauses with a reference to 4.4.2.
3. The editor will create a comprehensive list of all the necessary changes to all existing clauses and submit it as a comment for the next maintenance project.

Add an editors note explaining why we are doing this.

*Cl* **22** *SC* **Figure 22-1** *P* **46** *L* **31** # **925**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest that the title of Figure 22-1 is changed to be similar to the other layer module diagrams.

*SuggestedRemedy*

Suggest that title should read 'MII relation to the ISO/IEC Open Systems Interconnection (OSI) reference model and the IEEE 802.3 CSMA/CD LAN Model'

*Proposed Response* *Response Status* **C**

ACCEPT.

Also, use the same title for the figures in clauses 6 and 35.

*Cl* **22** *SC* **Figure 22-1** *P* **46** *L* **31** # **616**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest that the title of Figure 22-1 is changed to be similar to the other layer module diagrams.

*SuggestedRemedy*

Suggest that title should read 'MII relation to the ISO/IEC Open Systems Interconnection (OSI) reference model and the IEEE 802.3 CSMA/CD LAN Model'

*Proposed Response* *Response Status* **C**

ACCEPT.

Duplicate of comment #925.

*Cl* **30** *SC* **30.2.1** *P* **49** *L* **32** # **617**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Suggest '... unless otherwise indicated' should read '... unless otherwise indicated.' (period missing at the end of the sentence).

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **30.2.1** *P* **49** *L* **32** # **926**

Law, David 3Com

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

Typo.

*SuggestedRemedy*

Suggest '... unless otherwise indicated' should read '... unless otherwise indicated.' (period missing at the end of the sentence).

*Proposed Response* *Response Status* **Z**

*Cl* **30** *SC* **30.3.2.1.3** *P* **57** *L* **11** # **620**

Law, David 3Com

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

Typo

*SuggestedRemedy*

'... when presetting the ...' should read '... when presenting the ...' or alternatively '... when reporting the ...'.

*Proposed Response* *Response Status* **Z**

*Cl* **30** *SC* **30.3.2.1.3** *P* **57** *L* **11** # **929**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo

*SuggestedRemedy*

'... when presetting the ...' should read '... when presenting the ...' or alternatively '... when reporting the ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

The text will be changed to read '... when reporting the ...'.

*Cl* **30** *SC* **30.3.2.1.5** *P* **57** *L* **33** # **619**

Law, David 3Com

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

A carrier event is not defined for 10Gb/s so this text should be changed to define this as the time between the start and end of a frame as defined in 46.2.5.

*SuggestedRemedy*

Suggest the text '... media is non-idle (a carrier event) for a ...' should read '... media is non-idle (the time between the Start of Packet Delimiter and the End of Packet Delimiter as defined by 46.2.5) for a ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **30.3.2.1.5** *P* **57** *L* **33** # **928**

Law, David 3Com

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

A carrier event is not defined for 10Gb/s so this text should be changed to define this as the time between the start and end of a frame as defined in 46.2.5.

*SuggestedRemedy*

Suggest the text '... media is non-idle (a carrier event) for a ...' should read '... media is non-idle (the time between the Start of Packet Delimiter and the End of Packet Delimiter as defined by 46.2.5) for a ...'.

*Proposed Response* *Response Status* **Z**

*Cl* **30** *SC* **30.5.1.1.4** *P* **61** *L* **10** # **43**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

There is an extra dash in the text for (Figure 46-9)

*SuggestedRemedy*

Remove extra dash

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **30.8.1.1.25** *P* **67** *L* **39** # **193**

Figueira, Norival Nortel Networks

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

A separate comment is being made against the definition of the WIS G1 register in 50.3.9.1.8 that changes the WIS G1 register's functionality and name. The proposed new functionality does not latch the G1's ERDI-P field. Another comment is being made against 50.3.9.1.5 to add the flags "Far End PLM-P/LCD-P", "Far End AIS-P", and "Far End LOP-P" to the WIS Status 3 register. These flags report supported ERDI-P defects. In conclusion, aFarEndPathStatus will need to refer to the WIS Status 3 register instead.

*SuggestedRemedy*

Coordinate with Clause 50 editor to include the changes indicated below if referred comment against 50.3.9.1.5 is approved.Change aFarEndPathStatus definition to:
APPROPRIATE SYNTAX:
BIT STRING [SIZE (1..3)]
BEHAVIOUR DEFINED AS:
A string of 3 bits corresponding to the Far End Path Status (50.3.2.5). The first bit corresponds to the Far End Path Label Mismatch/Path Loss of Cell Delineation flag and maps to the Far End PLM-P/LCD-P bit, the second bit corresponds to the Far End Path Alarm Indication Signal and maps to the Far End AIS-P bit, and the third bit corresponds to the Far End Path Loss of Pointer flag and maps to the Far End LOP-P bit. These bits shall be implemented with a latching function, such that the assertion of the respective flags will cause the corresponding bit to become set to a one and remain set until cleared through the acClearFarEndPathStatus action. If a Clause 45 MDIO Interface to the WIS is present, then this will map to the WIS Status 3 register specified in 45.2.2.6;

*Proposed Response* *Response Status* **C**

ACCEPT.

Clause 30 will be updated to follow Clause 50.

*Cl* **30** *SC* **30.8.1.1.25** *P* **67** *L* **39** # **985**

Law, David 3Com

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

Need to match the behaviour with WIS G1 register behaviour described in 50.3.9.1.8.

*SuggestedRemedy*

Match behaviour with WIS G1 register.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

This register is deleted by comment #190 and this comment has therfore been overcome by events.

*Cl* **30** *SC* **30.8.1.1.25** *P* **67** *L* **40** # **149**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "...function which as described in..."

*SuggestedRemedy*

Change to "...function as described in..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **30.8.1.1.26** *P* **67** *L* **54** # **194**

Figueira, Norival Nortel Networks

*Comment Type* **E** *Comment Status* **A**

aFarEndPathStatus (subclause 30.8.1.1.25) is being changed by another comment and will clearly list supported Far End Path Defects.

*SuggestedRemedy*

If the referred proposed change to aFarEndPathStatus is accepted, add note or change existing text to indicate that the Far End Path Defects are the ones defined in aFarEndPathStatus.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **30.8.1.1.27** *P* **68** *L* **10** # **195**

Figueira, Norival Nortel Networks

*Comment Type* **E** *Comment Status* **A**

aFarEndPathStatus (subclause 30.8.1.1.25) is being changed by another comment and will clearly list supported Far End Path Defects.

*SuggestedRemedy*

If the referred proposed change to aFarEndPathStatus is accepted, add note or change existing text to indicate that the Far End Path Defects are the ones defined in aFarEndPathStatus.

*Proposed Response* *Response Status* **C**

ACCEPT.

This comment is a duplicate of comment #194.

*Cl* **30** *SC* **30.8.1.1.3** *P* **62** *L* **34** # **986**

Law, David 3Com

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

All instances of attribute name with threshold in them need the 'T' of threshold capitalised. For example aSectionSESthreshold should read aSectionSESThreshold.

*SuggestedRemedy*

Capitalise the T of threshold in all instances of attribute name with threshold.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **Table 30-1** *P* **52** *L* **1** # **927**

Law, David 3Com

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

The package title '100/1000 Mb/s Monitor Capability (Optional)' should read 'PHY Error Monitor Capability (Optional)' as this now includes 10Gb/s attributes.

*SuggestedRemedy*

Change the columns headers from '100/1000 Mb/s Monitor Capability (Optional)' to read 'PHY Error Monitor Capability (Optional)'.

*Proposed Response* *Response Status* **Z**

*Cl* **30** *SC* **Table 30-1** *P* **52** *L* **1** # **618**

Law, David 3Com

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

The package title '100/1000 Mb/s Monitor Capability (Optional)' should read 'PHY Error Monitor Capability (Optional)' as this now includes 10Gb/s attributes.

*SuggestedRemedy*

Change the columns headers from '100/1000 Mb/s Monitor Capability (Optional)' to read 'PHY Error Monitor Capability (Optional)'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30** *SC* **Table 30-1a** *P* **52** *L* **20** # **42**

Tom Mathey Independent

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

This line in the table, alone with several other places, provides management GET-SET access to the constant aStretchRatio. This constant is defined and specified with a given value of 104 in 4.4.2, and thus may never be changed by management. Line 19 for aRateControlAbility is ok, management needs to know if the MAC Layer supports rate control. Line 18 for aRateControlAbility is ok, the MAC Layer needs to be configured.

*SuggestedRemedy*

Table 30-1a: remove line aStretchRatio
30.3.1.1.35 aStretchRatio: remove text on p55, lines 35 to 48search document for other places.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30A** *SC* **30A.15.1** *P* **135** *L* **30** # **930**

Law, David 3Com

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

Incorrect clause title, '30A.15.1 Aggregator, formal definition should read'30A.15.1 WIS, formal definition'.

*SuggestedRemedy*

'30A.15.1 Aggregator, formal definition' should read '30A.15.1 WIS, formal definition'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30A** *SC* **30A.15.1** *P* **135** *L* **30** # **621**

Law, David 3Com

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

Incorrect clause title, '30A.15.1 Aggregator, formal definition should read'30A.15.1 WIS, formal definition'.

*SuggestedRemedy*

'30A.15.1 Aggregator, formal definition' should read '30A.15.1 WIS, formal definition'

*Proposed Response* *Response Status* **Z**

*Cl* **30A** *SC* **30A.15.1** *P* **136** *L* **16** # **931**

Law, David 3Com

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

Need to add the additional latch clearing actions.

*SuggestedRemedy*

Add the actions acClearSectionStatus acClearLineStatus acClearPathStatus acClearFarEndPathStatus to the ACTIONS package.

*Proposed Response* *Response Status* **Z**

*Cl* **30A** *SC* **30A.15.1** *P* **136** *L* **16** # **622**

Law, David 3Com

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

Need to add the additional latch clearing actions.

*SuggestedRemedy*

Add the actions acClearSectionStatus acClearLineStatus acClearPathStatus acClearFarEndPathStatus to the ACTIONS package.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **30A** *SC* **30A.15.2** *P* **136** *L* **33** # **624**

Law, David 3Com

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

The note indicating the increment rate of the counter is missing from the new WIS counters in this subclause, these notes should be added.

*SuggestedRemedy*

Add a note indicating the counter increment rate to aSectionSESs, aSectionESs, aSectionSEFSs, aSectionCVs, aLineSESs, aLineESs, aLineCVs, aFarEndLineSESs, aFarEndLineESs, aFarEndLineCVs, aPathSESs, aPathESs, aPathCVs, aFarEndPathSESs, aFarEndPathESs and aFarEndPathCVs.

*Proposed Response* *Response Status* **Z**

*Cl* **30A** *SC* **30A.15.2** *P* **136** *L* **33** # **933**

Law, David 3Com

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

The note indicating the increment rate of the counter is missing from the new WIS counters in this subclause, these notes should be added.

*SuggestedRemedy*

Add a note indicating the counter increment rate to aSectionSESs, aSectionESs, aSectionSEFSs, aSectionCVs, aLineSESs, aLineESs, aLineCVs, aFarEndLineSESs, aFarEndLineESs, aFarEndLineCVs, aPathSESs, aPathESs, aPathCVs, aFarEndPathSESs, aFarEndPathESs and aFarEndPathCVs.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **31** *SC* **Annex 31B** *P* **159** *L* **Figure 31B** # **2**

Bulent Tusiray Tality

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

The state diagram in Figure 31B-1 in its present form does not allow sending out control frames while the Tx side itself is in the "PAUSED" state. (This appears to be a cut-n-paste error from the IEEE Std 802.3 1998 version of the state diagram. Shimon Muller concurs.).

*SuggestedRemedy*

There should be a transition from the "PAUSED" state to the "SEND CONTROL FRAME" even when pause_timer_Done = false.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **31** *SC* **Figure 31-4** *P* **156** *L* **1** # **44**

Tom Mathey Independent

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

In Figure 31-4 Generic MAC Control Receive state diagram, state CHECK OPCODE, text opcode = data [1:16] is incorrect. What is needed is bits 1 to 16 from dataParam per 4.2.7.4 Summary of interlayer interfaces, 4.2.9 Frame reception. These 16 bits for the opcode follow the length/type field.

*SuggestedRemedy*

Replace text opcode = data [1:16] with opcode = dataParam [1:16]. It may be necessary to add dataParam to the list of variables in 31.5.3.2, but this is not done for any of the other figures.

Same comment for Figure 31B-2, state PAUSEFUNCTION. In 2001 pdf, my reader shows some extra text, a second _MAC_Control line under the main line, associated with transistion from state RX READY to state PASS TO CLIENT.

*Proposed Response* *Response Status* **C**

REJECT.

The commenter points out one of many flaws in the current specification for MAC Control. The following changes would be required to clause 31 and its associated annexes:

*** Subclause 31.5.3:
1. Figure 31-4 uses variables in ReceiveFrame and MA_DATA.indication calls that have not been defined anywhere (DA, SA, lengthOrType, data, etc.).
2. The same function and message calls are missing some of the parameters and do not conform to the definitions in clauses 2 and 4.
3. The "opcode" variable is used in the state machine, but has not been defined.
4. The MA_CONTROL.indication message has been defined, but is not used in the state machine.
5. The definition of the ReceiveFrame function is flawed.
6. Typos in other variable definitions.

*** Subclause 31B.3.2:
1. Figure 31B-1 function and message calls are missing some of the parameters and do not conform to the definitions in clauses 2 and 4.
2. The definition of the TransmitFrame function is flawed.

*** Subclause 31B.3.4:
1. Figure 31-4 uses variable "data" that has not been defined.
2. Both transition conditions from WAIT FOR TRANSMISSION COMPLETION are incorrect.

*** Subclause 31B.3.6:
1. Typo in 31B.3.6.3.

The commentor is welcome to submit the above at the next maintenance project.

*Cl* **31B** *SC* **31B.3.2.6** *P* **159** *L* **13-30** # **319**

Shimon Muller — Sun Microsystems, Inc

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

A transition is missing between the PAUSED and the SEND CONTROL FRAME states.

*SuggestedRemedy*

Reinstate the transition as in the original state diagram.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **31B** *SC* **31B.3.7** *P* **160** *L* **910** # **150**

Stoltz, Mario — ChipIng.de, an Intel co

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

Value of "60 pause quantum bit times" is an inappropriate limitation of the standard's applicability. Please see comment against Subclause Table 44-2 for more detail.

*SuggestedRemedy*

Specify a value of "80 pause quantum bit times".
Please see comment against Subclause Table 44-2 for more detail.

*Proposed Response* *Response Status* **C**

REJECT.

Resolution of comment #148:
The only delay constraint that has changed was for XGXS and XAUI which has been increased by 4 pause quanta. Since there is plenty of slack reserved for the MAC, RS and MAC Control, these additional pause quanta should be deducted from the budget of these sublayers and the total number in this clause does not need to change.

---

*Cl* **31B** *SC* **Figure 31B-1** *P* **159** *L* **1** # **45**

Tom Mathey — Independent

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

In the redrawn state diagram, the line from state PAUSED to SEND CONTROL FRAME is missing. Text for exit condition is present.

*SuggestedRemedy*

Add line. In addition, align text for pause_timerDone = true with other text.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **35** *SC* **35.2.2.2** *P* **N/A** *L* **N/A** # **320**

Shimon Muller — Sun Microsystems, Inc

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

This comment is submitted as a "service to humanity" and is intended to fix a problem that was discovered in this clause as a result of a similar problem in clause 46 during Task Force ballot.
The second and third paragraphs in this subclause go into great detail on how the switching of the RX_CLK from recovered to local clock references should be done between received frames. Since the GMII is defined for continuous signaling systems only, none of this is necessary.

*SuggestedRemedy*

Replace the second and third paragraphs in this subclause with the following:

"There is no need to transition between the recovered clock reference and a nominal clock reference on a frame-by-frame basis. If loss of received signal from the medium causes a PHY to lose the recovered RX_CLK reference, the PHY shall source the RX_CLK from a nominal clock reference. Transitions from the nominal clock to the recovered clock or from the recovered clock to the nominal clock shall be made only while RX_DV and RX_ER are de-asserted and shall not decrease the clock period."

*Proposed Response* *Response Status* **C**

REJECT.

Submit for maintenance.

---

*Cl* **35** *SC* **35.5.3.2** *P* **N/A** *L* **N/A** # **321**

Shimon Muller — Sun Microsystems, Inc

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

PICS adjustment for a related comment against 35.2.2.2.

*SuggestedRemedy*

Change the SF5 entry in the table to read as follows:
"

| | | | | | |
|---|---|---|---|---|---|
| SF5 | Transition between clock sources | 35.2.2.2 | No decrease of RX_CLK period when switching sources | M | Yes [] |

"

*Proposed Response* *Response Status* **C**

REJECT.

Submit for maintenance.

*Cl* **44** *SC* **44** *P* **324** *L* **1** # **49003**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

The following comment on clause 49 is referred to clause 44 for resolution:

The introduction (scope, objectives, relationships with other standards, and summary) are well written an helpful. But, shouldn't this material be in clause 44?

*SuggestedRemedy*

Recommend moving to clause 44. Add pointer to the material from 49. Thin out the introduction to include information specific to clause 49.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editors to wordsmith the correct text from clause 49 into clause 44.

---

*Cl* **44** *SC* **44.1** *P* **164** *L* **33** # **935**

Law, David 3Com

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

Typo.

*SuggestedRemedy*

'... the MAC Layer ...' should read '... the MAC Sublayer ...'.

*Proposed Response* *Response Status* **Z**

---

*Cl* **44** *SC* **44.1** *P* **164** *L* **33** # **626**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

'... the MAC Layer ...' should read '... the MAC Sublayer ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **44** *SC* **44.1** *P* **164** *L* **40** # **991**

William G. Lane CSU, Chico

*Comment Type* **E** *Comment Status* **A**

A reference to the rate control mode definition would be helpful

*SuggestedRemedy*

Add "(see 4.2.3.2.2)" at the end of the sentence

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Place reference after "A rate control mode".

---

*Cl* **44** *SC* **44.1** *P* **164** *L* **54** # **854**

Jonathan Thatcher World Wide Packets

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

MDIO is not included as part of the list of exceptions.

*SuggestedRemedy*

Add MDIO

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add the following text after XGMII:
"the management interface, which, when physically implemented as the MDIO/MDC (Management Data Input/Output and Management Data Clock) at an observable interconnection port, uses a bit-wide data path as specified in Clause 45, and"

---

*Cl* **44** *SC* **44.1.1** *P* **165** *L* **17** # **855**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Missing comma: "...four-lane, differential-pair..."

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **44.1.4** *P* *L* # **856**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Not clear that "X" in the tables mean "required."

*SuggestedRemedy*

Either:
1. Change X's to "Required" in table or
2. Indicate that X's mean "required" with footnote or in text.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
"X" will be changed to "M" and "M" will be documented as "Mandatory."

*Cl* **44** *SC* **44.1.4** *P* **165** *L* **27** # **176**

Robert Grow Intel

*Comment Type* **E** *Comment Status* **A**

The second sentence subject doesn't make sense. Also, we don't want to imply that any PHY layer is 10 Gigabit Ethernet, only the 802.3 specified PHYs.

*SuggestedRemedy*

Change "10 Gb/s MAC" to "10 Gigabit Ethernet", and "any physical layer" to any IEEE 802.3 10GBASE- physical layer". Resulting sentence reads: "The generic term 10 Gigabit Ethernet refers to any use of the 10 Gb/s IEEE 802.3 MAC (the 10 Gigabit Ethernet MAC) coupled with any IEEE 802.3 10GBASE physical layer implementation."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **44.1.4** *P* **166** *L* **11** # **857**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Only one PCS shared for R and W PHYs

*SuggestedRemedy*

Change text: "share the use of common PCS specifications" to "share a common PCS specification"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **44.1.4** *P* **166** *L* **14** # **858**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

"physical operation" vague

*SuggestedRemedy*

Change to "media interfaces"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change text to read:
"Specifications of each physical.."

*Cl* **44** *SC* **44.3** *P* **161** *L* **44** # **120**

Ralph Andersson TDK Semiconductor

*Comment Type* **E** *Comment Status* **A** *speed of light*

Text is incorrect:
"The speed of light in a vaccum vacuum is c = 3 x 10^9 m/s." to

*SuggestedRemedy*

Change text to:
"The speed of light in a vaccum vacuum is c = 3 x 10^9 decimeters per second" or change text to:"The speed of light in a vaccum vacuum is c = 3 x 10^8 m/s."

*Proposed Response* *Response Status* **C**

ACCEPT.
See response to #663.

*Cl* **44** *SC* **44.3** *P* **166** *L* **49** # **663**

Brown, Benjamin AMCC

*Comment Type* **T** *Comment Status* **A** *speed of light*

Incorrect value for speed of light

*SuggestedRemedy*

Replace 3x10^9 with 3x10^8

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **44.3** *P* **166** *L* **49** # **896**

Lindsay, Tom — Stratos Lightwave

*Comment Type* **T** *Comment Status* **A** *speed of light*

We are always trying to push the speed in which we do things, but I don't recall that we have been successful in increasing the speed of light.

*SuggestedRemedy*

c = 3x10^8 m/s

*Proposed Response* *Response Status* **C**

ACCEPT.
See response to #663.

*Cl* **44** *SC* **44.3** *P* **166** *L* **49** # **22**

Brierley-Green, Andrew — Philips Semiconductor

*Comment Type* **T** *Comment Status* **A** *speed of light*

The speed of light in a vacuum, c, is incorrectly given as 3 x 109 m/s.

*SuggestedRemedy*

Replace "3 x 109 m/s" with "3 x 108 m/s".

*Proposed Response* *Response Status* **C**

ACCEPT.
See response to #663.

*Cl* **44** *SC* **44.3** *P* **167** *L* **8** # **444801**

Rich Taborek

*Comment Type* **T** *Comment Status* **A** *anges tied to comment# 152*

Comment 152 changes delay constraints in Clause 48. The same changes should be reflected in table 44-2.

*SuggestedRemedy*

Change Table 44–2, Round-trip delay constraints entries for Maximum (bit time) row entries XGXS and XAUI and 8B/10B PCS and PMA to 4096 and 2048 respectively.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **44.3, Table 44-3** *P* **167** *L* **22** # **23**

Brierley-Green, Andrew — Philips Semiconductor

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

Due to the error in the given speed of light in a vacuum (i.e3 x 109 m/s rather than 3 x 108 m/s), all numbers in the secondcolumn of this table are too small by one order of magnitude(i.e. for n = 0.4, the entry should be 83.3 ns/m.) Also, allthe entries in the third column are too small by one order ofmagnitude (i.e. for n = 0.4, the entry should be 833.3 BT/m).(Note there is also incidentally a rounding error in theseparticular entries.)

*SuggestedRemedy*

Recompute all entries in columns 2 and 3 of this table using the correctvalue of c and check for rounding errors.

*Proposed Response* *Response Status* **C**

ACCEPT. The table was correct for the values specified because they were not calculated with the incorrect value of c. The rounding errors will be corrected.

*Cl* **44** *SC* **44.4** *P* **168** *L* **30** # **859**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Putting a shall in clause 44 implies that there should be a PIC for clause 44. But, having a PIC that says that the implementation must have a PIC is a bit weird.

*SuggestedRemedy*

Change "shall complete" to "demonstrates compliance by completing"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **44.4** *P* **168** *L* **36** # **860**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **R**

Consider adding a table of required PICs tables for each port type.

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT.
Table 44-1 provides this information.

*Cl* **44** *SC* **Table 44-2** *P* **167** *L* # **148**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **T** *Comment Status* **A** *delay parameters*

44.3 states: "Predictable operation of the MAC Control PAUSE operation (Clause 31, Annex 31B) demands that there be an upper bound on the propagation delays through the network."This is surely an constructive and positive goal to aim at."This implies that MAC, MAC Control sub-layer, and PHY implementors must conform to certain delay maxima, and that network planners and administrators conform to constraints regarding the cable topology..."Here, the sense begins to fade away for 10 Gigabit Ethernet in the commenter's perception. Two arguments to make this plausible: abling delay
Just taking the three major distance objectives of 10GE and the default value for signal travel speed from Table 44-3, we get the following results for cabling delay:
300 m * 50.5 BT/m = 15150 BT = 29.59 pause quanta bit times.
10 km * 50.5 BT/m = 505000 BT = 986.33 pause quanta bit times.
40 km * 50.5 BT/m = 2020000 BT = 3945.31 pause quanta bit times.
Having this much cabling delay anyway, what sense is there in the meticulous definition of delays of one or two pq bit times for sublayers between the fiber connector and MAC Control? At least, it does not seem to make much sense to give delay constraint values for these sublayers that are especially tough to meet.b) economic feasibility
The delay values for individual sublayers in Table 44-2 implicitly force the use of certain semiconductor technologies on the implementer. In order to conform to the limits given here, the implementer must be able to operate on certain internal clock frequencies. The current values in Table 44-2 assume available clock speeds of 312 MHz for rows 2,3 and 6 (X PHY) and 156 MHz for rows 4 and 7 (R PHY).To operate on these clock frequencies, a 0.18 (0.13) micron feature size technology must be employed to meet 156 (312) MHz.Moreover, to implement a WIS it is necessary to reuse existing IP from SONET systems. Usually, such IP will be present for 0.25 micron technologies allowing a 78 MHz clock frequency.The commenter regards it as useful to give to the implementers of the standard as many degrees of freedom as possible for the design of their systems. It must be the interest of 802.3 to enable multiple implementations from multiple vendors without any implicit limitations.

*SuggestedRemedy*

Provide more slack on the delay objectives for each sublayer in the system. Change Table 44-2 to the following numbers:
(Row title - Maximum (bit times) - Maximum (pause quanta))
MAC, RS and MAC Control - 19456 - 20
XGXS and XAUI - 8192 - 16
8b/10b PCS and PMA - 4096 - 8
64b/66b PCS - 7168 - 14
WIS - 28672 - 28
LX4 PMD - 1024 - 2
Serial PMD - 1024 - 2
Commenter's note: this revised table is supposed to be based on a technology with a maximum clock frequency of 78.125 MHz for all sublayers. In the cases of WIS and MAC, RS and MAC Control, the commenter has no safe base for numbers and therefore assumed that those in the original table were viable as. The resulting maximum overall delay - as calculated for a 10GBASE-W PHY - sums up to 20+16+14+28+2=80 pause quanta bit times. See comment against 31B.3.7.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Table 44-2 should be listed as informative. Comments issued against 46, 47, 52, and 53 to document their delay constraints. Change "Serial PMD" to "Serial PMA and PMD". Add reference to other delay constraints.

*Cl* **44** *SC* **Table 44-2** *P* **167** *L* **1** # **46**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **R**

The values in this table add up to 63. The text here and in Clause 31B says sum is 60.

*SuggestedRemedy*

Harmonize

*Proposed Response* *Response Status* **C**

REJECT.
These numbers cannot be summed as includes numbers 10GBASE-X, 10GBASE-R and 10GBASE-W implementations. The numbers do add to 60 pause quanta for a 10GBASE-W implementation that incorporates a XAUI between the MAC and PHY.

*Cl* **44A** *SC* **Fig 44A-1** *P* **172** *L* # **44005**

Booth, Brad

*Comment Type* **E** *Comment Status* **A**

Cg bit ordering is inversed as per clause 48.

*SuggestedRemedy*

Reverse bit ordering to match clause 48. Apply to all the figures.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44A** *SC* **Fig 44A-1** *P* **172** *L* **13** # **861**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

For consistency with rest of document (see 44A-5), Cg should be Tcg. Ditto lines 16 to 22. Ditto Figure 44A-3

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT.
Tcg applies only to 10GBASE-LX4 diagrams.

*Cl* **44A** *SC* **Fig 44A-2** *P* **173** *L* **13** # **862**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

For consistency with rest of document (see 44A-6), Cg should be Rcg. Ditto lines 14, to 22. Ditto Figure 44A-4

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT.
Rcg applies only to 10GBASE-LX4 diagrams.

*Cl* **44A** *SC* **Figure 44A-1** *P* **172** *L* **45** # **864**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Bottom of bracket for PMA should align with the "Data to PMD" text on line 41. Bracket for PMD missing. Ditto for Figures 44A-2; 3; 4; 5; 6

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Make all changes except adding a PMD bracket. Remove MAC from the top bracket and align bracket to "Data From/To MAC".

*Cl* **44A** *SC* **Figure 44A-2** *P* **173** *L* **34** # **865**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

Should the synchronizer be a Synchronizer and a Gearbox? Ditto Figure 44A-4 on page 175

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT.
This follows Figure 49-4.

*Cl* **44A** *SC* **Figure 44A-3** *P* **174** *L* **29** # **47**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

The line which includes Sync Header Bits has data as D0..D63. The other 64B/66B figures as data as De0..De63.

*SuggestedRemedy*

Change from D0..D63 to De0..De63.

*Proposed Response* *Response Status* **C**

ACCEPT.
Will also change the Legend to match this change.

*Cl* **44A** *SC* **Figures 44A-1;** *P* **172** *L* **21** # **863**

Jonathan Thatcher World Wide Packets

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

Add synchronizer and Aligner to XGXS. Ditto Figure 44A-2; 3; 4 on pages 173, 174, 175.

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT.
Although this might provide useful information, addition of these into the diagrams would make the diagram more congested and confusing, and impossible to print.

*Cl* **45** *SC* *P* *L* # **206**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *X clause issue*

Cleaning up signal detect and loopback (clauses 49, 51, 52) may have minor implications for register set.

*SuggestedRemedy*

Keep in step with other clauses
Thank you

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "signal detect' register name to 'pmd signal ok' as per comment resolution 742

*Cl* **45** *SC* *P* *L* # **694**

DawePiers Agilent

*Comment Type* **T** *Comment Status* **A** *X clause issue*

Cleaning up signal detect and loopback (clauses 49,51, 52) may have minor implications for register set.

*SuggestedRemedy*

Keep in step with other clauses.
Thank you

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "signal detect' register name to 'pmd signal ok' as per comment resolution 742

*Cl* **45** *SC* *P* *L* # **702**

Dawe Piers Agilent

*Comment Type* **TR** *Comment Status* **A** *X clause issue*

Let's put the zombie "power down function" to rest! At present the draft has a "MDIO-mandatory" power down feature which is not defined and may be implemented as "don't power down", as is usual in transceiver optics. This silliness does the standard and its customers a disservice. Let's agree whether anyone wants PMD power down at 10G. If they do, declare capability. If not, remove it from Cl.45. This comment is repeated against 00,45, 52 and 53.

*SuggestedRemedy*

Agree optional PMD "power down" or no PMD "power down". Minor mods to clauses 45, 52 and 53.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Both PMD tracks have agreed to remove power down completely.

*Cl* **45** *SC* *P* *L* # **44002**

Dallesasse, John Molex

*Comment Type* **T** *Comment Status* **D** *cross-clause 45-53*

Clauses 45 and 53:For both transmit disable and signal detect functions, bit "0" in the corresponding MDIO register should provide global action/reporting. This bit should not be shared with a lane "0" of the WWDM PMD. The operation for individual lanes 0-3 should take place in bits 1-4 of these registers. Justification:
1) Global functionality is of primary importance to the end user. For all other PMD types, global function is provided through bit "0." The same should be true for WWDM.
2) Under normal operation, all lanes of the WWDM PMD will be in use. The main purpose of individual lane functionality for WWDM is manufacturing test, diagnostics, and proprietary implementations. These functions are thus not absolutely required on a per lane basis. This should be reflected in how they are handled by the MDIO.
3) A general rule of good engineering is to keep parts that are intended to be interchanged as similar as possible. Since hot swappability is likely in many implementations of these PMDs, working within the standard to provide an interface that is as similar as possible at the base level of functionality is good practice and makes sense. If a user wants to disable transmitter function or determine if a signal is present, they should have one place to go for all of the PMD types.
4) My recollection of the intent of the committee was that functions pertaining to the WWDM PMD would be required to be global if implemented, and could optionally be reported on a per-lane basis. As things stand currently, per lane reporting is not optional, but required if these functions are implemented.

*SuggestedRemedy*

In Tables 45-7 and 45-8, Bit "0" will become a global function for all PMD types, bit 1 will correspond to WWDM lane 0, bit 1 will correspond to lane 1, bit 2 will correspond to lane 3, and bit 4 will correspond to lane 3. Minor text editing will be needed in Sections 45.2.1.6 and 45.2.1.7. Minor text edits will also be required in Sections 53.3 and 53.4, as well as Tables 53-2 and 53-3.

*Proposed Response* *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE.
Duplicate of comment #255 issued to clause 45 and 53 editors to track closure of this comment.

*Cl* **45** *SC* **2.2** *P* **194** *L* # **258**

Joergensen, Thomas Intel

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

There is no method for putting the WIS in pass-through mode. If this was implemented, it would be possible to use a PHY with WIS in non-WIS mode by setting the WIS in pass-though mode and change the clock speed. A lot of vendors must be planning on doing this (to get the component volume up) so why not make it mandatory to ease system implementation.

*SuggestedRemedy*

Change bit 2.0.7 in TABLE 45-12 to WIS bypass, R/W.Add paragraph 45.4.4.1.X WIS bypassThe WIS may be placed in bypass mode by setting bit 2.0.7 to a one.

*Proposed Response* *Response Status* **C**

REJECT.
Bit 2.4.0 allows a user to bypass the WIS by selecting the 10GBASE-R port type. In addition, bit 2.5.0 allows a WIS manufacturer to advertise whether such a capability has been provided.

*Cl* **45** *SC* **45** *P* *L* # **121**

Ralph Andersson TDK Semiconductor

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

Figure 45-3 is provided for only PMA/PMD MMD. Block diagram would be especially helpful given the signal flow differences between transmit and receive for the two solutions e.g. 4.24.12 vs. 5.24.12

*SuggestedRemedy*

Add figures similar to 45-3 for each of the MMDs in Clause 45

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Modify diagram to make it generic. Replace PMD blocks with 'downstream MMD'. Put in only one diagram for the whole clause.

*Cl* **45** *SC* **45** *P* *L* # **751**

Dawe Piers Agilent

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

There is need for registers relating to hardware artifacts such as "a transceiver" rather than items within such as a sublayer. Guidance in this clause would stop vendors of ICs and modules tripping over each other.

*SuggestedRemedy*

Please supply register space for hardware artifacts such as "a transceiver".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The track recommends the re-adoption of the 'devices in chip' concept. Define two registers (32 bits) with 31 bits to represent each of the possible MMDs (no device zero) and a 32nd bit to indicate 'Clause 22 registers present in package'. Select the wording such that the meaning of being in the same package is vendor specific.
Place these two registers in a convenient location in the register map so that they are in the same position for all MMDs.

*Cl* **45** *SC* **45.1.2** *P* **179** *L* **28-32** # **119**

Ralph Andersson TDK Semiconductor

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

Text is confusing. The frame format specified in 45.3 refers to a port address (PRTAD) that allows access to 32 ports "allowing 32 unique port addresses". 45.1.2 and subsequent subclauses refer to PHYs. This inconsistancy should be fixed or clarified.

*SuggestedRemedy*

Change text:
"This clause allows a single STA, through a single MDIO interface, to access up to 32 PHYs consisting" to:
"This clause allows a single STA, through a single MDIO interface, to access up to 32 PHYs (defined as PRTAD in the frame format defined in 45.3) consisting"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.1.2** *P* **179** *L* **43-45** # **117**

Ralph Andersson TDK Semiconductor

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

Figure 45-1 contains redundant text. "Multiple MMDs instantiated in a device." is attempting to say the same thing as the text: "Up to 32 MMDs per PHY" and it does it incorrectly. It should say"Multiple MMDs instantiated in a PHY or port". This redundancy should be removed.

*SuggestedRemedy*

Remove: "Multiple MMDs instantiated in a device."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The text is highlighting a specific feature which is multiple MMDs instantiated in a single physical entity. I agree that the wording is not quite correct and propose to change it to 'Multiple MMDs instantiated in a single package.'
Add an additional dotted line around the physical entity to highlight what it is.

*Cl* **45** *SC* **45.1.2** *P* **180** *L* **31** # **664**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

Need a space

*SuggestedRemedy*

Replace "32MMDs" with "32 MMDs"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **1** # **686**
Thaler, Pat — Agilent Technologies

*Comment Type* **TR** *Comment Status* **A**
This is not an MII. It is similar but not the same

*SuggestedRemedy*
Change MII to MDIO

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **1** # **543**
Alexander, Tom — PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**
Subclause heading should read "MDIO Interface Registers" rather than "MII Interface Registers". The second paragraph of this subclause appears to make a distinction between "MDIO interface" and "MII management interface", implying that the new interface should be referred to as "MDIO".

*SuggestedRemedy*
Change "MII Interface Registers" to "MDIO Interface Registers".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **21** # **665**
Brown, Benjamin — AMCC

*Comment Type* **E** *Comment Status* **A**
Missing a period

*SuggestedRemedy*
Replace "when read" with "when read."

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **21** # **689**
Thaler, Pat — Agilent Technologies

*Comment Type* **E** *Comment Status* **A**
Missing period

*SuggestedRemedy*
Add a period after "read"

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **21** # **279**
Jennifer Rasimas — Nortel Networks

*Comment Type* **E** *Comment Status* **A**
Missing period at end of sentence.

*SuggestedRemedy*
Place period after the word "read"

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **21** # **116**
Ralph Andersson — TDK Semiconductor

*Comment Type* **E** *Comment Status* **A**
Missing period at sentance end

*SuggestedRemedy*
Change text: Add period following the word read.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **30** # **992**

William G. Lane CSU, Chico

*Comment Type* **TR** *Comment Status* **A** *X clause issue*

Because several of the MDIO status and control variables apply to either only one or both sublayers as shown in the following tables, separate register sets should be provided for the PMA and the PMD

Table 45-3 Control register 1

| Bit name | Applicable to PMD | Applicable to PMA |
|---|---|---|
| Reset | X | X |
| Loopback * | X | X |
| Speed select (LSB) | | X |
| Power down | X | X |
| Speed select (MSB) | | X |

* Figure 45-2 shops that loopback needs to be enabled either for the PMA or the PMD, but not for both at the same time.

Table 45-4 Status register 1

| Bit name | Applicable to PMD | Applicable to PMA |
|---|---|---|
| Local fault | X | X |
| Received link status | | X |

Table 45-5 Control register 2

The values 001 - 111 are all applicable to the PMA sublayer.
Only E, L, S, and LX-4 are needed for the PMD sublayer

Table 45-6 Status register 2

| Bit name | Applicable to PMD | Applicable to PMA | Notes |
|---|---|---|---|
| Device present | X | X | Only one bit is needed |
| Xmit local fault ability | X | X | |
| Rcv local fault ability | X | X | |
| Xmit local fault | X | X | |
| Rcv local fault | X | X | |
| Loopback ability | X | X | |
| PMD xmit disable ability | X | | |
| 10GBASE-SR ability | X | X | Only S is needed for the PMD |
| 10GBASE-LR ability | X | X | Only L is needed for the PMD |
| 10GBASE-ER ability | X | X | Only E is needed for the PMD |
| 10GBASE-LX-4 ability | X | X | |
| 10GBASE-SW ability | | X | See SR ability note |
| 10GBASE-LW ability | | X | See LR ability note |
| 10GBASE-EW ability | | X | See ER ability note |

Table 45-7 10G PMD transmit disable

This is a PMD-only table. "PMD transmit disable 0" has different meanings for serial and WWDM PMDs. Since transmit disable for the WWDM PMD could be either all lanes or Lane-by-lane, I suggest that we add an "All lanes transmit disable" control variable.

Table 45-8 10G PMD receive signal detect

This is also a PMD-only table. It is OK as is.

*SuggestedRemedy*

NOTE: ALL OF THE FOLLOWING MUST BE COORDINATED WITH CLAUSES 52 AND 53

* Table 45-1: Delete PMA from device address 1; Change device addresses 2--5 to 3-6; Assign device address 2 to the PMA.

* 45.2.1: Copy this entire subclause and insert the copy as a new subclause 45.2.2 PMA registers; Change the title of 45.2.1 to "PMD registers"; Search and change PMA/PMD to PMD in all of 45.2.1 except the figure title in figure 45-2;

* Table 45-3: Change the speed select bits (1.0.13 and 1.0.6) to reserved; Collapse the table as appropriate;

* 45.2.1.1.2: Delete the note at the end of this subclause (it is no longer needed);

* 45.2.1.1.3: Delete this subclause (it only applies to the PMA);

* Table 45-4: Change "Receive link status" to "reserved"; Collapse the table as appropriate (it only applies to the PMA);

* 45.2.1.2.2: Delete this subclause (it only applies to the PMA);

* Table 45-5: Only E, L, S, and LX-4 PMD types are currently defined - change 101 - 111 to "reserved";

* 45.2.1.4.1: Change the text in this subclause to agree with the PMD type selection in table 45-5;

* Table 45-6: Change "PMD transmit disable ability" to "All lanes transmit disable ability"; Add a new variable "Lane by lane transmit disable ability"; Change 10GBASE -SR ability to 10GBASE-S ability (R and W do not apply); Change 10GBASE -LR ability to 10GBASE-L ability; Change 10GBASE -ER ability to 10GBASE-E ability; Delete 10GBASE -SW ability; Delete 10GBASE -LW ability; Delete 10GBASE -EW ability; Collapse the table as appropriate;

* 45.2.1.5.7: Copy this subclause: Change the title of 45.2.1.5.7 to "All lanes transmit disable ability"; Insert the copy as a new subclause 45.2.1.5.8 Lane by lane transmit disable ability;

* 45.2.1.5.8: Change "10GBASE-SR" to "10GBASE-S" (3 places);

* 45.2.1.5.9: Change "10GBASE-LR" to "10GBASE-L" (3 places);

* 45.2.1.5.10: Change "10GBASE-ER" to "10GBASE-E" (3 places);

* 45.2.1.5.12: Delete this variable (no longer needed);

* 45.2.1.5.13: Delete this variable (no longer needed);

* 45.2.1.5.14: Delete this variable (no longer needed);

* 45.2.1.6: Change "bit zero" in the text in line 14 to "all lanes transmit disable"

* Table 45-7: Delete "PMD from the variable names; Add "All lanes transmit disable" variable;

* 45.2.1.6.1: Copy this subclause: Change the title of 45.2.1.6.1 to "All lanes transmit disable"; Change "lane 3" in the text of this subclause to "all lanes" (2 places); Insert the copy as a new subclause 45.2.1.6.2 Transmit disable 3;

* 45.2.1.6.3 (new): Change the title to "Transmit disable 2";

* 45.2.1.6.4 (new): Change the title to "Transmit disable 1";

* 45.2.1.6.5 (new): Change the title to "Transmit disable 0";

* 45.3.1 (new): Change the title of 45.2.1 to "PMA registers"; Search and change "PMA/PMD" to "PMA" in all of 45.2.1

* Figure 45-2 (equivalent): Delete this figure and its text reference;

* 45.3.2.1.1.2 (new): Delete the note at the end of this subclause;

* Table 45-6 (equivalent): Delete PMD transmit disable ablility;

* 45.3.1.5.7 (new): Delete this subclause (it applies to the PMD only);

* 45.3.1.6 (new): Delete this entire subclause (it applies to the PMD only);

* 45.3.1.7 (new): Delete this entire subclause (it applies to the PMD only);

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make sure that the PMA/PMD MMD has a 'PMD loopback bit' a 'PMD loopback ability' bit, a 'PMA loopback' bit (1.0.0) and a 'PMA loopback ability' bit (1.5.0). Add any bits that are missing.

*Cl* **45** *SC* **45.2** *P* **181** *L* **41** # **911**

Law, David 3Com

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

Change Device Addresses 16 through 30 from being Vendor Specific to being Reserved. Device Address 31 will remain the only Vendor Specific Device Address. There are three reasons I propose this.
1. The specification is already using 6 of the available Device Addresses and there has even been discussion of another being added on the reflector (the splitting of the PMA and PMD) so freeing up 15 Device Address for future IEEE P802.3 use would seem wise.
2. It is not clear how to use the 16 Device Addresses that are available on each port. How are they addressed, will a manufacture of a Vendor Specific Device always provide 5 pins so that a Systems Vendor can assign whichever address he wishes for the device. It certainly does not seem possible for a Vendor Specific device to be manufactured with a fixed address, if Vendor A chooses address 16 and Vendor B also chooses Address 16 a system cannot use the two devices on the same port. There is certainly no mechanism to allocate the addresses.
3. Is it really necessary to allocate 16 x 64Kbytes of address space per port when each device type already provides 32Kbytes of vendor specific address space.

*SuggestedRemedy*

Change Device Addresses 16 through 30 from being Vendor Specific to being Reserved. Device Address 31 will remain the only Vendor Specific Device Address. There are three reasons I propose this.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2** *P* **181** *L* **41** # **602**

Law, David 3Com

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

Change Device Addresses 16 through 30 from being Vendor Specific to being Reserved. Device Address 31 will remain the only Vendor Specific Device Address. There are three reasons I propose this.
1. The specification is already using 6 of the available Device Addresses and there has even been discussion of another being added on the reflector (the splitting of the PMA and PMD) so freeing up 15 Device Address for future IEEE P802.3 use would seem wise.
2. It is not clear how to use the 16 Device Addresses that are available on each port. How are they addressed, will a manufacture of a Vendor Specific Device always provide 5 pins so that a Systems Vendor can assign whichever address he wishes for the device. It certainly does not seem possible for a Vendor Specific device to be manufactured with a fixed address, if Vendor A chooses address 16 and Vendor B also chooses Address 16 a system cannot use the two devices on the same port. There is certainly no mechanism to allocate the addresses.
3. Is it really necessary to allocate 16 x 64Kbytes of address space per port when each device type already provides 32Kbytes of vendor specific address space.

*SuggestedRemedy*

Change Device Addresses 16 through 30 from being Vendor Specific to being Reserved. Device Address 31 will remain the only Vendor Specific Device Address. There are three reasons I propose this.

*Proposed Response* *Response Status* **C**

ACCEPT.
I believe that this comment is identical to #911.

*Cl* **45** *SC* **45.2** *P* **181** *L* **41** # **682**

Thaler, Pat Agilent Technologies

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

The usefulness of the vendor specific device addresses will be very limited because when a manager finds a vendor specific device, it will have no way of figuring out what the device is. This could be remedied by requiring that devices responding to a vendor specific device addresses support registers x.2 and x.3 to supply a device identifier. By restricting the use of just two of the registers, we supply a standard way to identify vendor specific devices.The text in my suggested remedy allows sending all zeros for the device identifier as is done for the other devices, but I would be entirely happy to remove that sentence and require vendor specific devices to supply a non-null id.

*SuggestedRemedy*

Add a subclause 45.2.6 Vendor specific devices The assignment of registers in vendor specific devices is shown in Table 45?x. Since vendor specific devices can have device addresses from 16 through 31, in this clause n represents the device address.".2.6.1 Vendor specific device identifier (Registers n.2 and n.3) Registers n.2 and n.3 provide a 32-bit value, which shall constitute a unique identifier for a particular type of vendor specific device. A vendor specific device may return a value of zero in each of the 32 bits of the device identifier.The format of the vendor specific device identifier is specified in 22.2.4.3.1.

*Proposed Response* *Response Status* **C**

ACCEPT.
See also comment #911.

*Cl* **45** *SC* **45.2.1.1** *P* **183** *L* **18** # **688**

Thaler, Pat Agilent Technologies

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

Many register bits say "write as one" or "Write as zero, ignore on read." but this clause should primarily be describing the behavior of the Devices in driving the MDIO interface and not the manager's behavior.

*SuggestedRemedy*

Change "write as one" to "value always 1, writes ignored" and change "write as zero, ignore on read" to "value always 0, writes ignored. Also change the text description of the bit to match.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1** *P* **183** *L* **29** # **429**

Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Remove "RO=Read Only" from note of Table 45-3.

*SuggestedRemedy*

Remove "RO=Read Only" from note of Table 45-3.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1** *P* **183** *L* **34** # **544**

Alexander, Tom PMC-Sierra, Inc.

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

The second sentence in this paragraph indicates that a default value for each bit of this register has been selected (and, presumably, not kept secret). However, I could not find any default values specified in this subclause. In addition, this is not consistent with the treatment of the rest of the registers.

*SuggestedRemedy*

Change "has been chosen" to "should be chosen", indicating that it is the user's responsibility to select and specify these defaults. This is consistent with the rest of the clause.

*Proposed Response* *Response Status* **C**

REJECT.
The Control 1 register is different from the other registers in that the default values should not be specified by the user. It has been an historical feature that when a PHY is reset, it is functional once reset is completed. For this reason, loopback must be disabled and power down must be powered up. Default values for these two bits are specified in this subclause. In addition, the two 'never changing bits' (1.0.13 and 1.0.6) are specified to be one.

*Cl* **45** *SC* **45.2.1.1.1** *P* **183** *L* **40** # **666**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

It is unclear which bits are valid and which are ignored.This comment applies to all RESET bits for all MMDs

*SuggestedRemedy*

Replace "bits 1.0.15, 1.5.15:14 and all other" with "bits 1.0.15and 1.5.15:14. All other"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1.1** *P* **183** *L* **40** # **286**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

"...shall respond to reads to register bits..."Usually, one "writes to" and "reads from".

*SuggestedRemedy*

Replace "...reads to..." with "...reads from...".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1.2** *P* **183** *L* **53** # **545**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Loopback functionality is also detailed in Clause 51 (subclause 51.8). This subclause is for both PMA and PMD.

*SuggestedRemedy*

Add the PMD subclause "51.8" to the list of PMA subclauses.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1.2** *P* **184** *L* **6** # **937**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Loopback is avalible in other MMD's so the use of the word device here is unclear.

*SuggestedRemedy*

Suggest the text '... within other devices.' should read '... within other MMDs.'. This change should also be done to the similar notes elsewhere in this clause.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
I believe that this comment is the same as #628.

*Cl* **45** *SC* **45.2.1.1.2** *P* **184** *L* **6** # **628**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Loopback is avalible in other MMD's so the use of the word device here is unclear.

*SuggestedRemedy*

Suggest the text '... within other devices.' should read '... within other MMDs.'. This change should also be done to the similar notes elsewhere in this clause.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1.3** *P* **184** *L* **8-11** # **322**

Shimon Muller Sun Microsystems, Inc

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

This comment has been withdrawn during the Task Force ballot and is resubmittedhere as per the decision of the clause 45 sub-Task Force.I find the specification for the Speed Selection bits for all the MMDs quiteconfusing. These bits imply that they are intended to allow for speed selectionin the MMD. However, their behavior as specified here does not support thisfunctionality. Furthermore, clause 45 at this time supports only the 10Gb/soperation. It is probably a good bet to assume that in the future there willbe other speeds that it will have to support. Therefore, it would be wise toallocate a few more bits at this time for future speeds.

*SuggestedRemedy*

1. Allocate additional three bits in the Control 1 register for speed selection (1.0.5:3).
2. Define bits 1.0.6 and 1.0.13 as bits [4:3] for speed selection.
3. Define bits 1.0.5:3 as bits [2:0] for speed selection.
4. All the speed selection bits should be specified as R/W in the table.
5. Define the following encoding of the speed selection bits:
   1.0.6: 1 = Operation at 10Gb/s and above.
   0 = Unspecified.
   1.0.13: 1 = Operation at 10Gb/s and above.
   0 = Unspecified.
   1.0.5:3: 000 = Operation at 10Gb/s.
   001 = Reserved.
   010 = Reserved.
   011 = Reserved.
   100 = Reserved.
   101 = Reserved.
   110 = Reserved.
   111 = Reserved.
6. Change the text in 45.2.1.1.3 to reflect all of the above.
7. Add a new Speed Ability register to the PMA/PMD register set. This register should be designated as Register 1.4.
8. Renumber all the registers that follow the new register (1.5 through 1.10) in Table 45-2 and in the text in the subclauses that follow.
9. Define the eight LSB bits in the new register as Speed Ability bits. Bit [0] of this register is allocated for 10Gb/s operation. Bits [7:0] are reserved for future speeds. The remaining eight bits are just reserved.
10. Add a subclause (45.2.1.4) that describes the Speed Ability register.
11. Renumber all the subclauses that follow.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Take four bits rather than three out from the control register to encode 16 possible speeds and use all sixteen bits of the new speed ability register.

*Cl* **45** *SC* **45.2.1.1.4** *P* **184** *L* **23** # **667**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

It is unclear which bits are valid and which are ignored.This comment applies to all POWER DOWN bits for all MMDs

*SuggestedRemedy*

Replace "bits 1.0.15, 1.0.11 and 1.5.15:14 and all other" with "bits1.0.15, 1.0.11 and 1.5.15:14. All other"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.1.4** *P* **184** *L* **26** # **753**

Dawe Piers Agilent

*Comment Type* **TR** *Comment Status* **A** *X clause issue*

The draft says "The power up process shall be completed within 0.5s from the clearing of bit 1.0.11 to zero." This is a vague and possibly impractical request" depending what it is thought to mean. My remedy below IS complete; handshaking the reset or MDIO can be used to see if the MDIO is powered up, and PMA sync, WIS sync, PCS sync" and coding violation and CRC checks at severa layers can be used to see if a PMd/PMA has warmed up sufficiently to have a low error rate. Timers or thermometers are not appropriate.

*SuggestedRemedy*

Delete this unreasonable sentence "The power up process shall be completed within 0.5s from the clearing of bit 1.0.11 to zero.'"", or change it to refer to the MDIO and auxiliary signals/controls alone, not the data path.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
There is no longer a power down feature.
This comment has been overcome by events.

*Cl* **45** *SC* **45.2.1.1.4** *P* **184** *L* **26** # **752**

Dawe Piers Agilent

*Comment Type* **TR** *Comment Status* **A** *X clause issue*

The draft says "During the transition to the power down state and while in the power down state"" the PMA/PMD shall not generate spurious signals that could be interpreted as valid data on the data inter-faces." This is an impractical and unreasonable request.

*SuggestedRemedy*

Delete this unreasonable sentence. Suggest that the PCS start blanking (transmitting "RF" up the stack) before PMD is powerd down " stops blanking after. How this is achieved we needn't say maybe in MDIO logic aybe in the STA.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
There is no longer a power down feature.
This comment has been overcome by events.

*Cl* **45** *SC* **45.2.1.2.1** *P* **185** *L* **6** # **546**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

The statement "either of the local fault bits located in register 1.5" is a tad confusing, because there are four bits pertaining to local fault. I realize this is about as nitpicky as one can get, but I think one should never underestimate a designer's ability to misread a standard.

*SuggestedRemedy*

Change "local fault bits" to "local fault bits (1.5.11, 1.5.10)", thus leaving no room for doubt.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
And apply to other instances of this within the clause.

*Cl* **45** *SC* **45.2.1.2.2** *P* **185** *L* **13** # **547**

Alexander, Tom PMC-Sierra, Inc.

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

The treatment of the latching bits in the entire clause is somewhat inconsistent. For all but parts of the WIS subclause (45.2.2), it is possible to interpret the specification of latching behavior as being set when an event occurs, and cleared as soon as the register is read (regardless of whether the event is still persisting). This is clearly undesirable in all cases; for example, I cannot see how clearing a fault bit upon read, even though the fault condition continues to exist, could possibly be helpful to the station management entity. In addition, such behavior also promotes interesting race conditions that are well-known to embedded systems designers, and should be avoided.The specific instances of these latching bits that have this problem are associated with subclauses 45.2.1.2.2, 45.2.1.5.4, 45.2.1.5.5, 45.2.2.2.1, 45.2.3.2.2, 45.2.3.5.2, 45.2.3.5.3, 45.2.3.8.1, 45.2.3.8.2, 45.2.4.2.2, 45.2.4.4.2, 45.2.4.4.3, 45.2.5.2.2, 45.2.5.4.2, and 45.2.5.4.3.

*SuggestedRemedy*

Change the descriptions in the clauses indicated previously to state that latching bits shall not be cleared (in the case of LH type bits) or set (in the case of LL) until the specific conditions that they represent have gone away. The description of the LOS flag in 45.2.2.6.2 may be used as a reference for the revisions.

*Proposed Response* *Response Status* **C**

ACCEPT.
In addition, remove the text relating to clearing after reset for the PCS Local fault bits (3.5.11, 3.5.10). Add a note to say that a reset will cause the receive bit to become set and the state of the transmit bit will be indeterminate.

*Cl* **45** *SC* **45.2.1.4** *P* **185** *L* # **430**

Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Remove "SC=Self Clearing" from note of Table 45-5.Change RW into R/W in Table 45-5

*SuggestedRemedy*

Remove "SC=Self Clearing" from note of Table 45-5.Change RW into R/W in Table 45-5

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.4** *P* **185** *L* **31** # **290**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

R/W is missing the slash, as expressed in the footnote.

*SuggestedRemedy*

Insert a slash, making "RW" become "R/W".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.5** *P* **187** *L* **8** # **431**

Satoshi Obara Fujitsu Laboratories of

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

"Write as zero" is inconsistent with Read Only bit.

*SuggestedRemedy*

Change "Write as zero, ignore on read" into "Ignore on read".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This issue is addressed by comment resolution #688.

*Cl* **45** *SC* **45.2.1.6** *P* **189** *L* **10-11** # **548**

Alexander, Tom PMC-Sierra, Inc.

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

It is not clear whether the transmit disable functionality must be implemented in common across all transmit ability types. Is it possible for, say, a multi-ability PHY to allow transmit disable 10GBASE-R PMD types, while at the same time forbidding disable for 10GBASE-W PMD types?

*SuggestedRemedy*

State in 45.2.1.5.7 and 45.2.1.6 that the PMD disable ability bit is modulated by the PMD type selected in Register 1.4.

*Proposed Response* *Response Status* **C**

REJECT.
the PMD transmit disable functionality is not port type dependent as the bit is a PMD MMD bit. The transceiver will either be able to do it for all port types or none of them.

*Cl* **45** *SC* **45.2.1.6** *P* **189** *L* **31** # **291**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

R/W is missing the slash, as expressed in the footnote.

*SuggestedRemedy*

Insert a slash, making "RW" become "R/W".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.7** *P* **190** *L* **22** # **280**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Missing period at end of sentence.

*SuggestedRemedy*

Place period after the word "three"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.1.7** *P* **190** *L* **29** # **432**

Satoshi Obara Fujitsu Laboratories of

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

"Write as zero" is inconsistent with Read Only bit.

*SuggestedRemedy*

Change "Write as zero, ignore on read" into "Ignore on read".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This issue is addressed by comment resolution #688.

*Cl* **45** *SC* **45.2.2** *P* *L* # **50009**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Add a 16-bit register called "WIS Section BIP Errors" to reflect the resolution to comment #186.

*SuggestedRemedy*

Add a new register at index 2.59 named "10G WIS Section BIP Error Count". The functionality of the latter is that of a 16-bit non-resettable up counter, wrapping around to zero when it reaches its maximum count, that is incremented by 1 whenever a Section BIP Error is detected as described in 50.3.2.5. A Table shall be added to reflect this new functionality. The text to be placed in 45.2.2 is as follows:

"The 10G WIS Section BIP Error Count is incremented by by the number of Section BIP errors detected within each WIS frame, as described in 50.3.2.5. The counter wraps around to zero when it is incremented beyond its maximum value of 65535. It is cleared to zero when the WIS is reset."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2** *P* *L* # **50007**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

As per the resolution of comment #187, add a register pair called "WIS Line BIP Errors" that returns the number of detected Line BIP errors.

*SuggestedRemedy*

Assign two MDIO registers in Clause 45, referred to as "WIS Line BIP Errors", to snapshot the value of the 32-bit internal counter in Clause 50 that was introduced as a resolution of comment #187. These registers are to be assigned to indices 57 and 58. Both of the registers are to be loaded with the value of the internal counter when the first MDIO register (#57) is read. The specific text to be inserted into 45.2.2 is:

"The 10G WIS Line BIP Errors register pair reflects the contents of the Line BIP Errors counter that is incremented on each WIS frame by the number of Line BIP errors detected in the incoming data stream, as described in 50.3.2.5. Whenever the first 16-bit register of the counter (2.57) is read, the 32-bit counter value is latched into the register pair, with the most significant 16 bits appearing in 2.57 and the least significant 16 bits in 2.58, the value being latched before the contents of register 2.57 (the most significant 16 bits) are driven on the MDIO interface. A subsequent read to register 2.58 will return the least significant 16 bits of the latched value, but will not change the register contents. Writes to these registers have no effect."

The editor is given license to modify the above text to conform with the general format of the register descriptions in Clause 45, and also to create a Table to conform with the description.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2** *P* *L* # **50008**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Add a 16-bit register called "WIS Path Block Errors" to reflect the resolution to comment #188.

*SuggestedRemedy*

Add a new register at index 2.59 named "10G WIS Path Block Error Count". The functionality of the latter is that of a 16-bit non-resettable up counter, wrapping around to zero when it reaches its maximum count, that is incremented by 1 whenever a Path Block Error is detected as described in 50.3.2.5 and Annex 50A. A Table shall be added to reflect this new functionality. The text to be placed in 45.2.2 is as follows:

"The 10G WIS Path Block Error Count is incremented by 1 whenever a Far End Path Block Error, defined in Annex 50A, is detected as described in 50.3.2.5. The counter wraps around to zero when it is incremented beyond its maximum value of 65535. It is cleared to zero when the WIS is reset."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2** *P* **191** *L* **12** # **199**

Figueira, Norival Nortel Networks

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

Three comments are being made against subclause 50.3.9.1.9 (page 373) that result (if referred comments are accepted) in the addition of three new WIS registers: WIS Section BIP Errors, WIS Line BIP Errors, and WIS Path Block Errors. Reason given for the additions: The proper maintenance of the WIS MIB requires these errors to be reported to the Station Management via management registers.

*SuggestedRemedy*

Coordinate with Clause 50 editor to add these new registers to subclause 45.2.2 according to the approved resolutions given to the respective comments against subclause 50.3.9.1.9.

*Proposed Response* *Response Status* **C**

ACCEPT.
Editor of Clause 50 to pass on location of new bits and description text.

*Cl* **45** *SC* **45.2.2** *P* **191** *L* **12** # **625**

Law, David 3Com

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

Rgeisters to support the WIS MIB counters are mssing from the WIS registers. Please add registers to support the attributes aSectionSESs, aSectionESs, aSectionSEFSs, aSectionCVs, aLineSESs, aLineESs, aLineCVs, aFarEndLineSESs, aFarEndLineESs, aFarEndLineCVs, aPathSESs, aPathESs, aPathCVs, aFarEndPathSESs, aFarEndPathESs and aFarEndPathCVs.

*SuggestedRemedy*

Add registers to support the attributes aSectionSESs, aSectionESs, aSectionSEFSs, aSectionCVs, aLineSESs, aLineESs, aLineCVs, aFarEndLineSESs, aFarEndLineESs, aFarEndLineCVs, aPathSESs, aPathESs, aPathCVs, aFarEndPathSESs, aFarEndPathESs and aFarEndPathCVs.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2** *P* **191** *L* **12** # **934**

Law, David 3Com

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

Rgeisters to support the WIS MIB counters are mssing from the WIS registers. Please add registers to support the attributes aSectionSESs, aSectionESs, aSectionSEFSs, aSectionCVs, aLineSESs, aLineESs, aLineCVs, aFarEndLineSESs, aFarEndLineESs, aFarEndLineCVs, aPathSESs, aPathESs, aPathCVs, aFarEndPathSESs, aFarEndPathESs and aFarEndPathCVs.

*SuggestedRemedy*

Add registers to support the attributes aSectionSESs, aSectionESs, aSectionSEFSs, aSectionCVs, aLineSESs, aLineESs, aLineCVs, aFarEndLineSESs, aFarEndLineESs, aFarEndLineCVs, aPathSESs, aPathESs, aPathCVs, aFarEndPathSESs, aFarEndPathESs and aFarEndPathCVs.

*Proposed Response* *Response Status* **C**

ACCEPT.
I believe that this comment is the same as #625.

*Cl* **45** *SC* **45.2.2** *P* **191** *L* **14** # **281**
Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Missing period at end of sentence.

*SuggestedRemedy*

Place period after the word "Table 45-9".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2** *P* **191** *L* **18-54** # **549**
Alexander, Tom PMC-Sierra, Inc.

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

The reserved portions of the first 32 entries in the register maps are different for the different register sets. The summary of the reserved areas are:
PMA/PMD: 6-7, 10-31
WIS: 6-32 (and 55-32767)
PCS: 6-23, 25-31
PHY XS and DTE XS: 6-23, 25-31 It would be preferable to have the reserved areas made consistent across register maps to simplify the device driver's task and reduce the probability of errors.

*SuggestedRemedy*

Set the reserved portion of the register space (for all spaces) from 6-7 and then from the last register to 31. This should accommodate all current register spaces.

*Proposed Response* *Response Status* **C**

REJECT.
Different people have requested different register positions at each cycle of commenting. The current organisation reflects the last set of thinking. I propose to not change it, however, if the track decides that it should be changed then lets make it the final answer !

*Cl* **45** *SC* **45.2.2.1** *P* **192** *L* # **433**
Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Remove "RO=Read Only" from note of Table 45-10.

*SuggestedRemedy*

Remove "RO=Read Only" from note of Table 45-10.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.1.1** *P* **192** *L* **40** # **287**
Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

"...shall respond to reads to register bits..."Usually, one "writes to" and "reads from".

*SuggestedRemedy*

Replace "...reads to..." with "...reads from...".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.1.2** *P* **192** *L* **48** # **550**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **T** *Comment Status* **A** *X clause issue*

The WIS is specified as transmitting all-ones during loopback. This conflicts with Clause 50, which specifies all-zeros.

*SuggestedRemedy*

Change "all-ones" to "all-zeros" on Line 48.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response #769.

*Cl* **45** *SC* **45.2.2.1.2** *P* **192** *L* **48** # **769**
Kumar Bhattaram Ample Communication

*Comment Type* **T** *Comment Status* **A** *X clause issue*

On seting LoopBack bit in WIS Control register (Register 0 )(2.0.14) the WISlayer "shall transmit a continous stream of all-ones data words to the PMAsublayer, and shall ignore all data presented to it".This conflicts with the Clause 50.3.9.1.1, page 370. line 47 which says that"the WIS shall transmit a continous streams of all-zero data words to the PMAsublayer, and shall ignore all data presented to it by the PMA sublayer"

*SuggestedRemedy*

Specify one way or the other viz all-zero data words or all-one datawords

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The specification of loopback will be referenced to clause 50 and this clause will not specify it.

*Cl* **45** *SC* **45.2.2.1.2** *P* **192** *L* **48** # **771**

Kumar Bhattaram Ample Communication

*Comment Type* **T** *Comment Status* **A** *X clause issue*

On seting LoopBack bit in WIS Control register (Register 0)(2.0.14) the WISlayer "shall transmit a continous stream of all-ones datawords to the PMAsublayer, and shall ignore all data presented to it". This conflicts with the Clause 50.3.9.1.1, page 370. line 47 which says that "the WIS shall transmit a continous streams of all-zero datawords to the PMA sublayer, and shall ignore all data presented to it by the PMA sublayer"

*SuggestedRemedy*

Specify one way or the other viz all-zero data words or all-one datawords

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
I believe that this comment is the same as #769.

---

*Cl* **45** *SC* **45.2.2.1.2** *P* **192** *L* **51** # **25**

Cruikshank, Brian Conexant Systems Inc

*Comment Type* **E** *Comment Status* **A**

It would be best to designate the subclause for the loopback description.

*SuggestedRemedy*

Change from Clause 50 to Clause 50.3.9.1.1

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **45** *SC* **45.2.2.1.3** *P* **193** *L* **6-9** # **323**

Shimon Muller Sun Microsystems, Inc

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

See my comment against subclause 45.2.1.1.3.

*SuggestedRemedy*

See my comment against subclause 45.2.1.1.3.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
#322 accepted.

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*Cl* **45** *SC* **45.2.2.1.3** *P* **193** *L* **89** # **551**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Wrong paragraph format (probably using a NOTE format).

*SuggestedRemedy*

Change paragraph format to Text.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
I think it's OK, but will check.

---

*Cl* **45** *SC* **45.2.2.10** *P* **198** *L* # **50006**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Replace the WIS M1 register with a pair of registers called "WIS Far End Line BIP Errors" and change its functionality to a nonresetable counter. This is in consequence to the resolution of comment #189.

*SuggestedRemedy*

Assign two MDIO registers in Clause 45, referred to as "WIS Far End Line BIP Errors", to snapshot the value of the 32-bit internal counter in Clause 50 that was introduced as a resolution of comment #189. These registers are to be assigned to indices 55 and 56. Both of the registers are to be loaded with the value of the internal counter when the first MDIO register (#55) is read. The specific text to be inserted into 45.2.2.10 is:

"The 10G WIS Far End Line BIP Errors register pair reflects the contents of the Far End Line BIP Errors counter that is incremented on each WIS frame by the number of far-end Line BIP errors reported by the far end, as described in 50.3.2.5. Whenever the first 16-bit register of the counter (2.55) is read, the 32-bit counter value is latched into the register pair, with the most significant 16 bits appearing in 2.55 and the least significant 16 bits in 2.56, the value being latched before the contents of register 2.55 (the most significant 16 bits) are driven on the MDIO interface. A subsequent read to register 2.56 will return the least significant 16 bits of the latched value, but will not change the register contents. Writes to these registers have no effect."

The editor is given license to modify the above text to conform with the general format of the register descriptions in Clause 45, and also to adjust Table 45-18 to conform with the description.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.10** *P* **198** *L* **46** # **198**

Figueira, Norival — Nortel Networks

*Comment Type* **T** *Comment Status* **A** *X clause issue*

A comment is being made against subclause 50.3.9.1.9 (page 373) that results (if referred comment is accepted) in the modification of the WIS M1 register definition. Reason given for proposed modification: With the current definition, the WIS M1 register would need to be read once every WIS frame to allow for proper maintenance of the WIS MIB (e.g., aFarEndLineCVs - subclause 30.8.1.1.17). This seems to be an unreasonable requirement.

*SuggestedRemedy*

Coordinate with Clause 50 editor to change subclause 45.2.2.10 according to the approved resolution given to the respective comment against 50.3.9.1.9

*Proposed Response* *Response Status* **C**

ACCEPT.
Editor of Clause 50 to tell editor of Clause 45 how to change the M1 register.

*Cl* **45** *SC* **45.2.2.11** *P* **185** *L* # **436**

Satoshi Obara — Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Change RW into R/W in Table 45-19

*SuggestedRemedy*

Change RW into R/W in Table 45-19

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.11** *P* **199** *L* **17** # **296**

Jennifer Rasimas — Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Need to more fully describe the table in maintaining consistency throughout the document.

*SuggestedRemedy*

Add "10G" into the title of Table 45-19 so that it now reads "10G WIS J1 Tx 0-15 register bit definitions".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.11** *P* **199** *L* **21-49** # **293**

Jennifer Rasimas — Nortel Networks

*Comment Type* **E** *Comment Status* **A**

All "R/W"s in the table are missing the slash, as expressed in the footnote.

*SuggestedRemedy*

Insert a slash, making "RW" become "R/W", to be consistent throughout the document.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.4** *P* **194** *L* # **434**

Satoshi Obara — Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Remove "SC=Self Clearing" from note of Table 45-12.

*SuggestedRemedy*

Remove "SC=Self Clearing" from note of Table 45-12.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.4** *P* **194** *L* **39** # **687**

Thaler, Pat — Agilent Technologies

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

Add bits to allow auto-detect when a WIS supports bypass for a 10GBASE-R port.

*SuggestedRemedy*

Add a bit to WIS Control 2 for "Allow auto-detect" When allow auto detect is set, then writes to PCS type selection shall have no effect and PCS type select shall indicate the type of port which has been detected.Add a bit to WIS Status 2 for "Auto-detect ability" which is one if auto-detect ability is supported. Auto-detect shall only be set if 10GBASE-R ability is supported.

*Proposed Response* *Response Status* **C**

REJECT.
This is a new feature. It is too late for new features.

*Cl* **45** *SC* **45.2.2.5.2** *P* **195** *L* **3436** # **554**

Alexander, Tom PMC-Sierra, Inc.

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

The clause text does not explain what happens if the 10GBASE-R ability bit advertised by the WIS sublayer in the WIS Status 2 register conflicts with the individual PMA/PMD ability bits advertised by the PMA/PMD in the PMA/PMD Status 2 register. For example, does it make sense to advertise different abilities for the different sublayers in the same device?

*SuggestedRemedy*

The clause text should be amended to state that a device containing both a WIS sublayer and a PMA/PMD sublayer shall not indicate conflicting capabilities in the previously referenced registers; if an implementation, however, provides separate devices for these functions, then it is the responsibility of the STA entity to ensure that no such conflict occurs.

*Proposed Response* *Response Status* **C**

REJECT.
The STA has to be able to deal with ensuring consistancy across separate MMDs. A combined device appears to be the same as separate devices to the MMD and it will check for port type consistancy.
I would turn the problem around and say that if a manufacturer combines a WIS into PMA/PMD then they should ensure consistent ability advertising in each MMD if they think that the inconsistancy will be an issue.

*Cl* **45** *SC* **45.2.2.6** *P* **195** *L* **38** # **196**

Figueira, Norival Nortel Networks

*Comment Type* **T** *Comment Status* **A** *X clause issue*

Two comments are being made against 50.3.9.1.5 that result (if referred comments are accepted) in the addition of four new bits to the WIS Status 3 register. The new bits are: Far End PLM-P/LCD-P, Far End AIS-P, Far End LOP-P, and SEF. Reasons given for proposed changes: The first three bits represent defects reported by G1's ERDI-P field. The WIS G1 register is being modified and will no longer latch ERDI-P. The SEF defect is required to support the WIS MIB and was missing in the register definition.

*SuggestedRemedy*

Coordinate with Clause 50 editor to add these bits according to the approved resolution given to the respective comments against 50.3.9.1.5.

*Proposed Response* *Response Status* **C**

ACCEPT.
Editor of Clause 50 to tell editor of Clause 45 how to change bits and descriptions.

*Cl* **45** *SC* **45.2.2.6** *P* **195-197** *L* # **50002**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Must add support for the far-end PLM-P/LCD-P, AIS-P and LOP-P status bits; this support was lost as a result of the elimination of the WIS G1 register. This is a consequence of the resolution of comment #192.

*SuggestedRemedy*

Add to WIS Status 3 (as Read Only/Latching High) the following bits:

1. Far End PLM-P/LCD-P (2.33.10)
   Far End Path Label Mismatch / Loss of Code-group Delineation
2. Far End AIS-P (2.33.9)
   Far End Path Alarm Indication Signal
3. Far End LOP-P. (2.33.8)
   Far End Loss of Pointer

The text for each of these flags shall read:

"When read as a one, bit xxx indicates that the yyy flag has been raised. When read as a zero, bit xxx indicates that the yyy flag is lowered. The zzz bit shall be implemented with a latching function, such that the raising of the yyy flag will cause the zzz bit to become set to a one and remain set until it is read via the management interface. If the yyy flag is raised at the time the register is read via the management interface then the zzz bit shall not be cleared to a zero by the read operation. The yyy functionality implemented by the WIS is described in 50.3.2.5."

In the above text, xxx refers to the bit number assigned, yyy refers to the name of the flag, and zzz refers to the name of the bit, as described in the numbered list with items 1-3 above.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.6** *P* **195-197** *L* # **50003**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Add support for the SEF defect (as read only/latching high) to the WIS Status 3 register. This is needed to maintain the WIS MIB. This comment has been generated in response to the resolution of comment #191.

*SuggestedRemedy*

Add to WIS Status 3 (as Read Only/Latching High) the following bit: SEF (2.33.11) Severely Errored Frame.

The text for this flag shall read:

"When read as a one, bit 2.33.11 indicates that the SEF flag has been raised by the WIS. When read as a zero, bit 2.33.11 indicates that the SEF flag is lowered. The SEF bit shall be implemented with a latching function, such that the raising of the SEF flag will cause the SEF bit to become set to a one and remain set until it is read via the management interface. If the SEF flag is raised at the time the register is read via the management interface then the SEF bit shall not be cleared to a zero by the read operation. The SEF functionality implemented by the WIS is described in 50.3.2.5."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.6.7** *P* **197** *L* **29** # **294**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

A space is missing after the period, before the word "The".

*SuggestedRemedy*

Insert a space between "operation." and "The".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.6.8** *P* **197** *L* **38** # **295**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

A space is missing after the period, before the word "The".

*SuggestedRemedy*

Insert a space between "operation." and "The".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.7** *P* **197** *L* # **435**

Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Change RW into R/W in Table 45-15

*SuggestedRemedy*

Change RW into R/W in Table 45-15

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.7** *P* **197** *L* **49,51** # **292**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

R/W is missing the slash, as expressed in the footnote.

*SuggestedRemedy*

Insert a slash, making "RW" become "R/W".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.9** *P* **198** *L* # **50004**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Change the "WIS G1" register to the "WIS Far End Path Block Errors" register as a consequence of the resolution of comment #190. The functionality of the WIS G1 register is to be eliminated in its entirety, and substituted by the WIS Far End Path Block Errors functionality. Note that the retention of the same register index is appropriate as the new functionality still relates to the G1 byte of the WIS overhead.

*SuggestedRemedy*

Change the name of register 2.37 to "10G WIS Far End Path Block Error Count".
The functionality of the latter is that of a 16-bit non-resettable up counter, wrapping around to zero when it reaches its maximum count, that is incremented by 1 whenever a Far End Path Block Error is detected as described in 50.3.2.5. Table 45-17 shall be updated to reflect this new functionality. The text to be placed in 45.2.2.9 is as follows:

"The 10G WIS Far End Path Block Error Count is incremented by 1 whenever a Far End Path Block Error, defined in Annex 50A, is detected as described in 50.3.2.5. The counter wraps around to zero when it is incremented beyond its maximum value of 65535. It is cleared to zero when the WIS is reset."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.2.9** *P* **198** *L* **27** # **197**

Figueira, Norival — Nortel Networks

*Comment Type* **T** *Comment Status* **A** *X clause issue*

A comment is being made against subclause 50.3.9.1.8 (page 373) that results (if referred comment is accepted) in the modification of the WIS G1 register definition. Reason given for proposed modification: With the current definition, the WIS G1 register would need to be read once every WIS frame to allow for proper maintenance of the WIS MIB (e.g., aFarEndPathCVs - subclause 30.8.1.1.28). This seems to be an unreasonable requirement.

*SuggestedRemedy*

Coordinate with Clause 50 editor to change subclause 45.2.2.9 according to the approved resolution given to the respective comment against 50.3.9.1.8.

*Proposed Response* *Response Status* **C**

ACCEPT.
Editor of Clause 50 to tell editor of Clause 45 what to do with the bits and descriptions.

*Cl* **45** *SC* **45.2.3.1.1** *P* **201** *L* **43** # **288**

Jennifer Rasimas — Nortel Networks

*Comment Type* **E** *Comment Status* **A**

"...shall respond to reads to register bits..."Usually, one "writes to" and "reads from".

*SuggestedRemedy*

Replace "...reads to..." with "...reads from...".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.1.2** *P* **201** *L* **5051** # **557**

Alexander, Tom — PMC-Sierra, Inc.

*Comment Type* **T** *Comment Status* **A** *X clause issue*

The definition of the behavior of the PCS in loopback mode conflicts with the specification provided in 48.3.3.2.

*SuggestedRemedy*

Change the described behavior of loopback in 45.2.3.1.2 to match that given by the PCS clause (which is presumably the definitive reference) in 48.3.3.2.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The behaviour of the interface in loopback will be referenced out to Clause 48.

*Cl* **45** *SC* **45.2.3.1.2** *P* **201** *L* **53** # **26**

Cruikshank, Brian — Conexant Systems Inc

*Comment Type* **E** *Comment Status* **A**

It would be best to designate the subclause for the loopback description of clause 48.

*SuggestedRemedy*

Change from Clause 48 to Clause 48.3.3

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.1.2** *P* **201** *L* **53** # **27**

Cruikshank, Brian — Conexant Systems Inc

*Comment Type* **T** *Comment Status* **A** *X clause issue*

There is no loopback behavior specified in Clause 49

*SuggestedRemedy*

Add new subclause in Clause 49 similar to Clause 50.3.9.1.1.Include the NOTE at the bottom.Add new subclause to description in 45.2.3.1.2.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
The specification will be added to clause 49 and the text here will reference out to clause 49 and will not specify the loopback behaviour.

*Cl* **45** *SC* **45.2.3.1.3** *P* **202** *L* **32-35** # **324**

Shimon Muller — Sun Microsystems, Inc

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

See my comment against subclause 45.2.1.1.3.

*SuggestedRemedy*

See my comment against subclause 45.2.1.1.3.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
#322 accepted.

*Cl* **45** *SC* **45.2.3.2** *P* **203** *L* **13** # **33**

Justin Chang Quake Technologies, I

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

Register 3.17 in the table for PCS fault detection is listed as RO (read only) This differs from description from section 49.2.14.1 line 53 which states that this register is RO/LH. Please

*SuggestedRemedy*

Clarify and make consistent between the two sections. Believe the right change is to have the table be RO/LH.

*Proposed Response* *Response Status* **C**

REJECT.
RO is the correct description for this bit since a read of it will not (and should not) clear the fault condition. There are separate transmit and receive fault bits which are in register 3.5 and are each, independently, latching high. The fault condition is cleared by reading register 3.5. The LF bit in register 3.1 is an OR of the two latched LF bits in 3.5.
A comment to C49 may be needed.

*Cl* **45** *SC* **45.2.3.2** *P* **203** *L* **22** # **437**

Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Remove "LH=Latching High," from note of Table 45-23.

*SuggestedRemedy*

Remove "LH=Latching High," from note of Table 45-23.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.2.1** *P* **203** *L* **30** # **282**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Missing period at end of sentence.

*SuggestedRemedy*

Place period after the word "one".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.2.2** *P* **203** *L* **34-35** # **558**

Alexander, Tom PMC-Sierra, Inc.

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

There are two issues with this portion of 45.2.3.2.2. First, register bit 3.4.0 is not named separately but is instead part of a 2-bit field that selects one of three PCS types (10GBASE-W, 10GBASE-R, 10GBASE-X). It therefore seems odd to call out the LSB of this field separately by number, relying on side-effects of the coding to do the right thing. (The logic works, it's merely a tad obscure.) Second, no mention is made of 10GBASE-W mode for the functionality of the PCS receive link status.

*SuggestedRemedy*

Change the term "bit 3.4.0" to "PCS type selection field 3.4.1:0" (or something similar, as per the editor's choice). Change "10GBASE-R" to read "10GBASE-R or 10GBASE-W".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.2.2** *P* **205** *L* **12-13** # **115**

Ralph Andersson TDK Semiconductor

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

Following text is incomplete: "using bit 3.4.0, this bit is a latching low version of bit 3.32.12. Whena 10GBASE-X mode of operation is selected for the PCS using bit 3.4.0,". Should be fixed.

*SuggestedRemedy*

Change text to: "using bit 3.4.1:0, this bit is a latching low version of bit 3.32.12. When a10GBASE-X mode of operation is selected for the PCS using bit 3.4.1:0,"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.4** *P* **204** *L* **14** # **438**

Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Remove "SC=Self Clearing" from note of Table 45-24.

*SuggestedRemedy*

Remove "SC=Self Clearing" from note of Table 45-24.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.4** *P* **204** *L* **17** # **690**

Thaler, Pat — Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *X clause issue*

Add any additional bits required to support test pattern mode as proposed by the test pattern ad hoc. Also, it should probably be called "test pattern mode" rather than "jitter test pattern mode" since the test pattern is used to test a number of parameters and not only jitter.

*SuggestedRemedy*

See the recommendations from the jitter ad hoc.

*Proposed Response* *Response Status* **C**

ACCEPT.
The jitter ad-hoc has recommended the following :

1/ Seed A : Bits 0-15
2/ Seed A : Bits 16-31
3/ Seed A : Bits 32-47
4/ Seed A : Bits 48 - 57

5/ Seed B : Bits 0-15
6/ Seed B : Bits 16-31
7/ Seed B : Bits 32-47
8/ Seed B : Bits 48 - 57

9/ Tx test pattern enable (1 bit)
9/ Rx test pattern enable (1 bit)
9/ Test pattern select (1 bit ) (square / pseudo random)
9/ Data pattern select (1 bit) (0s / LF)

10/ Error counter ( 16 Bits)

Add text to registers 32 and 33 that states that the contents of these registers is undefined whilst in test pattern mode.

*Cl* **45** *SC* **45.2.3.4** *P* **205** *L* # **268**

Joergensen, Thomas — Intel

*Comment Type* **T** *Comment Status* **A** *X clause issue*

More that one jitter test pattern is needed.

*SuggestedRemedy*

Use some of the reserved bits in register 3.4 to select between the different jitter test patterns

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #690 that added the required jitter test functionality.

*Cl* **45** *SC* **45.2.3.5** *P* **205** *L* **27** # **439**

Satoshi Obara — Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**

Add ",LH=Latching High" to note of Table 45-25.

*SuggestedRemedy*

Add ",LH=Latching High" to note of Table 45-25.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.5.4** *P* **205** *L* **41-42** # **561**

Alexander, Tom — PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

The subclause appears to imply that the only thing required of the 64B/66B PCS in order to support a 10GBASE-W port type is idle insertion and stripping. This is unfortunately not true; other features, such as the capability of operating at a lower output frequency and the support of an additional service interface primitive, are required. In any case, the details of what it takes to support the 10GBASE-W port type is hardly relevant to the description of the bit; it suffices to say that it indicates whether the 10GBASE-W port type can be supported or not.

*SuggestedRemedy*

Delete the portion of the sentence reading "the IDLE insertion and stripping required for" on lines 41 and 42. The remainder of the sentence is perfectly adequate for the purposes of the subclause.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.6** *P* **206** *L* **10** # **668**

Brown, Benjamin — AMCC

*Comment Type* **E** *Comment Status* **A**

There is a line of text that appears in 45.2.3.7 that would be equally applicable to this subclause.

*SuggestedRemedy*

Include the following sentence: "A PCS device which does not implement 10GBASE-X shall return a zero for all bits in the 10GBASE-X PCS statusregister.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.6** *P* **206** *L* **6** # **562**

Alexander, Tom PMC-Sierra, Inc.

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

It is not clear from the clause as to whether the 10GBASE-X PCS status register should be implemented when only 10GBASE-R or 10GBASE-W port types can be supported. (Similarly for the 10GBASE-R PCS Status 1 and Status 2 registers in subclauses 45.2.3.7 and 45.2.3.8, but with respect to 10GBASE-X port types.) It does not seem reasonable for these registers to be implemented when none of the associated functionality is meaningful.

*SuggestedRemedy*

Add text to subclauses 45.2.3.6, 45.2.3.7 and 45.2.3.8 indicating that these registers need not be implemented when the corresponding port types are absent (as indicated by the appropriate ability bits in Table 45-25). Also state that it is the responsibility of the STA management entity to handle the missing registers in a consistent manner (i.e., don't expect the register to be present if the ability bit indicates that the corresponding port type isn't supported).

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.6.5** *P* **207** *L* **9** # **297**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Missing the word "PCS" in describing the 10GBASE-X.

*SuggestedRemedy*

Change "10GBASE-X" to "10GBASE-X PCS".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.7** *P* **207** *L* **25** # **3**

Renner, Martin Infineon Technologies

*Comment Type* **T** *Comment Status* **A** *X clause issue*

There is a contradiction between clause 49.2.14.1, p.342, l.51 and clause 45.2.3.7, p.207, table 45-27;cl 49 says "This status is reflected in MDIO register 3.32.12" while cl 45 says this bit is 'RO/LL'

*SuggestedRemedy*

Change "RO/LL" for 3.32.2 in table 45-27, line 25 to "RO"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Clause 49 will align to Clause 45.

*Cl* **45** *SC* **45.2.3.7.1** *P* **207** *L* **39-41** # **563**

Alexander, Tom PMC-Sierra, Inc.

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

The 10GBASE-R receive link status bit is described in Table 45-27 as latching low (as indeed it should be) but the text in subclause 45.2.3.7.1 fails to make any mention of this latching behavior.

*SuggestedRemedy*

Specify the latching behavior of register bit 3.32.12. It is probably sufficient to explain that bit 3.32.12 is merely the logical-OR of bits 3.33.15 and 3.33.14.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the table to remove the '/LL' in bit 12 as well as the text in the note at the bottom of the table for LL.

*Cl* **45** *SC* **45.2.3.8** *P* **208** *L* **1** # **691**

Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *X clause issue*

The work of the test pattern ad hoc may change the behavior of this register during test mode.

*SuggestedRemedy*

Bits 0 to 13 may operate as a single counter in test mode reporting total errors detected.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Comment 690 created a separate register for the error counter, so sharing is no longer required.

*Cl* **45** *SC* **45.2.3.8.1** *P* **208** *L* **25-28** # **564**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A** *X clause issue*

The relationship of register bit 3.33.15 to register bit 3.32.0 and subclause 49.2.13.2.2 is not clear from reading this paragraph. The multiplicity of register bits all busily reporting the same type of status in different ways (latched block lock, PCS block lock, receive link status) makes this rather confusing.This is also true for register bits 3.33.14 versus register bit 3.32.1 and subclause 49.2.13.2.2.

*SuggestedRemedy*

Add explanatory text that elucidates the relationship between the non-latching status bit, the latching status bit, and the behavior described in the PCS clause. Text to be added at editor's discretion. It might suffice to explain, for instance, that 3.32.0 is the base status bit (as mentioned, this is a reflection of a PCS state machine variable) and 3.33.15 is the latching-low version of the latter.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.8.1** *P* **208** *L* **27** # **147**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text wrongly reads "3.32.15"

*SuggestedRemedy*

Replace with "3.33.15"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.3.8.4** *P* **208** *L* **51-54** # **565**

Alexander, Tom — PMC-Sierra, Inc.

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

The 10GBASE-R PCS clause states that the errored blocks counter is also used to count jitter pattern errors (see 49.2.14.2). This functionality is not referenced in the description of register field 3.33.7:0.

*SuggestedRemedy*

Amend the description in subclause 45.2.3.8.4 to indicate that when in RX jitter test mode the errored blocks counter will count the number of jitter pattern test errors and not the number of errored blocks.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This issue has been solved by comment #690.

*Cl* **45** *SC* **45.2.4** *P* **211** *L* **43** # **111**

Ralph Andersson — TDK Semiconductor

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

For some reason which is not immediately obvious, tables such as 45-2, 45-9, 45-21 etc have chosen to leave the 10G prefix off of the register name for 0-3 while the 10G prefix is included for registers 4-5. Tables 45-29 and 45-34 do not follow this format. These inconsistancies should be fixed.

*SuggestedRemedy*

Fix inconsistancies

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Inconsistancies will be checked and fixed. However, the registers you highlight deliberately do not have a 10G prefix since they are speed independent and will be used for future higher speed standards.

*Cl* **45** *SC* **45.2.4.1.1** *P* **209** *L* **46** # **289**

Jennifer Rasimas — Nortel Networks

*Comment Type* **E** *Comment Status* **A**

"...shall respond to reads to register bits..."Usually, one "writes to" and "reads from".

*SuggestedRemedy*

Replace "...reads to..." with "...reads from...".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.2.4.1.2** *P* **210** *L* **26** # **28**

Cruikshank, Brian — Conexant Systems Inc

*Comment Type* **T** *Comment Status* **A** *X clause issue*

There is no loopback behavior specified in Clause 47

*SuggestedRemedy*

Add new subclause in Clause 47 similar to Clause 50.3.9.1.1Include the NOTE at the bottom.Add new subclause to description in 45.2.4.1.2

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the 47 to 48 in Clause 45

*Cl* **45** *SC* **45.2.4.1.2** *P* **210** *L* **26** # **566**

Alexander, Tom — PMC-Sierra, Inc.

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

The subclause claims that the specific behavior of a PHY XS during loopback is specified in Clause 47. Apart from the sentence being excessively specific (just kidding!), I could find no such specification in Clause 47. In fact, the word "loopback" is not mentioned at all in Clause 47.This is also an issue on line 19 of subclause 45.2.5.1.2.

*SuggestedRemedy*

Remove the offending sentences in subclause 45.2.4.1.2 and 45.2.5.1.2. The only specification of XAUI loopback will therefore be in Clause 45.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #45005.

*Cl* **45** *SC* **45.2.4.1.3** *P* **210** *L* **35-38** # **325**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A**
See my comment against subclause 45.2.1.1.3.

*SuggestedRemedy*
See my comment against subclause 45.2.1.1.3.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE.
#322 accepted.

*Cl* **45** *SC* **45.2.4.2** *P* **211** *L* **24** # **440**
Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**
Remove "LH=Latching High," from note of Table 45-31.

*SuggestedRemedy*
Remove "LH=Latching High," from note of Table 45-31.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2.4.5.1** *P* **213** *L* **30** # **283**
Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**
Missing period at end of sentence.

*SuggestedRemedy*
Place period after the word "lanes".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2.5.1.3** *P* **215** *L* **28-31** # **326**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A**
See my comment against subclause 45.2.1.1.3.

*SuggestedRemedy*
See my comment against subclause 45.2.1.1.3.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE.
#322 accepted.

*Cl* **45** *SC* **45.2.5.2** *P* **216** *L* **16** # **441**
Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**
Remove "LH=Latching High," from note of Table 45-36.

*SuggestedRemedy*
Remove "LH=Latching High," from note of Table 45-36.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2.5.4** *P* **217** *L* **22** # **442**
Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **A**
Add ",LH=Latching High" to note of Table 45-37.

*SuggestedRemedy*
Add ",LH=Latching High" to note of Table 45-37.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.2.5.4** *P* **218** *L* **32** # **110**
Ralph Andersson TDK Semiconductor

*Comment Type* **T** *Comment Status* **R**
Even without changebars, it's obvious that table 45-40 is fixed by table 45-39, however text in line32 points to table 45-40 rather than 45-39.

*SuggestedRemedy*
Fix cross reference

*Proposed Response* *Response Status* **C**
REJECT.
You used the change bar version of the draft. The change bar processing breaks the cross referencing. I do not believe that there is an error in D3.0.

*Cl* **45** *SC* **45.2.5.5.1** *P* **217** *L* **53** # **284**
Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**
Missing period at end of sentence.

*SuggestedRemedy*
Place period after the word "lanes".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **45** *SC* **45.3** *P* **222** *L* **30** # **118**

Ralph Andersson TDK Semiconductor

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

Text is confusing. MMD and device are interchanged in Clause 45 in a confusing and perhaps insistant manner. This inconsistency should be fixed or clarified.

*SuggestedRemedy*

Change text: "The device address is five bits, allowing 32 unique devices per port." to:
"The device address is five bits, allowing 32 unique MMDs per port."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.3.6** *P* **220** *L* **10-11** # **568**

Alexander, Tom PMC-Sierra, Inc.

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

It is not clear why a long string of zeros would be a problem for the MDIO bus. (It is claimed that the device address of zero is reserved to "ensure that there is not a long sequence of zeros".)

*SuggestedRemedy*

Either delete the portion of the last sentence of 45.3.6 that reads "to ensure that there is not a long sequence of zeros", or add an informative note explaining why a long string of zeros would be a problem for a synchronous, separately-clocked interface such as the MDIO.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This was originally done to accommodate preamble suppression. The removal of preamble suppression makes this sentence obsolete. The sentence will be deleted.

*Cl* **45** *SC* **45.4.1** *P* **220** *L* **36-38** # **569**

Alexander, Tom PMC-Sierra, Inc.

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

A weak resistive pull-up is suggested for the MDIO interface. However, without specifying both a maximum input leakage current and the maximum number of drops on the MDC/MDIO bus, it is impossible to design this pull-up.

*SuggestedRemedy*

Specify the maximum number of loads and the maximum permissible input leakage current for each load. See 22.4.4.2 for a reference regarding such specifications.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Maximum bus load and leakage to be calculated.

*Cl* **45** *SC* **45.4.1** *P* **220** *L* **45-54** # **490**

Turner, Ed Lattice Semiconductor

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

Add a specification for drive current.

*SuggestedRemedy*

Make the drive current 4mA

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.5.3** *P* **222** *L* **8** # **285**

Jennifer Rasimas Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Missing period at end of sentence.

*SuggestedRemedy*

Place period after the word "proforma".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.5.5.1** *P* **223** *L* **34** # **487**

Turner, Ed Lattice Semiconductor

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

Resistor pull up on MMD is not a requirement.

*SuggestedRemedy*

Remove item SF4

*Proposed Response* *Response Status* **Z**

REJECT.

*Cl* **45** *SC* **45.5.5.1** *P* **223** *L* **37** # **488**

Turner, Ed Lattice Semiconductor

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

STA pull down is not a requirement.

*SuggestedRemedy*

Remove item SF5

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.5.5.11** *P* **236** *L* **6-30** # **489**

Turner, Ed — Lattice Semiconductor

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

Table needs to be updated with values.

*SuggestedRemedy*

Change TBD values to the values specified in section 45.4.1.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **45.5.5.11** *P* **236** *L* **7** # **795**

Henry Hinrichs — Pulse Inc.

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

The PICS proforma for the Management Data Input Output (MDIO) Interface has 16 instances where "TBA" is used as a placeholder in the value/comment column. I'm making this comment because there isn't an editorial note in draft D3.0 as to when the correct values would be incorporated.

*SuggestedRemedy*

Replace all instances with the correct value.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response #489.

*Cl* **45** *SC* **5.5.1** *P* **226** *L* **36-39** # **259**

Joergensen, Thomas — Intel

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

There are no requirements for pull-up/pull-down in 45.4.1. This is implementation specific and should not be mandatory in the PICS

*SuggestedRemedy*

Remove SF4 and SF5 PICS statements

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
PICS entry for pull up must remain, and text must be added around the requirement for a pull up.
Remove PICS entry for a pull down.

*Cl* **45** *SC* **Figure 45-24** *P* **203** *L* # **264**

Joergensen, Thomas — Intel

*Comment Type* **E** *Comment Status* **A**

The speed selection bit description is in a different format than in clause 22.

*SuggestedRemedy*

Change the speed selection bit descriptions to:
3.0.6 3.0.13
11 = 1000Mb/s

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #322 which addresses the speed bits issue.

*Cl* **45** *SC* **Figure 45-12** *P* **194** *L* # **266**

Joergensen, Thomas — Intel

*Comment Type* **E** *Comment Status* **A**

The speed selection bit description is in a different format than in clause 22.

*SuggestedRemedy*

Change the speed selection bit descriptions to:
2.0.6 2.0.13
11 = 1000Mb/s

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #322 which addresses the speed bits issue.

*Cl* **45** *SC* **Figure 45-32** *P* **211** *L* # **265**

Joergensen, Thomas — Intel

*Comment Type* **E** *Comment Status* **A**

The speed selection bit description is in a different format than in clause 22.

*SuggestedRemedy*

Change the speed selection bit descriptions to:
4.0.6 4.0.13
11 = 1000Mb/s

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #322 which addresses the speed bits issue.

*Cl* **45** *SC* **Figure 45-37** *P* **216** *L* # **267**

Joergensen, Thomas Intel

*Comment Type* **E** *Comment Status* **A**

The speed selection bit description is in a different format than in clause 22.

*SuggestedRemedy*

Change the speed selection bit descriptions to:
5.0.6 5.0.13
11 = 1000Mb/s

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #322 which addresses the speed bits issue.

*Cl* **45** *SC* **Figure 45-4** *P* **183** *L* # **263**

Joergensen, Thomas Intel

*Comment Type* **E** *Comment Status* **A**

The speed selection bit description is in a different format than in clause 22.

*SuggestedRemedy*

Change the speed selection bit descriptions to:
1.0.6 1.0.13
11 = 1000Mb/s

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #322 which addresses the speed bits issue.

*Cl* **45** *SC* **Table 45-1** *P* **15** *L* **10** # **50**

Tom Mathey Independent

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

Functionality similiar to other bits is missing.

*SuggestedRemedy*

To table and text, add bits 2.5.13 to 2.5.9 for tx/rx local fault, loopback to match functionality as in bits 1.5.13 to 1.5.9.

*Proposed Response* *Response Status* **C**

REJECT.

*Cl* **45** *SC* **Table 45-11** *P* **193** *L* **45** # **552**

Alexander, Tom PMC-Sierra, Inc.

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

This bit is not marked as LL, even though the description (and the intended behavior) is required to be latching low.

*SuggestedRemedy*

Change bit from "RO" to "RO/LL".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
And add LL to note at bottom of table

*Cl* **45** *SC* **Table 45-11** *P* **193** *L* **46** # **49**

Tom Mathey Independent

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

This table lists bit 2.1.2 as RO/LH. Page 371, line 10, 50.3.9.1.2 and 45.2.2.2 both list bit 2.1.2 as RO/LL

*SuggestedRemedy*

Change Table 45-11 from Link status to Receive link status to match text of bit 1.1.2. Change RO to RO/LL. Add LL to botom of table.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **Table 45-12** *P* **194** *L* **35** # **553**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **T** *Comment Status* **A** *X clause issue*

Only one jitter test mode bit is defined. However, separate TX and RX jitter test mode select bits are required (both by the description in Clause 50, and to be consistent with the other clauses).

*SuggestedRemedy*

Split bit 2.4.1 into two (2.4.1 and 2.4.2), identifying them as TX and RX jitter test mode enables. Add a new subclause and provide the appropriate descriptions, following that in 45.2.2.4.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add bits for :
Seed register (16 bits)
Tx test enable,
Rx test enable,
Test pattern select (square / pseudo random),
Error counter (16 bits)

*Cl* **45** *SC* **Table 45-14** *P* **196** *L* **18-19** # **555**

Alexander, Tom PMC-Sierra, Inc.

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

The term "loss of cell delineation" is associated with ATM mappings into SONET (where the usage of "cell" has meaning). The WIS clause, however, defines LCD-P as "Path Loss of Code-group Delineation" to distinguish it from the ATM situation.

*SuggestedRemedy*

Change "loss of cell delineation" to "Loss of Code-group Delineation" in both the referenced table as well as in subclause 45.2.2.6.5, lines 6 and 7. Note capitalization.

*Proposed Response* *Response Status* **C**

ACCEPT.
Raised to technical for committee review.

*Cl* **45** *SC* **Table 45-14** *P* **196** *L* **23-24** # **556**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

To be consistent, the AIS-P status bit should be termed "Path Alarm Indication Signal". The text in the table omits the prefix "Path". (See lines 15 and 16, where AIS-L has been expanded as "Line Alarm Indication Signal".

*SuggestedRemedy*

Change "Alarm Indication Signal" to "Path Alarm Indication Signal" in both the referenced Table as well as lines 24 and 25 of 45.2.2.6.7.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **Table 45-23** *P* **203** *L* **13** # **51**

Tom Mathey Independent

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

Bit 3.1.7 needs a Latch High (LH) in the table and in the text (similar to bit 2.1.7)

*SuggestedRemedy*

Add LH to Table and to text.

*Proposed Response* *Response Status* **C**

REJECT.
See response #33.

*Cl* **45** *SC* **Table 45-23** *P* **203** *L* **13** # **5**

Renner, Martin Infineon Technologies

*Comment Type* **T** *Comment Status* **R** *X clause issue*

There is a contradiction between clause 49.2.14.1, p.342 and clause 45.2.3.2, table 45-23;clause 49 says, MDIO register 3.1.7 is 'latch high' while clause 45 says this bit is 'RO'.

*SuggestedRemedy*

Change "RO" for 3.1.7 in table 45-23 to "RO/LH"

*Proposed Response* *Response Status* **C**

REJECT.
See comment #33 for why this bit is not latching. Clause 49 will align to Clause 45.

*Cl* **45** *SC* **Table 45-24** *P* **204** *L* **10** # **560**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Typographical error, table of PCS type selection field values has an extra entry (at the very top) of 1 0.

*SuggestedRemedy*

Delete extraneous text.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
1 is bit 1 and 0 indicated bit 0. Need to underline these and do this in all other tables where this is not underlined.

*Cl* **45** *SC* **Table 45-24** *P* **204** *L* **7** # **559**

Alexander, Tom PMC-Sierra, Inc.

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

The 10G PCS requires two separate bits that individually enable TX jitter testing and RX jitter testing. The respective PCS clauses specify this.

*SuggestedRemedy*

Split register bit 3.4.2 into two bits, one for transmit and the other for receive jitter testing. Also modify subclause 45.2.3.4.1 accordingly to create two corresponding subclauses.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #690

*Cl* **45** *SC* **Table 45-27** *P* **207** *L* **28** # **7**

Renner, Martin — Infineon Technologies

*Comment Type* **T** *Comment Status* **A** *X clause issue*

Clause 49.2.14.1 (page 345, line 8) references an undefined MDIO register.

*SuggestedRemedy*

Define "signal_detect" as register bit 3.32.2 in Table 45-27.See related comment against clause 49.2.14.1 (page 345, line 8).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Comment #1133 on D2.0 addressed the same issue. The conclusion was that there should be no signal detect status for the PCS. Clause 49 will align to Clause 45 and will remove the reference to this non-bit.

---

*Cl* **45** *SC* **Table 45-37** *P* **217** *L* **12-18** # **567**

Alexander, Tom — PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Too many Receive local fault bits in table.

*SuggestedRemedy*

Remove extraneous Receive local fault bit (the first one, assigned to 5.5.11).

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **45** *SC* **Table 45-4** *P* **184** *L* **44** # **48**

Tom Mathey — Independent

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

Bit 1.1.7, PMA/PMD Local fault is listed as RO. Other similar bits such as 2.1.7 are RO/LH.

*SuggestedRemedy*

Harmonize by defining bit 1.1.7 as RO/LH, add LH to bottom of table.

*Proposed Response* *Response Status* **C**

REJECT.
This bit is not latching since it is an OR of the two bits in register 1.5, which are latching. To clear the fault condition, register 1.5 must be read.

---

*Cl* **45** *SC* **Table 45-40** *P* **220** *L* **44-54** # **570**

Alexander, Tom — PMC-Sierra, Inc.

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

The maximum input high voltage and minimum input low voltage parameters are meaningless in the context in which they have been specified; the entries for input low voltage and input high voltage specify sensing levels and not absolute maximum ratings.In addition, no reason is provided as to why the maximum value of pull-up supply voltage has to be 1.3V when the maximum permissible input high voltage is 1.5V.

*SuggestedRemedy*

Add separate entries to the table specifying the absolute maximum input voltage range as being between -0.3V and +1.5V. See subclause 22.4.1. Also change the maximum pull-up supply voltage to 1.5V and indicate that the nominal pull-up supply voltage is 1.3V.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Addition of 'maximum input voltage range' line entry is accepted. The pull up to 1.5 v is not accepted. The pull up is to 1.2v (nominal). Delete the 'pull up supply voltage' line.

---

*Cl* **45** *SC* **Table 45-43** *P* **223** *L* # **260**

Joergensen, Thomas — Intel

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

The driver specified in table 45-43 is not strong enough to drive an implementation with many external PMA/PMD, WIS and PCS devices. Figure 45-1 indicates that one STA should be able to access up to maximum 1024 MMDs. Although in most system the number of physical devices connected to each STA would be much lower (<48 for a 24 port device) the capacitive load on such a bus would still be sevaral hundred pF.

*SuggestedRemedy*

Change the driver specification to a higher power driver.Add a note that for implementation with a large number of MMDs connected to the same MDIO bus, higher output drivers or a buffering scheme is nessesary.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response #490, #569, #570 which will fully specify the driver capability.
Add note to section 45.4.1 regarding bus loading.

---

*Cl* **45** *SC* **Table 45-5** *P* **185** *L* **41** # **627**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Delete the entry 'SC' from note 1 as there are no Self Clearing bits in Table 45-5

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **Table 45-5** *P* **185** *L* **41** # **936**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Delete the entry 'SC' from note 1 as there are no Self Clearing bits in Table 45-5

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
I believe that this comment is the same as #627.

*Cl* **45A** *SC* *P* **237** *L* **1** # **52**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

It would be nice to add more sub-headings to the text under 45A.2. A sub-heading which matches each of the figures is a good division.

*SuggestedRemedy*

sub-headings.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45A** *SC* **45A.2** *P* **239** *L* **6** # **669**

Brown, Benjamin AMCC

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

There are no Clause 22 PHYs directly attached to the Clause 45 side of the protocol aware translater

*SuggestedRemedy*

Replace "When any Clause 22 PHY attached" with "When any Clause 45 MMD,including embedded Clause 22 PHYs, attached"

*Proposed Response* *Response Status* **C**

ACCEPT.
Raised to technical.

*Cl* **46** *SC* *P* *L* # **44006**

Booth, Brad

*Comment Type* **E** *Comment Status* **A**

Delay constraint information missing. The text in clause 44 is not normative, it is only informative, so the text must be transferred to clause 46 were it can be treated as normative text.

*SuggestedRemedy*

Add delay constraint information.

*Proposed Response* *Response Status* **C**

ACCEPT. Editor-in-Chief and Editor to move the normative text from clause 44 into clause 46.

*Cl* **46** *SC* **46.1.1** *P* **243** *L* **4** # **670**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

Bad grammar (?)

*SuggestedRemedy*

Replace "by defining" with "as they all define"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.1** *P* **243** *L* **8** # **178**

Robert Grow Intel

*Comment Type* **E** *Comment Status* **A**

The placement of "independent" is ambiguous (TXC and TXD are not independent, TXC/TXD and RXC/RXD are independent).

*SuggestedRemedy*

Change to read: "d) Each direction of data transfer is independent and serviced by data, control and clock signals."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.3** *P* **243** *L* **42** # **312**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **R**

capital letter on Idle

*SuggestedRemedy*

change to interpacket gap idle control characters.

*Proposed Response* *Response Status* **C**

REJECT. The style chosen is to use a capital letter whenever a specific control character is referenced.

*Cl* **46** *SC* **46.1.4** *P* **243** *L* **49** # **313**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A**

poor terminology "approximately 7 cm."

*SuggestedRemedy*

change to "trace lengths not greater than 7cm."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. ". . . with printed circuit board trace lengths electrically limited to approximately 7 cm."

*Cl* **46** *SC* **46.1.4** *P* **243** *L* **50** # **44004**

Booth, Brad

*Comment Type* **E** *Comment Status* **A**

Comment #866 re-issued against clause 46. Comment is as follows:
"Through the document, layer diagrams show the RS as part of the Physical layer or layer 1. In the text for the XGMII in clause 46.1.4, it states that the XGMII is the place where layer 2 and layer 1 are cleanly separated. I agree."

*SuggestedRemedy*

Comment was rejected by Clause 00 editor. Re-issued against clause 46 to request that the text in 46.1.4 be clarified to explain that RS is where layer 1 and layer 2 are cleanly separated.

*Proposed Response* *Response Status* **Z**

*Cl* **46** *SC* **46.1.4** *P* **243** *L* **53** # **109**

Ralph Andersson TDK Semiconductor

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

Incorrect wording: "between the PLS sublayer or PCS and the PMA sublayer." implies that the XGMII can connect directly to the PMA sublayer

*SuggestedRemedy*

Change text to: "between the PLS sublayer and the PCS / PMA sublayers."

*Proposed Response* *Response Status* **C**

REJECT. This is the same text as used in previous MII clauses (22 and 35). It is not discussing the XGMII, but functions within the PHY that might benefit from being grouped together on one side of an interface.

*Cl* **46** *SC* **46.1.6.1.4** *P* **245** *L* **31** # **671**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

Missing end bracket

*SuggestedRemedy*

Replace "TXD<31:0" with "TXD<31:0>"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.6.1.4** *P* **245** *L* **31** # **483**

Turner, Ed Lattice Semiconductor

*Comment Type* **E** *Comment Status* **A**

Missing '>' after 'TXD<31:0'

*SuggestedRemedy*

Change 'TXD<31:0' to 'TXD<31:0>'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.6.1.4** *P* **245** *L* **31** # **631**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

TXD<31:0 should read TXD<31:0>

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.6.1.4** *P* **245** *L* **31** # **940**

Law, David 3Com

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

Typo.

*SuggestedRemedy*

TXD<31:0 should read TXD<31:0>

*Proposed Response* *Response Status* **Z**

Duplicate comment of #631.

*Cl* **46** *SC* **46.1.6.1.4** *P* **245** *L* **34** # **630**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest the text 'The DATA_COMPLETE shall be ...' should read 'The DATA_COMPLETE value shall be ...'.

*SuggestedRemedy*

Change the text 'The DATA_COMPLETE shall be ...' to read 'The DATA_COMPLETE value shall be ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.6.1.4** *P* **245** *L* **34** # **939**
Law, David 3Com

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

Suggest the text 'The DATA_COMPLETE shall be ...' should read 'The DATA_COMPLETE value shall be ...'.

*SuggestedRemedy*

Change the text 'The DATA_COMPLETE shall be ...' to read 'The DATA_COMPLETE value shall be ...'.

*Proposed Response* *Response Status* **Z**

Duplicate comment of #630.

*Cl* **46** *SC* **46.1.6.2.3** *P* **246** *L* **7** # **941**
Law, David 3Com

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

Typo.

*SuggestedRemedy*

PLS_Data.indicate should read PLS_DATA.indicate

*Proposed Response* *Response Status* **Z**

Duplicate comment of #632.

*Cl* **46** *SC* **46.1.6.2.3** *P* **246** *L* **7** # **632**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

PLS_Data.indicate should read PLS_DATA.indicate

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.1.6.2.3** *P* **246** *L* **8** # **179**
Robert Grow Intel

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

The sentence incorrectly implies the Terminate is part of the frame, it is the beginning of the interpacket gap. If the Terminate is in lane 0, then there is no frame data in the RXD<31:0>.

*SuggestedRemedy*

Change to read: ". . . generated from the RXD<31:0> containing the Terminate."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.2** *P* **247** *L* **34** # **180**
Robert Grow Intel

*Comment Type* **E** *Comment Status* **A**

The LSB and MSB arrows might incorrectly imply the LSB and MSB of a 32 bit word.

*SuggestedRemedy*

Either remove the LSB and MSB arrows, or have them point to the bits of each octet.

*Proposed Response* *Response Status* **C**

ACCEPT. Delete LSB, MSB and arrows.

*Cl* **46** *SC* **46.2.1** *P* **248** *L* **1** # **484**
Turner, Ed Lattice Semiconductor

*Comment Type* **E** *Comment Status* **A**

additional full stop before 46.3.4.

*SuggestedRemedy*

Remove the full stop just before the text'46.3.4.'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.2.2** *P* **248** *L* **12** # **796**
Henry Hinrichs Pulse Inc.

*Comment Type* **E** *Comment Status* **R**

The sentence "On receive, the RS will convert the Start control character into a preamble data octet." describes a required aspect of the standard.

*SuggestedRemedy*

Change "will" to "shall".

*Proposed Response* *Response Status* **C**

REJECT. Only one shall need occur for a given function. The shalls for converting preamble to Start and Start to preamble are in the PLS section, and map to PICS PL3 and PL8 respectively.

*Cl* **46** *SC* **46.2.2** *P* **248** *L* **5** # **485**

Turner, Ed — Lattice Semiconductor

*Comment Type* **E** *Comment Status* **A**

Missing a 'a' or 'the' within the text '..by MAC..'

*SuggestedRemedy*

Choose either 'a' or 'the' and insert it in between '..by MAC..'

*Proposed Response* *Response Status* **C**

ACCEPT. Implement the "a" option.

*Cl* **46** *SC* **46.2.5** *P* **248** *L* **51** # **942**

Law, David — 3Com

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

The SPD and EPD are only need in SymbolErrorDuringCarrier now as repeaters are not supported at 10Gb/s. The reference in this subclause should therefore be changed from the repeater CarrierEvent defintion to the SymbolErrorDuringCarrier attribute.

*SuggestedRemedy*

Change the refernce from 30.2.2.2.2 to 30.3.2.1.5

*Proposed Response* *Response Status* **Z**

Duplicate comment of #633.

*Cl* **46** *SC* **46.2.5** *P* **248** *L* **51** # **633**

Law, David — 3Com

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

The SPD and EPD are only need in SymbolErrorDuringCarrier now as repeaters are not supported at 10Gb/s. The reference in this subclause should therefore be changed from the repeater CarrierEvent defintion to the SymbolErrorDuringCarrier attribute.

*SuggestedRemedy*

Change the refernce from 30.2.2.2.2 to 30.3.2.1.5

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.3.1.3** *P* **249** *L* **40** # **448**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **A**

"Code-groups" should be hyphenated.

*SuggestedRemedy*

Hyphenate "code-groups"

*Proposed Response* *Response Status* **C**

ACCEPT. Search for all occurences of "code group" and replace with "code-group".

*Cl* **46** *SC* **46.3.1.4** *P* **251** *L* **37** # **32**

Brierley-Green, Andrew — Philips Semiconductor

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

"Note that this may result in inter-frame spacing observed on the transmitXGMII that is up to three octets shorter than the minimum specifiedin Clause 4 ..." This sentence states that the minimum inter-frame spacing can become 3 less than the minimum specified in Clause 4 due to Lane 0 alignment of the Start control character. However, the minimum inter-frame spacing specified in Clause 4 is 5 octets (in 4.4.2).Clearly, this 5 octet figure has already taken into account theinter-frame spacing shrinkage due to Lane 0 alignment; therefore,the sentence in Clause 46 is incorrect.

*SuggestedRemedy*

Delete the sentence in Clause 46.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The referenced MAC specification of a minimum 5 IPG is at the receiver. This sentence specifies one of the contributors to this, specifically in the transmit path of the source DTE. Change to indicate "minimum transmitted preamble".

*Cl* **46** *SC* **46.3.2.1** *P* **252** *L* **4** # **943**

Law, David — 3Com

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

Since the TX_CLK is used as a DDR clock should there not also be a requirement not to decrease the pulse width as well as not reducing the clock period.

*SuggestedRemedy*

Add text to require that the RX_CLK pulse width is not decreased during clock transition.

*Proposed Response* *Response Status* **Z**

Duplicate comment of #634.

*Cl* **46** *SC* **46.3.2.1** *P* **252** *L* **4** # **634**

Law, David — 3Com

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

Since the TX_CLK is used as a DDR clock should there not also be a requirement not to decrease the pulse width as well as not reducing the clock period.

*SuggestedRemedy*

Add text to require that the RX_CLK pulse width is not decreased during clock transition.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Modify end of the sentence to read: "shall not decrease the time between adjacent edges of RX_CLK."

*Cl* **46** *SC* **46.3.2.3** *P* **253** *L* **38** # **181**

Robert Grow Intel

*Comment Type* **E** *Comment Status* **A**

The long parenthetical expression makes the sentence difficult to read.

*SuggestedRemedy*

Move it to the end of sentence.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.3.3.1** *P* **254** *L* **31** # **672**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

sentence continuation should be in parenthesis

*SuggestedRemedy*

Replace "algorithm, see 3.2.8" with "algorithm (see 3.2.8)"

*Proposed Response* *Response Status* **C**

ACCEPT. There is no consistent style usage for the cross reference phrase "see" within IEEE Std. 802.3-2000. In various place "see" is parenthetical in a sentence, in others, following a comma, and in others as a separate sentence both in parenthesis and not.

The IEEE style guide appears to always use parenthesis either in a sentence (not preceded by a comma) or as a separate sentence.

Search the document and change to the form: (see xx.x.x)

*Cl* **46** *SC* **46.3.3.3** *P* **254** *L* **51** # **673**

Brown, Benjamin AMCC

*Comment Type* **T** *Comment Status* **A** *Start sequence*

There is no error-free means of preamble shrinkage allowed in anyof the 10GE PHYs

*SuggestedRemedy*

Replace the last sentence in this paragraph with :
"Error free 10Gb/s operation will not change the length of the preamble."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #662.

*Cl* **46** *SC* **46.3.3.3** *P* **254** *L* **51** # **662**

Stephen Haddock Extreme Networks

*Comment Type* **TR** *Comment Status* **A** *Start sequence*

Neither of the currently defined PCS (clause 48 and clause 49) allow preamble shrinkage. There is no reason to anticipate that the PCS for any future PHY would necessarily require the capability of shrinking preamble. To allow preamble at the RS layer may unnecessarily complicate MAC/RS implementations, as well as as being "bug bait". While we cannot prevent implementors from making mistakes, we should not go out of our way to create situations where latent bugs can lie undetected until some future PHY allows preamble shrinkage and causes interoperability problems.

*SuggestedRemedy*

Replace the sentences: "A 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a lane other than 3. If there is preamble shrinkage, the SFD may be in the same column as the Start control character."with: "A 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a lane other than lane 3 of the column following the column containing the Start control character."

*Proposed Response* *Response Status* **C**

This issue has changed with every major revision of the draft. Initially it was essentially as recommened in this comment but changed in response to previous comments. See similar comments #542, #673.

This comment was considered by the 802.3ae Task Force concluding with the following motion:

Accept comment #662 and accept in principle comments #542 and #673 (referencing comment #662).

Moved: Haddock
Second: Brown

802.3 Voters
Y: 24, N: 6, A: 12

All in room
Y: 30, N: 8, A: 23

*Cl* **46** *SC* **46.3.3.3** *P* **254** *L* **51** # **182**

Robert Grow Intel

*Comment Type* **E** *Comment Status* **A**

Missing "the" at end of the line.

*SuggestedRemedy*

Should read "may be in the same"

*Proposed Response* *Response Status* **C**

ACCEPT. Overtaken by #662.

*Cl* **46** *SC* **46.3.3.3** *P* **254** *L* **51-52** # **542**

Hiroshi Suzuki — Cisco Systems, Inc.

*Comment Type* **T** *Comment Status* **A** *Start sequence*

Comment for "Clause 46.3.3.3 Response to indication of invalid frame sequences" last line "If there is preamble shrinkage, the SFD may be in the same column as the Start control character".In Ethernet, Fast Ethernet and Gigabit Ethernet the preamble is defined as 7 bytes of 0x55 and one byte of SFD 0xD5. In every variation of the Ethernet depending upon the speed or the underlying media the usage, reuse and shrinkage of the preamble is explicitly defined.For instance,
1. In Etherenet with PLS+PMA preamble (0x55) defined to be used for bit synchronization as in Clause 4.2.5.
2. In 100BASE-T4 (8B6T encoding) the preamble is used by PMA and coded into single value (sosa + sosb) indicating a start of carrier event and used by PMA align function Clause 23.4.1.6.
3. In 100Base-X (4B/5B encoding) Clause 24.2.2.2 Encapsulation explicitly states that except for the two code-group SSD, data nibbles within the SDU including non-SDU portion of the MAC preamble (i.e. 6 bytes of 0x55) and SFD (0xD5) are not interpreted by the 100BASE-X PHY.
4. In 1000Base-X (8b/10b encoding) similar to the 100Base-X the first byte of the MAC preamble is used by the PCS to align the two symbol 8b10b sequence and rest of the 6 bytes of preamble and SFD are not interpreted by the RS or PCS or PMA or PMD.
5. Similarly in 10GE (8b/10b encoding/lane) Clause 46.2.2 specifies the use of the first byte of the preamble by RS to align the frame to lane 0 by replacing the first byte of preamble with SOP. This leaves 6 bytes of preamble and one byte of SFD.
In conclusion in Ethernet and 100BASE-T4 the complete preamble may be used by thePLS or PCS circuitry. In 100Base-X, 1000Base-X and 10GE the first byte of the preamble is used by the PCS or RS and replaced with corresponding start delimiter and leaving 6 bytes of preamble and SFD intact and there is neither a "further" reduction or reuse specified nor is done in a compliant implementation.Therefore in "Clause 46.3.3.3 Response to indication of invalid frame sequences"last line "If there is preamble shrinkage, the SFD may be in the samecolumn as the Start control character" is
a. a deviation from the past,
b. is present for unspecified reasons making it unclear, therefore,
c. it will encourage bad implementations and lack of inter-operability.

*SuggestedRemedy*

To be consistent with past and clear, modify last line in Clause 46.3.3.3 to "In an error free 10Gbps operation preamble length is not allowed to shrink further from as specified in Clause 46.2.2 Preamble and start of frame delimiter".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #662.

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **20** # **177**

Robert Grow — Intel

*Comment Type* **T** *Comment Status* **A** *Sequence table*

Add the undefined values to the table.

*SuggestedRemedy*

Add new first entry: "Sequence, 0x00, 0x00, 0x00, Reserved"
Add new forth entry: "Sequence, >=0x00, >=0x00, >=0x03, Reserved"
Add to the Note: "The link fault signaling state machine allows future standardization of reserved Sequence ordered sets for functions other than link fault indications."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **20** # **311**

Tim Warland — Nortel Networks

*Comment Type* **E** *Comment Status* **R**

Table 46-4 would be improved with the addition of the TXC character field

*SuggestedRemedy*

Add a column on the left of the table for TXC<3:0> set to 0x1 for both fault conditions.

*Proposed Response* *Response Status* **C**

REJECT. See related comment #177. The format of the content implies which bytes are control characters and which are data octets. This is stated clearly in the referencing text.

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **34** # **34**

Brierley-Green, Andrew — Philips Semiconductor

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

My interpretation is that a "Sequence ordered_set" is any column of 4characters that has a Sequence control character (0x9C) in Lane 0.Currently, only two of the 224 possible sequence ordered_sets are used(one for local fault and one for remote fault) but more could be used in future standards. With this in mind, a change to the definition of the col_cnt variable may be required. Currently, the defintion of col_cnt is such that it increments for any column not containing a Sequence ordered_set. If in the future, some currently unused sequence ordered_set is defined that has no relation to fault signaling,then reception of this new sequence ordered_set will interfere with the operation of the link fault signaling mechanism. This is because col_cnt would not increment for columns that contain this new sequence ordered_set. Just as we have tightened up the definition of fault_sequence so that the state machine is not affected by sequence ordered_sets defined in future standards, we should tighten up thedefinition of col_cnt for the same reason. Also the text that describesthe operation of the state machine should be modified. Specifically,bullet (c), line 47 of page 256, should specify columns not containinga either a local fault or remote fault sequence ordered_set.

*SuggestedRemedy*

Change the first sentence of the definition of col_cnt to the following:"A count of the number of columns received not containing a fault_sequence."Change bullet (c), line 47 of page 256 to read: "Without any intervening period of 128 columnns not containing a Remote Fault or Local Fault Sequence ordered_set."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The current text is inconsistent with the state machine. The state machine already implements the intent of the comment.

Change the first sentence of the definition of col_cnt to the following: "A count of the number of columns received not containing a fault_sequence."

Change bullet (c), line 47 of page 256 to read: "Without receiving any fault_sequence within a period of 128 columns"

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **38** # **35**

Brierley-Green, Andrew — Philips Semiconductor

*Comment Type* **E** *Comment Status* **A**

The definition of fault_sequence incorrectly uses the word "composing".

*SuggestedRemedy*

Replace the word "composing" with "comprising" or with "composed of".

*Proposed Response* *Response Status* **C**

ACCEPT. To also clarify timing rewrite to read "A new column received on RXC<3:0> and RXD<31:0> comprising a Sequence ordered_set ..."

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **4** # **310**

Tim Warland — Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Be more explicit on the turn around from local fault to remote fault

*SuggestedRemedy*

Change sentence from "When this Local Fault status reaches an RS, the RS stops sending MAC data, and continuously generates a Remote Fault status." to "When this Local Fault status reaches an RS, the RS stops sending MAC data, and continuously generates a Remote Fault status back towards the PCS layer."

*Proposed Response* *Response Status* **C**

ACCEPT. Change to read: "When this Local Fault status reaches an RS, the RS stops sending MAC data, and continuously generates a Remote Fault status on the transmit data path (possibly truncating a MAC frame being transmitted)."

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **4** # **53**

Tom Mathey — Independent

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

While there is nothing worong with the text in this section, I would like to enhance the text to indicate that when a RS receives a local fault, the MAC data is immediately truncated. This follows the similar action as shown in Figure 14-3 for 10BASE-T.

*SuggestedRemedy*

Change text to:
When this Local Fault status reaches an RS, the RS stops sending MAC data (with possible truncation of MAC data), and immediately and continuously generates a Remote Fault status.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #310

*Cl* **46** *SC* **46.3.4** *P* **255** *L* **6** # **674**

Brown, Benjamin — AMCC

*Comment Type* **E** *Comment Status* **A**

Missing a sentence describing how the RS responds when receiving RF

*SuggestedRemedy*

Add the following sentence before the last sentence of this paragraph:"When this Remote Fault status reaches an RX, the RS stops sending MACdata, and continuously generates IDLE."

*Proposed Response* *Response Status* **C**

ACCEPT. Add as next to last sentence of paragraph: "When Remote Fault status is received by an RS, the RS stops sending MAC data, and continuously generates Idle control characters."

*Cl* **46** *SC* **46.3.4** *P* **256** *L* **11** # **945**
Law, David 3Com

*Comment Type* **E** *Comment Status* **D**
Typo.

*SuggestedRemedy*
'link_fault = ok' should read 'link_fault = OK', see link_fault definition on page 255, line 48.

*Proposed Response* *Response Status* **Z**
Duplicate comment of #636.

*Cl* **46** *SC* **46.3.4** *P* **256** *L* **11** # **636**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
'link_fault = ok' should read 'link_fault = OK', see link_fault definition on page 255, line 48.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **46** *SC* **46.3.4** *P* **256** *L* **6** # **946**
Law, David 3Com

*Comment Type* **T** *Comment Status* **D**
Please dfine the Reset variable used

*SuggestedRemedy*
Suggest text similar to 48.2.5.1.3 reset definition (page 298, line 44).

*Proposed Response* *Response Status* **Z**
Duplicate comment of #637.

*Cl* **46** *SC* **46.3.4** *P* **256** *L* **6** # **637**
Law, David 3Com

*Comment Type* **T** *Comment Status* **A**
Please define the Reset variable used

*SuggestedRemedy*
Suggest text similar to 48.2.5.1.3 reset definition (page 298, line 44).

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. In figure 46-9 change "Reset" to "reset".

Insert at line 50:
"Reset:
Condition that is true until such time as the power supply for the device that contains the RS has reached the operating region.
Values: FALSE: The device is completely powered and has not been reset (default).
TRUE: The device has not been completely powered or has been reset."

*Cl* **46** *SC* **46.4** *P* **257** *L* **12** # **56**
Tom Mathey Independent

*Comment Type* **E** *Comment Status* **R**
The clock is missing a duty cycle requirement.

*SuggestedRemedy*
Add duty cycle requirement to clock

*Proposed Response* *Response Status* **C**
REJECT. The duty cycle is implicit in the setup and hold times.

*Cl* **46** *SC* **46.4** *P* **257** *L* **17** # **314**
Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **R**
Terminology not consistent with the rest of the document

*SuggestedRemedy*
change from "When implemented as a chip-to-chip interface," to "Where this is an exposed interface"

*Proposed Response* *Response Status* **C**
REJECT. The traditional 802.3 use of exposed interface is one that is exposed at the DTE level, and generally through a connector (e.g., AUI, MII). The MII has different requirements when exposed through a connector or unexposed. If the usage here is inconsistent with other parts of 802.3ae, then those other sections should change.

*Cl* **46** *SC* **46.4** *P* **258** *L* **2** # **36**

Brierley-Green, Andrew — Philips Semiconductor

*Comment Type* **E** *Comment Status* **A**

Missing period at end of sentence:"Unterminated interconnection is recommended"

*SuggestedRemedy*

Add the period.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **46.4** *P* **258** *L* **20** # **638**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typos.

*SuggestedRemedy*

VIL_AC reads VIL(ac) in table 46-5, VIH_AC reads VIH(ac) in table 46-5. Please either change the text in table 46-5 or change the text in subclause 46.4 paragraph 5 and Figure 46-12.Also note that while the title of Figure 46-12 states 'TX_CLK and RX_CLK timing parameters at input' the timing specification provided in the table seems to provide the timing at both the input and output of the XGMII, please update the title of the figure as seen necessary.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Review text and all figures and correct as necessary to use the form VIH_AC(min). [with the IH_AC(min) as subscript]

Remove "at input" from figure 46-12.

*Cl* **46** *SC* **46.4** *P* **258** *L* **20** # **947**

Law, David — 3Com

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

Typos.

*SuggestedRemedy*

VIL_AC reads VIL(ac) in table 46-5, VIH_AC reads VIH(ac) in table 46-5. Please either change the text in table 46-5 or change the text in subclause 46.4 paragraph 5 and Figure 46-12.Also note that while the title of Figure 46-12 states 'TX_CLK and RX_CLK timing parameters at input' the timing specification provided in the table seems to provide the timing at both the input and output of the XGMII, please update the title of the figure as seen necessary.

*Proposed Response* *Response Status* **Z**

Duplicate comment of #638.

*Cl* **46** *SC* **46.4** *P* **258** *L* **39** # **641**

Law, David — 3Com

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

While it is clear elsewhere that the XGMII is a DDR system using both edges of the clock to clock the data, suggest to increase clarity either add text or amend Table 46-12 to make it clear that the setup and hold values apply to both the rising and falling edge of the clock.

*SuggestedRemedy*

Add text to make it clear that the setup and hold values given in 46-12 apply to both the rising and falling edge of the clock.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Replicate the threshold lines for the complementary direction of the clocks in Figure 46-12.

*Cl* **46** *SC* **46.4** *P* **258** *L* **39** # **950**

Law, David — 3Com

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

While it is clear elsewhere that the XGMII is a DDR system using both edges of the clock to clock the data, suggest to increase clarity either add text or amend Table 46-12 to make it clear that the setup and hold values apply to both the rising and falling edge of the clock.

*SuggestedRemedy*

Add text to make it clear that the setup and hold values given in 46-12 apply to both the rising and falling edge of the clock.

*Proposed Response* *Response Status* **Z**

Duplicate comment of #641.

*Cl* **46** *SC* **46.5.3.4** *P* **262** *L* **43** # **29**

Cruikshank, Brian — Conexant Systems Inc

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

Loopback is specified in the PICS for XGMII, but it is not described in text or in MDIO.

*SuggestedRemedy*

Remove PICS FS18.

*Proposed Response* *Response Status* **C**

ACCEPT. Delete FS18 and renumber as required.

*Cl* **46** *SC* **Figure 46-14** *P* **264** *L* # **261**

Joergensen, Thomas Intel

*Comment Type* **E** *Comment Status* **A**

Wrong notation: The notation "seq_cnt++" is used. The standard notation used elsewhere is seq_cnt <= seq_cnt + 1

*SuggestedRemedy*

Replace seq_cnt++ with seq_cnt <= seq_cnt + 1

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See #635

*Cl* **46** *SC* **Figure 46-15** *P* **265** *L* # **262**

Joergensen, Thomas Intel

*Comment Type* **E** *Comment Status* **A**

Wrong notation: The notation "seq_cnt++" os used. The standard notation used elsewhere is seq_cnt <= seq_cnt + 1

*SuggestedRemedy*

Replace seq_cnt++ with seq_cnt <= seq_cnt + 1

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See #635

*Cl* **46** *SC* **Figure 46-2** *P* **244** *L* **14** # **938**

Law, David 3Com

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

Typo.

*SuggestedRemedy*

RXC3:0> should read RXC<3:0>

*Proposed Response* *Response Status* **Z**

Duplicate comment of #629.

*Cl* **46** *SC* **Figure 46-2** *P* **244** *L* **14** # **629**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

RXC3:0> should read RXC<3:0>

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **Figure 46-2** *P* **244** *L* **14** # **482**

Turner, Ed Lattice Semiconductor

*Comment Type* **E** *Comment Status* **A**

Missing '<' in the text 'RXC3:0>' on right hand side

*SuggestedRemedy*

Change 'RXC3:0>' to 'RXC<3:0>'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **Figure 46-2** *P* **244** *L* **15** # **445**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A**

Missing left angle bracket in RXC signal label

*SuggestedRemedy*

Change "RXC3:0>" to "RXC<3:0>".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **46** *SC* **Figure 46-9** *P* **256** *L* # **675**

Brown, Benjamin AMCC

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

This state machine makes no use of the value "other" for the variable "seq_type". It also invalidates item "b)" on line 46 of this page. Because of the definition of "fault_sequence" and the way it is used in this state machine, the only time the "link_fault <= seq_type" assignment gets made is when the seq_type is Local Fault or Remote Fault. Also, while counting a particular seq_type value, if a Sequence ordered_set is received without a Local Fault or Remote Fault value, it ignored and treated the same as a column of IDLEs.

*SuggestedRemedy*

Solution #1: Remove the value "other" from the value selection of the variable "seq_type" and remove item "b)" from the list of conditions for setting the variable link_fault. Solution #2: Change the variable "fault_sequence" to "rcvd_sequence"and don't restrict its being valid to only when the data values are LF or RF.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove the value other from p.255, l.45 and p.256, l.3 and item b p 256, l.46.

*Cl* **46** *SC* **Figure 46-9** *P* **256** *L* **16** # **635**

Law, David 3Com

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

The use of the ++ symbol to increment a value is not defined in 21.5 nor 1.2.1, also there is no reference to the state diagram conventions used.

*SuggestedRemedy*

Suggest text similar to 49.2.13.1 is added.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. At line 30 add a new subsection and defintions heading:

"46.3.4.1 Conventions
The notation used in the state diagram follows the conventions of 21.5. The notation ++ after a counter indicates it is to be incremented.

46.3.4.2 Varibles and counters"

On p. 256, line 5 add heading "46.3.3 State diagram".

*Cl* **46** *SC* **Figure 46-9** *P* **256** *L* **16** # **944**

Law, David 3Com

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

The use of the ++ symbol to increment a value is not defined in 21.5 nor 1.2.1, also there is no reference to the state diagram conventions used.

*SuggestedRemedy*

Suggest text similar to 49.2.13.1 is added.

*Proposed Response* *Response Status* **Z**

Duplicate comment of #635.

*Cl* **46** *SC* **Figure 46-9** *P* **256** *L* **22** # **54**

Tom Mathey Independent

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

In Figure 46-9 Link Fault Signaling State Machine, the 3 exit conditions out of state COUNT are not all mutually exclusive.

*SuggestedRemedy*

For transistion from state COUNT to INIT, to term col_cnt > 127 add term not fault_sequence for exit condition of: !fault_sequence * col_cnt > 127This also seems to apply to similar exit condition out of state FAULT.

*Proposed Response* *Response Status* **C**

ACCEPT. Add to both transitions

*Cl* **46** *SC* **Figure 46-9** *P* **256** *L* **24** # **55**

Tom Mathey Independent

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

In Figure 46-9 Link Fault Signaling State Machine, the exit condition out of state COUNT to FAULT seems to conflict with the condition to loop on state COUNT. The exit condition has variable seq_cnt > 2, the loop has seq_cnt < 3. Text says four (4) sets received.

*SuggestedRemedy*

Change loop condition from seq_cnt < 3 to seq_cnt <= 3 (add equals sign).
Change exit condition from seq_cnt > 2 to seq_cnt > 3 (change from 2 to 3).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The SuggRemedy would require five sequences. The conventions for 802.3 state machines include that actions are only taken on entry to a state, and since the exit contitions look of a fault_sequence, the COUNT to FAULT transition would be taken when seq_cnt >2 (i.e., =3) with the fault_sequence term of the transition representing the fourth sequence.

Clarity would be enhanced by changing "seq_cnt>2" to "seq_cnt>=3", do it.

*Cl* **47** *SC* *P* *L* # **45005**

Ed Turner

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

Comment received against Cl 45:

Comment #28
Cl 45, SC 45.2.4.1.2, P 210, L 26
Name : Cruikshank, Brian
Comment : There is no loopback behavior specified in Clause 47
Remedy : Add new subclause in Clause 47 similar to Clause 50.3.9.1.1 Include the NOTE at the bottom. Add new subclause to description in 45.2.4.1.2
Response : PROPOSED ACCEPT IN PRINCIPLE. Check that C47 has a comment against it.

*SuggestedRemedy*

Implement Brian's suggestion :
Add new subclause in Clause 47 similar to Clause 50.3.9.1.1Include the NOTE at the bottom.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Loopback as defined in clause 45 for the XGXS references clause 48 where the loopback function for clause 47 is defined.

*Cl* **47** *SC* *P* *L* # **44007**

Booth, Brad

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

Delay constraint information should not reference clause 48.

*SuggestedRemedy*

Create delay constraint information with text referring to the fact that the delay values include the delay across the XAUI.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Text already exsits, but will be put in a dedicated subclause for easy reference.

*Cl* **47** *SC* **47.1** *P* **226** *L* **1** # **853**

Jonathan Thatcher World Wide Packets

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

When the Higher Speed Study Group put forth a PAR to 802 and the IEEE standards board for approval to create a standard, we committed that: "10 Gb/s Ethernet technology will be demonstrated during the course of the project, prior to the completion of the sponsor ballot. " This requirement was added to our PAR because, at the time of writing the PAR, there was no evidence that PMD and PMA technology was feasible which simultaneously meet the other four criteria. Feasibility means that technology must be demonstrated with reports and working models; proven technology; reasonable testing and with confidence in reliability. Historically, Ethernet has been successful, in part, because it "leveraged" technology that existed at the time of the writing of the PAR. No such 10 Gigabit PHY technology existed in November 1999. While the time for which this must be completed is still a couple of meeting cycles away, it is not clear that sufficient effort is being made to validate the specifications; measurement procedures; engineering analysis and judgment and to assure that this interface meets the requirement we set for ourselves in time for the May 2001 cutoff for last technical change.

*SuggestedRemedy*

DEMONSTRATE the technical feasibility of the technology specified in Clause 47 for the XAUI interface, while ensuring the attainment of the other 4 criteria. Or, change the requirements/specifications such that this goal can be achieved.

*Proposed Response* *Response Status* **U**

ACCEPT IN PRINCIPLE. The commenter's definition of technical feasibility is vague and open to different interpretations. Members of the XAUI sub task group plan to report on technical feasibility of XAUI at the July meeting.

*Cl* **47** *SC* **47.1.1** *P* **267** *L* **9** # **57**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A** *stamp*

While the text from lines 9 to 14 is not broken, the text does intermix transmit and receive operations. The text would read better if all of transmit is described first, then receive. No text is added, changed, or deleted.

*SuggestedRemedy*

Replace c) and d) with following: c) The source XGXS converts XGMII Idle control characters (interframe) into an 8B/10B code sequence. The destination XGXS recovers clock and data from each XAUI lane and deskews the four XAUI lanes into the single-clock XGMII.
d) The destination XGXS adds to or deletes from the interframe as needed for clock rate disparity compensation prior to converting the interframe code sequence back into XGMII Idle control characters.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.1.2** *P* **267** *L* **22** # **486**

Turner, Ed Lattice Semiconductor

*Comment Type* **E** *Comment Status* **A** *stamp*

Grammar error.

*SuggestedRemedy*

Change '..distance..' to '..distances..'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.1.3** *P* **267** *L* **26** # **456**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *shall*

The "shall"s on p.267, ll. 26 and 28 are covered elsewhere and do not belong in the overview section. Other unecessary "shall"s:
p. 267, ll. 49, 51 and 53 (these are covered by those on p. 268 l. 2)
p. 268, l. 40 (complicates PICS and compliance testing needlessly)
p. 269, l. 6 (covered by "shall"s in following subsections)
p. 270, ll. 16, 17 (covered by l. 14)
p. 270, ll. 23, 26, 27, 31, 35, 36, 37 and 39 (covered by l. 22)
p. 274, l. 42 (covered by l. 39)
p. 277, ll. 2 and 3 (occurances covered by p. 276)

*SuggestedRemedy*

Change: p. 267, l. 26 ("shall support" to "supports"); p. 267, l. 28 ("shall be" to "is"); p. 267, l. 49 ("shall take" to "takes", "maps", "encodes"); p. 267, l. 51 ("shall decode" to "decodes", "deskews", "compensates", "maps"); p. 267, l. 53 ("s b" to "is"); p. 268, l. 40 ("shall be met for" to "are applicable to"); p. 269, l. 6, p. 270, l. 17 ("s b" to "is"); p. 270, l. 16 ("s b met for" to "applies to"); p. 270, l. 23 ("must be" to "is"); p. 270, l. 26 ("shall" to "must"); p. 270, l. 27 ("s b" to "is"); p. 270, l. 31 ("shall satisfy" to "satifies"); p. 270, l. 35 ("shall apply" to "applies"); p. 270 l. 36 ("shall" to "does"); p. 270, l. 37, 39, p. 274, l. 42, p. 277, l. 2 ("s b" to "is"); p. 277, l. 3 (both "s b"s to "are"). Update PICS accordingly.

*Proposed Response* *Response Status* **C**

ACCEPT. (See comment #805 for jitter "shalls".)

*Cl* **47** *SC* **47.2** *P* **267** *L* **50** # **867**

Jonathan Thatcher World Wide Packets

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

While it appears that the reference to clause 48 sufficiently references those portions of 48 which are essential elements of 47, there remains the problem of interpretation of the optional features which may or may not be required for use in clause 47 and similarly, whether all required aspects of clause 48 are required for implementation of clause 47. The short way of saying this is, when the clause 47 PICs are written, will these contain a virtual copy of the clause 48 PICs? If so, what will the clause 47 PICs point to? Clause 48 directly?

Normally (though not stated), we consider the PICS to be "virtually editorial" pointing to the shall statements which define the normative requirements. The implication of having the specifics of conformance of clause 47 be the PICS is that the PICS effectively become the normative subclause.

*SuggestedRemedy*

Pick one of:
1. Though breaking with precedent, use clause 47 PICS to fully define the requirements of the clause 47 coding layer and point to these directly with some statement such as: "specific interpretation regarding which portions of clause 48 are normative and required, required when implemented, or informative is identified in [put PICS reference(s) here].
2. Add a table (which is a virtual PICS table) within the body of clause 47 which points to the various NORMATIVE subclauses of clause 48 and identifies these as mandatory or optional. Clause 47 PICS would then point to this table.

*Proposed Response* *Response Status* **C**

ACCEPT. Replace the following sentence on p. 268 l.2-3 "All the requirements of 48.2 and 48.3 shall be met by the XGXS." with "The XGXS shall meet all mandatory portions of 48.2 and 48.3, and may meet any optional portions of 48.2 and 48.3.". The PICS will contain a mandatory entry for "XGXS meets all mandatory sections of 48.2 and 48.3", and an optional entry for "XGXS meets 48.3.4.2.3".

Editor's explanation: All normative subclauses of 48.2 and 48.3 are mandatory for the XGXS. There is only one optional subclause in 48.2 and 48.3, namely 48.2.4.2.3, and it is also optional for XGXS. Since the XGXS is identical to the 10GBASE-X PCS and PMA, it is redundant to either list all the subclauses of 48.2 and 48.3 in the clause 47 PICS, or to insert a table doing the same thing in the body of clause 47. A simple normative statement to this effect is sufficient.

*Cl* **47** *SC* **47.2** *P* **267** *L* **52** # **58**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A** *stamp*

The text "the XGXS shall decode the data, deskew" seems inaccurate given the previous sentence.

*SuggestedRemedy*

Change from "decode the data" to "decode the code-groups"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.2** *P* **268** *L* **7** # **868**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A** *stamp*

The L0p to L3n style is inconsistent with other clauses. Ditto lines 38 to 49 on page 269 and else where in clause.

*SuggestedRemedy*

Use L0<P>... instead.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3** *P* **268** *L* **40** # **450**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *shall*

The comment that electrical spec's apply to valid code groups is too weak in the sense that the spec's apply to valid code group patterns and not just valid code groups. The same comment should not contain "shall" since the near-infinite number of valid patterns makes compliance virtually unverifiable.

*SuggestedRemedy*

Change sentence to read, "Unless specified otherwise, the electrical characteristics defined in this subclause are applicable to all valid code-group patterns."

*Proposed Response* *Response Status* **C**

ACCEPT. Change sentence to read, "Unless specified otherwise, the electrical characteristics defined in this subclause shall be met for all valid sequences of code-groups."

*Cl* **47** *SC* **47.3** *P* **268** *L* **40** # **451**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

"Code-groups" should be hyphenated.

*SuggestedRemedy*

Hyphenate "code-groups".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3** *P* **269** *L* **Table 47-1** # **760**

Ali Ghiasi Broadcom

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

Differential skew is already taken in to account as part of output DJ.

*SuggestedRemedy*

Remove differential skew from table.

*Proposed Response* *Response Status* **C**

ACCEPT. (See #659, 453.)

*Cl* **47** *SC* **47.3** *P* **269** *L* **Table 47-1** # **758**

Ali Ghiasi Broadcom

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

Differential and common mode return loss of 10 and 6 dB are not necessary, as the transmission lines are terminated in to 100 ohms. It will be very difficult to meet the output return loss.

*SuggestedRemedy*

Replace the return loss parametrs with differential impedance and common mode imedance.
Suggested value for differential Z= 75 to 125
Suggested value for Single ended Z= 30 to 75 ohms

*Proposed Response* *Response Status* **C**

REJECT. Clarification of suggested remedy: the commenter suggests eliminating the signal-frequency impedance spec because it is difficult to meet, and substituting a DC output resistance spec. While it is generally accepted that the spec is difficult, a definite proposal that preserves robust system performance and interoperability is needed.

*Cl* **47** *SC* **47.3** *P* **274** *L* **Table 47-4** # **759**

Ali Ghiasi Broadcom

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

In addition to return loss parameters imedance parameter should be provided.

*SuggestedRemedy*

Add a line for impednace with value of 40 to 62.5 Ohms and twice for differentil.

*Proposed Response* *Response Status* **C**

REJECT. Clarification of suggested remedy: the commenter is suggesting than a DC input resistance spec be added to imply that the return loss is with respect to 100 ohms differential or 25 ohms common mode. See comment #455 for an alternate solution.

*Cl* **47** *SC* **47.3** *P* **274** *L* **Table 47-4** # **761**

Ali Ghiasi Broadcom

*Comment Type* **E** *Comment Status* **A** *jitter*

Description of total jiter

*SuggestedRemedy*

Suggest to add Total jitter = DJ + 14 Sigma in the table foot note.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Annex 48B deals extensively with the subject of random jitter, so it should not be dealt with there and not in this subclause.

*Cl* **47** *SC* **47.3** *P* **275** *L* **Table 47-5** # **762**

Ali Ghiasi Broadcom

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

Interconnect loss combines several loss parameter potentially allowing higher ISI making the link inoperable.

*SuggestedRemedy*

Suggest to allocate 4 dB to the ISI loss and 3.5 dB for the Interconnect loss.

*Proposed Response* *Response Status* **C**

REJECT. ISI loss is different than loss in eye height being budgeted in this table.

*Cl* **47** *SC* **47.3.1** *P* **268** *L* **46** # **470**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

EMI is not defined. This is the first occurance in the clause.

*SuggestedRemedy*

Replace "EMI" with "electromagnitic interference (EMI)".In 47.3.3.2, replace "electromagnitic interference (EMI)" with "EMI".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3.2** *P* **269** *L* **2** # **452**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

PCBs should not have an apostrophe.

*SuggestedRemedy*

Change "PCB's" to "PCBs".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3.3** *P* **269** *L* **16** # **869**

Jonathan Thatcher World Wide Packets

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

Table missing the clock tolerance (see Table 47-4). Text regarding tolerance can be removed from line 8. Should have specification in only one place.

*SuggestedRemedy*

Per comment

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The table is a "summary". All normative statements are in the text (e.g., return loss, amplitude, etc.). If we DO want to make the table to be the normative reference in this case, then we should do it consistently throughout the clause. I don't think the commenter was suggesting a change of this scope (though it does simplify the PICs). However, upon reviewing this comment, the editor noticed that there is no "shall" associated with baud rate. Modify "The XAUI baud rate is 3.125 GBaud +/-100 ppm, and the corresponding baud period is nominally 320 ps." to "The XAUI baud rate shall be 3.125 GBaud +/-100 ppm. The corresponding baud period is nominally 320 ps."

*Cl* **47** *SC* **47.3.3** *P* **269** *L* **4** # **454**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *jitter*

The driver characteristics do not include the driver jitter spec's. These important spec's are buried in 47.4.1 which deals with measurement method requirements.

*SuggestedRemedy*

Move the driver jitter spec's into a new subsection of 47.3.3 and include them in Table 47-1. Include them in the same way that the driver template is spec'ed, by defining the far-end requirements first (using the pre-equalized case from 47.4.1) and then listing the near-end case (using the non-equalized case from 47.4.1) as an acceptable alternative compliance test.

*Proposed Response* *Response Status* **C**

ACCEPT. The suggested remedy is a technical change since pre-equalized xmtrs could be jitter-compliant based on a near-end test only. If this is really the case, then we should put the near- and far-end tests on equal footing and not confuse readers by listing one as mandatory and the other as a suitable alternative. Same goes for the driver template.

Specifically, put transmit jitter spec's into the same section with driver template requirements. Add subsections to 47.4 to deal with template and jitter measurement requirements. Proposed text:
47.3.3.5 Driver template and jitter
The driver shall satisfy either the near-end eye template and jitter requirements, or the far-end eye template and jitter requirements. The eye templates are given in Figure 47-4 and Table 47-2. The template measurement requirements are specified in 47.4.2. The maximum total jitter is 0.35 UI at the near-end and 0.55 UI at the far-end. The maximum deterministic jitter is 0.17 at the near end and 0.37 UI at the far end. The maximum random jitter is equal to the maximum total jitter minus the actual deterministic jitter. Jitter measurement requirements are described in 47.4.3.

*Cl* **47** *SC* **47.3.3** *P* **269** *L* **5** # **461**

Kesling, Dawson Intel

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

Load is underspecified.

*SuggestedRemedy*

Change "100 ohms differential" to "100 ohms +/- 5% differential to 2.5 GHz"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3.3** *P* **269** *L* **6** # **895**

Lindsay, Tom Stratos Lightwave

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

A tolerance must be specified on transmitter test load impedance.

*SuggestedRemedy*

Suggest +/1% (as in Fibre Channel) or +/-5% for consistency with the receiver testing per subclause 47.3.4.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Use 5% per previous sub-task force discussions.

*Cl* **47** *SC* **47.3.3.4** *P* **270** *L* **17** # **455**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

The meaning of "test source impedance" is not clear. The same applies to 47.3.4.3.

*SuggestedRemedy*

Replace "Test souce impedance" with "The reference impedance for return loss measurments ..." in 47.3.3.4 and 47.3.4.3.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **22** # **901**

Lindsay, Tom Stratos Lightwave

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

Horizontal mask referencing is not defined.

*SuggestedRemedy*

"0 and 1 for horizontal mask alignment should be defined as the means of the respective histogram crossings at the average value of the waveform."As it applies to templates generally, this statement should be within a separate methods paragraph, along with the requirements for high-pass filtering, test time, impedance, etc.

*Proposed Response* *Response Status* **C**

ACCEPT. Move text on high-pass filtering, test time and eye centering into a new sub-section of 47.4 dealing with template measurement requirements. Keep the definition of loads in the main body of 47.3 since it is specific to the template and not general for all templates.
Proposed text:
"The left and right edges of the template are aligned with the mean zero crossing points of the measured data eye as illustrated in Figure [TBD]."
Passed: y=8, n=2, a=4

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **23** # **457**

Kesling, Dawson Intel

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

The driver template allows use of either the system clock or a golden PLL, but results could differ with certain data patterns such as CJPAT. If CJPAT and a golden PLL are mandated for driver jitter compliance, then the golden PLL should be mandated for driver template compliance also. This is because the horizontal eye opening corresponds to the high frequency jitter spec.

*SuggestedRemedy*

Remove reference to the system clock ("equipment under test").

*Proposed Response* *Response Status* **C**

ACCEPT. Specifically, use proposed response to #897.

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **24** # **897**

Lindsay, Tom — Stratos Lightwave

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

With a long list of history and reasons, and in spite of the resulting complication to compliance testing, all jitter specs, including the value for X1, have been written to include the effects of high pass filtering such as from a golden PLL.The choice of trigger source will make a difference. With CJPAT, the use of the trigger from the pattern generator will not include high pass filter effects, and will understate the jitter and eye closure.

*SuggestedRemedy*

Remove the words regarding scope triggering (lines 23-26). Replace with "The scope shall be triggered with a method described in Annex 48B.3, or other equivalent high-pass implementation."

*Proposed Response* *Response Status* **C**

ACCEPT. See also #457. Reference to 48B.3 is too vague. Instead, state, "Jitter measurement requirements are described in 47.4.3." In 47.4.3, state, "For the purpose of jitter measurement, the effect of a single-pole high pass filter with a 3 dB point of 1.875 MHz is applied to the jitter."

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **26** # **475**

Kesling, Dawson — Intel

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

The location of the template within the actual data eye is not specified, allowing the template to be moved within the data eye if necessary to pass. CDR's normally sample in the center of the actual eye, where the boundaries of the eye are located at the mean zero-crossings. The eye should be centered between these points.

*SuggestedRemedy*

Add the following sentence between the sentence on line 26: "The eye template must be centered in the driver eye between the points of mean zero-crossing."

*Proposed Response* *Response Status* **C**

ACCEPT. Use proposed response for #901.

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **27** # **467**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **A** *channel*

This section dealing with specifications is complicated by excessive detail on the compliance channel. Measurment requirements such as these belong in 47.4.

*SuggestedRemedy*

Move the compliance channel definition to a new subsection in 47.4.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **28** # **459**

Kesling, Dawson — Intel

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

The group delay spec cannot be met by practical interconnects and is not meaningful as a way to specify dispersion-induced jitter in broadband systems. Phase response specification is not needed since the severe frequency dependence of the magnitude response already guarantees adequate DJ.

*SuggestedRemedy*

Remove the compliance channel group delay spec:
. 270, l. 28,
p. 270, ll. 39-40
Figure 47-6
Any other locations

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **36** # **460**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

The required value of compliance channel magnitude response above 3.125 GHz is not clear.

*SuggestedRemedy*

Change "the value of the limit at 3.125 GHz" to "-11.4 dB". Remove the y-axis value of -11.384 dB in Figure 47-5.

*Proposed Response* *Response Status* **C**

ACCEPT. Accept suggested remedy except change the y-axis value to -11.4 instead of removing it.

*Cl* **47** *SC* **47.3.3.5** *P* **270** *L* **42** # **899**

Lindsay, Tom — Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *template*

It is not clear whether we are suggesting that the near-end template and far-end template methods are equivalent and interchangeable. If a driver meets the near end, must it still meet the far end? Vice versa? Or is near-end only for drivers w/o pre-emphasis, and far-end only for drivers with pre-emphasis? Please clarify.

*SuggestedRemedy*

Intention not sufficiently clear for me to provide a remedy, if even required. Any clarification will be welcomed.

*Proposed Response* *Response Status* **C**

ACCEPT. The initial reason for soft-peddling the near-end template was due to lack of information about how it would correlate to the far-end. This is now well understood. We should put the near-end template on equal footing with the far-end template. This only makes clear what the standard already allows. See proposed solution to #454.

*Cl* **47** *SC* **47.3.4.1** *P* **273** *L* **40** # **463**

Kesling, Dawson Intel

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

The "valid input signal" is defined in 47.3.4.1 for nearly ideal source and load impedances (95 to 105 ohms). Real drivers and receivers have 45 to 195 ohm impedance allowances (10 dB return loss), so real input signals may be very different from the "valid" input signal definition. A sentence in the text alludes to this, but the maximum and minimum input amplitude entries in Table 47-4 are incorrect as they give values for the "valid" signal and not actual signal extremes.For example, the maximum input amplitude could reach 2.4V if both driver and receiver are 195 ohms! The use of the term "valid" input signal along with Table 47-4 leads the reader to beleive that the input signal will not exceed 1.6V.The term "valid" input signal is misleading. "Reference" input signal is more descriptive since this signal is used for BER testing and not for directly specifying receiver parameters such as input signal limits.

*SuggestedRemedy*

Change all occurances of "valid input signal" to "reference input signal" in 47.3.4 and 47.3.4.1. Change the maximum input amplitude entry in Table 47-4 from 1600 to 2500 mV p-p. Change the minimum entry from 200 mV to a footnote, "The minimum input amplitude is defined by the reference signal specified in 47.3.4.1 and the actual receiver input impedance."Add a new subsection under 47.3.4 entitled "47.3.4.x Input voltage limits" with the text, "XAUI receivers shall accept differential input signal amplitudes of up to 2500 mV peak-peak. Note that this is larger than the 1600 mV peak-peak maximum of the reference input signal to allow for the combined effects of actual driver and receiver input impedances. Since the XAUI receiver is AC coupled, the absolute voltage levels with respect to the receiver ground are dependent on the receiver implementation." Add entries into Table 47-4 for input voltage limits and AC coupling.

*Proposed Response* *Response Status* **C**

ACCEPT. Implement as suggested except put the suggested footnote text into the body of the new sub-section.

*Cl* **47** *SC* **47.3.4.1** *P* **273** *L* **43** # **462**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **R** *stamp*

The load requirement is not clear

*SuggestedRemedy*

On line 43, change "the load specified in 47.3.3.5" to "the far-end load specified in 47.3.3.5". On line 44, change "when this load" to "when the far-end load".

*Proposed Response* *Response Status* **C**

REJECT. Use of a compliance interconnect is not required. (The source could be a signal generator with reduced amplitude, for example.).

*Cl* **47** *SC* **47.3.4.1** *P* **273** *L* **43** # **898**

Lindsay, Tom Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *template*

I have suggested different wording for subclause 47.3.3.5. (Comment #897) The same wording should be used here.

*SuggestedRemedy*

Replace "...and the eye trigger..." with "The scope shall be triggered with a method described in Annex 48B.3, or other equivalent high-pass implementation."

*Proposed Response* *Response Status* **C**

ACCEPT. Both sections should be made to point to a new section in 47.4 detailing template measurment details, and describing a golden PLL or equivalent method of obtaining high-pass phase filtering. See #897 for proposed text.

*Cl* **47** *SC* **47.3.4.1** *P* **273** *L* **45** # **464**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **R** *stamp*

Jitter limitations of a valid input signal are not clear.

*SuggestedRemedy*

Modify the sentence on lines 44-45 to read, "Jitter of a valid input signal does not exceed the minimum jitter tolerance requirements specified in 47.3.3.4."

*Proposed Response* *Response Status* **C**

REJECT.

*Cl* **47** *SC* **47.3.4.2** *P* **274** *L* **32** # **471**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

The location of AC coupling is intended to be at the XAUI receiver. This may not be obvious to the uninitiated from the text.

*SuggestedRemedy*

Modify first sentence to read, "The XAUI receiver shall be AC coupled to the XAUI to allow for ..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.4** *P* **282** *L* **Table 47-6** # **763**

Ali Ghiasi Broadcom

*Comment Type* **E** *Comment Status* **A** *template*

It is not clear with equalization the transmitter must also meet the far end mask.

*SuggestedRemedy*

Suggest to add a footnote to the table mentioning transmitter with pre-equalization shall meet the receive mask through the compliance channel.

*Proposed Response* *Response Status* **C**

ACCEPT. See proposed response to #454.

*Cl* **47** *SC* **47.4.1** *P* **276** *L* **14** # **805**

Jonathan Thatcher World Wide Packets

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

Jitter specifications a specific test method must be mandatory ("shalls" required). Don't use language like: "in combination with one of the reference methods as defined in Annex 48B.3." isn't sufficient. References to an "informative" annex which references an unofficial standard is not sufficient.

*SuggestedRemedy*

Choose from:
1. Reference jitter measurement methodology in clause 38.
2. Reference jitter measurement methodology in clause 53.
3. Write your own. 4. Combination of the above.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Unanimously accepted by c. 47 subtask force.
Proposed text for both driver and receive jitter sections:
"Jitter measurement requirements are described in 47.4.3."
Proposed text for 47.4.3:
"For the purpose of jitter measurement, the effect of a single-pole high pass filter with a 3 dB point of 1.875 MHz is applied to the jitter. The data pattern for jitter measurements is the CJPAT pattern defined in Annex 48A. All four lanes of XAUI are active in both directions, and opposite ends of the link use asynchronous clocks. Annex 48B contains both theoretical and practical information on jitter testing.
47.4.3.1 Transmit jitter
Transmit near-end jitter is measured at the driver output when terminated into the load specified in 47.3.3. Far-end jitter is measured at the end of a compliance interconnect specified in 47.4.1. The far-end load for the compliance link is specified in 47.3.3.
47.4.3.2 Jitter tolerance
Jitter tolerance is measured at the receiver using a jitter tolerance test signal. This signal is obtained by first producing the required sum of deterministic and random jitter defined in 47.3.4.5 and adjusting the signal amplitude until the data eye hugs the inner boundary of the driver's far-end eye template shown in Figure 47-4 and Table 47-2. Eye template measurement requirements are given in 47.4.2. The required sinusoidal jitter specified in 47.3.4.5 is then added to the signal and the far-end load is replaced by the receiver being tested.

*Cl* **47** *SC* **47.4.1** *P* **276** *L* **15** # **903**

Lindsay, Tom Stratos Lightwave

*Comment Type* **E** *Comment Status* **R** *jitter*

This whole section is confusing, so my remedies may be inappropriate.

*SuggestedRemedy*

a. delete entire subclause. I don't see any information that has not been provided earlier in this clause.If not a., then
b. the references in line 15 and 20 be pointing to Table 47-6, not 47-7.
c. delete "receiver" in line 17.

*Proposed Response* *Response Status* **C**

REJECT. Some contents of this subclause are necessary; it is the only place where the measurement methodology of Annex 48A/B is referenced for example. The commentor's point about confusion is valid. Use the suggested remedies in comment #805 (same as #444).

*Cl* **47** *SC* **47.4.1** *P* **276** *L* **15** # **183**

Brierley-Green, Andrew Philips Semiconductor

*Comment Type* **E** *Comment Status* **A** *stamp*

The reference to Table 47-7 should be to Table 47-6.

*SuggestedRemedy*

Correct the reference.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.4.1** *P* **276** *L* **15** # **472**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

The term "reference method" is inconsistent with the terminology used in the associated Annex 48B.

*SuggestedRemedy*

Change occurances of "reference method" to "test method":
page 276, lines 15, 17 and 40.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. But the proposed response to #805 over rides this if it is accepted.

*Cl* **47** *SC* **47.4.1** *P* **276** *L* **20** # **184**

Brierley-Green, Andrew — Philips Semiconductor

*Comment Type* **E** *Comment Status* **A** *stamp*

The reference to Table 47.7 should be to Table 47.6.

*SuggestedRemedy*

Correct the reference.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **47.4.1** *P* **276** *L* **9** # **444**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **A** *jitter*

Specifications should be moved into the electical characterisitcs section (47.3 and subsections). Only measurement requirements should remain in this section.

*SuggestedRemedy*

Specific text for 47.4.1 will be presented by the XAUI Jitter Ad Hoc at the May Interim.

*Proposed Response* *Response Status* **C**

ACCEPT. See text proposed for #805.

*Cl* **47** *SC* **47.6** *P* **278** *L* **2, 53** # **327**

Shimon Muller — Sun Microsystems, Inc

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

The copyright release for the PICS is missing.

*SuggestedRemedy*

Add a note to this subclause with a copyright release for the PICS.See clause 46.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **Figure 47-2** *P* **268** *L* **5** # **449**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

It is not clear to the uninitiated which side of the XGXS is the XGMII side and which side is the XAUI side.

*SuggestedRemedy*

Add labels to figure to identify XGMII side, XAUI side and XGXS block (as done in figure 46-2).

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **Figure 47-4** *P* **271** *L* **20** # **473**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **R** *jitter*

Use of the far-end template as a reciever input template has become confusing with the introduction of the SJ component of receive jitter tolerance. Figure 47-4 should refer to the far-end driver template only. A separate figure should be inserted into 47.4.1 showing the receive input eye both with and without the SJ component.

*SuggestedRemedy*

Delete "and receiver input" from the title of Figure 47-4.Add a duplicate figure with an additional eye for SJ to 47.4.1.Add the X values from Table 47-2 to Table 47-7, resulting in a column for without SJ and a column with SJ.

*Proposed Response* *Response Status* **C**

REJECT. (See #803.)

*Cl* **47** *SC* **Figure 47-5** *P* **272** *L* **5** # **59**

Tom Mathey — Independent

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

Item 1. For this figure, a value of 0 is shown on the Y axis, but no frequency is shown on the X axis.
Item 2. Text describes a 4 db loss between two points.

*SuggestedRemedy*

Item 1. To figure, add frequency for Y axis. Commenter does not know the correct value
Item 2. To figure, add text showing that ISI Loss is > 4db.

*Proposed Response* *Response Status* **C**

ACCEPT. X-axis value is zero.

*Cl* **47** *SC* **Figure 47-8** *P* *L* # **660**

Haulin, Tord — Optillion

*Comment Type* **E** *Comment Status* **A** *stamp*

The figure title is misleading

*SuggestedRemedy*

Change title to: Sinusoidal jitter test amplitude

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The commentor's concern is that figure 47-8 could be interpreted as the spectrum of sinusoidal jitter, and not as the mask for single-tone sinusoidal jitter. In light of comment #465, change title of Figure 47-8 to "Single-tone sinusoidal jitter mask".

*Cl* **47** *SC* **Multiple** *P* *L* # **659**

Haulin, Tord — Optillion

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

Differential skew is the only parameter specified that is dealing with individual properties of the two branches of XAUI signals. There are quite a few more specification parameters required to safe guard against "poor differential signal properties". Already the differential skew specrequires several definitions and test setups to make the specification limits meaningful. Rather than opening this can of worms, the differential skew should be treated as the other signal quality parameters: Implementer's responsibility.

*SuggestedRemedy*

Remove all references to, and specifications on differential skew.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Implement as suggested remedy in #453.

*Cl* **47** *SC* **Table 47-1** *P* **269** *L* **24** # **453**

Kesling, Dawson — Intel

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

Differential skew specification is not needed since it is covered by jitter specs. It retained, then it needs to be defined precisely so that it can be measured.

*SuggestedRemedy*

Remove all differential skew spec's:
Table 47-1, 47.3.3.3, 47.3.4.1, Table 47-4.Retain the informative skew budget in Table 47-5.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **Table 47-2** *P* **271** *L* **29** # **803**

Jonathan Thatcher — World Wide Packets

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

Not good using the same variables in two different tables (47-2 and 47-3) with different values.

*SuggestedRemedy*

Combine the two tables; have column for Near End and column for Far End. Refer to only one figure (47-4 or 47-7) and remove the other. Clean up references in text.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **Table 47-4** *P* **274** *L* **1** # **900**

Lindsay, Tom — Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *jitter*

I believe that this table refers to the signal properties that may be seen by a receiver operating in an actual system, with the exception other effects such as crosstalk, noise, etc. Note 3 confounds this a bit by discussing jitter tolerance, and defining terms one might use in setting a tolerance test system.

*SuggestedRemedy*

a. remove the word tolerance in the lost row of the table.
b. either delete note 3 or modify it to say "Deterministic jitter is defined in Annex 48B.1.2. Total jitter, at a bit error rate of 1E-12, is comprised of deterministic jitter and random Gaussian jitter, the latter making up the difference between deterministic and total jitter."
c. We need more information on how to set up a tolerance test system (sorry, no specific remedy at this time - this should be probably be detailed in Annex 48B).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The table only summarizes receiver characteristics, but the title is misleading. Implement the proposed response to #465.

*Cl* **47** *SC* **Table 47-4** *P* **274** *L* **18** # **465**

Kesling, Dawson — Intel

*Comment Type* **E** *Comment Status* **A** *jitter*

The SJ requirement was recently added but is not presented in this table. The text of 47.3.4.4 is also misleading since so-called total jitter does not include the SJ.

*SuggestedRemedy*

Change the TJ tolerance from 0.6 to 0.7 to explicitly include the SJ component in both the table and text. Add the SJ tolerance of 0.1 UI (from 1.875 to 20 MHz) to the table and edit the text to clarify. Change the DJ entry to "other DJ" to distinguish it from SJ. Modify the table jitter footnote to a) include SJ, b) mention the 1.875 MHz lower limit, and c) change several occurances of "maximum" to "limit". Change the table title (and referenceing text in 47.3.4) to, "Receiver characteristics" since jitter tolerance is a receive spec and not a signal parameter.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Change the TJ and table title as suggested. Remove all but first sentence of table footnote 3 since Annex 48B describes jitter in detail.Put the description of SJ and RJ in the text instead of the table.
Proposed text for 47.3.4.5
"The XAUI receiver shall have a peak-to-peak total jitter amplitude tolerance of at least 0.65 UI. This total jitter is composed of three components: deterministic jitter, random jitter, and an additional sinusoidal jitter. Deterministic jitter tolerance shall be at least 0.37 UI peak-to-peak. Tolerance to the sum of deterministic and random jitter shall be at least 0.55 UI. The random jitter spectrum is defined to have a low-frequency conrner at 20 MHz and to roll off at 20 dB per decade below this. The XAUI receiver shall tolerate an additional sinusoidal jitter with any frequency and amplitude defined by the mask of Figure 47-9. This additional component is intended to ensure margin for low frequency jitter, wander, noise, crosstalk and other variable system effects. Jitter tolerance test requirements are specified in 47.4.3."

*Cl* **47** *SC* **Table 47-4** *P* **274** *L* **20** # **458**

Kesling, Dawson Intel

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

The spectral distribution of RJ is not defined. The receive jitter tolerance specification assumes that it is above the bandwidth of the clock recovery and is not tracked out by the CDR.

*SuggestedRemedy*

Add the following sentence to the jitter footnote: "The random jitter spectrum is defined to have a low-frequency corner at 20 MHz and to roll off at 20 dB per decade below this."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Add the suggested text to 47.3.4.5 instead of the table.

---

*Cl* **47** *SC* **Table 47-5** *P* **275** *L* **34** # **902**

Lindsay, Tom Stratos Lightwave

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

The jitter values were proposed during a XAUI jitter conference call.

*SuggestedRemedy*

Modify the values per the XAUI jitter conference call (sorry I don't recall the actual values).

*Proposed Response* *Response Status* **C**

ACCEPT. Specific remedy is proposed in response to #469.

---

*Cl* **47** *SC* **Table 47-5** *P* **275** *L* **35** # **469**

Kesling, Dawson Intel

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

This table needs more refining. The "other" DJ category should be increased by about 0.1 UI to include the "Black and Decker" effects being tested by SJ. (It is not sufficient to use 0.1 for this entry as there are other bounded effects such as crosstalk that are present in addition to the SJ/B&D component.) The "other" RJ component should be reduced to zero (from 0.20 - 0.04 = 0.16) as there are no known unbounded contributions. These realistic improvements to the jitter budget reveal additional margin that can be made available to the interonnect to reduce overall system cost.This more accurate budgeting ends up moving 0.05 UI of jitter allocation from the "other" category to the interconnect. Total jitter at the receiver is not affected, but the distribution between DJ and RJ is.

*SuggestedRemedy*

Modify the table as below:

| | Total | DJ | (RJ - not shown) |
|---|---|---|---|
| Driver | 0.35 | 0.17 | (0.18) |
| Intercon | 0.20 | 0.20 | (0.00) |
| Other | 0.15 | 0.15 | (0.00) |
| Total | 0.70 | 0.52 | (0.18) |

Change the DJ spec's and eyes to be consistent with this budget.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. SJ creates a severe zero-crossing histogram and provides margin for real world effects with comparable p-p jitter.

Modify the table as below:

| | Total | DJ | (RJ - not shown) |
|---|---|---|---|
| Driver | 0.35 | 0.17 | (0.18) |
| Intercon | 0.20 | 0.20 | (0.00) |
| Other | 0.10 | 0.10 | (0.00) |
| Total | 0.65 | 0.47 | (0.18) |

Change the TJ and DJ spec's and eyes to be consistent with this budget.

---

*Cl* **47** *SC* **Table 47-5** *P* **275** *L* **35** # **468**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *stamp*

The skew column is intended to refer to differential skew but could be misunderstood to refer to lane-to-lane skew.

*SuggestedRemedy*

Change the heading from "Skew" to "Differential skew".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **47** *SC* **Table 47-8** *P* **275** *L* **15** # **466**

Kesling, Dawson Intel

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

The first break in the SJ mask does not accomodate maximum length packets.

*SuggestedRemedy*

Move the first break point from 1.5 UI at 125 kHz to 8.5 UI at 22.1 kHz. This maintains the -20 dB/dec slope.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* *P* *L* # **481**

Boaz Shahar MystiCom

*Comment Type* **T** *Comment Status* **A** *delay parameters*

The Round trip delay budget for the following sublayers: "XGXS & XAUI" and "8B/10B PCS and PMA" seems to be too low and therefore may impose an un-necessary difficulties for implementation, especially due to the fact that the typical MDI delay is relatively big. For instance, a 1km fiber will have a round trip delay in the range of 80K bt. In the appendix below, there is an estimation of the implementation delay.

*SuggestedRemedy*

Change the values of the Round Trip delay as follows:
"XGXS and XAUI" - from 2048 to 4096 or more (8pq)
"8b/10b PCS and PMA" - from 1024 to 2048 or more (4pq)
Appendix:
ESTIMATION of Tx+Rx Implementation Delay Assumptions:
Internal clock frequency - 78Mhz (4 MAC Bytes/Sample Lane)
Tx Clock and Internal clock are not necessarily from the same clock source
Transmitter:
Change DDR clocking scheme to single edge clocking scheme: 1 Sample
TXCLK clock tolerance compensation: 2 Samples
8B/10B Decoder: 1 sample
Tx State Machine and PMA I/F 1 Sample
Serialization: 2 Sample
Receiver:
De-serialization: 2 Sample
De-skewing more than 41 bit: 2 samples in 78Mhz
Clock tolerance Compensation: 2 Samples
"Copy Back" / "Push Back": 1 Sample
Change from Single edge clock to XGMII DDR: 1 Sample
8B/10B, SYNC state machine, De-skewing state machine, Others: 1 Sample
Total Rx+Tx: 16 Samples, or 16x4= 64 Byte/Lane, or total Round Trip delay of 256 Byte. This is ~2048 BT. Today, the budget is 1024 BT for this process.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.1** *P* **284** *L* **13-15** # **328**

Shimon Muller Sun Microsystems, Inc

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

The last sentence of this paragraph is confusing and doesn't seem to say much.It mentions "other PMDs and medium types" --- other than what? It sounds like"there are a lot of other wonderful things that we can do with 10GBASE-X, but we will not talk about it". Then why even bring it up?

*SuggestedRemedy*

Delete the sentence.

*Proposed Response* *Response Status* **C**

ACCEPT. Note that even though this comment is Technical, accepting this comment results in no technical change to this clause.

*Cl* **48** *SC* **48.1.2** *P* **285** *L* **13-15** # **329**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Rhett*

8B/10B is a coding method and not a name for a sublayer. Furthermore, thisfigure should be consistent with the figure in clause 49.

*SuggestedRemedy*

Replace "8B/10B PCS" with "10GBASE-X PCS".
Replace "8B/10B PMA" with "10GBASE-X PMA".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.1.3.1** *P* **285** *L* **32** # **639**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *Rhett*

Typo.

*SuggestedRemedy*

Suggest '... 10 Gigabit PHY entities' should read '... 10 Gigabit PHYs'. PHY is defined as Physical Layer Entity (see 1.4.211) hence the current text reads 10 Gigabit Physical Layer Entity entities.

*Proposed Response* *Response Status* **C**

ACCEPT. Note that usage of "PHYs" and "PHY entities" is mixed (see for example, 22.1, 23.1.4.1, 36.1.4.1).

*Cl* **48** *SC* **48.1.3.1** *P* **285** *L* **32** # **948**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R** *Duplicate*

Typo.

*SuggestedRemedy*

Suggest '... 10 Gigabit PHY entities' should read '... 10 Gigabit PHYs'. PHY is defined as Physical Layer Entity (see 1.4.211) hence the current text reads 10 Gigabit Physical Layer Entity entities.

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 639

*Cl* **48** *SC* **48.1.3.1** *P* **285** *L* **39-40** # **114**

Ralph Andersson TDK Semiconductor

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

Bullet a)... Boy what a mess. Text attempts to detail block functionality in both the transmit and receive directions by distinguishing receive from transmit through the use of parenthesis. Attempt fails; much of the receive infromation is missing. Very confusing.

*SuggestedRemedy*

Change text as follows:
a) Encoding of XGMII 8-bit parallel lanes to four parallel lanes conveying 10-bit code-groups for communication with the underlying PMA; " add another bullet point following a) with text as follows"aa) Decoding of PMA 10-bit parallel lanes to four parallel lanes conveying 8-bit code-groups forcommunication with the XGMII;

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Note that even though this comment is Technical, accepting this comment results in no technical change to this clause.

Replace "bullet a)" with:

a) Encoding of 32 XGMII data bits and 4 XGMII control bits to four parallel lanes conveying 10-bit code-groups each, for communication with the underlying PMA;
b) Decoding of four PMA parallel lanes, conveying 10-bit code-groups each, to 32 XGMII data bits and 4 XGMII control bits;

*Cl* **48** *SC* **48.1.3.1** *P* **285** *L* **49** # **640**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *Rhett*

Typo.

*SuggestedRemedy*

Suggest that local_fault should read Local Fault and remote_fault should read Remote Fault. See Table 46-4.

*Proposed Response* *Response Status* **C**

ACCEPT. Change "local_fault" to "Local Fault" and "remote_fault" to "Remote Fault".

*Cl* **48** *SC* **48.1.3.1** *P* **285** *L* **49** # **949**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R** *Duplicate*

Typo.

*SuggestedRemedy*

Suggest that local_fault should read Local Fault and remote_fault should read Remote Fault. See Table 46-4.

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 640

*Cl* **48** *SC* **48.1.6** *P* **286** *L* **45** # **956**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R** *Duplicate*

Typo.

*SuggestedRemedy*

Suggest '... this document.' should read '... this standard.'

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 647

*Cl* **48** *SC* **48.1.6** *P* **286** *L* **45** # **647**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *Rhett*

Typo.

*SuggestedRemedy*

Suggest '... this document.' should read '... this standard.'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.1** *P* **287** *L* **50** # **645**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *Rhett*

Suggest the text 'A PCS client is the RS. Clause 47 describes alternative clients for the PCS described in this clause.' should be reworded.

*SuggestedRemedy*

Suggest the text 'A PCS client is the RS. Clause 47 describes alternative clients for the PCS described in this clause.' should read 'PCS clinets in 10Gb/s Ethernet are the RS defined in Clause 46 and the XGXS described in Clause 47.'

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace the text "A PCS client is the RS. Clause 47 describes alternative clients for the PCS described in this clause." with "The PCS client is the RS defined in Clause 46, or the XGXS described in Clause 47".

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*Cl* **48** *SC* **48.2.1** *P* **287** *L* **50** # **954**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R** *Duplicate*

Suggest the text 'A PCS client is the RS. Clause 47 describes alternative clients for the PCS described in this clause.' should be reworded.

*SuggestedRemedy*

Suggest the text 'A PCS client is the RS. Clause 47 describes alternative clients for the PCS described in this clause.' should read 'PCS clinets in 10Gb/s Ethernet are the RS defined in Clause 46 and the XGXS described in Clause 47.'

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 645

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*Cl* **48** *SC* **48.2.1** *P* **287** *L* **53** # **646**

Law, David 3Com

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

As described in the paragraph of above there can be one of two clients to the PCS. It therfore seems slightly misleading to then describe in detail only the situation of the RS being the PCS client in this paragraph. Suggest the text 'In the transmit direction the 10GBASE-X PCS accepts packets from the MAC through the RS and XGMII.' should be reworded.

*SuggestedRemedy*

Suggest the text 'In the transmit direction the 10GBASE-X PCS accepts packets from the MAC through the RS and XGMII.' should read 'In the transmit direction the 10GBASE-X PCS accepts packets from the PCS Client on the XGMII.'A similar change should be made to the receive direct text found on page 288, line 3. Suggest the text '... forwards the character stream to the XGMII and RS for further processing by the MAC.' should read '... forwards the character stream on the XGMII to the PCS Client for further processing.'

*Proposed Response* *Response Status* **C**

ACCEPT. Note that even though this comment is Technical, accepting this comment results in no technical change to this clause.

---

*Cl* **48** *SC* **48.2.1** *P* **287** *L* **53** # **955**

Law, David 3Com

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

As described in the paragraph of above there can be one of two clients to the PCS. It therfore seems slightly misleading to then describe in detail only the situation of the RS being the PCS client in this paragraph. Suggest the text 'In the transmit direction the 10GBASE-X PCS accepts packets from the MAC through the RS and XGMII.' should be reworded.

*SuggestedRemedy*

Suggest the text 'In the transmit direction the 10GBASE-X PCS accepts packets from the MAC through the RS and XGMII.' should read 'In the transmit direction the 10GBASE-X PCS accepts packets from the PCS Client on the XGMII.'A similar change should be made to the receive direct text found on page 288, line 3. Suggest the text '... forwards the character stream to the XGMII and RS for further processing by the MAC.' should read '... forwards the character stream on the XGMII to the PCS Client for further processing.'

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 646

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*Cl* **48** *SC* **48.2.2** *P* **288** *L* **13** # **643**

Law, David 3Com

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

When RXC and TXC are asserted it is not only MAC delineation and Idle that is encoded on TXD and RXD but also, for example, LF and RF (see 46.3.1.3 and 46.3.2.3).

*SuggestedRemedy*

Suggest the text 'MAC packet delineation and Idle characters ...' should read 'MAC packet delineation, Idle, Sequence and Error control characters ...' similar to the text in paragraph 2 of 46.3.1.3.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Delete the sentence.

---

*Cl* **48** *SC* **48.2.2** *P* **288** *L* **13** # **952**

Law, David 3Com

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

When RXC and TXC are asserted it is not only MAC delineation and Idle that is encoded on TXD and RXD but also, for example, LF and RF (see 46.3.1.3 and 46.3.2.3).

*SuggestedRemedy*

Suggest the text 'MAC packet delineation and Idle characters ...' should read 'MAC packet delineation, Idle, Sequence and Error control characters ...' similar to the text in paragraph 2 of 46.3.1.3.

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 643

*Cl* **48** *SC* **48.2.2** *P* **288** *L* **16** # **644**

Law, David 3Com

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

tx_code-group is used by the PCS to communicate with the PMA and rx_code-group is used by the PMA to communicate with the PCS. Suggest the text 'When comuicating with the PMA, the PCS ...' needs to be clarified.

*SuggestedRemedy*

Suggest the text 'When communicating with the PMA, the PCS uses the data signals tx_code-group <39:0> in the transmit direction and rx_unaligned <39:0> in the receive direction.' should read 'Communications between the PMA and the PCS use the data signals tx_code-group <39:0> in the transmit direction and the data signals rx_unaligned <39:0> in the receive direction.'

*Proposed Response* *Response Status* **C**

REJECT. Proposed text change doesn't appear to add any clarification, and conflicts with identical wording in the previous paragraph.

*Cl* **48** *SC* **48.2.2** *P* **288** *L* **16** # **953**

Law, David 3Com

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

tx_code-group is used by the PCS to communicate with the PMA and rx_code-group is used by the PMA to communicate with the PCS. Suggest the text 'When comuicating with the PMA, the PCS ...' needs to be clarified.

*SuggestedRemedy*

Suggest the text 'When communicating with the PMA, the PCS uses the data signals tx_code-group <39:0> in the transmit direction and rx_unaligned <39:0> in the receive direction.' should read 'Communications between the PMA and the PCS use the data signals tx_code-group <39:0> in the transmit direction and the data signals rx_unaligned <39:0> in the receive direction.'

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 644

*Cl* **48** *SC* **48.2.2** *P* **288** *L* **46** # **60**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A** *Rhett*

Since there are multiple types of code-groups floating around this clause, I would line to futher clarify the text. To the sentence on line 46, I would like to add the word unalignedTo the sentence on line 52, I would like to add the word synchronized

*SuggestedRemedy*

line 46: "accepts unaligned code-groups"
line 52: "accepts synchronized code-groups"
line 54: "conveys lane aligned code-groups"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Line 46 change "code-groups" to "unaligned and unsynchronized code-groups".
Line 52 change "code-groups" to "synchronized code-groups"
Page 289 / line 1 change "received code-groups" to "aligned and synchronized code-groups"

*Cl* **48** *SC* **48.2.2** *P* **289** *L* **8** # **112**

Ralph Andersson TDK Semiconductor

*Comment Type* **E** *Comment Status* **R** *Rhett*

Text is wrong. "The PCS Receive process monitors these code-groups and generates RX on theXGMII."

*SuggestedRemedy*

Change text to: "The PCS Receive process monitors these code-groups and generates RXD on theXGMII."

*Proposed Response* *Response Status* **C**

REJECT. RX is a defined alias for RXC and RXD.

*Cl* **48** *SC* **48.2.2** *P* **289** *L* **8** # **113**

Ralph Andersson TDK Semiconductor

*Comment Type* **E** *Comment Status* **R** *Duplicate*

Text is wrong. "The PCS Receive process monitors these code-groups and generates RX on theXGMII."

*SuggestedRemedy*

Change text to: "The PCS Receive process monitors these code-groups and generates RXD on the XGMII."

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 112

*Cl* **48** *SC* **48.2.3** *P* **289** *L* **29** # **951**

Law, David 3Com

*Comment Type* **E** *Comment Status* **R** *Duplicate*

Figure 48-3 seems to illustrate a mapping example as the Figure titles states, not the mapping.

*SuggestedRemedy*

Suggest the text '... illustrates the mapping of an XGMII ...' should read '... illustrates the mapping of an example XGMII ...'.

*Proposed Response* *Response Status* **C**

REJECT. Exact Duplicate of 642

*Cl* **48** *SC* **48.2.3** *P* **289** *L* **29** # **642**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *Rhett*

Figure 48-3 seems to illustrate a mapping example as the Figure titles states, not the mapping.

*SuggestedRemedy*

Suggest the text '... illustrates the mapping of an XGMII ...' should read '... illustrates the mapping of an example XGMII ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.4.2** *P* **292** *L* **42** # **685**

Thaler, Pat Agilent Technologies

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

Meaning of "subject to the ||A|| spacing rule in d" is not clear. Does it mean that one doesn't send an "||A||" if the time for sending the next A hasn't expired or if the minimum time hasn't been met?

*SuggestedRemedy*

replace with "except if an ||A|| is to be sent and less than r (see d) columns have been sent since the last ||A||, a ||K|| shall be sent instead."

*Proposed Response* *Response Status* **C**

ACCEPT. Also added PICS entry for PCS Functions (48.7.4.2) labeled IOS - |||I|| Sequence rules covering all rules in 48.2.4.2.

*Cl* **48** *SC* **48.2.4.2** *P* **293** *L* **13-14** # **330**

Shimon Muller Sun Microsystems, Inc

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

The description in this paragraph is not very clear regarding the selection of the r value for ||A|| spacing.

*SuggestedRemedy*

Replace the 4-th and 5-th sentences in this paragraph with the following text:
"The random integer r shall be generated once for every column sent by the PCS, or at a rate of 312.5 MHz +- 100ppm. The value of r to be used for scheduling the transmission of the next ||A|| column shall be selected while sending an ||A|| column that was previously scheduled. This value of r is loaded into the A_CNT counter, which decrements after the transmission of a non-||A|| column."

*Proposed Response* *Response Status* **C**

ACCEPT. Also added PICS entries associated with added "shalls".

*Cl* **48** *SC* **48.2.4.2.2** *P* **293** *L* **51** # **331**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Rhett*

Unnecessary "shall" statement. The skew is already specified in the table.

*SuggestedRemedy*

Replace "shall be" with "is".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Change text to state that the allowable skew "shall be as specified in Table 48-5", instead of "shall be specified in Table 48-5". The "shall" statement is required since the 10GBASE-X PCS must accommodate the specified skew.

*Cl* **48** *SC* **48.2.4.2.2** *P* **294** *L* **Table 48-5** # **764**

Ali Ghiasi Broadcom

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

Skew budget of 1 UI allocated to PMA TX does not provide sufficient break down for an interoperable plugable interface.

*SuggestedRemedy*

Allocate 1/2 UI for the PMA module and 1/2 UI to the line card. Suggest to add a diagram to show example implementation to better clarify.

*Proposed Response* *Response Status* **C**

REJECT. Nothing in the draft, specifically Clauses 47 and 48, mention a pluggable interface. However, if such an implementation is used in a standard compliant manner, the skew for the "pluggable" portion of the interface is easily accomodated in the medium portion of the skew budget (<18)

*Cl* **48** *SC* **48.2.4.5.1** *P* **295** *L* **41** # **332**

Shimon Muller Sun Microsystems, Inc

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

The Sequence signaling on the XGMII is not randomized. Need to clarify that it does not interfere with Idle randomization of the PCS.

*SuggestedRemedy*

Add the following sentence to the end of the paragraph:
"||Q|| ordered_sets are always sent in the column that follows an ||A|| column (by replacing a ||K|| or an ||R|| ordered_set), and therefore do not interfere with the randomized |||I|| sequence."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Add the following text prior to the last sentence in the paragraph:
"Sequence ordered_sets are always sent in the column that follows an ||A|| ordered-set. The Sequence ordered-sets do not otherwise interfere with the randomized |||I|| sequence."

---

*Cl* **48** *SC* **48.2.5** *P* **295** *L* **44** # **61**

Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A** *Rhett*

For sentence "The body of this standard", other places in the standard use different text. Change from "standard" to "clause". See 31.1, 32.1.4, 40.1.6, 49.2.13.1,

*SuggestedRemedy*

Change from "The body of this standard" to "The body of this clause".

*Proposed Response* *Response Status* **C**

ACCEPT. Note that usage of "standard" and "clause" is mixed (see for example 24.1.7 and 36.1.7).

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*Cl* **48** *SC* **48.2.5.1.2** *P* **297** *L* **11** # **333**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Rhett*

Typo.

*SuggestedRemedy*

In the second sentence replace "use" with "used".

*Proposed Response* *Response Status* **C**

ACCEPT.

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*Cl* **48** *SC* **48.2.5.1.3** *P* **298** *L* **15** # **201**

Foulds, Chris Intel

*Comment Type* **E** *Comment Status* **A** *Eric*

The variables cgbad and cggood are not used in any of the state diagrams.

*SuggestedRemedy*

The variables cgbad and cggood should be removed.

*Proposed Response* *Response Status* **C**

ACCEPT.

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*Cl* **48** *SC* **48.2.5.1.3** *P* **298** *L* **18-24** # **334**

Shimon Muller Sun Microsystems, Inc

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

Both the name and the definition of this variable are flawed. The PCS Synchronization state diagram clearly shows that the "detection" of the comma sequence is performed regardless of whether the enable_cdet variable is true or false. The real purpose of this variable is to enable and disable the code-group comma alignment.

*SuggestedRemedy*

As a minimum, replace the term "detection" with "alignment" in this paragraph. In addition, change the name of this variable (here and the PCS Synchronization state diagram) to one that better reflects its function, such as enable_cgal.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change definition to read:

enable_cgalign: A boolean that indicates the enabling and disabling of code-group comma alignment. The code-group boundary may be changed whenever code-group comma alignment is enabled. This process is known as code-group alignment.

Values: FALSE; Code-group alignment is disabled. TRUE; Code-group alignment is enabled.

Also, change references in figure 48-7.

*Cl* **48** *SC* **48.2.5.1.3** *P* **299** *L* **1-2** # **335**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *Eric/Rich*

Specifying the functionality of a clock signal as a variable does not seem to be such a good idea. Variables typically assume values that are used by functions. For a clock signal this would mean defining one value for a "clock edge", and another for "no clock edge". This will only make things more complicated than necessary. Furthermore, the RX_CLK variable is only used as an output from the PCS Receive state diagram. I seriously doubt that implementations will actually generate RX_CLK this way. Therefore, I do not believe that specifying it in this manner adds any value to the standard.

*SuggestedRemedy*

1. Delete the definition of RX_CLK from the list of variables in 48.2.5.1.3.
2. Remove RX_CLK from all states in the PCS Receive state diagram.
3. Replace the second sentence in the second paragraph in 48.2.5.2.4 with the following text: "The PCS Receive process generates the receive clock signal of the XGMII (RX_CLK) as specified in Clause 46. State transitions in the PCS Receive state diagram that generate the data and control characters (RXD<31:0> and RXC<3:0>) on the XGMII shall occur synchronously to the RX_CLK."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

1. Delete the definition of RX_CLK from the list of variables in 48.2.5.1.3.
2. Remove RX_CLK from all states in the PCS Receive state diagram.
3. Replace the second sentence in the second paragraph in 48.2.5.2.4 with the following text: "The PCS Receive process generates the receive clock signal of the XGMII (RX_CLK) as specified in Clause 46. State transitions in the PCS Receive state diagram that generate the data and control characters (RXD<31:0> and RXC<3:0>) on the XGMII occur synchronous to RX_CLK."

*Cl* **48** *SC* **48.2.5.1.3** *P* **299** *L* **25-30** # **336**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Eric*

Duplicate definition of rx_unaligned<39:0>.

*SuggestedRemedy*

Delete the second definition of rx_unaligned<39:0>.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.3** *P* **299** *L* **48-51** # **337**

Shimon Muller Sun Microsystems, Inc

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

The definition of the sync_status variable is incorrect and very confusing.

*SuggestedRemedy*

Change the definition of sync_status to read as follows:
"A boolean that represents the following function:
For all n (lane_sync_status<n>=OK). Values: FAIL; At least one lane is not in synch.
OK; All lanes are in synch."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the definition of sync_status to read as follows:
"A boolean that represents the following behavior:
For all n in lane_sync_status<n>. Values: FAIL; At least one lane is not in sync. OK; All lanes are in sync."

*Cl* **48** *SC* **48.2.5.1.3** *P* **300** *L* **12** # **339**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Eric*

Typo.

*SuggestedRemedy*

Replace "PMD_UNITDATA.request(tx_...)" with "PMA_UNITDATA.request(tx_...)".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.3** *P* **300** *L* **5-7** # **338**

Shimon Muller Sun Microsystems, Inc

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

Specifying the functionality of a clock signal as a variable does not seem to be such a good idea. Variables typically assume values that are used by functions. For a clock signal this would mean defining one value for a "clock edge", and another for "no clock edge". This will only make things more complicated than necessary. Furthermore, the TX_CLK variable is only used in the PCS Transmit Source state diagram to indicate that all state transitions are synchronous to this clock. This can be accomplished without qualifying every state transition with a variable. Therefore, I do not believe that specifying it in this manner adds any value to the standard.

*SuggestedRemedy*

1. Delete the definition of TX_CLK from the list of variables in 48.2.5.1.3.
2. Remove TX_CLK from all state transitions in the PCS Transmit Source state diagram.
3. Add the following text somewhere in 48.2.5.2.1:
"All state transitions in the PCS Transmit Source state diagram shall occur synchronously to the TX_CLK."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The following changes are made:

1. Deleted the definition of TX_CLK from the list of variables in 48.2.5.1.3.
2. Substituted UCT for TX_CLK in all state transitions in the PCS Transmit Source state diagram (only in instances where TX_CLK is the sole condition)
3. Add the following text in the state diagram.
"The state machine makes exactly one transition for each transmit code-group processed."

*Cl* **48** *SC* **48.2.5.1.4** *P* **300** *L* **39-41** # **203**

Foulds, Chris Intel

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

The check_end function describes a process for making sure that running disparity errors that occur after /T/ are pushed back into the frame. There is a problem with the wording of this function which leads to pushing back errors which do not need to be pushed back into the frame. The following sentence causes the confusion:
The XGMII Error control character is returned in all lanes in ||T|| for which a running disparity error or any code-groups other than /A/ or /K/ are recognized in the column following ||T||.

*SuggestedRemedy*

This sentence should be changed to the following:
The XGMII Error control character is returned in all lanes less than n in ||T||, where n identifies the specific Terminate ordered-set ||Tn||, for which a running disparity error or any code-groups other than /A/ or /K/ are recognized in the column following ||T||.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.4** *P* **300** *L* **43** # **276**

Don Alderrou Intel

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

The sentence is incorrect and confusing. Only /K/ code groups are transmitted in the ||T|| column."The XGMII Error control character is also returned in all lanes greater than n in the column prior to ||T||, where n identifies the specific Terminate ordered-set ||Tn||, for which a running disparity error or any code group other than /A/ or /K/ are recognized in the corresponding lane of ||T||."

*SuggestedRemedy*

Remove the "/A/ or" from the sentence. It should read:
"The XGMII Error control character is also returned in all lanes greater than n in the column prior to ||T||, where n identifies the specific Terminate ordered-set ||Tn||, for which a running disparity error or any code group other than /K/ are recognized in the corresponding lane of ||T||."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.4** *P* **300** *L* **43** # **6**

Renner, Martin Infineon Technologies

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

The text says, that in a ||T|| column the octets below /T/ are checked for /A/ or /K/. As only /K/ characters are allowed there, the text should be corrected to check for /K/ characters only. Seems to be a "copy and paste" mistake.

*SuggestedRemedy*

Change the sentence on line 43 to "... or any code group other than /K/ are ..."

*Proposed Response* *Response Status* **C**

ACCEPT. See response to comment 276.

*Cl* **48** *SC* **48.2.5.1.4** *P* **300** *L* **43** # **340**

Shimon Muller Sun Microsystems, Inc

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

The third sentence in this paragraph is not entirely accurate. ||Tn|| columns are always padded by /K/ code groups on the lanes that follow the /T/ code group. Therefore, an /A/ code group in such a lane should be treated as an error, and the XGMII Error character should be generated for any code group other than /K/.

*SuggestedRemedy*

Delete "/A/ or" in the third sentence to read as follows:
"...for which a running disparity error or any code group other than /K/ are recognized in the corresponding lane of ||T||."

*Proposed Response* *Response Status* **C**

ACCEPT. See response to Comment 276.

*Cl* **48** *SC* **48.2.5.1.4** *P* **300** *L* **43** # **202**

Foulds, Chris Intel

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

The following text contains and error:
for which a running disparity error or any code group other than /A/ or /K/

*SuggestedRemedy*

An /A/ should not be transmitted or received in the same column as a ||T|| so the text should be changed to:
for which a running disparity error or any code group other than /K/

*Proposed Response* *Response Status* **C**

ACCEPT. See comment 276.

*Cl* **48** *SC* **48.2.5.1.4** *P* **300** *L* **45** # **757**

Bob Noseworthy UNH IOL

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

Currently, when cvrx_terminate is called is unclear. Is it always when DECODE is called, or is it only called from the TERMINATE state? The definition of DECODE, and 48.2.4.3.2 and Table 48-3 all indicate that cvrx_terminate is called for every ||T||. If that is truly the desire of the committee, then the state machine could be made to reflect that by removing the Terminate state and changing the looping transition into/out-of DATA_MODE_START to be AUDI(||D|| + ||T||). Since cvrx_terminate is used by the DECODE function, there is no need to explicitly call it in the state machine. If that isn't the desire of the committee, then that only leaves cvrx_terminate to be called for every ||T|| following an ||S|| without error (as the state machine describes), in which case the text in DECODE, and 48.2.4.3.2 would need to be altered.

*SuggestedRemedy*

Remove reference to cvrx_terminate from the TERMINATE state in Figure 48-9 PCS Receive State Diagram. Since the TERMINATE state is now identical to DATA_MODE_START, remove the TERMINATE state in Figure 48-9 and alter the looping transition back into DATA_MODE_START from "AUDI([||D||]) to "AUDI([||D||] + [||T||])".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Removed DATA_MODE_OTHER state, and change transition from RECEIVE to DATA_MODE_START to ELSE. Change DATA_MODE_START to DATA_MODE. Added IF statement for cvrx_terminate to state DATA_MODE.

*Cl* **48** *SC* **48.2.5.1.4** *P* **301** *L* **19-20** # **341**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Eric*

The last sentence of this paragraph is somewhat confusing.

*SuggestedRemedy*

Change the last sentence to read as follows:
"In the event that this function and the state diagram both attempt to modify Q_det, the setting of Q_det by this function to true will take priority."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.4** *P* **301** *L* **22-30** # **342**

Shimon Muller Sun Microsystems, Inc

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

It is not clear why the signal_detectCHANGE<3:0> function is needed. The way it is currently defined here and used in the PCS Synchronization process the only signal_detect change that it generates is from OK to FAIL. Therefore, it seems that the term signal_detect<n>=FAIL can accomplish the same result.

*SuggestedRemedy*

1. Delete the definition of signal_detectCHANGE<3:0> from the list of functions in 48.2.5.1.4.
2. In the PCS Synchronization state diagram change the global transition in the LOSS_OF_SYNC state to read as follows: reset + (signal_detect<n>=FAIL * PUDI)
3. In the PCS Synchronization state diagram, in the transition from LOSS_OF_SYNC state to itself, delete the term (signal_detect<n>=FAIL * PUDI).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Since signal_detect can change asynchronously, the possibility exists that signal_detect could go low between PUDIs. signal_detectCHANGE seems to try to capture that event until the PUDI, whereas just checking signal_detect might miss it.

Added the following clarification to the definition of variable signal_detectCHANGE:
Change "The function is set upon state change detection" to "The function is set upon state change detection, which is required to detect signal_detect changes which occur asynchronously to PUDI".

*Cl* **48** *SC* **48.2.5.1.6** *P* **302** *L* **2** # **343**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Eric*

Typo.

*SuggestedRemedy*

Replace "PMA" with "PCS".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.6** *P* **302** *L* **25-26** # **344**

Shimon Muller Sun Microsystems, Inc

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

The code-groups passed through SYNC_UNITDATA.indicate may or may not be comma aligned.

*SuggestedRemedy*

Delete "comma aligned" from the message definition.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.1.6** *P* **302** *L* **7** # **62**

Tom Mathey Independent

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

There is no XAUI_SIGNAL.INDICATE defined in clause 47, or any place in the entire document.

*SuggestedRemedy*

Add.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Deleted all references to XAUI_SIGNAL.INDICATE. References were only in the definition of the PMD_SIGNAL.indicate variable.

*Cl* **48** *SC* **48.2.5.2.1** *P* **303** *L* **1-54** # **346**

Shimon Muller Sun Microsystems, Inc

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

Since the term !(TX=||IDLE|| + TX=||Q||) is included in the global transition instate SEND_DATA, qualifying all the remaining state transitions in this state diagram with (TX=||IDLE|| + TX=||Q||) becomes redundant. This makes this state diagram look more complicated than necessary.

*SuggestedRemedy*

Remove the term (TX=||IDLE|| + TX=||Q||) from all state transitions.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.2.1** *P* **303** *L* **6** # **345**

Shimon Muller Sun Microsystems, Inc

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

The START_TX state does not have a tx_code_group defined that is sent while the Transmit process is in the reset condition.

*SuggestedRemedy*

Define a pattern for tx_code_group<39:0> in the START_TX state.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Deleted state START_TX. Reset global condition enters SEND_K.

*Cl* **48** *SC* **48.2.5.2.2** *P* **305** *L* **27** # **347**

Shimon Muller Sun Microsystems, Inc

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

In the PCS Synchronization state diagram, in the transition from SYNC_ACQUIRED_1 state to itself, the term [/COMMA/] seems to be redundant. Only valid characters (with or without commas) should be used as a qualifier for this transition.

*SuggestedRemedy*

Delete the term [/COMMA/] in the transition from SYNC_ACQUIRED_1 state to itself.

*Proposed Response* *Response Status* **C**

ACCEPT. In SYNC_ACQUIRED_1 state, change transition back to itself to be PUDI ("nonmembership" [/INVALID/])

*Cl* **48** *SC* **48.2.5.2.4** *P* **304** *L* **44** # **484802**

Rich Taborek

*Comment Type* **E** *Comment Status* **A** *Rich*

a) and b) start to read real funny as modes.

*SuggestedRemedy*

Change to read as follows:
a) Idle mode during packet reception…..
b) Data mode during idle reception…..

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.2.5.4** *P* **307** *L* **47** # **348**

Shimon Muller Sun Microsystems, Inc

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

There is no Link Status bit in the RS.

*SuggestedRemedy*

Replace "Link Status bit" with "link_fault 2-bit variable".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.3.2.1** *P* **309** *L* **33** # **349**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Rhett*

The PCS Transmit process does not use the PMA_UNITDATA.request primitive, butrather generates it.

*SuggestedRemedy*

Replace "used" with "generated".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.3.3** *P* **310** *L* **36** # **31**

Cruikshank, Brian — Conexant Systems Inc

*Comment Type* **E** *Comment Status* **A** *Rhett*

NOTE is not similar to other clauses.

*SuggestedRemedy*

Change NOTE to match 50.3.9.1.1

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48.5** *P* **311** *L* **31** # **152**

Stoltz, Mario — ChipIng.de, an Intel co

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

Delay constraint value of "no more than 1024 bit times" is an inappropriate limitation of the standard's applicability. Please see comment against Subclause Table 44-2 for more detail.

*SuggestedRemedy*

Change delay constraint to:
"[...] no more than 4096 BT."leave the second paragraph of the current version of 48.5 unchanged; delete 48.5.1 as the former partitioning into 48.5 and 48.5.1 made no sense.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Doubled to 2048 BT. Also reflected in PICS entry DLY in 48.7.4.4.

*Cl* **48** *SC* **48.5.1** *P* **311** *L* **25** # **64**

Tom Mathey — Independent

*Comment Type* **E** *Comment Status* **A** *Rhett*

The text in this sub-clause, except for the last sentence, is an exact duplicate of that in 48.5.

*SuggestedRemedy*

Delete all text except for the last sentence.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Delete clause 48.5.1, move last sentence to 48.5. Related comment #350.

*Cl* **48** *SC* **48.5.1** *P* **311** *L* **25-32** # **350**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Rhett*

Duplicate description of the delay constraints.

*SuggestedRemedy*

1. Move the last sentence of 48.5.1 to the end of the first paragraph in 48.5.
2. Delete subclause 48.5.1.

*Proposed Response* *Response Status* **C**

ACCEPT. Related comment #64.

*Cl* **48** *SC* **48.7.3** *P* **279** *L* **1** # **484803**

Rich Taborek

*Comment Type* **E** *Comment Status* **A** *Rich*

PICS corrections required

*SuggestedRemedy*

1) subclause 48.7.3 should be titled: Major capabilities/options
2) rename support of XAUI/XGXS feature to XGXS in 48…7.3
3) rename support of 10GBASE-LX4 PMD feature to LX4 in 48…7.3
4) deleted duplicate Environmental specification feature labeled CC3 in 48…7.3
5) added PICS entries for loopback LBTX and LBTH in 48.7.4.4

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **48A.5** *P* **318** *L* **47** # **16**

Wing Chow — InChip Communication

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

CRC (AD 84 E1 2D) appears to have a typo

*SuggestedRemedy*

AD B4 E1 2D

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **Figure 48-9** *P* **307** *L* **131** # **185**

Leuner, Ruediger ChipIng.de

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

According to the state diagram, once in DATA_MODE_START state and decoding data, any |E| character received will lead back to the RECEIVE state. From there, there is no way to check for a |T| character in order to execute the check_end and cvrx_terminate functions. Normal operation is only resumed again once the next frame is started by the next valid |S| character which is detected from RECEIVE state.

*SuggestedRemedy*

State Machine modification as proposed by Bob Noseworthy as a response ("option C") to an email on the reflector - see attached PDF. Removes two states and simplfies the state machine. This option still has check_end running even when ||Q|| is being received (cvrx_terminate should only be called when ||T|| is received). But all errors in or past ||T|| would be conveyed to the MAC.

*Proposed Response* *Response Status* **C**

ACCEPT. See 757.

*Cl* **48** *SC* **Figure 48-6** *P* **303** *L* **1** # **63**

Tom Mathey Independent

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

In Figure 48-6 PCS transmit source:
Item 1. State SEND_Q has only one exit condition, therefore the only term needed is TX_CLK.
Item 2. State SEND_K has only one exit condition, therefore the only term needed is TX_CLK.
Item 3. State START_TX has only one exit condition, therefore the only term needed is TX_CLK.
Item 4. Exit conditions from all states include terms for idle and Q. These terms are not needed as the open ended transistion from any state to SEND_DATA covers these terms (ie., we can only send idle, Q, or data with error, start and terminate ignored for this comment). Thus idle + Q is not data; or not (idle + Q) is data. (Readers to note that variable Q_det is still necessary)
Item 5. In state START_TX, there is no action for PUDR. To me this means no clock to the lower layer. Is this what is intended?

*SuggestedRemedy*

Item 1. Remove all terms except for TX_CLK.
Item 2. Remove all terms except for TX_CLK.
Item 3. Remove all terms except for TX_CLK.
Item 4. Remove terms for idle and Q from all states except SEND_DATA.
Item 5. Please comment if PUDR is the clock to the lower layer and its absence during reset.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Add PUDR to START_TX state.

*Cl* **48** *SC* **Table 48-2** *P* **291** *L* **12** # **684**

Thaler, Pat Agilent Technologies

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

Handling of the unused K codes is inconsistant between the transmit and receive side. The PCS code-group to XGMII table decodes valid reserved K codes according to Table 36-2. The XGMII to PCS code-group to XGMII table converts such codes to the Error character. It even does this for the /Fsig/ control character which we expect to be used for Fibre Channel signal ordered sets. This will interfere with the ability to use the same PCS in Fibre Channel and Ethernet applications. The spec is also self-contradictory since the text says that the rules of 36.2.4.1 through 36.2.4.6 are to be met and 36.2.4.5 says to use table 36-2. Also, if the PCS converts reserved characters to error characters, we won't be able to use the reserved character in the future without hardware changes in the PCS.

*SuggestedRemedy*

Make Table 48-2 parallel to table 48-3. That is, delete all the entries with the description Transmit reserved code group. Add an entry:
XGMII "other value in Table 36-2", PCS code-group "see Table 36-2", Description: "Reserved character" and an entry XGMII "any other value", PCS code-group "K30.7", Description "Invalid chacter".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48A** *SC* *P* **315** *L* # **905**

Lindsay, Tom Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *Rich*

48A.1,.2,.3 show per-lane patterns, whereas .4,.5 show aggregate patterns. Be consistent and/or very clear in each case.

*SuggestedRemedy*

2 options:
a. show pattern for each lane, or
b. show aggregate pattern (4-wide)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Added the words: "on each lane" after the word continuously in the body and ater "code-group" in the note for subclauses 48A.1, 2 and 3.

*Cl* **48A** *SC* **48A** *P* **315** *L* **1** # **804**

Jonathan Thatcher — World Wide Packets

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

Unnecessary redundancy with clause 36A.

*SuggestedRemedy*

Trash all redundant material. Fix references to 48A from other clauses and point to 36A.

*Proposed Response* *Response Status* **C**

REJECT. All Annex 48A subclauses are somewhat different than 36A, primarily due to the 4 lane nature of XAUI and the LX4 PHY. Comment 905 suggests changes to 48A.1, 2 and 3 to further support the distinction.

---

*Cl* **48A** *SC* **48A** *P* **315** *L* **23** # **351**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A** *Rich*

Typo.

*SuggestedRemedy*

Replace "allows" with "allow".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **48A** *SC* **48A** *P* **315** *L* **3** # **754**

Dawe Piers — Agilent

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

This annex claims to be normative. We voted to allow this jitter test patterns work to proceed in an annex not in the clause. We have a clear precedent in Annex 36A which is and remains informative. There is no satisfactory reason for why this annex should be more compulsory than that one; an attempt to make unessential things mandatory could be seen as restraint of trade. Indeed one wonders why this annex differs to 36A. If the differences reflect our evolving understanding of jitter testing " then clearly it would be harmful to attempt to freeze the state of the art now.This is a resubmitted comment for resolution as requested.

*SuggestedRemedy*

Change "normative" to "informative". Change 48.7.4.1 CC1 to "O" following 36.7.4.1 CC1. Change "shall" to "should" or similar in 47.4.1 p277 line 2.

*Proposed Response* *Response Status* **C**

REJECT. This comment is a resubmission of D2.2 comment 480 which was rejected by the jitter working group in Irvine. Related comments to this one include comment 75, applicable to serial PHYs. The normative nature of Annex 48A requires only the support of jitter test patterns specified therein. The test patterns are deemed to be more than adequate for jitter testing and complete.

---

*Cl* **48A** *SC* **48a.0** *P* **315** *L* **24** # **30**

Cruikshank, Brian — Conexant Systems Inc

*Comment Type* **E** *Comment Status* **A** *Rich*

The first sentence does not mention checking for Clause 47 compliance.

*SuggestedRemedy*

Add to the sentence similar to below."This annex defines test patterns which allows the 10GBASE-X PHY described in Clause 48 test its attached PMD for compliance or test its XAUI interface described in Clause 47 for compliance in a system environment."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Reworded as follows: This annex defines test patterns which allows the 10GBASE-X PHY described in Clause 48 test either its attached PMD described in Clause 53 or its XAUI interface described in Clause 47 for compliance in a system environment.

---

*Cl* **48A** *SC* **48A.4** *P* **316** *L* **24** # **906**

Lindsay, Tom — Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *Rich*

Clarify

*SuggestedRemedy*

Change "derivation" to "basis".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **48A** *SC* **48A.5** *P* **317** *L* **27** # **907**

Lindsay, Tom — Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *Rich*

Clarify

*SuggestedRemedy*

Change "derivation" to "basis".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48B** *SC* **48B** *P* **391** *L* **1** # **474**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **R** *Rich*

References to MJS should be replaced with text. Add text to describe effective DJ in non-ambiguous detail. Add a detailed description of the jitter test procedure either here or in 47.4.1.

*SuggestedRemedy*

Specific text to be prepared by XAUI Jitter Ad Hoc for May Interim.

*Proposed Response* *Response Status* **C**

REJECT. Work in progress. The commenter is requested to resubmit this comment during the likely recirc ballot.

*Cl* **48B** *SC* **48B.1.2** *P* **319** *L* **44** # **447**

Kesling, Dawson Intel

*Comment Type* **E** *Comment Status* **A** *Rich*

Effective DJ is applicable to the BERT scan jitter measurement method, but not easily to other valid jitter measurement methods. Since other valid methods are referenced in 47.4.1 and 48B.3., the following statement in 48B.1.2 is too strong: "Therefore, all references in Clauses 47 and 53 to DJ should be understood as effective DJ."

*SuggestedRemedy*

Replace the sentence with, "When using the BERT scan jitter test method, the term DJ should be understood to mean effective DJ."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48B** *SC* **48B.1.3** *P* **319** *L* **47** # **904**

Lindsay, Tom Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *Rich*

Wording can be clarified

*SuggestedRemedy*

To elevate its importance, move the last sentence of the 1st paragraph to become the first stand alone paragraph of this subclause. The remainder of the original paragraph should then stand as the 2nd paragraph.Modify the 3rd paragraph to "...above the CDR corner frequencies. To observe these effects, the aforementioned high-pass filtering is required. These effects are often seen at transmitter outputs and receiver inputs".Move the last sentence of paragraph 3 to a stand alone paragraph after all others in this subclause.

*Proposed Response* *Response Status* **C**

ACCEPT. This is the revised text of subclause 48B.1.3:

All jitter output specifications include the effects of a high-pass filter (to suppress the significance of low frequency jitter) to emulate CDR tracking.

It is understood that CDRs track low frequency jitter, and that including this effect in the specifications could ease requirements on clock oscillators (lower cost designs tend to exhibit low frequency RJ), serializer (SERDES, same advantage) designs and switching power supplies, layouts, bypassing, etc.

It is also realized that, due to frequency content, long complex patterns cause phenomena that are not observed with short patterns - data dependent jitter (DDJ, a form of DJ) can have extreme ranges of frequency content from well below to well above the CDR corner frequencies. To observe these effects, the aforementioned high-pass filtering is required. These effects are often seen at transmitter outputs and receiver inputs.

Effects are usually seen in both transmitters and receivers. Jitter test patterns are specified in Annex 48A.

*Cl* **48B** *SC* **48B.2.2** *P* **320** *L* **22** # **908**

Lindsay, Tom Stratos Lightwave

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

Need clarification on sine jitter.

*SuggestedRemedy*

Add a sentence at the end of the paragraph: "Signal source amplitude calibration shall be performed prior to application of sinusoidal jitter."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48B** *SC* **48B.3** *P* **320** *L* **46** # **909**

Lindsay, Tom — Stratos Lightwave

*Comment Type* **E** *Comment Status* **A** *Rich*

Explain a weakness of the method.

*SuggestedRemedy*

To paragraph c), add "This method may not be useful for jitter with harmonic content or data dependent jitter."

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **49** *SC* *P* *L* # **693**

DawePiers — Agilent

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

Please handle the management of loopback and signal detect signals to/from PMD and PMA. Need to decide whether you want to send a looped back signal further up the stack or simply check it at PCS and report.Putting the what-to-do logic in one place will make things clearer as well as being more hardware friendly.

*SuggestedRemedy*

Modify clause to deal with the several cases:PMD not in loopback optical signal is detected PMA not in loopback PMA in lockPMD not in loopback optical signal is not detected PMA not in loopback PMA in locketc.Thank you

*Proposed Response* *Response Status* **C**

REJECT. Duplicate of 205.

---

*Cl* **49** *SC* *P* *L* # **45001**

Ed Turner

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

Comment received against Cl 45 :

Comment #27,
Cl 45, SC 45.2.3.1.2, P 201, L 53
Name : Cruikshank, Brian
Comment : There is no loopback behavior specified in Clause 49
Remedy : Add new subclause in Clause 49 similar to Clause 50.3.9.1.1.Include the NOTE at the bottom.Add new subclause to description in 45.2.3.1.2.
Response : Has C49 been issued with a comment on this ?

*SuggestedRemedy*

Implement Brian's suggested remedy :
Add new subclause in Clause 49 similar to Clause 50.3.9.1.1.Include the NOTE at the bottom.

*Proposed Response* *Response Status* **C**

ACCEPT. Add a description of loopback based upon the text from 50.3.9.1.1.

---

*Cl* **49** *SC* *P* *L* # **205**

Dawe, Piers — Agilent

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

Please handle the management of loopback and signal detect signals to/from PMD and PMA. Need to decide whether you want to send a looped back signal further up the stack or simply check it at PCS and report.Putting the what-to-do logic in one place will make things clearer as well as being more hardware friendly.

*SuggestedRemedy*

Modify clause to deal with the several cases:
PMD not in loopback, optical signal is detected, PMA not in loopback, PMA in lock PMD not in loopback, optical signal is not detected, PMA not in loopback, PMA in locketc.Thank you

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. PMA_Signal_Detect changes to PMA_Signal_OK. See 742

---

*Cl* **49** *SC* **49.1** *P* **324** *L* **1** # **815**

Jonathan Thatcher — World Wide Packets

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

Definitions of PCS Service interfaces are missing. Examples are 46.1.6 (entire subclause) ; 51.2 (entire subclause); 52.1.1 (entire subclause)

*SuggestedRemedy*

As service level interface as appropriate.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The PCS Service Interface is the XGMII which is specified in 46.3.

This is clearly stated in 49.1.4.1 though the word "Service" has been omitted and will be inserted. Will replace "The PCS interface is the 10 Gigabit Media Independent Interface (XGMII) which provides a uniform interface to the Reconciliation Sublayer for all 10 Gb/s PHY implementations" with "The PCS Service interface is the 10 Gigabit Media Independent Interface (XGMII) which is defined in Clause 46. The XGMII provides a uniform interface to the Reconciliation Sublayer for all 10 Gb/s PHY implementations"

Also for consistancy, the following change will be made in clause 49.1.5, "An optional physical instantiation of the PCS Interface has been defined. It is called the XGMII (10 Gigabit Media Independent Interface)." will be replaced by "The PCS Service Interface is the XGMII which is defined in 46. The XGMII has an optional physical instantiation."

The XGMII should only be defined one place and this treatment is consistant with that used for the GMII in Clause 36.

The WIS Service interface is defined in 50.2 and the PMA service interface is defined in 51.2 so all the service interfaces to which the PCS attaches are already defined.

*Cl* **49** *SC* **49.1** *P* **325** *L* **14** # **443**

Satoshi Obara Fujitsu Laboratories of

*Comment Type* **E** *Comment Status* **R**

For reader comprehension, add "(64B/66B PCS)" after "10GBASE-R PCS" in Figure 49-1.

*SuggestedRemedy*

Add "(64B/66B PCS)" after "10GBASE-R PCS" in Figure 49-1.

*Proposed Response* *Response Status* **C**

REJECT. The proper name of the PCS is 10GBASE-R PCS and we never call it 64B/66B PCS. It is conceivable that a future faster PCS will also use the 64B/66B code making a name like 64B/66B PCS ambiguous. This comment may have been made because Figure 48-1 labels its PCS and PMA 8B/10B PCS and 8B/10B PMA which should be 10GBASE-X rather than 8B/10B. Comment 329 addresses that.

*Cl* **49** *SC* **49.1.1** *P* **324** *L* **1** # **807**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

The introduction (scope, objectives, relationships with other standards, and summary) are well written an helpful. But, shouldn't this material be in clause 44?

*SuggestedRemedy*

Recommend moving to clause 44. Add pointer to the material from 49. Thin out the introduction to include information specific to clause 49.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Thank you. Much of the credit goes to earlier supplements to 802.3 from which the template was borrowed. Disposition of this comment is deferred to clause 44.

*Cl* **49** *SC* **49.1.1** *P* **324** *L* **11** # **352**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

The term "issues" has a negative connotation.

*SuggestedRemedy*

Replace "issues" with "properties".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Grudgingly. This is way too picky a word-smithing point. The word "issues" is more general than the word "properties" and appears in a similar context in clause 24 and 36. However, to make Shimon happy will change the end of the sentence to:

"when referring generally to physical layers using the PCS defined here."

which would be more correct as the term refers to the physical layers rather than to the issues.

*Cl* **49** *SC* **49.1.2** *P* **324** *L* **31** # **806**

Jonathan Thatcher World Wide Packets

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

In item d), only those fibers specifically called out in clauses 52 and 53 are supported. Not all of 11801.

*SuggestedRemedy*

Ad verbiage: "as specified in clause 52." after 1995

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.1.4** *P* **325** *L* **18** # **353**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

The line between the PHYSICAL block and the MEDIUM block should be a dashed line,like in all the other layer diagrams in this draft.

*SuggestedRemedy*

See comment.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.1.4.3** *P* **326** *L* **6** # **315**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A**

It would be nice to suggest up front that the data loopback at the PMD service interface is optional

*SuggestedRemedy*

change bullet e) to "Optionally provides data loopback at the PMD service interface."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.1.4.4** *P* **326** *L* **15** # **748**

Dawe Piers Agilent

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

Definition of MDI is out of date. I wonder why we have an MDI sublayer at all; are any electical connection points treated as a sublayer?

*SuggestedRemedy*

Delete "" including con-nectors ".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will delete the suggested text. The MDI is not a sublayer. It is a compatability interface. All compatability interfaces have names facilitate specifying behavior with respect to the interfaces. The interface to the media for any 802.3 type is the Media Dependant Interface (MDI). XGMII, XAUI, and XSBI are the electrical compatability interfaces for 10 Gig.

*Cl* **49** *SC* **49.1.5** *P* **327** *L* **35** # **571**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

The term "PCS Interface" is inconsistent with the common usage throughout the standard as well as the remainder of this Clause, which talks about the "PCS Service Interface", "PMA Service Interface", etc.

*SuggestedRemedy*

Use "PCS Service Interface" in place of "PCS Interface".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.1.6** *P* **328** *L* **19** # **808**

Jonathan Thatcher World Wide Packets

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

Gearbox is not included on the Rx side.

*SuggestedRemedy*

Ad Rx Gearbox to the block diagram and description.

*Proposed Response* *Response Status* **C**

REJECT. There is no gearbox on the receive side. A gearbox could accept 16-bit data groups and output 66-bit data groups but they would not be aligned to block boundaries. The block sync function accepts 16-bit data groups, finds the block boundaries and outputs aligned 66-bit blocks.

*Cl* **49** *SC* **49.1.6** *P* **328** *L* **24** # **814**

Jonathan Thatcher World Wide Packets

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

Signal_Detect is missing from the block diagram.

*SuggestedRemedy*

Add the PMA and WIS Signal_Detect signals to the interface in the block diagram and supporting text describing the interfaces to the PCS layer.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. with regard to the figure, see 958. There is already text describing the interfaces and no text was provided in the suggested remedy so it is not clear what text the commenter wants added.

*Cl* **49** *SC* **49.2,2** *P* **328** *L* **51** # **316**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A** *test pattern*

I realize that jitter is still being reviewed. However, the last sentence on the page says that the "WIS provides the jitter test functionality."Clause 50 section 50.3.8 page 369 line 51 says that " the jitter patterngenerator shall be implemented according to 49.2.8."

*SuggestedRemedy*

When the jitter test pattern generation functionality is defined, one ofthese references must be updated. There is no immediate remedy.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The commenter is correct but the whole jitter test pattern description in both clauses will be changed in accordance with the jitter pattern ad hoc's recommendations.

*Cl* **49** *SC* **49.2.11** *P* **337** *L* **26** # **965**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest a cross reference to the receive state machine be added.

*SuggestedRemedy*

Suggest the text '... receive state machine.' should read '... receive state machine (see Figure 49-5).'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.11** *P* **337** *L* **26** # **656**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*

Suggest a cross reference to the receive state machine be added.

*SuggestedRemedy*

Suggest the text '... receive state machine.' should read '... receive state machine (see Figure 49-5).'.

*Proposed Response* *Response Status* **C**

ACCEPT. duplicate of 965

*Cl* **49** *SC* **49.2.12** *P* **337** *L* **30** # **361**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Style.

*SuggestedRemedy*

Change the first sentence to read as follows:
"... the jitter pattern checker checks the bits received via the 16-bit ..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.1** *P* **338** *L* **5** # **362**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Replace "clause" with "subclause".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.2** *P* **338-340** *L* **Multiple** # **363**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

In the definitions of the state variables some definitions end with a full stop,some have commas and others have nothing at all.

*SuggestedRemedy*

Use a full stop to terminate all sentences.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **2329** # **576**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

It appears that the wrong paragraph format has been used for the definitions of EBLOCK_T and LBLOCK_T. The letter size is too large.Also, there are missing periods at the ends of the definitions on lines 23, 25 and 30, as well as the sentence on line 50.

*SuggestedRemedy*

Change paragraph format to match the rest of the description.Add periods, and change two commas to periods.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **2429** # **680**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

Different size font

*SuggestedRemedy*

EBLOCK_T and LBLOCK_T appear to be slightly larger than their*_R headings

*Proposed Response* *Response Status* **C**

ACCEPT. see 576

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **26** # **966**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Subclause 46.3.4 defines LF sequence ordered-sets.

*SuggestedRemedy*

Suggest the text '... LF ordered sets. The LF ordered_set ...' should read '... LF sequence ordered-sets. The LF sequence ordered-set ...'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **26** # **657**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*

Subclause 46.3.4 defines LF sequence ordered-sets.

*SuggestedRemedy*

Suggest the text '... LF ordered sets. The LF ordered_set ...' should read '... LF sequence ordered-sets. The LF sequence ordered-set ...'

*Proposed Response* *Response Status* **C**

ACCEPT. duplicate of 966

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **32** # **967**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Aren't const_enum R_BLOCK_TYPE and const_enum T_BLOCK_TYPE actually functions rather than constants.

*SuggestedRemedy*

Move const_enum R_BLOCK_TYPE and const_enum T_BLOCK_TYPE to the functions subclause 49.2.13.2.3

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. "const enum" will also be deleted since Functions aren't constants.

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **32** # **658**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*

Aren't const_enum R_BLOCK_TYPE and const_enum T_BLOCK_TYPE actually functions rather than constants.

*SuggestedRemedy*

Move const_enum R_BLOCK_TYPE and const_enum T_BLOCK_TYPE to the functions subclause 49.2.13.2.3

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. same as 967

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **38** # **364**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Missing comma.

*SuggestedRemedy*

Add a comma after "0x4b".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.2.1** *P* **338** *L* **49** # **577**

Alexander, Tom PMC-Sierra, Inc.

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

The text states that "a valid control character is one containing a 10GBASE-R control code specified in Table 49-1". Table 49-1 also specifies that the /Q/ character is a valid 10GBASE-R control code; however, it is obvious that the presence of a /Q/ character in any location within a block (other than valid O codes) should be classified as an error. So far so good; but n reading line 47 ("E; The vector does not meet the criteria for any other value"), it appears that the presence of a /Q/ character within a group of control characters would not, by a strict interpretation of the text, generate an E result.

*SuggestedRemedy*

Amend the sentence "a valid control character is one containing a 10GBASE-R control code specified in Table 49-1" to read "a valid control character is one containing a 10GBASE-R control code specified in Table 49-1, but excluding the /Q/ character".

*Proposed Response* *Response Status* **C**

REJECT. Since the control characters of ordered sets do not have any 7-bit control code value defined for them, they are already excluded by the text which defines a valid control character as one containing a "10GBASE-R control code specified in Table 49-1." Note that /T/, /S/, and /O/ are all covered by this.

*Cl* **49** *SC* **49.2.13.2.1** *P* **339** *L* **1-18** # **365**

Shimon Muller Sun Microsystems, Inc

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

The definition of the T_BLOCK_TYPE constant uses the /O/ character in severalplaces. I do not believe this is appropriate and may be quite confusing to theimplementor for the following reasons:
* The tx_raw variable is composed of characters that are passed to the PCS from the layer above it, namely the XGMII, and should use the notations that are easily identified in the XGMII code space. However, the /O/ characters are defined only in the PCS code space. There is no notion of an /O/ on the XGMII. This is different from the rx_raw variable, which is composed of characters in the PCS code space.
* The main reason for using an /O/ notation here is to indicate all the possible ordered sets that can be passed to the PCS via the XGMII. These include the /Q/ ordered set and one reserved ordered set that is currently unnamed. In the XGMII code space there is no "general purpose" notation that includes these two ordered sets.
However, if my related comment (regarding the naming of the ordered sets similarto clause 48) is accepted, this can be easily resolved (see suggested remedy).

*SuggestedRemedy*

1. Replace "/O/" with "/Q/ or /Fsig/" in this definition (6 instances).
2. Delete the last sentence of the paragraph (line 18).

*Proposed Response* *Response Status* **C**

REJECT. /O/ is defined in 49.2.4.10. None of the naming conventions for control characters are used in the common clause 46. Clause 48 doesn't define the XGMII code space.

*Cl* **49** *SC* **49.2.13.2.2** *P* **339** *L* **25** # **366**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state machine*

The definition of the ber_test_sh variable indicates that this variable is settrue "when a new sync header is available for testing". However, there is noexplanation anywhere in clause 49 to what this means.

*SuggestedRemedy*

Add the following text either here or in subclause 49.2.13.3:
"A new sync header is available for testing when the block sync header position has been determined, and the Block Sync process has accumulated enough bits from the PMA or the WIS to evaluate the header of the next block."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Use:
A new sync header is available for testing when the Block Sync process has accumulated enough bits from the PMA or the WIS to evaluate the header of the next block."
because: " the block sync header position has been determined," might be interpreted as meaning that the block sync header position is known but the function is used when testing candidate positions which might not be the block sync header.

*Cl* **49** *SC* **49.2.13.2.2** *P* **340** *L* **11** # **368**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state mchine*

The definition of the test_sh variable indicates that this variable is settrue "when a new sync header is available for testing". However, there is noexplanation anywhere in clause 49 to what this means.

*SuggestedRemedy*

Add the following text either here or in subclause 49.2.13.3:
"A new sync header is available for testing when the block sync header position has been determined, and the Block Sync process has accumulated enough bits from the PMA or the WIS to evaluate the header of the next block."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 366

*Cl* **49** *SC* **49.2.13.2.2** *P* **340** *L* **4** # **367**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state machine*

The functionality described for the slip and slip_done variables implies thatslip is actually a function and not a variable.Furthermore, the definition of the slip function mentions the "next candidateblock sync position". However, there is no explanation anywhere in clause 49how this position is determined, or whether it matters how it is determined.

*SuggestedRemedy*

1. Move the definition of slip to subclause 49.2.13.2.3.
2. Add the following text either here or in subclause 49.2.13.3:
"The precise method for determining the next candidate block sync position is not specified and is implementation dependent. However, an implementation shall ensure that all possible bit positions are evaluated."

*Proposed Response* *Response Status* **C**

ACCEPT. If slip is made a function, its name changes to "SLIP"

*Cl* **49** *SC* **49.2.13.2.3** *P* **340** *L* **30** # **369**

Shimon Muller Sun Microsystems, Inc

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

The first sentence in the definition of ENCODE is not completely accurate. Thetx_coded vector is not directly "transmitted to the PMA or WIS".

*SuggestedRemedy*

Replace "transmitted to the PMA or WIS" with "sent to the Scrambler".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.3** *P* **341** *L* **12** # **370**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state machine*

The test_sh variable is not initialized after reset. Although it may not bestrictly necessary for the overall long term operation of the state machine, itwould be cleaner to start with an initialized variable.

*SuggestedRemedy*

In the LOCK_INIT state add "test_sh <= false".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.3** *P* **341** *L* **24** # **371**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state machine*

Although the definition of the test_sh variable indicates that it will be set tofalse when the TEST_SH state is entered, the state diagram does not show that ittakes any action in this state. Since state diagrams take precedence over text,it opens room for a broken implementation that is still compliant.

*SuggestedRemedy*

In the TEST_SH state add "test_sh <= false".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.3** *P* **342** *L* **17** # **373**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state machine*

Although the definition of the ber_test_sh variable indicates that it will beset to false when the BER_TEST_SH state is entered, the state diagram does notshow that it takes any action in this state. Since the state diagrams takeprecedence over text, it opens room for a broken implementation that is stillcompliant.

*SuggestedRemedy*

In the BER_TEST_SH state add "ber_test_sh <= false".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.3** *P* **342** *L* **7** # **372**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A** *state machine*

The ber_test_sh variable is not initialized after reset. Although it may not bestrictly necessary for the overall long term operation of the state machine, itwould be cleaner to start with an initialized variable.

*SuggestedRemedy*

In the BER_MT_INIT state add "ber_test_sh <= false".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.13.3** *P* **343** *L* **1** # **277**

Don Alderrou Intel

*Comment Type* **T** *Comment Status* **R** *state machine*

Figure 49-14-Transmit state machine will send improper codes when errors are detected in the Idle or data stream.An example is:
For the input T_TYPE(tx_raw) C D D C S D
the output tx_coded C E D E E D
Another example is:
For the input T_TYPE(tx_raw) C D D C D C
the output tx_coded C E D E D E
Another example is:
For the input T_TYPE(tx_raw) C D D D T C
the output tx_coded C E D D T C
Another example is:
For the input T_TYPE(tx_raw) S D C C D C D T
the output tx_coded S D E C E C E T
If the state machine is in the TX_C state and T_TYPE(tx_raw) = D or E, then the state machine will transition to TX_E to send an error. Now if the T_TYPE(tx_raw) = D, then it will transition to TX_D and send data instead of sending an error.The other case is when the state machine is in the TX_D state and T_TYPE(tx_raw) = (E + C + S), then the state machine will transition to TX_E to send an error. Now if the T_TYPE(tx_raw) = C, then it will transition to TX_C and send control instead of sending an error.

*SuggestedRemedy*

Split the TX_E state into two states. One is TX_E_I for errors in the Idle stream and one is TX_E_P for errors during Packet transmission. The transitions from TX_INIT, TX_C, and TX_T to TX_E will go to the TX_E_I state. The transitions from TX_S and TX_D to TX_E will go to the TX_E_P state. When in the TX_E_I state, the transition of T_TYPE(tx_raw) = (E + S + D + T) goes back to TX_E_I and the transition of T_TYPE(tx_raw) = C goes to the TX_C state. When in the TX_E_P state, the transition of T_TYPE(tx_raw) = (E + S + C) goes back to TX_E_P, the transition of T_TYPE(tx_raw) = D goes to the TX_D state, and the transition of T_TYPE(tx_raw) = T goes to the TX_T state.

*Proposed Response* *Response Status* **C**

REJECT. If the change was made as the commenter suggests, an error that destroys a T would cause the PCS to continuously put out E until the next packet arrives. An error at the end of one packet would cause two packets to be lost regardless of the distance between the two packets. To the RS, this would look like an excessively long packet rather than just a packet with an error. Furthermore, if the PCS was in a packet getting data, then started getting /E/'s followed by LFs because an upstream component has lost sync, the proposed behavior would cause the PCS to send /E/ instead of the LF.

The existing behavior ensures that any error in a packet causes the packet to be dropped. Where not necessary to ensure that, the PCS forwards the data stream as it was received. The proposed behavior would make it more difficult to diagnose root cause of problems because it unnecessarily masks the data stream with /E/

*Cl* **49** *SC* **49.2.13.3** *P* **343** *L* **23-42** # **541**

Hiroshi Suzuki — Cisco Systems, Inc.

*Comment Type* **T** *Comment Status* **A** *state machine*

"Clause 49.2.13.3 State diagram" "Figure 49-14--Transmit state machine" and "Figure 49-15--Receive state machine".Proposed Change: In "Figure 49-14--Transmit state machine" state TX_S allow a transition to TX_T state when T_TYPE(tx_raw) = T is received. And in "Figure 49-15--Receive state machine" state RX_S allow a transition to RX_T state when R_TYPE(rx_coded) = T is received.This change is required because:
In the current "Figure 49-14--Transmit state machine" when in TX_S state if T_TYPE(tx_raw) = T is received the state machine transition to TX_E and replaces T block with EBLOCK_T and similarly when in "Figure 49-15--Receive state machine" when in RX_S state if R_TYPE(rx_coded) = T is received state machine transition to RX_E and replaces T block with EBLOCK_R.
1. But as indicated in "Clause 49.2.4.9 Terminate" since the packet may be of any length, the /T/ can occur on any octet of the XGMII interface and within any character block. Therefore, if a /T/ shows up after the /S/ block (e.g /S/DDDDDDDTIIIIIII...) it does not prevent the 64B/66B encoder/decoder to encode/decode the /S/ block and /T/ block and it is a valid framing therefore the proposed transitions should be allowed.
2. Also, both current receive and transmit state machine implementations will cause an /E/ code for an 8 byte /S/ block followed by /T/ block which is a valid ethernet framing.

*SuggestedRemedy*

In "Figure 49-14--Transmit state machine" state TX_S allow a transition to TX_T state when T_TYPE(tx_raw) = T is received. And in "Figure 49-15--Receive state machine" state RX_S allow a transition to RX_T state when R_TYPE(rx_coded) = T is received.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. An S block immediately followed by a T block will never occur with valid Ethernet framing because of the minimum Ethernet frame size. However, we have defined this PCS such that it could also support shorter packets.

Transmit state machine change will actually be made by combining the Tx_S and Tx_D states retaining the same transitions as the existing Tx_D state. Same change in receive state machine.

*Cl* **49** *SC* **49.2.13.3** *P* **344** *L* **1** # **278**

Don Alderrou — Intel

*Comment Type* **T** *Comment Status* **R** *state machine*

Figure 49-15-Receive state machine will send improper codes when errors are detected in the Idle or data stream. This is the same issue as described in the Figure 49-14-Transmit state machine comment above.

*SuggestedRemedy*

Split the RX_E state into two states. One is RX_E_I for errors in the Idle stream and one is RX_E_P for errors during Packet transmission. The transitions from RX_INIT, RX_C, and RX_T to RX_E will go to the RX_E_I state. The transitions from RX_S and RX_D to RX_E will go to the RX_E_P state. When in the RX_E_I state, the transition of R_TYPE(rx_coded) = (E + S + D + T) goes back to RX_E_I and the transition of R_TYPE(tx_raw) = C goes to the RX_C state. When in the RX_E_P state, the transition of R_TYPE(rx_coded) = (E + S + C) goes back to RX_E_P, the transition of R_TYPE(rx_coded) = D goes to the RX_D state, and the transition of R_TYPE(rx_coded) = T goes to the RX_T state.

*Proposed Response* *Response Status* **C**

REJECT. See 277

*Cl* **49** *SC* **49.2.14.1** *P* **342** *L* # **45002**

Ed Turner

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

Comment received against Cl 45 :

Comment #5
Cl 45, SC Table 45-23, P 203, L 13
Name : Renner, Martin
Comment : There is a contradiction between clause 49.2.14.1, p.342 and clause 45.2.3.2, table 45-23;clause 49 says, MDIO register 3.1.7 is 'latch high' while clause 45 says this bit is 'RO'
Remedy : Change "RO" for 3.1.7 in table 45-23 to "RO/LH"
Response : PROPOSED REJECT. 49.2.14.1 should point to bit 3.5.10 (recieve LF). Pass comment to C49.

*SuggestedRemedy*

Change section 49.2.14.1 to point to register bit 3.5.10 (recieve LF)

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.14.1** *P* **342** *L* **51** # **45003**

Ed Turner

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

Comment received against Cl 45 :

Comment #3
CL 45, SC 45.2.3.7, P 207, L 25
Name : Renner, Martin
Comment : There is a contradiction between clause 49.2.14.1, p.342, l.51 and clause 45.2.3.7, p.207, table 45-27;cl 49 says "This status is reflected in MDIO register 3.32.12" while cl 45 says this bit is 'RO/LL'
Remedy : Change "RO/LL" for 3.32.2 in table 45-27, line 25 to "RO"
Response : PROPOSED REJECT. Link status definitely needs to be latching. Discuss with Cl 49

*SuggestedRemedy*

Change text to : "A latching low version of this status .." ??

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Clause 45 changed the bit to non-latching.

*Cl* **49** *SC* **49.2.14.1** *P* **345** *L* **8** # **45004**

Ed Turner

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

Comment received against Cl 45 :

Comment #7
Cl 45, SC Table 45-27, P 207, L 28
Name : Renner, Martin
Comment : Clause 49.2.14.1 (page 345, line 8) references an undefined MDIO register.
Remedy : Define "signal_detect" as register bit 3.32.2 in Table 45-27.See related comment against clause 49.2.14.1 (page 345, line 8).
Response : PROPOSED REJECT. Comment #1133 on D2.0 addressed the same issue. The conclusion was that there should be no signal detect status for the PCS and a comment should be raised against Cl 49 for the removal of the text referencing Cl 45.

*SuggestedRemedy*

Remove references to an MDIO signal detect bit from subclause.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. signal_detect will be removed

*Cl* **49** *SC* **49.2.14.1** *P* **345** *L* **8** # **4**

Renner, Martin Infineon Technologies

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

The text references an undefined MDIO register.

*SuggestedRemedy*

Replace the sentence "This status is reflected by MDIO register 3.32.x." with "This status is reflected by MDIO register 3.32.2." and remove editor's note. See related comment against 45.2.3.7/Table 45-27.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove signal_detect from PCS Management clause instead.

*Cl* **49** *SC* **49.2.14.2** *P* **359** *L* **6-8** # **257**

Eric Jang Agere Systems

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

The ber monitor state machine (Fig. 49-13) works only when block_lock and !reset and!rx_jitter_test. The ber_count should apply the same criteria as the ber monitor state machine does.

*SuggestedRemedy*

6-bit counter that counts each time bad_sh state is entered and all three block_lock,!reset and !rx_jitter_test condition are true. This counter is reflected in MDIO register bits 3.33.13:8

*Proposed Response* *Response Status* **C**

REJECT. Since the counter counts entries into the BER_BAD_SH state and the BER monitor is held in the BER_MT_INIT state when any of these conditions are present, it can not be entering the BER_BAD_SH state. The suggested text is unnecessary.

*Cl* **49** *SC* **49.2.14.3** *P* **345** *L* **30** # **374**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Capitalization.

*SuggestedRemedy*

Replace "boolean" with "Boolean".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.14.3** *P* **345** *L* **33** # **375**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Capitalization.

*SuggestedRemedy*

Replace "boolean" with "Boolean".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.14.3** *P* **359** *L* **24-30** # **256**

Eric Jang — Agere Systems

*Comment Type* **E** *Comment Status* **A**

The tx_jitter_test and rx_jitter_test are not defined in the MDIO (clause45, 45.2.3.4.1, Table45-25, jitter_test_mode).

*SuggestedRemedy*

The Table45-25 shall add another row to make the control funtiontx_jitter_test and rx_jitter_test completely.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. see 690

*Cl* **49** *SC* **49.2.15** *P* **354** *L* **3845** # **153**

Stoltz, Mario — ChipIng.de, an Intel co

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

Delay constraint value of "no more than 3584 bit times" is an inappropriate limitation of the standard's applicability.Please see comment against Subclause Table 44-2 for more detail.

*SuggestedRemedy*

Change delay constraint to:
"...no more than 7168 BT."

*Proposed Response* *Response Status* **C**

REJECT. When we calculated the delay considerable margin was included. Comment 148 does not provide any calculations to show that the additional delay is necessary. Furthermore, the suggested 80 pause quanta of delay is significant compared to the round trip delay of 300 m.

*Cl* **49** *SC* **49.2.2** *P* **329** *L* **10** # **809**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **R**

No text describes the actual purpose of the gearbox to retime the data.

*SuggestedRemedy*

Add text like "and retimes the data to be consistent to the requirements of the PMA service interface." to the end of "...into 16-bit transmit data-units." Ditto on the Rx side.

*Proposed Response* *Response Status* **C**

REJECT. There is already text which specifies the data rates for the PMA and WIS Service Interfaces. The location of retiming within the PCS is an implementation choice.

*Cl* **49** *SC* **49.2.2** *P* **329** *L* **12** # **676**

Brown, Benjamin — AMCC

*Comment Type* **E** *Comment Status* **A**

Extra words

*SuggestedRemedy*

Replace "WIS Service sublayer" with "WIS"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **49.2.2** *P* **329** *L* **20** # **749**

Dawe Piers — Agilent

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

Signal detect is to mean what it says; that there is an optical signal. Therefore please add words to cover for loopback in lower layers. One could say that loopback is not the receive channel is in normal mode" of line 18. Maybe a table would be good.

*SuggestedRemedy*

Add words to the effect of "SIGNAL_DETECT indicates OK" or PMD PMA or WIS are in loopback "...." Also affects 49.2.13.2.2 and fig. 49-12.

*Proposed Response* *Response Status* **C**

REJECT. The PCS has no way to know when the PMA/PMD is in loopback. Therefore, it can not modify its behavior based on whether the PMA/PMD is in loopback.

*Cl* **49** *SC* **49.2.4.10** *P* **335** *L* **2** # **679**

Brown, Benjamin AMCC

*Comment Type* **T** *Comment Status* **A** *review.*

missing word

*SuggestedRemedy*

Replace "consecutive sequence" with "consecutive identical sequence"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The reason for the "two consecutive" rule on deleting ordered sets is to prevent the deletion of sequence ordered sets when they have been made sparse going through an XGXS (which will throw out 15 to 31 sequence ordered sets for every one it keeps). When getting the mixed idle/ordered set stream from an XGXS, we want the discard to use the idles. Two consecutive ordered sets was the simplest rule to cover that case.

Will make it more clear that "sequence ordered set" is only one starting with a /Q/ and that the reserved ordered set is the other kind.

*Cl* **49** *SC* **49.2.4.11** *P* **335** *L* **7-8** # **359**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **T** *Comment Status* **A** *state machine*

Unlike all the other control characters that are specified in Table 49-1, it isnot obvious how the /E/ control characters are propagated through the PCS usingthe block formats specified in Figure 49-7 until much later in the clause whenthe state diagrams are described. Specifically, it is not clear from this sub-clause what should be done when only some of the characters in an 8-byte blockare received as /E/.

*SuggestedRemedy*

Add the following sentence to the end of the paragraph:
"/E/ characters are always sent by the PCS in groups of 8, regardless of how many received characters in an 8-character block had errors."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The suggested statement would not be accurate. In some cases where an /E/ is received by the PCS, the PCS will send the /E/ without turning it into a block of 8 E's. For example, in the definition of T_BLOCK_TYPE, the definition for case a) of C exludes /E/, but the definitions of C b, S, and T all allow an /E/.

To make the statement true, we would need to change T_BLOCK_TYPE and R_BLOCK_TYPE to always exclude /E/ when "valid control characters" appears.

To help the reader we will add a reference to the subclause where T_BLOCK_TYPE and R_BLOCK_TYPE are defined.

*Cl* **49** *SC* **49.2.4.3** *P* **332** *L* **10** # **354**

Shimon Muller Sun Microsystems, Inc

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

Nowhere in this clause is the length of the type field specified.

*SuggestedRemedy*

Change the second sentence of this paragraph to read as follows:
"Control blocks contain an 8-bit type field followed by a total of eight control and data characters."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Accept proposed response except "type field" will be modified in accordance with 961.

*Cl* **49** *SC* **49.2.4.3** *P* **332** *L* **10** # **961**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *review*

Is it wise to use the term 'type field' when it has such a long term and well know meaning within Ethernet already - see 3.2.6 for example, paragraph 4 'When used as a Type field ...'. While I guess the two terms will never appear in the same Clause it may be wise to do a global replace in Clause 49 with something like 64B66B type field.

*SuggestedRemedy*

Consider doing a global replace of 'type field' with '64B66B type field' in Clause 49.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. will use "block type field"

*Cl* **49** *SC* **49.2.4.3** *P* **332** *L* **10** # **652**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*

Is it wise to use the term 'type field' when it has such a long term and well know meaning within Ethernet already - see 3.2.6 for example, paragraph 4 'When used as a Type field ...'. While I guess the two terms will never appear in the same Clause it may be wise to do a global replace in Clause 49 with something like 64B66B type field.

*SuggestedRemedy*

Consider doing a global replace of 'type field' with '64B66B type field' in Clause 49.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. duplicate of 961

*Cl* **49** *SC* **49.2.4.5** *P* **332** *L* **44** # **355**

Shimon Muller Sun Microsystems, Inc

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

This subclause is not very clear on how all the ordered sets map into blocks.

*SuggestedRemedy*

Add the following sentence between the second and third sentences:
"All ordered sets use the same control block format and type field, and are differentiated by their control codes."

*Proposed Response* *Response Status* **C**

REJECT. The proposed text is inaccurate. There are 4 different block formats and type fields that are used for encoding ordered sets depending upon their position in the data stream. Ordered sets are differentiated by their control codes plus their data bytes.

The paragraph already explains that:
there is one type of ordered set which is denoted by beginning with the /Q/ control character;
there is another type of ordered set which begins with another control code;
the O field encodes the control code.

---

*Cl* **49** *SC* **49.2.4.5** *P* **332** *L* **46** # **572**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

A reference for a more complete description of sequence ordered sets would be handy here.

*SuggestedRemedy*

Make reference to subclause 46.3.4 in this paragraph, for the definition and use of sequence ordered sets.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **49** *SC* **49.2.4.6** *P* **333** *L* **41** # **356**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

"frame type" is the wrong term in this context.

*SuggestedRemedy*

Replace "frame type" with "block format".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **49** *SC* **49.2.4.6** *P* **334** *L* **27** # **358**

Shimon Muller Sun Microsystems, Inc

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

It seems that the "reserved6" entry in Table 49-1 has been allocated for theordered set that will be used in Fiber Channel. Therefore, this entry in thetable should be reconciled with Table 48-4.

*SuggestedRemedy*

Change the "reserved6" entry in Table 49-1 to read as follows:
" Signal ordered_set /Fsig/ 0x5c encoded by type 0xF
K28.2 field plus O code"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Also add note from 48.

---

*Cl* **49** *SC* **49.2.4.6** *P* **334** *L* **6** # **357**

Shimon Muller Sun Microsystems, Inc

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

The 8B/10B Code column in Table 49-1 for "idle" should have the same entry as inTable 48-3.

*SuggestedRemedy*

Add "K28.0 or K28.3 or K28.5" for idle in the 8B/10B Code column in the table.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **49** *SC* **49.2.4.7** *P* **333** *L* **48** # **573**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

There is no explicit requirement stated herein that the deletion of /I/ characters should not reduce the remaining /I/s between packets to less than 5. However, this is required by PICS item C4 on page 347.

*SuggestedRemedy*

State that the PCS shall not delete /I/s if this would reduce the remaining /I/s between packets to less than 5, or if the current number of /I/s between packets is 5 or less.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. The requirement to ensure minimum IPG was changed last review cycle to: " When deleting /I/s, the first four characters after a /T/ shall not be deleted." The editor neglected to update the PICS to match the change. The PICS will be changed to match the text.

*Cl* **49** *SC* **49.2.4.8** *P* **334** *L* **36** # **962**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Typos.

*SuggestedRemedy*
'TxD' should read 'TXD', 'RxD' should read 'RXD'. Same issue on line 51.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **49** *SC* **49.2.4.8** *P* **334** *L* **36** # **653**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate.*
Typos.

*SuggestedRemedy*
'TxD' should read 'TXD', 'RxD' should read 'RXD'. Same issue on line 51.

*Proposed Response* *Response Status* **C**
ACCEPT. duplicate of 962

*Cl* **49** *SC* **49.2.5** *P* **335** *L* **13** # **963**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
The data is tranmitted to either a PMA or a WIS so suggets PMA_UNITDATA could also be a WIS_UNITDATA.

*SuggestedRemedy*
Suggest the text '... PMA_UNITDATA transfers ...' shoudl read '... PMA_UNITDATA or WIS_UNITDATA transfers ...'.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **49** *SC* **49.2.5** *P* **335** *L* **13** # **654**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*
The data is tranmitted to either a PMA or a WIS so suggets PMA_UNITDATA could also be a WIS_UNITDATA.

*SuggestedRemedy*
Suggest the text '... PMA_UNITDATA transfers ...' shoudl read '... PMA_UNITDATA or WIS_UNITDATA transfers ...'.

*Proposed Response* *Response Status* **C**
ACCEPT. duplicate of 963

*Cl* **49** *SC* **49.2.6** *P* **335** *L* **52** # **575**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**
Spelling mistake in footnote 3, first line: "consistant". This is also applicable to the first line of footnote 4 on page 336.

*SuggestedRemedy*
Fix to read "consistent".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **49** *SC* **49.2.8** *P* **336** *L* **19** # **49002**
Thaler, Pat

*Comment Type* **E** *Comment Status* **A** *test pattern*
The test pattern recommendations from the jitter test pattern ad hoc need to be applied to the draft.

*SuggestedRemedy*
See the proposal from the ad hoc.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Implement the test pattern motion adopted by the task force.

*Cl* **49** *SC* **49.2.8** *P* **336** *L* **37** # **317**
Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A**
Two blocks labelled S30 in jitter PRBS generator figure 49-9

*SuggestedRemedy*
change first occurance to S29.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. but this subclause will probably be removed by the work of the jitter test pattern ad hoc

*Cl* **49** *SC* **49.2.9** *P* **336** *L* **47** # **360**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Style.

*SuggestedRemedy*
Change the first sentence to read as follows:
"... the block synchronization function receives data via the 16-bit ..."

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **49** *SC* **49.2.9** *P* **336** *L* **49** # **964**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Suggest a cross reference to the block lock state machine be added.

*SuggestedRemedy*
Suggest the text '... block lock state machine.' should read '... block lock state machine (see Figure 49-12).'.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **49** *SC* **49.2.9** *P* **336** *L* **49** # **655**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*
Suggest a cross reference to the block lock state machine be added.

*SuggestedRemedy*
Suggest the text '... block lock state machine.' should read '... block lock state machine (see Figure 49-12).'.

*Proposed Response* *Response Status* **C**
ACCEPT. duplicate 964

*Cl* **49** *SC* **49.3.3 "5** *P* **347** *L* **19** # **750**
Dawe Piers Agilent

*Comment Type* **TR** *Comment Status* **R**
There is no reason why the PCS need get involved in jitter tetsting; it's only a convenience feature.

*SuggestedRemedy*
Make "Jitter test mode" optional" and make the features within it (e.g. generate check) ndependently optional

*Proposed Response* *Response Status* **C**
REJECT. When the PMA service interface is not exposed, the only way patterns other than scrambled data can be applied to the PMA/PMD is for the PCS to generate them.

*Cl* **49** *SC* **Figure 49-1** *P* **325** *L* **18** # **648**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *Duplicate*
Typo.

*SuggestedRemedy*
The line from the bottom of the PHYSICAL layer across to the top of MEDIUM should be dotted.

*Proposed Response* *Response Status* **C**
ACCEPT. Duplicate of 957

*Cl* **49** *SC* **Figure 49-1** *P* **325** *L* **18** # **957**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
The line from the bottom of the PHYSICAL layer across to the top of MEDIUM should be dotted.

*Proposed Response* *Response Status* **C**
ACCEPT. same as 353

*Cl* **49** *SC* **Figure 49-12** *P* **341** *L* **25** # **66**
Tom Mathey Independent

*Comment Type* **T** *Comment Status* **A**
Text on page 340, line 10 states that variable test_sh is set to 0 when state TEST_SH is entered. Such action is not shown in state diagram.

*SuggestedRemedy*
Insert action test_sh <= 0 into state TEST_SH.

*Proposed Response* *Response Status* **C**
ACCEPT. same as 371

*Cl* **49** *SC* **Figure 49-4** *P* **328** *L* **22** # **649**
Law, David 3Com

*Comment Type* **T** *Comment Status* **A** *duplicate*
Shouldn't this figure also show SIGNAL_DETECT and PCS_R_STATUS.

*SuggestedRemedy*
Suggest that SIGNAL_DETECT be added from the PMA to the PCS BER/SYNC block and that PCS_R_STATUS be added from the PCS BER/SYNC block to the PMA.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Duplicate of 958

*Cl* **49** *SC* **Figure 49-4** *P* **328** *L* **22** # **958**
Law, David 3Com

*Comment Type* **T** *Comment Status* **A**
Shouldn't this figure also show SIGNAL_DETECT and PCS_R_STATUS.

*SuggestedRemedy*
Suggest that SIGNAL_DETECT be added from the PMA to the PCS BER/SYNC block and that PCS_R_STATUS be added from the PCS BER/SYNC block to the PMA.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. PCS_R_STATUS should indicate that it only applies to the WIS as the signal is not part of the PMA interface.

*Cl* **49** *SC* **Figure 49-5** *P* **330** *L* **44** # **959**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Suggest that 'tx_data_unit<0>' and 'tx_data_unit<15>' should read 'tx_data-unit<0>' and 'tx_data-unit<15>', see Figure 50-2.

*Proposed Response* *Response Status* **C**

ACCEPT. Also 49-6

*Cl* **49** *SC* **Figure 49-5** *P* **330** *L* **44** # **650**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*

Typo.

*SuggestedRemedy*

Suggest that 'tx_data_unit<0>' and 'tx_data_unit<15>' should read 'tx_data-unit<0>' and 'tx_data-unit<15>', see Figure 50-2.

*Proposed Response* *Response Status* **C**

ACCEPT. duplicate of 959

*Cl* **49** *SC* **Figure 49-6** *P* **331** *L* **2428** # **677**

Brown, Benjamin AMCC

*Comment Type* **E** *Comment Status* **A**

Misaligned arrow

*SuggestedRemedy*

Align arrow into "Block Sync"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **Figure 49-6** *P* **331** *L* **30** # **960**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Suggest that 'tx_data_unit<0>' and 'tx_data_unit<15>' should read 'tx_data-unit<0>' and 'tx_data-unit<15>', see Figure 50-2.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **49** *SC* **Figure 49-6** *P* **331** *L* **30** # **651**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A** *duplicate*

Typo.

*SuggestedRemedy*

Suggest that 'tx_data_unit<0>' and 'tx_data_unit<15>' should read 'tx_data-unit<0>' and 'tx_data-unit<15>', see Figure 50-2.

*Proposed Response* *Response Status* **C**

ACCEPT. duplicate of 960

*Cl* **49** *SC* **Table 49-1** *P* **334** *L* **1** # **65**

Tom Mathey Independent

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

The third column in the bottom half of this table lists 7 control codes for the XGMII. The XGMII clause 46 for Table 46-2, 46-3 does not list these control codes. The XAUI clause 48 for Table 48-2, 48-3 also does not list some of these control codes. A text search of the D3.0 document shows that K28.1 exists only in Table 49-1.

*SuggestedRemedy*

Harmonize all tables

*Proposed Response* *Response Status* **C**

REJECT. No change to clause 49. Table 48-3 and 49-1 are already in harmony even though a search on the code group name will not reveal that. The last line in Table 48-3 is: "See Table 36-2 | Other valid code-group which covers all the codes in 36-2 not previously called out. For some reason, Table 48-2 treats these codes as errors and 48-3 does not. A comment was submitted requesting that 48-2 be modified to match 48-3 for handling of the reserved codes.

*Cl* **49** *SC* **Table 49-1** *P* **334** *L* **29** # **574**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

It is stated that 8B/10B code is specified in Clause 48. No such specification exists in Clause 48; the latter clause only specifies the mapping from XGMII codes to 8B/10B codes. The 8B/10B line code is specified in Clause 36.

*SuggestedRemedy*

Change "Clause 48" to "Clause 36". Indicate that the mapping of XGMII codes to 8B/10B codes is specified in Clause 48.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 678

*Cl* **49** *SC* **Table 49-1** *P* **334** *L* **29** # **678**

Brown, Benjamin AMCC

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

The 8B/10B code is not defined in Clause 48

*SuggestedRemedy*

Replace "Clause 48" with "Clause 36"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. "For information only. The 8B/10B code is specified in Clause 36. Usage of the 8B/10B code for 10 Gb/s operation is specified in Clause 48." because 10 Gb/s operation uses parts of clause 36 such as the code tables but some things in Clause 36 do not apply at 10 Gb/s so it is better to reference 48.

*Cl* **50** *SC* *P* *L* # **747**

Dawe Piers Agilent

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

Cleaning up signal detect and loopback (clauses 49 51 " 52) may have minor implications for WIS. Will receive separate "optical signal present" and "PMA synchronised" signals from below.

*SuggestedRemedy*

Keep in step with other clausesThank you

*Proposed Response* *Response Status* **C**

REJECT.

No specific action has been stipulated in the suggested remedy. If one is required, resubmit at the next recirculation.

*Cl* **50** *SC* **50.1.1** *P* **352** *L* **37** # **681**

Thaler, Pat Agilent Technologies

*Comment Type* **E** *Comment Status* **A**

This sentence is awkward. "but actually" can be read as saying "we didn't really mean what we just said". Also, the transition "In addition" into the next sentence doesn't really seem to fit as it prepares one to hear something else that the WIS does and instead is introducing an exclusion.

*SuggestedRemedy*

"The WIS maps the encoded Ethernet data received (transmitted) from (to) the PCS into a frame structure that has the same format as that defined by T1.416-1999, implementing a minimal number of the standard SONET overhead fields and functions. The WIS does not adhere ...."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.1** *P* **352** *L* **42** # **683**

Thaler, Pat Agilent Technologies

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

This paragraph contradicts itself starting out saying all portions of T1.416 are applicable and then saying that some are inapplicable and then specifically excluding some. Also "the former" would normally be used when refering to the first of two items, but only one item is mentioned here. Also, it isn't clear what "applicable" means. Does a device have to comply with the requirements of T1.416 to comply with this standard or does applicable just mean that T1.416 would have some undefined relevance to this standard.

*SuggestedRemedy*

It is difficult to suggest a remedy since I'm not sure what this intended to say. Perhaps:
The WIS shall meet all requirements of ANSI T1.416-1999 except those that are specifically excluded by this clause. The following sections shall be excluded in their entirety.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.2** *P* **353** *L* **9** # **376**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Bullet a) sort of implies that the Ethernet MAC is full duplex only.

*SuggestedRemedy*

Change bullet a) to read as follows:
"a) To support the full duplex mode of operation of the Ethernet MAC;"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.3** *P* **353** *L* **39** # **377**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

The XGMII is not the only entity in this diagram that is optional. During theGigabit Ethernet days we decided to remove all notes on the layered diagramsthat indicated optional layers/interfaces.

*SuggestedRemedy*

Remove the asterisk from XGMII and delete the note at the bottom of Figure 50-1.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.3** *P* **353** *L* **40** # **378**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

64B/66B is a coding method and not a name for a sublayer. Furthermore, thisfigure must be consistent with the figure in clause 49.

*SuggestedRemedy*

Replace "64B/66B PCS" with "10GBASE-R PCS".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.5** *P* **354** *L* **4649** # **578**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

The statement "the WIS Service Interface is functionally similar to the logical definition of the PMA Service Interface" is no longer correct, as the service interfaces have diverged.

*SuggestedRemedy*

Remove entire paragraph, as none of it applies any longer (and was never really relevant to anything anyway).

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.7** *P* **355** *L* **28** # **379**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

The text should stay within the scope of this clause.

*SuggestedRemedy*

Replace "standard" with "clause".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.1.7** *P* **355** *L* **28** # **67**
Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

For sentence "within the body of this standard", other places in the standard use different text. Change from "standard" to "clause". See 31.1, 32.1.4, 40.1.6, 49.2.13.1,

*SuggestedRemedy*

Change from "within the body of this standard" to "within the body of this clause".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.2.1.2** *P* **356** *L* **27** # **380**
Shimon Muller Sun Microsystems, Inc

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

The term MHz for the transfer rate of tx_data-unit is probably not appropriate.

*SuggestedRemedy*

Replace "MHz" with "Mtransfers/s", which is what has been used in clause 49.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.2.2.2** *P* **357** *L* **8** # **381**
Shimon Muller Sun Microsystems, Inc

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

The term MHz for the transfer rate of rx_data-unit is probably not appropriate.

*SuggestedRemedy*

Replace "MHz" with "Mtransfers/s", which is what has been used in clause 49.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3** *P* **369-370** *L* # **50001**

Tom Alexander

*Comment Type* **E** *Comment Status* **A**

Modify description of loopback behavior of WIS to conform with resolution of comment #746, #769, #581 and #746.

Comment #746 mandates that the loopback transmit behavior shall change with respect to what is sent to the PMA. However, it also stipulates that this behavior will be specified in Clause 45. On the other hand, comment #769 transfers all loopback behavior to clause 50 (retaining only the register bits and MDIO behavior) and comment #581 retains the loopback behavior in clause 50 (minus the MDIO registers).

The final resolution is to specify the technical functions for loopback according to comment #746, and the editorial decisions according to comments #769 and #581.

*SuggestedRemedy*

Renumber the present subclause 50.3.9 to 50.3.10. Create a new subclause 50.3.9 to contain the loopback behavior. Retain within this new subclause the text from 50.3.9.1.1, page 370, lines 45-54. Modify the sentence "In addition, the WIS shall transmit a continuous stream of all-zero data words to the PMA sublayer, and shall ignore all data presented to it by the PMA sublayer." to read:

"In addition, the WIS shall transmit a constant pattern to the PMA sublayer, and shall ignore all data presented to it by the PMA sublayer. The pattern output to the PMA transmit path at this time shall consist of a sequence of 8 '0' bits and 8 '1' bits, forming the 16-bit word 00FFh. No SONET overhead or fixed stuff shall be output to the PMA at this time."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.1** *P* **359** *L* **39** # **968**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

This sentence states that the '... tx_data-unit<15:0> and rx_data-unit<15:0> parameters that are transferred via its service interface into the payload capacity of a standard STS-192c Synchronous Payload Envelope (SPE) structure.' but isn't this only true of tx_data-unit<15:0> and rx_data-unit<15:0> is transferred from the payload capacity of a standard STS-192c Synchronous Payload Envelope (SPE) structure.

*SuggestedRemedy*

Suggest the text '... tx_data-unit<15:0> and rx_data-unit<15:0> parameters that are transferred via its service interface into the payload capacity of a standard STS-192c Synchronous Payload Envelope (SPE) structure.' be changed to read '... tx_data-unit<15:0> and rx_data-unit<15:0> parameters that are transferred via its service interface to/from the payload capacity of a standard STS-192c Synchronous Payload Envelope (SPE) structure.' or similar.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.2.1** *P* **363** *L* **31** # **579**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

A bit representation of the default header octet in the default Trace Message should be provided in a non-normative note as a service to the reader.

*SuggestedRemedy*

Add a note, explicitly stipulated to be informative, and with ANSI T1.269-2000 being specified as taking precedence, showing the bit representation of the default header octet, immediately following the paragraph at line 31. The editor is to come up with suitable text.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.2.5** *P* **365** *L* **50** # **200**

Figueira, Norival Nortel Networks

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

LOP-P is defined by reference to section 7.5 of ANSI T1.416-1999, whichstates that "... A LOP-P is terminated when either a valid pointer with a normal NDF set to 1001, or ...". However, the correct value of normal NDF is 0110. This may cause confusion and lead to incorrect implementations.A correct definition of LOP-P is found in ANSI T1.231-1997.Note: This typo demonstrates why it is always better to reference a definition than to copy it into the document.

*SuggestedRemedy*

We have some options. The actual proposed remedy is indicated after these options are reviewed below.1- Add an **editor's note** explaining that there is a typo in the definition of LOP-P in section 7.5 of ANSI T1.416-1999 and that until such typo is fixed, the reader should consult section 8.1.2.4.1 of ANSI T1.231-1997.Result: Since editor's notes are removed prior to final publication of IEEE802.3ae, option 1 does not help if a revised version of T1.416 is not available before the final publication of IEEE802.3ae.2- Add a **note** explaining that there is a typo in the definition of LOP-P in section 7.5 of ANSI T1.416-1999 and that the reader should consult section 8.1.2.4.1 of ANSI T1.231-1997 instead.Result: Option 2 represents a permanent note. As such, IEEE802.3ae would be indicating a typo in a document from another organization. Is this appropriate?3- Define LOP-P by reference to section 8.1.2.4.1 of ANSI T1.231-1997 and add an **editor's note** to consider returning the reference to T1.416 if a revised version without the typo is available before final publication of the IEEE802.3ae.Result: Option 3 allows us the chance of changing the reference back to T1.416 if a revised version is available before final publication of IEEE802.3ae. However, if such revised version is not available, Clause 50 will keep the definition of LOP-P based on T1.231-1997 (which is correct).SUGGESTED REMEDY: If it is appropriate for this standard to indicate errors in a document of another organization (as determined by this group during the review of this comment), I propose option 2 as remedy. Otherwise, I propose option 3 as remedy.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Option 2 in the suggested remedy appears to be the best solution, as it presents the problem and solution to the reader of the standard in a clear way. There should be no issue with pointing out mistakes in any standard.

*Cl* **50** *SC* **50.3.3** *P* **366** *L* **26-29** # **797**

Henry Hinrichs — Pulse Inc.

*Comment Type* **E** *Comment Status* **A**

In the figure 50-9 "Scrambling function" there are two instances where an exclusive or function is depicted as a circle containing the acronym "XOR". In clause 49, figures 49-9, 49-10, and 49-11 this function is depicted as a large "+" symbol within a circle.

*SuggestedRemedy*

Change symbol to a large "+" within a circle to be consistent. (If I remember correctly, this is IEEE's convention)

*Proposed Response* *Response Status* **C**

ACCEPT.

The commenter is correct; this is indeed the "traditional" way of representing an XOR function in 802.3 (see scrambler figures in Clauses 32 and 40).

*Cl* **50** *SC* **50.3.5.2** *P* **368** *L* **15** # **580**

Alexander, Tom — PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Missing period at end of paragraph.

*SuggestedRemedy*

Add period.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.7** *P* **369** *L* **33** # **68**

Tom Mathey — Independent

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

For value 14000, use correct value.

*SuggestedRemedy*

Change from 14000 to 14336.

*Proposed Response* *Response Status* **C**

ACCEPT.

Good catch!

*Cl* **50** *SC* **50.3.8** *P* **369** *L* **48** # **798**

Henry Hinrichs — Pulse Inc.

*Comment Type* **E** *Comment Status* **A**

The sentence "When the WIS transmit channel is operating in jitter test mode, the jitter pattern generator will produce a continuous jitter test pattern..." describes a required aspect of the standard.

*SuggestedRemedy*

Change sixteenth word from "will" to "shall".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.8** *P* **369** *L* **51** # **303**

Tim Warland — Nortel Networks

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

The last sentence says " The WIS transmit process shall be disabled or otherwise prevented from sending data to the PMA when in jitter test mode." However, the purpose of jitter testing is to verify performance at the PMA. Therefore it is imperative that the transmit process be enabled for jitter testing.

*SuggestedRemedy*

Delete last sentence

*Proposed Response* *Response Status* **C**

REJECT.

The WIS Transmit Process is intended for use during normal operation, and performs SONET framing and overhead generation with payload data supplied by the PCS. During jitter testing, there is no overhead generation and payload from the PCS is ignored. A separate jitter testing functional block is used to produce the jitter test pattern. There is hence no reason to allow the WIS Transmit Process to send data to the PMA during this time. Hence the sentence on line 51.

Note that subclause 50.3.8 does not mandate a particular implementation; if an implementer wishes to re-use some or all of the Transmit Process functionality to implement the jitter test pattern generator, this is perfectly feasible and within the scope of the standard. The fact that the Transmit Process and jitter test pattern generator operate in a mutually exclusive manner allows this to be done, if the implementer so desires.

*Cl* **50** *SC* **50.3.8** *P* **369** *L* **51** # **304**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A**

I realize that jitter is still being reviewed. However, line 51 says that " the jitter pattern generator shall be implemented according to 49.2.8." Clause 49 section 49.2.2 the last sentence page 328 states that "the WIS provides the jitter test functionality"

*SuggestedRemedy*

When the jitter test pattern generation functionality is defined, one of these references must be updated. There is no immediate remedy.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

There is no specific remedy suggested by this comment. The resolution of other comments pertaining to jitter testing will also resolve this comment.

*Cl* **50** *SC* **50.3.8** *P* **369-370** *L* # **50005**

Tom Alexander

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

Adopt new jitter test pattern functionality as per serial PMA/PMD requirements.

*SuggestedRemedy*

Use Option #2 as described in alexander_1_0501.pdf to implement the jitter pattern generator and checker for random patterns. The CID shall consist of approx. 72 consecutive '0's and 72 consecutive '1's separated by 1392 bits (to be selected by the implementer, but having a 50% '1's density, such that the run length throughout is limited to between 4 and 11 bits). The constant value for the SONET payload shall be taken from a 16-bit seed register accessible via the MDIO. In addition, the jitter pattern generator shall support a square-wave jitter test pattern as per brown_1_0501.pdf, with the same 16-bit seed register being used to supply the square-wave pattern at the PMA service interface. The editor is to come up with suitable text.

The necessary MDIO registers to be introduced into Clause 45 for controlling the jitter pattern generator and checker are covered as a consequence of the resolution of a parallel comment against Clause 45. The editor is directed to include references to these registers in 50.3.9.1 with appropriate text.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.8** *P* **370** *L* **3** # **799**

Henry Hinrichs Pulse Inc.

*Comment Type* **E** *Comment Status* **A**

The sentence "... the jitter pattern checker, which will verify that the received data corresponds to the expected jitter test pattern." describes a required aspect of the standard.

*SuggestedRemedy*

Change this and the next sentence to read "... the jitter pattern checker. The jitter pattern checker shall verify that the received data corresponds to the expected jitter test pattern and shall be implemented according to 49.2.12".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Note that resolution of this comment is subordinate to comments currently being discussed that pertain to the actual implementation of the jitter pattern test functionality. Therefore, the changes proposed by the suggested remedy for this comment may conflict with the resolution of the overall jitter pattern test functionality.

However, the commenter's point is entirely valid, in that a required aspect of the standard should be marked by the word "shall" rather than by "will". Therefore, the phrase "which will verify" should be changed to "which shall verify". The remainder of the paragraph may change depending on the resolution of the jitter test pattern issue.

*Cl* **50** *SC* **50.3.9** *P* **370** *L* **10** # **970**

Law, David 3Com

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

The WIS does not provide the Layer Management objects, they are provided by the STA. In addition WIS Layer Management is optional (as is all Layer Management - see Clause 30) and that the way it is supported is also optional - the functions the registers provide may be provided by the Clause 45 MDIO register space or by an equivalent function.

*SuggestedRemedy*

Suggest the title and all other instances of 'Layer Management' be changed to read 'Management interface'. In addition suggest that the subclause be changed to read 'Control of the WIS may be supported through the MDIO register space defined in 45.2.2.' and Subclause 50.3.9.1 should be changed to read 'The WIS Management Interface function provides the following dedicated management registers'.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

A statement should further be added to 50.3.9.1 to the effect that if the optional management interface is not implemented for the WIS, then equivalent capabilities must be provided.

*Cl* **50** *SC* **50.3.9.1** *P* **370** *L* **39** # **581**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

All of this text is partially duplicated within Clause 45, subclause 45.2.2. Redundancy leads to errors and conflicts (vide the loopback behavior) and should be avoided.

*SuggestedRemedy*

Work jointly with the editor of Clause 45 to remove subclauses 50.3.9.1.1 through 50.3.9.1.11 inclusive, and transfer all the information contained therein (after modification by any other comments submitted during this ballot cycle) to 45.2.2. Transfer is required rather than direct deletion as not all of the information presented in Clause 50 is also available in Clause 45.Subclause 50.3.9.1 (lines 15-37) should be left in place as a summary of the management functions. The necessary pointer to Clause 45 already exists in this subclause.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Retain the loopback description within Clause 50 (in subclause 50.3.9).

*Cl* **50** *SC* **50.3.9.1.1** *P* **370** *L* **47** # **8**

Renner, Martin Infineon Technologies

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

There is a contradiction to clause 45.2.2.1.2.While clause 50 states that all-zero data words are to be sent in case of loopback, clause 45 requires all-ones data words.

*SuggestedRemedy*

Replace "all-zero" in in clause 50.3.9.1.1 with "all-ones".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor has already submitted a comment against Clause 45 stating that it should change its definition of what is transmitted during loopback to all-zeros rather than all-ones.

See also comment #746.

*Cl* **50** *SC* **50.3.9.1.1** *P* **370** *L* **47** # **746**

Dawe Piers Agilent

*Comment Type* **T** *Comment Status* **A** *comment 746*

The draft says "in loopback mode ... the WIS shall transmit a continuous stream of all-zero data words to the PMA sublayer" does this mean an all-zero SONET payload" framed and scrambled or all zeros encluding where the frame should be? Needs clarification. Anyway sending all zeros to the PMA will cause the optics to chatter unpredictably with possibly unintended results even extending to optical power and eye safety. Please think of a better null signal " e.g. the SONET 7 bit scrambler output.

*SuggestedRemedy*

Change "a continuous stream of all-zero data words" to (anything) balanced - or don't specify what goes to the PMA.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

In response to what "all-zeros" means: it means literally what it says, that is, a steady stream of zeros with no intervening '1' bits anywhere. No SONET overhead will be output.

The pattern output to the PMA transmit path during WIS loopback shall consist of a sequence of 8 '1' bits and 8 '0' bits, in the pattern 00FFh. No SONET overhead or fixed stuff shall be output to the PMA at this time.

The editor is directed to generate a comment to Clause 45 to this effect, as the relevant sections have been moved to Clause 45 by a previous resolution.

*Cl* **50** *SC* **50.3.9.1.5** *P* **371** *L* **52** # **192**

Figueira, Norival Nortel Networks

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

A separate comment proposes to change the functionality (and name) of the WIS G1 register. The new proposed functionality does not latch the G1's ERDI-P field. Because of this, Far End PLM-P/LCD-P, Far End AIS-P, and Far End LOP-P defects (which are signaled by G1's ERDI-P field ) would no longer be indicated by any register. However, indication of these defects is required for proper maintenance of the WIS MIB (i.e., aFarEndPathStatus, aFarEndPathSESs, and aFarEndPathESs; subclauses 30.8.1.1.25, 30.8.1.1.26, and 30.8.1.1.27, respectively).

*SuggestedRemedy*

Add to WIS Status 3 (as Read Only/Latching High): Far End PLM-P/LCD-P, Far End AIS-P, and Far End LOP-P.Please coordinate with Clause 45 editor to add these flags. Editorial license is given for the assignment of appropriate register bit numbers.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.9.1.5** *P* **371** *L* **52** # **191**

Figueira, Norival — Nortel Networks

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

The proper maintenance of the WIS MIB (i.e., aSectionSEFSs - subclause 30.8.1.1.6) requires SEF events to be reported via a management register.

*SuggestedRemedy*

Add SEF (as read only/latching high) to the WIS Status 3 register.Please coordinate with Clause 45 editor to add the SEF flag. Editorial license is given for the assignment of an appropriate register bit number.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.9.1.7** *P* **373** *L* **36** # **582**

Alexander, Tom — PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Wrong usage: "contents of the WIS J0 RX register is undefined".

*SuggestedRemedy*

Change "contents of the WIS J0 RX register is undefined" to "contents of the WIS J0 RX register are undefined".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.9.1.8** *P* **373** *L* **40** # **190**

Figueira, Norival — Nortel Networks

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

With the current definition, the WIS G1 register would need to be read once every WIS frame to allow for proper maintenance of the WIS MIB (e.g., aFarEndPathCVs - subclause 30.8.1.1.28). This seems to be an unreasonable requirement.

*SuggestedRemedy*

Change this register's name to "WIS Far End Path Block Errors" and its functionality to a nonresetable counter. Increment counter by one for each received G1 octet indicating a Far End Path Block Error (which is determined from G1's REI-P field). This counter has a maximum increment rate of 8000 counts per second.To clarify the above register definition, define "Far End Path Block Error" in Annex 50A.Please coordinate with Clause 45 editor to change the WIS G1 register definition.Note: A separate comment proposes to add "Far End PLM-P/LCD-P", "Far End AIS-P", and "Far End LOP-P" (which were previously reported by the WIS G1 register) to the WIS Status 3 register.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.9.1.9** *P* **373** *L* **51** # **189**

Figueira, Norival — Nortel Networks

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

With the current definition, the WIS M1 register would need to be read once every WIS frame to allow for proper maintenance of the WIS MIB (e.g., aFarEndLineCVs - subclause 30.8.1.1.17). This seems to be an unreasonable requirement.

*SuggestedRemedy*

Change this register's name to "WIS Far End Line BIP Errors" and its functionality to a nonresetable counter. For every received WIS frame, increment counter by the number of reported Far End Line BIP errors (which are reported by M1). This counter has a maximum increment rate of 2040000 counts per second.Please coordinate with Clause 45 editor to change the WIS M1 register definition.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define an internal 32-bit counter in Clause 50 that accumulates the M1 value from each frame.

Assign two MDIO registers in Clause 45 to snapshot the value of the internal counter. Both of the snapshot registers are to be loaded with the value of the internal counter when the first MDIO register (as defined by the lowest register index) is read.

This will reduce the performance impact on the STA (in terms of reading the counter to maintain an unambiguous count). The editor is to co-ordinate with the Clause 45 editor to assign proper register slots and names.

*Cl* **50** *SC* **50.3.9.1.9** *P* **374** *L* **6** # **187**

Figueira, Norival — Nortel Networks

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

This comment addresses part of the editor's note. The proper maintenance of the WIS MIB (e.g., aLineCVs - subclause 30.8.1.1.14) requires the number of parity errors detected during the Line BIP check to be reported to the Station Management via a management register.

*SuggestedRemedy*

Add register called "WIS Line BIP Errors". This is a nonresetable counter. For every received WIS frame, increment the counter by the number of detected Line BIP errors (which are detected using B2s). This counter has a maximum increment rate of 12288000 counts per second.Please coordinate with Clause 45 editor to add this register.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define an internal 32-bit counter in Clause 50 that accumulates the Line BIP Parity errors from each frame.

Assign two MDIO registers in Clause 45 to snapshot the value of the internal counter. Both of the snapshot registers are to be loaded with the value of the internal counter when the first MDIO register (as defined by the lowest register index) is read.

This will reduce the performance impact on the STA (in terms of reading the counter to maintain an unambiguous count). The editor is to co-ordinate with the Clause 45 editor to assign proper register slots and names.

*Cl* **50** *SC* **50.3.9.1.9** *P* **374** *L* **6** # **188**

Figueira, Norival — Nortel Networks

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

This comment partially addresses the editor's note. The proper maintenance of the WIS MIB (e.g., aPathCVs - subclause 30.8.1.1.22) requires the number of Path Block Errors detected during the Path BIP check to be reported to the Station Management via a management register.

*SuggestedRemedy*

Add register called "WIS Path Block Errors". This is a nonresetable counter. Increment counter by one for every received B3 indicating a Path Block Error. This counter has a maximum increment rate of 8000 counts per second.To clarify the above register definition, define "Path Block Error" in Annex 50A.Please coordinate with Clause 45 editor to add this register.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.9.1.9** *P* **374** *L* **6** # **186**

Figueira, Norival — Nortel Networks

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

This comment addresses part of the editor's note. The proper maintenance of the WIS MIB (e.g., aSectionCVs - subclause 30.8.1.1.7) requires the number of parity errors detected during the Section BIP check to be reported to the Station Management via a management register.

*SuggestedRemedy*

Add register called "WIS Section BIP Errors". This is a nonresetable counter. For every received WIS frame, increment the counter by the number of detected Section BIP errors (which are detected using B1). This counter has a maximum increment rate of 64000 counts per second. Please coordinate with Clause 45 editor to add this register.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.3.9.1-50.3.9.1.4** *P* **370-371** *L* **Multiple** # **382**

Shimon Muller — Sun Microsystems, Inc

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

See my related comment against 45.2.2.1.3. In that comment I am proposing to add support for future operating speeds forEthernet, as far as the MDIO register space in concerned. This would requireadding additional speed selection bits (in Register 0) and adding an additionalspeed independent register (Register 4) for detecting speed ability for allMMDs, including the WIS.

*SuggestedRemedy*

1. In 50.3.9.1 insert "c) WIS Speed Ability register (Register 4);"
2. Renumber all the subsequent bullets.
3. Renumber registers 4 and 5 to be 5 and 6 in the next two bullets.
4. In 50.3.9.1.1 in the first paragraph add the speed selection function.
5. After the 50.3.9.1.2 subclause insert a new subclause:
"50.3.9.1.3 WIS Speed Ability register (Register 4) <short description> "6. Renumber all the subsequent subclauses.
7. Renumber registers 4 and 5 to be 5 and 6 in the next two subclauses.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

As per the resolution to comment #581, the referenced text has been moved to Clause 45. Therefore, the resolution of the corresponding comment made against Clause 45 should automatically resolve this one.

*Cl* **50** *SC* **50.4.1** *P* **374** *L* **50** # **984**

Law, David 3Com

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

The use of the ++ symbol to increment a value is not defined in 21.5 nor 1.2.1, also there is no reference to the state diagram conventions used.

*SuggestedRemedy*

Suggest text similar to 49.2.13.1 is added.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.4.1.2** *P* **375** *L* **45** # **800**

Henry Hinrichs Pulse Inc.

*Comment Type* **E** *Comment Status* **A**

The variable "signal_fail"'s definition "... Once set to TRUE, signal_fail will remain set until PMA sublayer explicitly indicates..." describes a required aspect of the variable.

*SuggestedRemedy*

Change "will" to "shall".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **50.4.2** *P* **378** *L* **Multiple** # **383**

Shimon Muller Sun Microsystems, Inc

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

The variable "search" that is set in the Primary Synchronization state machineis not defined anywhere. Furthermore, it does not appear that it is being usedanywhere, and it is not clear why it is necessary at all.

*SuggestedRemedy*

1. Define the variable "search" in 50.4.1.2.
2. Describe precisely how this variable is used by the functions in 50.4.1.3.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The "search" variable is an unfortunate leftover from D2.2 and should be deleted. See comment #583.

*Cl* **50** *SC* **50.6** *P* **380** *L* **2, 53** # **384**

Shimon Muller Sun Microsystems, Inc

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

The copyright release for the PICS is missing.

*SuggestedRemedy*

Add a note to this subclause with a copyright release for the PICS.See clause 46.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **Figure 50-12** *P* **378** *L* **135** # **583**

Alexander, Tom PMC-Sierra, Inc.

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

The state machine diagram shows a "search" variable being set to various patterns in various states. No such "search" variable is either defined, used or required for the state machine. It was actually supposed to have been removed in its entirety for Draft 3.0, but this last instance somehow was overlooked.

*SuggestedRemedy*

Remove all references to "search" variable in state machine diagram. Slap editor's hands once for each instance to be removed.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **Figure 50-2** *P* **355** *L* **15** # **969**

Law, David 3Com

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

It appears that the functions contained in the box labelled LAYER MANAGEMENT in Figure 50-2 is more than just the management registers provided to support WIS Layer Management, for example it implies there is some function provided to control the SIGNAL_DETECT parameter passed up to the PCS through the WIS service Interface. In addition the WIS Layer Management function does not reside in the WIS but in the STA and we normally do not show a block for the MDC/MDIO registers (see Figure 36-2 for example).

*SuggestedRemedy*

Suggest that the box labelled 'LAYER MANAGEMENT' be renamed 'LINK MANAGEMENT' or something similar.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **50** *SC* **Table 50-1** *P* **363** *L* **1** # **269**

Stephen Haddock Extreme Networks

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

I understand the desire to specify by reference to T1-416, however it tends to make thisclause very obscure. In particular the majority of the information provided in this clause is what is not supported, and you have to do a "diff" of this and T1-416 to find out what is supported. I suggest that Tables 50-1, 50-2, and 50-3 should list all the overhead octets, referencing T1-416 for the definition/description of those that are supported.

*SuggestedRemedy*

Replace the first paragraph of 50.3.2.1 with:
"The WIS Transmit process inserts Path Overhead fields as defined in Section 4.2 of ANSI T1.416-1999 and specified in Table 50-1 of this document. For the fields where the 'Coding' column of Table 50-1 contains 'per T1-416', the field shall be inserted according to the specifications of ANSI T1.416-1999. For the fields where the 'Coding' column of Table 50-1 contains a specific value or 'see text', this document shall supercede the corresponding values in Table 1, "SONET overhead at NIs" in the ANSI document."
Make analogous changes to the first paragraph of 50.3.2.2 and 50.3.2.3.
Delete the words "superseding Table 1 in ANSI T1.416-1999" from the headings of Table 50-1, 50-2, and 50-3.
Add rows to Table 50-1 for B3 and G1, with the Usage column stating "supported" and the Coding column stating "see T1-416".
Add rows to Table 50-2 for B2 and M1, with the Usage column stating "supported" and the Coding column stating "see T1-416".
Add rows to Table 50-3 for B1 and J0, with the Usage column stating "supported" and the Coding column stating "see T1-416". Also add rows for A1 and A2 with the Usage column stating "supported", with the actual octet values in the Coding column.

*Proposed Response* *Response Status* **C**

ACCEPT.

Note that the phrase "per T1.416" in the suggested remedy should actually read "see T1.416" to be consistent with the rest of the text in the suggested remedy.

*Cl* **51** *SC* *P* *L* # **701**

Dawe Piers Agilent

*Comment Type* **E** *Comment Status* **A**

Need to refer to delay constraints in Cl. 44.3

*SuggestedRemedy*

Cross reference. Suggest copy and modify 49.2.15.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will add text regarding delay constraints and reference section 44.3

*Cl* **51** *SC* *P* *L* # **740**

Dawe, Piers Agilent

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

We agreed that XSBI would be a copy of SFI-4. It turns out we have ordered the 16 bits back to front. I'm not aware that Ethernet has any precedent with 16-bit words? so we have nothing to lose by doing what we meant to do " and we gain practical advantage in avoiding confusion and not looking bigoted.I wondered if this was an "editorial" comment as only the names get changed" but non-working PCBs and confused angry customers are more than editorial.

*SuggestedRemedy*

Reverse the definition of XSBI's 0 to 15 to agree with SFI-4. Affects clauses 44A 49 50 and 51 but only superfcially.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #988.

*Cl* **51** *SC* **0** *P* *L* # **51001**

Justin Chang

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

Modify clause 51 to be consistent in principle with comment #703 regarding power down.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.1** *P* **386** *L* **1** # **851**

Jonathan Thatcher World Wide Packets

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

When the Higher Speed Study Group put forth a PAR to 802 and the IEEE standards board for approval to create a standard, we committed that: "10 Gb/s Ethernet technology will be demonstrated during the course of the project, prior to the completion of the sponsor ballot. " This requirement was added to our PAR because, at the time of writing the PAR, there was no evidence that PMD and PMA technology was feasible which simultaneously meet the other four criteria. Feasibility means that technology must be demonstrated with reports and working models; proven technology; reasonable testing and with confidence in reliability. Historically, Ethernet has been successful, in part, because it "leveraged" technology that existed at the time of the writing of the PAR. No such 10 Gigabit PHY technology existed in November 1999. While the time for which this must be completed is still a couple of meeting cycles away, it is not clear that sufficient effort is being made to validate the specifications; measurement procedures; engineering analysis and judgment and to assure that the PMA meets the requirement we set for ourselves in time for the May 2001 cutoff for last technical change.

*SuggestedRemedy*

DEMONSTRATE the technical feasibility of the technology specified in Clause 51 for each PMD type, 10GBASE-SR/LR/ER/SW/LW/EW, while ensuring the attainment of the other 4 criteria. Or, change the requirements/specifications such that this goal can be achieved.

*Proposed Response* *Response Status* **U**

REJECT. Technical feasibility demonstrated already in other organizations and products.

---

*Cl* **51** *SC* **51.1** *P* **386** *L* **20-21** # **385**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

64B/66B is a coding method and not a name for a sublayer. Furthermore, this figure must be consistent with the figure in clause 49.

*SuggestedRemedy*

Replace "64B/66B PCS" with "10GBASE-R PCS" in two places.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **51** *SC* **51.1** *P* **386** *L* **34** # **386**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Incomplete acronym expansion.

*SuggestedRemedy*

Change the definition of XSBI to read as follows:
"XSBI = 10 GIGABIT SIXTEEN BIT INTERFACE".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **51** *SC* **51.1** *P* **386** *L* **3839** # **584**

Alexander, Tom PMC-Sierra, Inc.

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

The statement "The purpose of the serial PMA is to attach the PMD of choice to its client ... through the 10 Gigabit sixteen bit interface (XSBI)" effectively mandates that the XSBI shall be used between the PMA and its client. However, the XSBI is an optional interface.

*SuggestedRemedy*

Delete the phrase "through the 10 Gigabit sixteen bit interface (XSBI)".If this phrase is deleted, then expand the acronym 'XSBI' on line 43 of the following paragraph.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **51** *SC* **51.1** *P* **386** *L* **39** # **738**

Dawe Piers Agilent

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

Stating the obvious is good. This clause is intended to represent the OIF's SFI-4 which we may not normatively reference but of course we can mention it.

*SuggestedRemedy*

Say it. Give reference e.g. URL. Align with SFI-4 which is now published and stable.

*Proposed Response* *Response Status* **C**

ACCEPT. Clause editor to insert an informative NOTE in section 51.1 stating OIF-SFI4-01.0, an implementor's agreement, was used as a basis for the development of the XSBI instantation.

---

*Cl* **51** *SC* **51.1** *P* **386** *L* **4** # **810**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Language regarding BASE-R and -W confusing.

*SuggestedRemedy*

Replace with "...(PMA) used in 10GBASE-R and 10GBASE-W."

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **51** *SC* **51.1.2** *P* **387** *L* **11** # **387**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

In bullet d) insert "to" between "data" and "PMA".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.1.2** *P* **387** *L* **112** # **585**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Semicolons and periods missing at end of bullet items.

*SuggestedRemedy*

Add semicolons at ends of items a) and b) in first list, and items a) through d) in second list. Add periods at ends of items c) and e), respectively.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.2.1** *P* **387** *L* **31** # **388**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

The PMA_UNITDATA.request primitive is generated by the PMA client rather thanbeing used by it.

*SuggestedRemedy*

Replace "used" with "generated".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.2.1.1** *P* **387** *L* **3738** # **586**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

The text states that the tx_data-group<15:0> parameter is defined in the WIS and PCS clauses. No such definition could be found. There are references to tx_data-group<15:0> but no formal description of what it is.The same problem is found for rx_data-group<15:0> (see lines 5-6 in 51.2.2.1 on Page 388.In any case, as the PMA clause is the definitive reference for the specification of the PMA service interface, the definitions of tx_data-group<15:0> and rx_data-group<15:0> belong in Clause 51 and not in any other clause.

*SuggestedRemedy*

Remove the cross-reference in 51.2.1.1 and replace with a formal description of the parameter tx_data-group<15:0>. Do the same for the parameter rx_data-group<15:0> in 51.2.2.1.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.2.1.3** *P* **387** *L* **48** # **587**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **R**

The description fails to indicate which bit of tx_data-group<15:0> is sent first to the PMA. Admittedly one can infer this information by carefully reading the XSBI specification in 51.4, but the PMA Service Interface is supposed to stand on its own.The same problem is found in 51.2.2.2, where there is no specification as to which bit of rx_data-group<15:0> is received first from the PMA.

*SuggestedRemedy*

Provide text that explicitly specifies the bit transmission order of tx_data-group<15:0> in 51.2.1.3 and the bit reception order of rx_data-group<15:0> in 51.2.2.2.

*Proposed Response* *Response Status* **C**

REJECT. See response to comment #988

*Cl* **51** *SC* **51.2.2.2** *P* **388** *L* **12** # **972**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

rx_data_group<15:0> should read rx_data-group<15:0>

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.2.3.1** *P* **388** *L* **2829** # **588**

Alexander, Tom PMC-Sierra, Inc.

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

This paragraph, as written, specifies that PMA_SIGNAL.indicate must be set to OK if PMD_SIGNAL.indicate is OK, but, as an implementation option, may also be set to OK if Sync_Err is low. Thus an implementer is not required to reflect the value of Sync_Err line as part of PMA_SIGNAL.indicate, even if Sync_Err is part of the interface. This is clearly at odds with the intent of the specification, which is that Sync_Err may or may not be implemented, but IF implemented then it MUST be reflected in PMA_SIGNAL.indicate.A less significant complaint is that there is no explanation of what Sync_Err<P> actually is. For instance, if the XSBI is not implemented, what is the meaning of Sync_Err<P>? The sentence should really be rewritten to reflect the purpose of the Sync_Err<P> signal, which is to indicate that the PMA cannot recover clock, rather than referencing Sync_Err<P> verbatim.

*SuggestedRemedy*

Change the phrase "and optionally also that the value of Sync_Err<P> is low" to read "and also that the PMA is successfully recovering clock from the incoming serial data stream." There is no great advantage in referencing Sync_Err<P>, which is an optional part of an optional interface, in the PMA service interface definition.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Strike the word "successfully".

*Cl* **51** *SC* **51.2.3.1** *P* **388** *L* **29** # **973**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

PMD_Signal.indicate should read PMD_SIGNAL.indicate

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.3.1** *P* **389** *L* **9** # **739**

Dawe Piers Agilent

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

This draft has "tx_data-group<0> transmitted first"" while SFI-4 your master " has "TXDATA[15:0]_P/N ... For OC-192" " bit 15 is the MSB and bit 0 is the LSB. The MSB is transferred first." You have to follow them because they have no reason to change. I'm not aware that Ethernet has any precedent with 16-bit words? I wondered if this was an "editorial" comment as only the names get changed" but non-working PCBs and confused angry customers are more than editorial.

*SuggestedRemedy*

Reverse the definition of 0 to 15 to align. Affects clauses 44A 49 50 and 51 (several places) but only superfcially.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See response to comment #988

*Cl* **51** *SC* **51.3.2** *P* **389** *L* **18** # **811**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Text does not state that the PMA on the Rx side does no alignment. It would be good to make this clear.

*SuggestedRemedy*

Add text like: "The PMA receive function does not align the rx_data-group<15:0> to match the original tx_data-group<15:0> on the remote end of the link" after the last line of the paragraph.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will add text exliciting stating that the RX does not realign data.

*Cl* **51** *SC* **51.3.2.1** *P* **389** *L* **25** # **589**

Alexander, Tom PMC-Sierra, Inc.

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

The data delay specification places no upper bound on the data delay permissible through the PMA. This delay bound is necessary for computation of PAUSE flow control budgets.

*SuggestedRemedy*

Add a data delay specification to 51.3.2.1. A recommended upper bound on the data delay is 1 PAUSE quantum for the sum of the TX and RX delays.

*Proposed Response* *Response Status* **Z**

REJECT. Comment withdrawn.

*Cl* **51** *SC* **51.4** *P* **389** *L* **41-43** # **389**

Shimon Muller Sun Microsystems, Inc

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

The baud rates in Table 51-1 are incorrect.

*SuggestedRemedy*

Swap either the PHY types or the baud rates in the table.

*Proposed Response* *Response Status* **C**

ACCEPT. Will align the phy type with the baudrate.
10GBASE-W is 9.95328Gb/s
10GBASE-R is 10.3125Gb/s

---

*Cl* **51** *SC* **51.4** *P* **389** *L* **41-43** # **9**

Ryan Latchman Gennum

*Comment Type* **E** *Comment Status* **A**

10GBASE-W Baud Rate is 9.95Gb/s (not 10.3125)
10GBASE-R Baud Rate is 10.3125 (not 9.95Gb/s)

*SuggestedRemedy*

Reverse BASE-W with BASE-R

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will make consistant.

---

*Cl* **51** *SC* **51.4** *P* **390** *L* **10** # **813**

Jonathan Thatcher World Wide Packets

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

It is not clear from the description (see also line 4 and 9 of page 392 and line 27 of 391) if the function "sync_err" is optional or not. It is clear that the signal "sync_err" is optional. It is reasonable to assume that any part that has the ability of detecting a sync_err (and all must if they are to decide which clock to use in the RxCRU) should always report this in the PMA_LOS line.

*SuggestedRemedy*

Recommend requiring the "sync_err" function and have this always (e.g. mandatory) be NOT-AND'ed with the PMD_Signal_Detect to create the PMA_Signal_Detect function.

*Proposed Response* *Response Status* **C**

REJECT. Per comment resolution #742, the Sync_Err function is optional.

---

*Cl* **51** *SC* **51.4** *P* **390** *L* **16** # **817**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

Change text to "...must be provided which deviates no more than 2500 ppm...."

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT. See response to comment #818. Will put 2500ppm spec in table form.

---

*Cl* **51** *SC* **51.4** *P* **390** *L* **16** # **591**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

The statement "a valid PMA_RX_CLK must be provided having no more than 2500ppm from the nominal operating frequency" is incomplete. No more than 2500ppm of what?

*SuggestedRemedy*

Change sentence to read ""a valid PMA_RX_CLK must be provided having a deviation of no more than 2500ppm from the nominal operating frequency".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See response to comment #818. Will put 2500ppm spec in table form.

---

*Cl* **51** *SC* **51.4** *P* **390** *L* **16** # **818**

Jonathan Thatcher World Wide Packets

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

Usually we put specifications in tables rather than in text.

*SuggestedRemedy*

Move the 2500 ppm requirement to Table 51-1; Rename table to include word "specifications."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will remove specification from text body. Convert text to a note for table 51-8.

---

*Cl* **51** *SC* **51.4** *P* **390** *L* **7** # **812**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

Line should say "... is used by the PMA client to latch...."

*SuggestedRemedy*

Per comment.

*Proposed Response* *Response Status* **C**

REJECT. See response to comment #390.

*Cl* **51** *SC* **51.4** *P* **390** *L* **7** # **390**

Shimon Muller — Sun Microsystems, Inc

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

The last sentence of the paragraph does not seem to be entirely accurate.

*SuggestedRemedy*

Change the last sentence of the paragraph to read as follows:
"The rising edge of the recovered clock, PMA_RX_CLK, which is 1/16 of the bitrate, is used by the PMA to send the received 16-bit data-groups to the PMAclient."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4** *P* **390** *L* **8** # **539**

Tim Warland — Nortel Networks

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

The requirement to have the signal_detect from the PMD layer mandatory, and the sync_error from the PMA layer optional is counter-intuitive. Greater system benefit could be realized by swapping these requirements.As stated in Clause 52 section 52.3.4 " The PMD receiver is not required to verify whether a compliant 10GBASE-SR/LR/ LW/SW/ER/EW signal is being received" when generating the signal detect OK. In fact assuming that the receive optical signal has sufficient spectral density at the wavelength of the receiver, the signal detect shall transition to OK. From the perspective of Clause 52, the signal detect does not indicate that the signal can be recovered by any other functions as described by this document. Only that the spectral power is sufficient.Furthermore, the detection of signal detect within the PMD device adds complexity to these devices in terms of extra logic with a corresponding increase in power consumption and potentially a decrease in reliability.The PMA device is required to lock to the frequency range of the incoming electrical, serial stream. When synchronization is achieved, the data presented at the XSBI is a valid representation of the incoming optical signal. Failure to achieve synchronization indicates that the optical signal does not meet the requirements as defined for this PMA type. A sync_error OK indication to the WIS or PCS layer is a quality indicator that these higher level functions should attempt to further decode the recovered signal.From my experience, most PLL devices (such as those implemented for a PMA) contain a synchronization error output signal which is used as a minimum for test purposes. The impact on logic and complexity to make a sync_error output mandatory is therefore minimal. The probability of false lock in the event of loss of optical input power is low for modern processes. However in the unlikely event that false lock occurs, the risk to higher level functions is equal to the current risk due to the low information content in the currently defined signal_detect function (which allows arbitrary frequencies). In essence, the sync_error signal covers both the signal detect function (by default) and the frequency detect function.At the system level, the sync_error signal can still be used for a front panel LED, now indicating that the incoming optical signal is either below threshold power OR at an incompatible frequency.

*SuggestedRemedy*

Change Sync_Err signal from optional to mandatory

*Proposed Response* *Response Status* **Z**

REJECT. Comment withdrawn.

*Cl* **51** *SC* **51.4** *P* **391** *L* **1** # **741**

Dawe Piers — Agilent

*Comment Type* **E** *Comment Status* **A**

Figure 51-2 has become detached from its subclause (first mentioned in 51.4 p 389 line 50)

*SuggestedRemedy*

Move figure 51-2 to its subclause 51.4

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will try and bring figure closer to the text.

*Cl* **51** *SC* **51.4** *P* **391** *L* **16** # **391**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

The extra arrow in the middle of the diagram seems out of place.

*SuggestedRemedy*

Delete the arrow.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4.1** *P* **390** *L* **44** # **974**

Law, David — 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

tx_bit<0> should read tx_data-group<0>, tx_bit<1> should read tx_data-group<1>, and tx_bit<15> should read tx_data-group<15>.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4.1** *P* **390** *L* **49** # **975**

Law, David — 3Com

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

Just to be 100% clear please specify that it is the rising edge of PMA_TX_CLK that is used to latch the data as is done in the similar text for PMA_RX_CLK.

*SuggestedRemedy*

Suggest the text 'The rising edge is used to latch data into the PMA ...' should read 'The rising edge of PMA_TX_CLK is used to latch data into the PMA ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4.1** *P* **391** *L* **16** # **819**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Extraneous line should be removed.

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4.1** *P* **391** *L* **30** # **816**

Jonathan Thatcher World Wide Packets

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

Also page 392 and more.... This clause uses PMD_LOS and PMA_LOS. These are not consistent with the clauses to which these attach. See line 19 of page 329; line 1 of 340; and line 37 of page 404. Similarly, the use of the "values" of these "variables" is not used consistently in clause 51.

*SuggestedRemedy*

Read references listed in the comment to see how the signals and the values of the signals are used. Fix block diagrams; descriptions; and functional specifications to match other clauses. All references should be to "Signal_Detect" not "Loss_of_signal".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #742.

*Cl* **51** *SC* **51.4.1** *P* **391** *L* **44** # **977**

Law, David 3Com

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

Suggest that the order of reception be included in this text since the order of transmission is included in the tx_data-group<15:0> text on the previous page.

*SuggestedRemedy*

Suggest the text '... in the PMA Client.' should read '... in the PMA Client. The order of reception is the first bit received is installed in rx_data-group<0> and the last bit received is installed in rx_data-group<15>.'

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4.1** *P* **391** *L* **49** # **976**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Suggest that the level of the Sync_Err signal in this case be clearly specified.

*SuggestedRemedy*

Suggest that the text '... (LOS) asserted or Sync_Err.' should read '... (LOS) or Sync_Err asserted.'

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

*Cl* **51** *SC* **51.4.1** *P* **391** *L* **51** # **820**

Jonathan Thatcher World Wide Packets

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

Why is there no "Maximum" clock transition period defined. If this clock is intended to be used by the PCS or WIS logic, it shouldn't stop or slow down.

*SuggestedRemedy*

Change "minimum" to "maximum or minimum"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.4.1 "2** *P* **392** *L* **512** # **743**

Dawe Piers Agilent

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

The draft says that PMA_LOS<P> "is a LVCMOS output." This is inappropriate here because:1. This definition is not in SFI-4;2. It is outside of what 802.3 usually does: for example" clauses 38 and 52 define data interface formats but not auxiliary ones such as signal detect;3. It restricts innovation: digital interfaces are evolving more frequently than we would want to revise this standard;4. It makes work for you you would have to find an LVCMOS standard debate and refer to it;5. The MSAs are better placed to do this (tedious) work " so leaving out the detail won't leave a lack of direction in the real world.All this applies to Sync_Err<P> too.

*SuggestedRemedy*

Delete BOTH sentences "This signal is a LVCMOS output."

*Proposed Response* *Response Status* **U**

REJECT. Previous ballot cycle had a comment to put an interface type on the PMA LOS and Sync_Err signals. LVCMOS was selected as the best choice going forward. It is compatible with the LVTTL as defined in SFI-4.

27, 5, 15 by 802.3 voters motion pass (comment rejected)

*Cl* **51** *SC* **51.4.2** *P* **392** *L* **11** # **744**

Dawe Piers Agilent

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

The draft says that Sync_Err<P> "logic high indicates that there is a synchronization error." This is inappropriate here because:1. This definition is not in SFI-4;2. It is outside of what 802.3 usually does: for example" " clauses 38 and 52 define data interface formats but not even the "polarity" of auxiliary ones such as signal detect;3. There is a good argument" to do with wired-or'ing alarms for doing the opposite;5. The MSAs are better placed to do this definition " so leaving out the detail won't leave a lack of direction in the real world.

*SuggestedRemedy*

Delete the sentence "A logic high indicates that there is a synchronization error." You might consider changing the name to Sync<P> which implies" but doesn't insist on " the same polarity as the words "Signal detect".

*Proposed Response* *Response Status* **C**

REJECT. SFI-4 deficiency does not provide justification for doing the wrong thing in this standard. It is believe that the implementations of SFI-4 are all logic high.

*Cl* **51** *SC* **51.4.2** *P* **392** *L* **1112** # **593**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Note not in proper paragraph format.

*SuggestedRemedy*

Place note in separate paragraph with NOTE format. Move sentence "This signal is a LVCMOS output" out of note and back to definition paragraph.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will put note in proper NOTE format.

*Cl* **51** *SC* **51.4-51.7** *P* **389-398** *L* # **988**

David Kabal Picolight

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

Bit ordering for the XSBI interface should match that of the industrystandard 16 bit SFI-4 (SONET) interface it was intended to implement.

*SuggestedRemedy*

This remedy will be submitted as a complete replacement section to the chiefeditor and editor of Clause 51.Create a mapping between the XSBI naming and the PMA service interface. Thiswould be the following:
tx_data-group<15:0> map to xsbi_tx<0:15
rx_data-group<15:0> map to xsbi_rx<0:15
This mapping would be at the beginning of the XSBI sectionIn diagrams and text referring the the electrical instantiation of the PMAservice interface, refer to the xsbi_tx/rx names. No mention need be made inthe description of the interface to the bit ordering from parallel toserial, as the XSBI section is only a description of the parallel interface.The optional instantiation only, will have bits which have a name thatmatches the intended bit order. The service interface will preserve Ethernetbit ordering in this proposed change.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Editor will incorporate mapping and file chang_01_0501.pdf.

*Cl* **51** *SC* **51.5.1** *P* **392** *L* **3031** # **594**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Sentence has awkward wording and redundant words: "... the required DC parametric attributes required of all inputs to the XSBI and the DC parametric attributes associated with the outputs ..."

*SuggestedRemedy*

Change sentence to read: "Table 51-3 documents the required DC parametric attributes of all inputs and outputs of the XSBI."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6** *P* **394** *L* **27** # **823**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

It would be more intuitive for the reader if the clock shown in Figures 51-5; 6; 7; and 8 used the same clock (PMA_TX_CLK<P-N>). It would not be confusing to see that Figures 51-5 and 51-7 used the falling edge of the clock.

*SuggestedRemedy*

Use PMA_TX_CLK everywhere and reference the falling edge as necessary.

*Proposed Response* *Response Status* **C**

REJECT. Diagrams are similar to SFI-4 makes it clear that there is an inversion that is performed.

*Cl* **51** *SC* **51.6** *P* **394** *L* **611** # **596**

Alexander, Tom PMC-Sierra, Inc.

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

The statement "The implementation to meet these requirements is achieved on the system board" appears to mandate a particular implementation when it should not be doing so. In particular, the wording excludes implementations that may seek to achieve proper clock positioning internal to the devices.Also, the entire note is in the wrong paragraph format.

*SuggestedRemedy*

Change the portion of the sentence "... to meet these requirements is achieved on the system board" to read "... to meet these requirements may be achieved on the system board".Also, format the paragraph in NOTE format.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6** *P* **394** *L* **8** # **392**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typos.

*SuggestedRemedy*

Replace "to allowing simplication" with "to allow simplification".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6.1** *P* **394** *L* **24** # **978**

Law, David 3Com

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

The term PMA_TX_CLK is defined to mean PMA_TX_CLK<P> - PMA_TX_CLK<N> in table 51-1 yet the diagram below actually shows PMA_TX_CLK<N> - PMA_TX_CLK<P>.This comment also applies to subclause 51.7.1.1, page 397, line 26.

*SuggestedRemedy*

Suggest the text '... to the PMA_TX_CLK at ...' should read '... to the PMA_TX_CLK<N,P> at ...' or '... to the PMA_TX_CLK<N-P> at ...'.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. No change in body of text. Text is consistant with diagram which now reflect <P-N> convention. See comment numbers #305 and #307.

*Cl* **51** *SC* **51.6.1.1** *P* **394** *L* **23** # **393**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Replace "details" with "detail".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6.1.1** *P* **394** *L* **27** # **305**

Tim Warland Nortel Networks

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

Incorrect label on clock signal. The waveform represents the signals present at the pins of the PMA client output. Therefore by changing the label on the clock pin to <N-P>, the effect is to invert the signal coming out of the PMA client output which was not the desired effect. The intent was to show that the signal is inverted on the board which is now accomplished with the explainatory note.

*SuggestedRemedy*

Revert figure 51-5 to figure 51-5 from draft 2.1. Delete the last sentence in the note line 11.

*Proposed Response* *Response Status* **C**

ACCEPT. In fig 51-5, will relabel "PMA_TX_CLK<N-P>" to "PMA_TX_CLK <P-N>". Remove last sentence, line 11 page 394. Replace "client receivers, clock edges" to "client receivers, <P-N> clock edges", line 8 page 394.

*Cl* **51** *SC* **51.6.1.1** *P* **394** *L* **35** # **821**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

"Tic_pre" should be "<= Tic_pre" and "Tic_post" should be "<= Tic_post" Ditto Figure 51-7

*SuggestedRemedy*

see comment

*Proposed Response* *Response Status* **C**

REJECT. Figure and table 51-4 are consistant. Same for fig 51-7 and table 51-8

*Cl* **51** *SC* **51.6.1.1-7.1.2** *P* **394-398** *L* # **24**

Vinu Arumugham Cisco Systems, Inc.

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

I believe these comments were left out during the D2.1 ballot process.
Here they are again:
The transmitter's available data valid window less the receiver's required data valid window gives the time available for board interconnect imperfections. The receiver requirement is specified as tSETUP+tHOLD`0ps. However, the board interconnect designer cannot compute the transmitter data valid window, if PMA_TXCLK_SRC jitter is not in the standard.In its current form, if the transmitter, interconnect and receiver are designed by three different parties, interoperability cannot be guaranteed.It is possible to respecify the timing such that a jitter spec. need not be included in the standard.Remedy 1, no jitter specification needed.
Remedy 2, include a jitter specification.

*SuggestedRemedy*

Basic allocation:
40% of clock period for the transmitter.
30% of clock period for the receiver.
30% of clock period for the interconnect.
Remedy 1
Simplify the specification by using the XGMII format to specify timing. This will preclude the need to specify jitter separately.
Specify output Tsetup+Thold?0 ps (60% of 1/644.5321258).
Specify input Tsetup=Thold#0 ps (15% of 1/644.5321258).
This provides maximum flexibility for all.Please see attached document. The document discusses frequency independent timing specification for DDR and is easily applied to non-DDR source synchronous interfaces. This was used as the basis for the XGMII timing specification.Remedy 2
Clock sources (for REFCLK) in the 150 - 300 MHz range have a period jitter specification of 100ps (peak-peak) or better.
Allowing 175 ps (same as parameter CJ in Table 51-7) for the transmitter, it may be reasonable to specify PMA_TXCLK_SRC period jitter as 275 ps (p-p).
Alternately, PMA_TXCLK_SRC tPERIOD-LAN = 1.55 ns +/- 137ps (275ps (p-p)/2).
This implies PMA_TXCLK tPERIOD-LAN = 1.55 ns +/- 225ps. (Adding CJ in Table 51-7 to line above)
To maintain symmetry, specify PMA_RXCLK tPERIOD-LAN = 1.55 ns +/- 225ps.
Reduce Tsetup=Thold for both receivers to 230 ps (15% of 1/644.5321258).
Given the large allocation for transmitter jitter, Tcq_min=Tcq_max cannot exceed 85 ps each. This will guarantee 460ps (30% of 1/644.5321258) is available for board level interconnect.

*Proposed Response* *Response Status* **C**

REJECT. Present numbers in the clause allows for ~400ps of skew margin for both transmit and receive paths. This should be quite adequate for system board designers.

*Cl* **51** *SC* **51.6.1.2** *P* **395** *L* **19** # **394**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Replace "details" with "detail".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6.1.2** *P* **395** *L* **22** # **306**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **R**

For consistancy, the PMA_TX_CLK label should be justPMA_TX_CLK(P)

*SuggestedRemedy*

change clock label to PMA_TX_CLK(P) (per draft 2.1)

*Proposed Response* *Response Status* **C**

REJECT. Having a single ended signal for use in the timing diagram is inaccurate.

*Cl* **51** *SC* **51.6.1.2** *P* **395** *L* **32** # **822**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

tSETUP should be ">= tSETUP" and tHOLD should be ">= tHOLD" Timing lines for Setup and Hold should intersect the data transition as in Figure 51-5. Ditto Figure 51-8

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. Tables 51-5 and 51-9 are clear.

*Cl* **51** *SC* **51.6.1.3** *P* **396** *L* **17** # **396**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Delete the extra "_" in "PMA_TXCLK_SRC".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6.1.3** *P* **396** *L* **34** # **397**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Style.

*SuggestedRemedy*

Change the second sentence in the paragraph to read as follows:
"This allows TD to be compensated by a FIFO, either in the PMA client or in the PMA itself."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6.1.3** *P* **396** *L* **6** # **395**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Replace "that" with "the".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.6.1.3** *P* **400** *L* **18** # **989**
VERGNAUD, Gérard ALCATEL

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

I disagree with the +/-100ppm clock tolerance specified 10GBASE-W. I think that this value will involve overcost in some cases of implementation (for instance in case of inerfacing a Sonet network).

*SuggestedRemedy*

Change clock tolerance for GBASE-W to a maximum of +/-20ppm.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #661.

*Cl* **51** *SC* **51.7** *P* **397** *L* **17** # **598**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Note is in wrong paragraph format.

*SuggestedRemedy*

Change to NOTE paragraph format.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.7** *P* **397** *L* **3** # **398**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typos.

*SuggestedRemedy*

Replace "to allowing simplication" with "to allow simplification".

*Proposed Response* *Response Status* **C**

ACCEPT. .

*Cl* **51** *SC* **51.7.1** *P* **397** *L* **21** # **599**
Alexander, Tom PMC-Sierra, Inc.

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

The statement "At no time shall there be a clock pulse with less than the minimum duty cycle of 40%" conflicts with the timing specifications given in Table 51-8, which mandates a minimum duty cycle of 45%. In addition, this sentence is completely redundant given the immediately preceding sentence on lines 19-20 and the reference to timing parameters in lines 10-11.

*SuggestedRemedy*

Delete the sentence on line 21.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will delete sentence and also remove any redundant specifications in normal text body that is already specified in tables.

*Cl* **51** *SC* **51.7.1** *P* **397** *L* **21** # **399**
Shimon Muller Sun Microsystems, Inc

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

The minimum duty cycle value specified in the last sentence of the paragraph is different from that used in Tables 51-8 and 51-9.

*SuggestedRemedy*

Reconcile the text with the tables.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #599.

*Cl* **51** *SC* **51.7.1** *P* **397** *L* **22** # **825**
Jonathan Thatcher World Wide Packets

*Comment Type* **T** *Comment Status* **A**
Add a timing table for the Rx similar to Table 51-6. Include specifications from 51.4

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **51.7.1.1** *P* **397** *L* **25** # **400**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
Replace "details" with "detail".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **51.7.1.1** *P* **397** *L* **30** # **307**
Tim Warland Nortel Networks

*Comment Type* **T** *Comment Status* **A**
Incorrect label on clock signal. The waveform represents the signals present at the pins of the PMA output. Therefore by changing the label on the clock pin to <N-P>, the effect is to invert the signal coming out of the PMA output which was not the desired effect. The intent was to show that the signal is inverted on the board which is now accomplished with the explainatory note.

*SuggestedRemedy*
Revert figure 51-7 to figure 51-7 from draft 2.1. Delete the last sentence in the note line 6.

*Proposed Response* *Response Status* **C**
ACCEPT. In fig 51-7, will relabel "PMA_RX_CLK<N-P>" to "PMA_RX_CLK <P-N>". Remove last sentence, line 6 page 397. Replace "client receivers, clock edges" to "client receivers, <P-N> clock edges", line 3 page 397.

*Cl* **51** *SC* **51.7.1.2** *P* **398** *L* **18** # **401**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
Replace "details" with "detail".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **51.7.1.2** *P* **398** *L* **22** # **308**
Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **R**
For consistancy, the PMA_RX_CLK label should be justPMA_RX_CLK(P)

*SuggestedRemedy*
change clock label to PMA_RX_CLK(P) (per draft 2.1)

*Proposed Response* *Response Status* **C**
REJECT. Having a single ended signal for use in the timing diagram is inaccurate.

*Cl* **51** *SC* **51.8** *P* **398** *L* **52** # **402**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
Replace "maybe" with "may be".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **51.8** *P* **398** *L* **52** # **168**
Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**
Text reads "Loopback mode maybe provided..."

*SuggestedRemedy*
Change to "Loopback mode may be provided..."

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **51.8** *P* **398** *L* **52** # **309**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A**

Not clear in this paragraph that the PMA loopback is optional.

*SuggestedRemedy*

change first sentence to " Loopback may optionally be provided..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.8** *P* **398** *L* **52** # **600**

Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**

Wrong usage of word "maybe" in first sentence of paragraph in 51.8.

*SuggestedRemedy*

Change "maybe" to "may be". (Note space.)

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.8** *P* **398** *L* **54** # **169**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "...register 7 is set..." and "...this bit is cleared." A clearer statement might avoid confusion.

*SuggestedRemedy*

Change to "...register 7 is set to ONE..." and "...this bit is set to ZERO."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will try to make things clearer being consistant with other clause usage of registers.

*Cl* **51** *SC* **51.8** *P* **398** *L* **54** # **403**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Wrong register referenced.

*SuggestedRemedy*

Replace "control register 7" with "Control 1 register".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **51.8** *P* **398** *L* **54** # **824**

Jonathan Thatcher World Wide Packets

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

Language is not quite as crisp as it might be. Recommend mimicking clause 52.3.8. Relationship of PMA_Signal_Detect is also not clearly tied to the loopback function.

*SuggestedRemedy*

Tie Signal Detect function to loopback. Clean up language to make sure that optional nature of the MDIO is also tied to the function. If MDIO is implemented and Loopback is implemented, then the function SHALL be....

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Will tie to MDIO implemention (if supported) and the behavior of the PMA_Signal_Detect behavior during the optional loopback mode. Will also be consistent with the comment #742.

*Cl* **51** *SC* **51.8** *P* **399** *L* **2** # **745**

Dawe Piers Agilent

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

This draft says "During Loopback" " the serial output of the PMA to the PMD shall be set to all zeros." You won't get all zeros on the optics by this means" but you will let the Tx and Rx chatter in a possibly unexpected way. A better choice would be a fixed balanced 16 bit word but that forces an early loopback and is too implementation specific. I suggest you give up; even if the PMA transmitted what it looped back the higher protocol layers would use packet headers SONET trace special test traffic whatever " to look after themselves.

*SuggestedRemedy*

Delete the sentence "During Loopback" " the serial output of the PMA to the PMD shall be set to all zeros."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Since the PMA does not have the capability to generate patterns, during loopback, the PMA will transmit the pattern sent by its client. If one is in loopback most likely the link is already broken.

*Cl* **51** *SC* **Figure 51-1** *P* **386** *L* **26** # **971**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

The dotted line between the bottom of the PHYSICAL layer and the top of the MDI should go all the way across to the top of the MEDIUM (see Figure 36-1 for an example).

*SuggestedRemedy*

Draw the dotted line between the bottom of the PHYSICAL layer and the top of the MEDIUM should go all the way across to the top of the MEDIUM.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **51** *SC* **Figure 51-1** *P* **394** *L* **31** # **979**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Typo.This comment also applies to Figure 51-6, 51-7 and 51-8.

*SuggestedRemedy*
Please show the 80% dotted line slightly below the high level. Also suggest that the dotted lines for 80% and 20% be extended to intercept the vertical Tcq_pre and Tcq_post lines if it is intended to illustrate that these timings are taken from the 80% and 20% thresholds as figure 51-3 seems to imply.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Will adjust for the 20/80 crossing points in the diagrams.

*Cl* **51** *SC* **Figure 51-2** *P* **391** *L* **16** # **592**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**
Extraneous arrow in figure at line indicated above.

*SuggestedRemedy*
Remove extra arrow.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Figure 51-5** *P* **394** *L* **26** # **980**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
'tperiod' should read 'Tperiod' to match its specification in Table 51-4.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Table 51-1** *P* **389** *L* **4147** # **590**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**
The font size appears to differ among the various entries in the table.

*SuggestedRemedy*
Fix font size to be the same and consistent with the required paragraph format.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Table 51-3** *P* **393** *L* **54** # **595**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **E** *Comment Status* **A**
Missing period.

*SuggestedRemedy*
Add period at end of sentence "... ground potential difference between PMA client and PMA."

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Table 51-4** *P* **395** *L* **14** # **69**
Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A** *remapped*
Line has two digits reversed.

*SuggestedRemedy*
Change from 644.53215 to 644.53125.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Table 51-5** *P* **395** *L* **4448** # **597**
Alexander, Tom PMC-Sierra, Inc.

*Comment Type* **T** *Comment Status* **A**
The minimum data setup and hold times are 250 ps. This deviates from the OIF SFI-4 spec from which the XSBI was derived and also differs arbitrarily from existing practice and implementations.

*SuggestedRemedy*
Change setup and hold times to 300 ps to make consistent with SFI-4 spec and existing practice.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Table 51-6** *P* **396** *L* **17** # **981**
Law, David 3Com

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
PMA_TXCLK__SRC should read PMA_TXCLK_SRC

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **51** *SC* **Table 51-6** *P* **396** *L* **18** # **44000**

Stephen Haddock Extreme Networks

*Comment Type* **T** *Comment Status* **A** *20 ppm*

We have objectives to define a WAN PHY with a data rate compatible with the payload rate of OC-192c/SDH VC-4-64c, and to define a mechanism for adapting the MAC-PLS data rate to the data rate of the WAN PHY. To achieve this objective we must be compatible with the tolerance as well as the nominal rate of OC-192c. This does not violate 802.3 precedent of specifying 100 ppm clock tolerance because the mechanism that adapts the MAC-PLS rate to the WAN PHY rate is sufficiently flexible to accomodate a 100 ppm tolerance on the MAC/RS/XGMII side and a 20 ppm tolerance on the WAN PHY side of the 64B/66B endec.

*SuggestedRemedy*

Change "622.08 +/- 100ppm" to "622.08 +/- 20ppm". Make analogous change in tables 52-7, 52-9, 52-12, 52-14, 52-17, and 52-18.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment is a duplicate of #661 that is being submitted by the Editor-in-Chief to the clause 51 editor to permit clause 51 to track the closure of this comment.

Details to be determined during the break-out session.

Motion to accept the comment:
802.3 voters
Y: 45 N: 5 A: 17 (Technical >75%) PASSES

All voters
Y: 65 N: 6 A: 29 (Technical >75%) PASSES

*Cl* **52** *SC* *P* *L* # **700**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R**

Need to refer to delay constraints in Cl. 44.3

*SuggestedRemedy*

Cross reference. Suggest copy and modify 49.2.15.

*Proposed Response* *Response Status* **C**

REJECT. This is a technical change and comment, but the editor does not understand the intent of copying or referencing information present elsewhere.

*Cl* **52** *SC* *P* *L* # **44008**

Booth, Brad

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

Missing delay constraint information.

*SuggestedRemedy*

Add delay constraint information as per 48.5 and information in Table 44-2.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Need text from chief editor.

*Cl* **52** *SC* *P* **401** *L* # **774**

Doug Coleman Corning Cable System

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

Non-zero dispersion shifted SMF and design provisions should beinserted into Clause 52.

*SuggestedRemedy*

Serial transmission at 1550nm can support 10 GbE operation.

*Proposed Response* *Response Status* **C**

REJECT. This would be a change of direction. Up until now we have had consensus that we are writing for "standard" SMF. This does not stop anyone using other SMF in practice. Remedy is not specific.

*Cl* **52** *SC* **5** *P* **413-414** *L* **34** # **479**

Lisa Buckman Agilent Technologies

*Comment Type* **E** *Comment Status* **A**

Table 52-12 split onto two pages

*SuggestedRemedy*

Combine onto one page to be easier to read.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **5** *P* **417** *L* **19** # **535**

Rahn — Lucent Technologies

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

The normal verification if a receive signal is in range is normally done via measurement of optical power at the receiver. In case of a signal specified with OMA in the way used in the draft 3.0 there is however a huge region where the attenuation may or may not be too high. In particular this rage reaches from around -6 dBm to -13 dBm for the 1300nm interface for example. In this case there might be or might not be a too high attenuation due to for instance a bad connector be present. In this case some more complicated measurement at either receiver or transmitter is required. This makes the operation and installation of this interface expensive.

*SuggestedRemedy*

Go back to average power and ER specification and narrow the transmitter power range to e.g. -4/+1 dBm for the 1300nm interface with a minimum extinction ratio of 4dB AND a minimum OMA of 477 uW.

*Proposed Response* *Response Status* **C**

REJECT. See 537.

---

*Cl* **52** *SC* **52.1** *P* **402** *L* **1** # **850**

Jonathan Thatcher — World Wide Packets

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

When the Higher Speed Study Group put forth a PAR to 802 and the IEEE standards board for approval to create a standard, we committed that: "10 Gb/s Ethernet technology will be demonstrated during the course of the project, prior to the completion of the sponsor ballot. " This requirement was added to our PAR because, at the time of writing the PAR, there was no evidence that PMD and PMA technology was feasible which simultaneously meet the other four criteria. Feasibility means that technology must be demonstrated with reports and working models; proven technology; reasonable testing and with confidence in reliability. Historically, Ethernet has been successful, in part, because it "leveraged" technology that existed at the time of the writing of the PAR. No such 10 Gigabit PHY technology existed in November 1999. While the time for which this must be completed is still a couple of meeting cycles away, it is not clear that sufficient effort is being made to validate the specifications; measurement procedures; engineering analysis and judgment and to assure that the PMDs individually meet the requirement we set for ourselves in time for the May 2001 cutoff for last technical change.

*SuggestedRemedy*

DEMONSTRATE the technical feasibility of the technology specified in Clause 52 for each PMD type, 10GBASE-SR/LR/ER/SW/LW/EW, individually while ensuring the attainment of the other 4 criteria. Or, change the requirements/specifications such that this goal can be achieved.

*Proposed Response* *Response Status* **U**

REJECT. This comment does not suggest any remedy or change to the text.

The Serial PMD ad hoc may choose at its discretion to put together a plan to demonstrate technical feasibility and develop criteria as appropriate.

---

*Cl* **52** *SC* **52.1** *P* **402** *L* **24** # **826**

Jonathan Thatcher — World Wide Packets

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

Text "...each PMD shall be integrated... with the management functions which are accessible through the Management Interface defined in Clause 45...." is not correct.

*SuggestedRemedy*

This function is not mandatory. It is optional. Correct text to make this clear and consistent.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Add word "optional" in front of "management functions".

---

*Cl* **52** *SC* **52.1** *P* **402** *L* **25** # **207**

Dawe, Piers — Agilent

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

Remember MDIO is optional

*SuggestedRemedy*

Change "are" to "may be"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 826.

---

*Cl* **52** *SC* **52.1** *P* **402** *L* **25** # **695**

Dawe, Piers — Agilent

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

Remember MDIO is optional

*SuggestedRemedy*

Change "are" to "may be"

*Proposed Response* *Response Status* **C**

ACCEPT. See 826.

---

*Cl* **52** *SC* **52.1** *P* **402** *L* **33** # **827**

Jonathan Thatcher — World Wide Packets

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

The XGMII is not required.

*SuggestedRemedy*

Change to show XGMII as optional. It is not clear to me if the RS is optional or required since it Maps the MAC to the optional XGMII. I can't find a place in the document that claims the RS to be optional. But... Get clarification from the Chief Editor, Brad Booth.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 404.

*Cl* **52** *SC* **52.1** *P* **402** *L* **33** # **404**

Shimon Muller, Sun Microsystems, Inc

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

Table 52-2 indicates that the RS and the XGMII are both optional for 10GBASEimplementations. This is true for the XGMII, but not the RS. The RS and all ofits associated functionality is mandatory for all 10GBASE implementations.

*SuggestedRemedy*

In Table 52-2 define the RS as "Required" and the XGMII as "Optional".See Table 53-1 in clause 53.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1** *P* **402** *L* **49** # **405**

Shimon Muller, Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

See SuggestedRemedy.

*SuggestedRemedy*

Replace "PMD sublayers" with "PMD sublayer service interfaces".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1** *P* **402** *L* **50** # **828**

Jonathan Thatcher, World Wide Packets

*Comment Type* **E** *Comment Status* **A**

The PMD Service Interface is not between PMA entities.

*SuggestedRemedy*

Change to "between the PMA and PMD entities."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

*Cl* **52** *SC* **52.1.1** *P* **402** *L* **5153** # **699**

Dawe, Piers, Agilent

*Comment Type* **E** *Comment Status* **A**

Terminology: following Cl.49 " 64b/66 coded things are blocks not characters. Data at PMD can hardly be said to be "encoded characters".

*SuggestedRemedy*

Change "characters" to "blocks" twice. Suggest change "encoded characters" to "serialised data of the PMA". Also applies to 52.1.1.1.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1** *P* **403** *L* **13-14** # **406**

Shimon Muller, Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

64B/66B is a coding method and not a name for a sublayer. Furthermore, this figure must be consistent with the figure in clause 49.

*SuggestedRemedy*

Replace "64B/66B PCS" with "10GBASE-R PCS" in two places.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove 64B/66B in front of PCS in both instances, because 10GBASE-R PCS does not make sense for a 10GBASE-SW/LW/ER interface.

*Cl* **52** *SC* **52.1.1** *P* **410** *L* **12-23** # **773**

Michael J. Hackert, Corning, Inc

*Comment Type* **T** *Comment Status* **A** *840*

There is an inconsistency in the wavelength range of for the 850 nm serial transmitter. It should be set to 840 to 860 nm. The data in the table for wavelength values less than 840 nm should be removed.

*SuggestedRemedy*

delete lines 12-23

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1** *P* **411** *L* **1-30** # **772**
Michael J. Hackert Corning, Inc

*Comment Type* **T** *Comment Status* **A** *840*

There is an inconsistency in the wavelength range of for the 850 nm serial transmitter. It should be set to 840 to 860 nm.

*SuggestedRemedy*

The lines on the graph in Figure 52-3 should be eliminated and the graph rescaled.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1.3.1** *P* **404** *L* **38** # **829**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

remove word "then"

*SuggestedRemedy*

see comment

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1.3.1** *P* **404** *L* **42** # **156**
Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Numbers are not put in exponent. Text states "... the 10-12 BER objective"

*SuggestedRemedy*

Change to "10 (superscript: -12) BER"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.1.1.3.1** *P* **404** *L* **42** # **70**
Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**

The text 10-12 needs the -12 to be superscript (to indicate 10**-12)

*SuggestedRemedy*

Place -12 as superscript.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.12** *P* **439** *L* **7** # **879**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Modal BW for 2000 MHZ*km is not based on overfilled launch (column 1 of table). Indicate this with a table footnote.

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove footnotes.

*Cl* **52** *SC* **52.13** *P* **440** *L* **1** # **731**
Dawe, Piers Agilent

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

In table 52-24 row "Fiber cable attenuation (max)" column "1310"" " we still aren't clear about which attenuation goes with outside plant. I guess it's the lower one.

*SuggestedRemedy*

Change "0.4 or 0.5* to "0.5 or 0.4*"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 211 (Paul Kolesar).

*Cl* **52** *SC* **52.13** *P* **440** *L* **1** # **730**
Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R**

Put table 52-24 is in the wrong place.

*SuggestedRemedy*

Put table 52-24 in its clause.

*Proposed Response* *Response Status* **C**

REJECT. FrameMaker places tables where it can. In this case 5.13 is the correct section, so editor does not agree that table is in the wrong clause.

*Cl* **52** *SC* **52.13** *P* **440** *L* **11** # **755**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **A**

DGDmax is an abbreviation in need of explanation. As the explanation is a very long story maybe a reference would help. Perhaps ITU-T G.691 subclauses 6.3.2.3 " 6.4.3 and Appendix I.This is a resubmitted comment for resolution as requested.

*SuggestedRemedy*

Add text: "Differential Group Delay (DGD) is the time difference between the fractions of a pulse that are transmitted in the two principal states of polarization of an optical signal." and "DGDmax is the maximum differential group delay that the system must tolerate." Refer to ITU-T G.691 subclauses 6.3.2.3" 6.4.3 and Appendix I. (Is it the signal or the fibre that has principal states?)

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.13.1** *P* **439** *L* **29** # **137**

Swanson, Steve — Corning Incorporated

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

Single-mode fiber type incorrectly referenced.

*SuggestedRemedy*

Replace "...and B1 (dispersion un-shifted single-mode)..." with "...B1.1 (dispersion un-shifted single-mode), B1.3 (low water peak), and B4 (non-zero dispersion)... "

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
Replace "...and B1 (dispersion un-shifted single-mode)..." with "...B1.1 (dispersion un-shifted single-mode) and B1.3 (low water peak)"

Editorial note to look at other fibre types including dispersion shifted fibre (B4 or B1.4?).

*Cl* **52** *SC* **52.13.2** *P* **440** *L* **24** # **211**

Paul Kolesar — Lucent

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

The footnote on 1310 nm attenuation is unclear. The reference to TIA is specifically for the 0.5 dB/km value not both values.

*SuggestedRemedy*

Replace "1310 nm" with "0.5 dB/km". The footnote would then read: For the singlemode case, the 0.5 dB/km attenuation ...

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.13.2** *P* **440** *L* **26** # **212**

Paul Kolesar — Lucent

*Comment Type* **E** *Comment Status* **A**

The footnote on Overfilled launch bandwidth references the wrong standard.

*SuggestedRemedy*

Replace "60793-1-40" with "60793-1-41". This reference was confirmed with IEC representatives.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.13.2** *P* **440** *L* **27** # **213**

Paul Kolesar — Lucent

*Comment Type* **E** *Comment Status* **A**

The footnote on Restricted launch bandwidth references the wrong standard.

*SuggestedRemedy*

Replace "60793-1-40" with "60793-1-49". This reference was confirmed with IEC representatives.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.13.2.1** *P* **439** *L* **36** # **783**

Doug Coleman — Corning Cable System

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

Current text provides only multimode fiber connector insertionloss guidance. Need to insert SMF connector guidance that is consistantwith Table 52-19.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. No remedy.

*Cl* **52** *SC* **52.13.2.1** *P* **439** *L* **40** # **85**

Dudek, Mike — Cielo Communications

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

There are inconsistencies between the connection loss of single mode fibers. Table 52-23 implies 1.5dB connection loss for 1300nm and only 1.0dB for 1550nm. Table 52-15 implies 2.0dB for 1300nm, Table 53-9 implies 2.0dB for 1300nm and Table 52-19 implies 1.0dB for 1550nm.

*SuggestedRemedy*

Change Table 52-23 1310nm column to 7.0dB and change the footnote to state "and for multimode fibers 1.5dB connection loss". Add an extra footnote Channel insertion loss at 1310nm is calculated using cable length, attenuation, and 2.0dB of connection loss.

*Proposed Response* *Response Status* **Z**

REJECT. Withdrawn.

*Cl* **52** *SC* **52.13.2.1** *P* **439** *L* **40** # **230**

Dudek, Mike — Cielo Communications

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

There are inconsistencies between the connection loss of single mode fibers. Table 52-23 implies 1.5dB connection loss for 1300nm and only 1.0dB for 1550nm. Table 52-15 implies 2.0dB for 1300nm, Table 53-9 implies 2.0dB for 1300nm and Table 52-19 implies 1.0dB for 1550nm.

*SuggestedRemedy*

Change Table 52-23 1310nm column to 7.0dB and change the footnote to state "and for multimode fibers 1.5dB connection loss". Add an extra footnote Channel insertion loss at 1310nm is calculated using cable length, attenuation, and 2.0dB of connection loss.

*Proposed Response* *Response Status* **Z**

REJECT. Duplicate of 85.

*Cl* **52** *SC* **52.13.2.2** *P* **439** *L* **50** # **728**

Dawe, Piers — Agilent

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

This draft has"The return loss for singlemode connections shall be greater than 26 dB."while latest G.691 tables 5 has"Maximum discrete reflectance between MPI-S and MPI-R dB -27"and"Min ORL of cable plant at MPI-S" " including any connectors dB (14 or 24)".As to the first requirement" I don't think we care whether we write down -26 or -27. The second is something ITU-T think is necessary; we have no technical basis for knowing that they are wrong so we should fall in line. This is particularly important where we allow more receiver reflection than G.691 and need to avoid any further parasitic etalons.

*SuggestedRemedy*

Align with other standards. Unless IEC 60793 or other authority differs " follow latest G.691 by replacing the sentence with:"The maximum discrete reflectance between TP2 and TP3 for singlemode channels shall not exceed -26 dB. The minimum optical return loss of a channel used with 10GBASE-LR/LW PMD shall not exceed -14 dB. The minimum optical return loss of a channel used with 10GBASE-ER/EW PMD shall not exceed -24 dB."Note -14 may be too slack" and should be considered carefully.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. This needs to be reexamined and discussed with the cable experts. This will be done by the Serial PMD ad hoc and the results will be presented at the July meeting.

*Cl* **52** *SC* **52.13.2.2** *P* **440** *L* **9** # **880**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **R**

max of 0.4 or 0.5 is 0.5. This should be done the same as in table 53-12

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

REJECT. Agreed solution for technical comment differs.

*Cl* **52** *SC* **52.13.3** *P* **440** *L* **35** # **214**

Paul Kolesar — Lucent

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

The use of a fiber pigtail (unconnectorized) as an MDI interface is in conflict with the connectorized (patch cord) administration shown in the fiber optic cabling model of Figure 52-19 and as required by IEC 11801 and TIA 568 structured cabling standards. Unconnectorized pigtails cannot be mated to patch cords.

*SuggestedRemedy*

Delete line 35 "1) fiber pigtail" and renumber remaining two examples.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.13.3** *P* **440** *L* **39** # **216**

Paul Kolesar Lucent

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

Additional MDI performance standard references are applicable.

*SuggestedRemedy*

Make standard IEC 61753-1-1 reference number 1). And add references 2) and 3), which are presently in CDV stage.
2)"IEC 61753-3-2 Fibre optic passive component performance standard - Part3-2:Fibre optic connectors terminated on single mode fibre for Category C - Controlled environment".
3)"IEC 61753-3-3 Fibre optic passive component performance standard - Part3-3:Fibre optic connectors terminated on multimode fibre for Category C - Controlled environment".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.13.3** *P* **440** *L* **40** # **20**

Cobb, Terry Lucent Technologies

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

Reference incorrect.

*SuggestedRemedy*

Change to IEC 61753-1-1 and to Part 1-1

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 216.

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*Cl* **52** *SC* **52.13.3** *P* **440** *L* **40** # **215**

Paul Kolesar Lucent

*Comment Type* **E** *Comment Status* **A**

The MDI performance specification standard reference is incorrect.

*SuggestedRemedy*

Replace "61753-1-2" with "61753-1-1". The title of the replacement standard is:
"Fibre optic interconnecting devices and passive component performance standard - Part 1-1: General and guidance - Interconnecting devices (connectors)". This is a published standard.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See also technical comment for correlation.

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*Cl* **52** *SC* **52.14.1** *P* **441** *L* **8** # **732**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A**

Wrong standard!

*SuggestedRemedy*

Change "802.3z-199x" to "802.3ae-200x".

*Proposed Response* *Response Status* **C**

ACCEPT.

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*Cl* **52** *SC* **52.14.1** *P* **441-442** *L* **8** # **416**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Make sure that the PICS refers to the correct standard.

*SuggestedRemedy*

Replace "IEEE Std 802.3z-199x" with "IEEE Std 802.3ae-200x" in three places:
- Page 441, line 8.
- Page 442, line 4.
- Page 442, line 12.

*Proposed Response* *Response Status* **C**

ACCEPT.

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*Cl* **52** *SC* **52.2** *P* **405** *L* **15** # **298**

Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **R**

It should be made clear that loopback functionality is optional.

*SuggestedRemedy*

In table 52-3 column 4 row 3 change to PMD_loopback (optional)

*Proposed Response* *Response Status* **C**

REJECT. This is stated in the text and need not be restated in the table, if only in one place (if desired, commenter should resubmit and suggest the first column reference be changed instead).

*Cl* **52** *SC* **52.2** *P* **405** *L* **6** # **217**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **R**

It would be good to clarify the intent of the MDIO whithin which each individual entry is optional

*SuggestedRemedy*

Add a sentence above Table 52-3 "The PMD can optionally implement any or all of these variables in the MDIO."

*Proposed Response* *Response Status* **C**

REJECT. Not all functions and variables are optional.

*Cl* **52** *SC* **52.2** *P* **405** *L* **6** # **72**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **R**

It would be good to clarify the intent of the MDIO whithin which each individual entry is optional

*SuggestedRemedy*

Add a sentence above Table 52-3 "The PMD can optionally implement any or all of these variables in the MDIO."

*Proposed Response* *Response Status* **C**

REJECT. Duplicate 217.

*Cl* **52** *SC* **52.2** *P* **428** *L* **Table 52-6** # **765**

Ali Ghiasi — Broadcom

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

Extinction ratio of 3 dB adds too much penalty to the receiver.

*SuggestedRemedy*

Increase the min extiction ratio to 5-6 dB.

*Proposed Response* *Response Status* **C**

REJECT. Assuming reference should be to Table 52-9 (SR/SW receive characteristics). As #766.

At this point I think we would like more information on what penalties the commenter refers to. We have not changed the required noise performance of the receiver. All it has to do is support higher "DC light" levels (except we
have protected the overload point too).

*Cl* **52** *SC* **52.3.3** *P* **406** *L* **39** # **830**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Rx side shows "(rx_bit)" Tx side does not show "(tx_bit)"

*SuggestedRemedy*

Suggest making these consistent.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Keep the bit.

*Cl* **52** *SC* **52.3.4** *P* **406** *L* **41** # **540**

Tim Warland — Nortel Networks

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

The requirement to have the signal_detect from the PMD layer mandatory, and the sync_error from the PMA layer optional is counter-intuitive. Greater system benefit could be realized by swapping these requirements.As stated in Clause 52 section 52.3.4 " The PMD receiver is not required to verify whether a compliant 10GBASE-SR/LR/ LW/SW/ER/EW signal is being received" when generating the signal detect OK. In fact assuming that the receive optical signal has sufficient spectral density at the wavelength of the receiver, the signal detect shall transition to OK. From the perspective of Clause 52, the signal detect does not indicate that the signal can be recovered by any other functions as described by this document. Only that the spectral power is sufficient.Furthermore, the detection of signal detect within the PMD device adds complexity to these devices in terms of extra logic with a corresponding increase in power consumption and potentially a decrease in reliability.The PMA device is required to lock to the frequency range of the incoming electrical, serial stream. When synchronization is achieved, the data presented at the XSBI is a valid representation of the incoming optical signal. Failure to achieve synchronization indicates that the optical signal does not meet the requirements as defined for this PMA type. A sync_error OK indication to the WIS or PCS layer is a quality indicator that these higher level functions should attempt to further decode the recovered signal.>From my experience, most PLL devices (such as those implementedfor a PMA) contain a synchronization error output signal which is used as a minimum for test purposes. The impact on logic and complexity to make a sync_error output mandatory is therefore minimal. The probability of false lock in the event of loss of optical input power is low for modern processes. However in the unlikely event that false lock occurs, the risk to higher level functions is equal to the current risk due to the low information content in the currently defined signal_detect function (which allows arbitrary frequencies). In essence, the sync_error signal covers both the signal detect function (by default) and the frequency detect function.At the system level, the sync_error signal can still be used for a front panel LED, now indicating that the incoming optical signal is either below threshold power OR at an incompatible frequency.

*SuggestedRemedy*

Change signal detect functional requirement to optional.

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn

*Cl* **52** *SC* **52.3.4** *P* **406** *L* **51** # **154**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Two full stops after "parameter".

*SuggestedRemedy*

erase one.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.3.4** *P* **406** *L* **51** # **831**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Double period at end of line.

*SuggestedRemedy*

Remove extra period.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.3.4** *P* **406** *L* **51** # **407**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Delete the extra "." at the end of the sentence.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.3.4** *P* **407** *L* **8** # **299**

Tim Warland Nortel Networks

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

The PMD can not determine if the incoming signal is compliantwith 10GBASE-SR/LR/LW/SW/ER/EW. The PMD can't detect frequency nor traffic type. Having this as a requirement for signal detect can not be verified by the PMD. Section 52.3.4 also says the PMD can not verify compliance. Remove this requirement from table 52-5

*SuggestedRemedy*

delete the line AND compliant with 10GBASE- SR/LR/LW/SW/ER/EW signal input from table 52-5.

*Proposed Response* *Response Status* **C**

REJECT. However no change is needed in the text. It is agreed that the PMD can not determine if the incoming signal is a valid signal. However that is precisely why the table was written that way. If the power is high but the signal is not valid this would be part of "all other conditions" and the signal detect is Unspecified ie it could be either OK or Fail. If the proposed change were made then the signal detect would have to be asserted in the presence of light but no modulation, or very low frequency modulation which would not allow many implementations.

*Cl* **52** *SC* **52.3.4** *P* **408** *L* **14** # **696**

Dawe, Piers Agilent

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

Cleaning up interaction of signal detect and loopback

*SuggestedRemedy*

Delete "" " and SIGNAL_DETECT shall be set to OK". (and spell inidcate( right!)

*Proposed Response* *Response Status* **C**

REJECT. Duplicate of 208

*Cl* **52** *SC* **52.3.4** *P* **408** *L* **14** # **208**

Dawe, Piers Agilent

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

Cleaning up interaction ofsignal detect and loopback

*SuggestedRemedy*

Delete ", and SIGNAL_DETECT shall be set to OK". (and spell inidcate( right!)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 742.

*Cl* **52** *SC* **52.3.6** *P* **407** *L* **42** # **408**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Style.

*SuggestedRemedy*
Replace "an" with "a".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.3.7** *P* **408** *L* **1** # **409**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Style.

*SuggestedRemedy*
Replace "an" with "a".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.3.7** *P* **408** *L* **5** # **218**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
Cross-reference does not exist

*SuggestedRemedy*
Replace 45.2.1.4.5 with 45.2.1.5.3

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.3.7** *P* **408** *L* **5** # **71**
Tom Mathey Independent

*Comment Type* **E** *Comment Status* **A**
Incorrect reference.

*SuggestedRemedy*
~5 Change reference from 45.2.1.4.5 to 45.2.1.5.5. ~10 Change reference from 45.2.1.4.2 to 45.2.1.5.6. ~13 Add verb OareO to sentence as Oare conveyedO.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.3.7** *P* **408** *L* **5** # **73**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
Cross-reference does not exist

*SuggestedRemedy*
Replace 45.2.1.4.5 with 45.2.1.5.3

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.3.8** *P* **408** *L* **10** # **74**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
Cross-reference does not exist

*SuggestedRemedy*
Replace 45.2.1.4.2 with 45.2.1.5.6

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.3.8** *P* **408** *L* **10** # **219**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
Cross-reference does not exist

*SuggestedRemedy*
Replace 45.2.1.4.2 with 45.2.1.5.6

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 74.

*Cl* **52** *SC* **52.3.8** *P* **408** *L* **13** # **410**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Style.

*SuggestedRemedy*
Insert "are" between "PMD_UNITDATA.request(tx_bit)" and "conveyed".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.4** *P* **408** *L* **21** # **171**

Williams, Trevor — Intel

*Comment Type* **E** *Comment Status* **A**

the line (e.g., a 50um solution operating at 80 meters meets the meets the minimum range requirement of 2 to 65 meters) is not complete. There are no 50um solutions that have minimum distance of 65 meters.

*SuggestedRemedy*

change line to (e.g., a 50um/400 MHz.Km solution operating at 80 meters meets the meets the minimum range requirement of 2 to 69 meters)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See technical comment.

---

*Cl* **52** *SC* **52.4** *P* **408** *L* **22-23** # **411**

Shimon Muller — Sun Microsystems, Inc

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

The example in the parenthesis specifies the wrong operating range. Furthermore,it is not clear to which entry in Table 52-6 it refers to.

*SuggestedRemedy*

Change the text in the parenthesis to read as follows:
"(e.g., a 50um 400 MHzKm solution operating at 80 meters meets the minimum range requirement of 2 to 69 meters)."

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.4** *P* **408** *L* **23** # **122**

Swanson, Steve — Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

50um example uses a range different than that in Table 52-6, which could be confusing.

*SuggestedRemedy*

"...65 meters)." should read "...69 meters)."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See technical comment.

---

*Cl* **52** *SC* **52.4** *P* **408** *L* **23** # **524**

Ohlen, Peter — Optillion

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

"65" (line 23) should be the same as "69" (line 34).

*SuggestedRemedy*

Change both lines to "65" or "69", whichever is the right number.

*Proposed Response* *Response Status* **C**

PROPOSED ACCEPT. 65m is correct number.

---

*Cl* **52** *SC* **52.4** *P* **408** *L* **23** # **832**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

65 meters does not match table below

*SuggestedRemedy*

Change the 65 to 69 and ad 400 MHz*km to the 50 um in the parenthetical statement.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See technical comment.

---

*Cl* **52** *SC* **52.4** *P* **408** *L* **31-37** # **770**

Robert Dahlgren — Silicon Valley Photonic

*Comment Type* **E** *Comment Status* **R**

The minimum length for shortwave, multimode fiber should be 0.5meters, to be in line with the 10 Gbps Fiber Channel standard currentlyunder development by www.T11.orgAt the February T11.2 optical PHY meeting in Huntington Beach, presentationswere made to T11.2 by cable, transceiver, and system members. Thesepresentations and the ensuing discussion answered many questions andidentified no show-stoppers. The document numbers for the presentations areT11/01-037v0, T11/01-038v0, T11/01-039v0, and T11/01-145v0For < 10 Gbps, there is currently a public review comment to reduce the minimum length to 0.5 meters for shortwave multimode fiber as an editorial change, which is T11/01-038v1.

*SuggestedRemedy*

Change the minimum distance in Table 52-6 from 2 meters to 0.5 meters.

*Proposed Response* *Response Status* **C**

REJECT. This is a technical comment, but editor does not agree that quoted references (which were presented by him) support 10G operation at 0.5 m minimum length, but rather lower speed operation at 0.5 m.

*Cl* **52** *SC* **52.4** *P* **410** *L* **7-8** # **10**

Del Hanson Tripath Technology

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

It is inconsistent and confusing to specify OMA (mW) and OMA/2 (dBm) in Table 52-8 and OMA for both cases in Launch power (min) shown in Table 52-6.

*SuggestedRemedy*

Convert Table 52-8 data to OMA.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.4.1** *P* **408** *L* **44** # **836**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Usually, we do not put "(min)" and "(max)" in the description text. Ditto in p411 line 34 and various other places (p 413 line 29; p 415 line 34)....

*SuggestedRemedy*

Remove. throughout text where this is clear in the specification in the tables.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace with complete words maximum and minimum. (just for clarity).

*Cl* **52** *SC* **52.4.1** *P* **409** *L* **11** # **833**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Clock tolerance missing "(max)"

*SuggestedRemedy*

Add (max) Ditto in Table 52-9; 52-14

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Editor thought tolerance implicitly included (max).

*Cl* **52** *SC* **52.4.1** *P* **409** *L* **14** # **705**

Dawe, Piers Agilent

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

In the case of 10GBASE-SR/SW the Trise/Tfall criterion effectively overrides the transmit eye mask being a little more demanding.while interesting for design is redundant as a specification item here. This extra item above what SONET requires could add to the cost of 10GE. The eye mask assures eye quality and the jitter mask assures jitter. The receiver doesn't care about risetime per se " but eye opening and jitter. Let's make things a little simpler / easier /cheaper to verify the standard and build the hardware.

*SuggestedRemedy*

Consider deleting the line "Trise /Tfall (max" " 20-80% response time) 35 ps" and making the eye mask for 10GBASE-SR/SW more like the 1GE mask (would mean defining mask corners in tables 52-7" 12 17).

*Proposed Response* *Response Status* **C**

REJECT. Send to Serial PMD ad hoc for investigation.

*Cl* **52** *SC* **52.4.1** *P* **409** *L* **32** # **834**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

"transmit disable" should be "PMD_transmit_disable_0"

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.4.1** *P* **410** *L* **11-23** # **209**

Paul Kolesar Lucent

*Comment Type* **T** *Comment Status* **A** *840*

Table 52-8 allows center wavelengths shorter than that specified in Tables 52-7 and 52-9. The limits established for the center wavelength range in Tables 52-7 and 52-9 are compatible with the modal and chromatic dispersion requirements of 2000 MHz-km 50 um MMF.

*SuggestedRemedy*

Delete rows containing wavelengths shorter than 840 nm.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.4.1** *P* **410** *L* **8** # **835**

Jonathan Thatcher World Wide Packets

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

Use of OMA/2 (dBm) for the Tx specification and OMA (dBm) for the Rx (see page 412; line 2) is inconsistent and confusing.

*SuggestedRemedy*

Choose one of:
1. Change all OMA references to OMA(dBm) or
2. Change all OMA references to OMA/2(dBm) and use consistently throughout clause 52.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Use OMA.

*Cl* **52** *SC* **52.4.1** *P* **411** *L* **1** # **210**

Paul Kolesar Lucent

*Comment Type* **T** *Comment Status* **A** *840*

Figure 52-3 allows center wavelengths shorter than that specified in Tables 52-7 and 52-9. The limits established for the center wavelength range in Tables 52-7 and 52-9 are compatible with the modal and chromatic dispersion requirements of 2000 MHz-km 50 um MMF.

*SuggestedRemedy*

Delete data points containing wavelengths shorter than 840 nm.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.4.1** *P* **452** *L* **6,7,37,38** # **270**

Erik van Oosten Lucent Technologies

*Comment Type* **TR** *Comment Status* **A** *20ppm*

The specified frequency accuracy for the 3 Serial WAN PHYs in Clause 52 (10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) is +/- 100 ppm (currently Tables 52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25), though it was stated at the March, 2001 IEEE802.3ae meeting that Clause 52 is not the correct place where this should be specified and the frequency accuracy specification will be moved to the appropriate Clause. Any interworking with a SONET network, whose frequency accuracy is +/- 20 ppm, is intended to occur through an Ethernet Line Terminating Element (ELTE); this element would, among other things, have a pull-in range of at least +/- 100 ppm and any frequency difference would be taken up by pointer adjustments (the ELTE would terminate the SONET Line section), whose rate could be as high as 650 pointers/s.One of the reasons for developing the WAN PHY specifications was to, as stated in the PAR, enable the use of 10 GbE over wide area networks operating at rates compatible with OC-192c and VC-4-64c payload rates. These wide area networks include SONET, SDH, and the Optical Transport Network (OTN). The OTN is specified in the recently approved ITU-T Recommendation G.709, and allows for multiple optical channels (i.e., DWDM) at rates of approximately 2.5, 10, and 40 Gbit/s.The March 30, 2001 liaison from Technical Subcommittee T1X1 to IEEE 802.3 Working Group summarizes the adverse impact of the +/- 100 ppm frequency accuracy for the WAN PHY on interworking with SONET, SDH, and OTN wide area networks (the technical details are contained in the Annex of the liaison). The liaison indicates that the carrier community represented in T1X1 sees a significant business opportunity in the transport of 10 GbE in metropolitan and long-haul networks, and that the relative cost impact of using a 20 ppm oscillator (relative to the IEEE 802.3ae target cost of 10 GbE equipment) is less than 1% over the cost for a 100 ppm implementation. T1X1 requests in the liaison that the line rate tolerance for 10 GbE be changed to +/- 20 ppm.We concur with T1X1, and believe the line rate tolerance for 10 GbE WAN PHY should be changed to +/- 20 ppm.

*SuggestedRemedy*

Change the line rate tolerance for the three Serial WAN PHYs (i.e., for 10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) from +/- 100 ppm to +/- 20 ppm. Make the change in the above Tables (52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25) and/or whatever appropriate clause and subclauses this specification is eventually moved to (e.g., Clause 49).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 661.

*Cl* **52** *SC* **52.4.2** *P* **412** *L* **17** # **300**

Tim Warland Nortel Networks

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

The average maximum detectable receive power is specified for the PMD type. For completeness also specify the maximum receiver power (for damage) as is done for 10GBase-ER/EW.

*SuggestedRemedy*

Add maximum receiver power (for damage) to Table 52-9.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Rather than another line in the table, we would prefer to add words in a footnote to the table to say that the damage spec and overload spec are the same.

*Cl* **52** *SC* **52.4.2** *P* **412** *L* **19** # **837**

Jonathan Thatcher World Wide Packets

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

Also line 23 and 25; Ditto Table 52-12; 14; 17; 18; etc. "min" and "max" missing from a variety of tables specifications.

*SuggestedRemedy*

Add in ever case where missing.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.4.2** *P* **456-457** *L* **11-13 (p.4** # **271**

Erik van Oosten Lucent Technologies

*Comment Type* **TR** *Comment Status* **A** *20ppm*

See comment for Subclause 52.4.1, p.452, lines 6,7,37,38

*SuggestedRemedy*

Change the line rate tolerance for the three Serial WAN PHYs (i.e., for 10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) from +/- 100 ppm to +/- 20 ppm. Make the change in the above Tables (52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25) and/or whatever appropriate clause and subclauses this specification is eventually moved to (e.g., Clause 49).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 661.

---

*Cl* **52** *SC* **52.4.3** *P* **413** *L* **3** # **172**

Williams, Trevor Intel

*Comment Type* **E** *Comment Status* **A**

definition for Channel Insertion Loss does not exist in section 1.4

*SuggestedRemedy*

Add Channel Insertion Loss to section 1.4

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Don't know what this reference is to. Might need to delete.

---

*Cl* **52** *SC* **52.4.3** *P* **413** *L* **5** # **80**

Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R** *840*

Wavelength consistency should be made with table 52-8

*SuggestedRemedy*

Replace 840 with 830

*Proposed Response* *Response Status* **C**

REJECT. See technical comment.

---

*Cl* **52** *SC* **52.4.3** *P* **413** *L* **5** # **225**

Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R** *840*

Wavelength consistency should be made with table 52-8

*SuggestedRemedy*

Replace 840 with 830

*Proposed Response* *Response Status* **C**

REJECT. Duplicate 80.

---

*Cl* **52** *SC* **52.4.3** *P* **429** *L* **47** # **11**

Del Hanson Tripath Technology

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

Using Table 52-8 trade-off data, it is not correct to list the Link power budget as 7.5 dB in Table 52-10. The note added after Table 52-10 to use 840 nm data to calculate channel parameters does not solve the problem since the power level varies across the row. In general, the Table 52-8 specification trade-off process calls into question the presentation of power budget and penalties in Table 52-10.

*SuggestedRemedy*

If Table 52.8 is retained in the specification, pick a cell in Table 52.8 and provide adequate explanation for how it is to be used in calculating the data in Table 52-10.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Pick 0.4 nm and 840 nm entry.

*Cl* **52** *SC* **52.5** *P* **413** *L* # **521**

Ohlen, Peter — Optillion

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

TThe RMS spectral width is not very relevant for single-mode lasers. Also, the measurement method we refer to applies to multi-mode lasers, not single mode lasers, which could give an impression that we have not read what we are refering to.

*SuggestedRemedy*

Someone, come up with a good idea, please. I tried to find a TIA standard wiht a measurement method for single-mode lasers, with no success.

*Proposed Response* *Response Status* **C**

REJECT. No remedy.

*Cl* **52** *SC* **52.5** *P* **413** *L* **12** # **129**

Swanson, Steve — Corning Incorporated

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

Single-mode fiber designation does not reflect current installed base of single-mode fibers.

*SuggestedRemedy*

Replace "...Type B1 fiber..." with "...Types B1.1, B1.3, and B4 fibers..."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Choose to change: Replace "...Type B1 fiber..." with "...Types B1.1 and B1.3 fibers..."

*Cl* **52** *SC* **52.5** *P* **413** *L* **12** # **412**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Clarity.

*SuggestedRemedy*

Insert "single mode" between "Type B1" and "fiber".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.5** *P* **416** *L* **7-8** # **12**

Del Hanson — Tripath Technology

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

It is inconsistent and confusing to specify OMA (mW) and OMA/2 (dBm) in Table 52-13 and OMA for both cases for Launch power (min) in Table 52-12.

*SuggestedRemedy*

Convert Table 52-13 data to OMA.

*Proposed Response* *Response Status* **C**

ACCEPT. Choose OMA only.

*Cl* **52** *SC* **52.5** *P* **417** *L* **46** # **13**

Del Hanson — Tripath Technology

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

Using Table 52-13 trade-off data, it is not correct to list the Link power budget as 10.0 dB in Table 52-15. The note added after Table 52-15 to use 1290 nm data to calculate channel parameters does not solve the problem since the power level varies across the row. In general, the Table 52-13 specification trade-off process calls into question the presentation of power budget and penalties in Table 52-15.

*SuggestedRemedy*

If Table 52-13 is retained in the specification, pick a cell in Table 52-13 and provide adequate explanation for how it is to be used in calculating the data in Table 52-15.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Pick box 1290-1295 nm, >0.477 mW

*Cl* **52** *SC* **52.5** *P* **433** *L* **Table 52-1** # **766**

Ali Ghiasi — Broadcom

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

Extinction ratio of 4 dB adds too much penalty to the receiver.

*SuggestedRemedy*

Increase the min extiction ratio to 6 dB.

*Proposed Response* *Response Status* **C**

REJECT. See 765.

*Cl* **52** *SC* **52.5** *P* **436** *L* **Table 52-1** # **767**

Ali Ghiasi — Broadcom

*Comment Type* **E** *Comment Status* **R**

Add a line to allow 1550 operation to future proof with technology migration.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. Technical comment, rejected in committee vote.

*Cl* **52** *SC* **52.5.1** *P* **413** *L* # **525**

Ohlen, Peter — Optillion

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

Right now we are using a trade-offs for the 1310nm serial PMD. These are based on a model which was developed originally developed for multi-mode systems, and some of the parameters are the most relevant for single-mode systems. We might want to consider specifying the 1310 serial PMD in a similar way as 1550nm PMD, based on a dispersion penalty. As always, an implementor can choose to guarantee this spec point by design or measurement.

*SuggestedRemedy*

Remove the RMS spectral width & rise/fall time spec. points and use a dispersion penalty measurement as it is done in the 1550mn case. By the way, this is the same approach that SONET takes in G.691.

*Proposed Response* *Response Status* **C**

REJECT. See 527.

---

*Cl* **52** *SC* **52.5.1** *P* **413** *L* **32** # **21**

Cobb, Terry — Lucent Technologies

*Comment Type* **E** *Comment Status* **A**

Table 52-12 separated

*SuggestedRemedy*

Move to next page

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.5.1** *P* **414** *L* # **707**

Dawe, Piers — Agilent

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

While we are familiar with calculating RMS Spectral Width it is difficult to measure for really narrow widths and not the appropriate measure for singe mode lasers. The industry standard full width " -20 dB spec may not be a sufficient condition (our triple trade off curves attempt to provide that) but should not be a burden. To keep costs down we should follow standard practice.This comment is a placeholder: "The Serial PMD ad hoc has been requested to come back at the May interim with a proposal for resolution of this issue".

*SuggestedRemedy*

Add entry to table 52-12: FWHM width maximum 1 nm at -20 dB.

*Proposed Response* *Response Status* **C**

REJECT. Not FWHM, need spreadsheet based on FW-20 dB down instead, don't have.

---

*Cl* **52** *SC* **52.5.1** *P* **414** *L* **12** # **706**

Dawe, Piers — Agilent

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

The wide range of acceptable Tx average powers is said to make difficulties in building/maintaining networks with cost-effective test equipment. To ease this slightly and for clarity I suggest we re-introduce the Average launch power (min) criterion at -4.5 dBm.

*SuggestedRemedy*

Add line to table: Average launch power (min) -4.5 dBm.Suggest also rebuild tables 52-7 12 17 with separate columns for Minimum and Maximum.

*Proposed Response* *Response Status* **Z**

REJECT. Withdrawn.

---

*Cl* **52** *SC* **52.5.1** *P* **414** *L* **7** # **697**

Dawe, Piers — Agilent

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

Calculations indicate that in the case of 10GBASE-LR/LW the Trise/Tfall criterion while interesting for design is redundant as a specification item here. This extra item above what SONET requires could add to the cost of 10GE. The eye mask assures eye quality and the jitter mask assures jitter. The receiver doesn't care about risetime per se " but eye opening and jitter. Let's make things a little simpler / easier /cheaper to verify the standard and build the hardware.

*SuggestedRemedy*

Delete the line "Trise /Tfall (max" " 20-80% response time) 40 ps".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Change is made. Add an editor's note describing the change (remove risetime) with the intent to finalize this at the July meeting barring negative feedback during the recirculation

23 for, 3 against, 10 abstain.

---

*Cl* **52** *SC* **52.5.1** *P* **415** *L* **2** # **708**

Dawe, Piers — Agilent

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

We have discovered a better way to present this information graphically.

*SuggestedRemedy*

Instead of plotting spectral width vs. wavelength with OMA as a parameter plot OMA vs. wavelength with spectral width with OMA as a parameter. Use spectral width = 0.1 0.2 0.3 0.4 um. Values higher or lower than this range are misleading.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. However values of RMS spectral width of 0.05, 0.1, 0.15 and 0.2nm would be more appropriate.

*Cl* **52** *SC* **52.5.1** *P* **416** *L* **1** # **709**

Dawe, Piers — Agilent

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

Table 52-13 has propagated an error in calculation from a previous draft: the curves should have been extrapolated from wavelength 1290 nm spectral width 0.4 nm and show 1290 nm 0.5 nm. It appears that no-one is proposing spectral widths as large as 0.4 nm and we have better things to do with a couple of tenths of a dB than allow for this. I suggest extrapolating the curves from 1290 nm 0.2 nm.

*SuggestedRemedy*

Recalculate table 52-13 extrapolating from 1290 nm 0.2 nm.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 708.

---

*Cl* **52** *SC* **52.5.1** *P* **461** *L* **6,7,36** # **272**

Erik van Oosten — Lucent Technologies

*Comment Type* **TR** *Comment Status* **A** *20ppm*

See comment for Subclause 52.4.1, p.452, lines 6,7,37,38

*SuggestedRemedy*

Change the line rate tolerance for the three Serial WAN PHYs (i.e., for 10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) from +/- 100 ppm to +/- 20 ppm. Make the change in the above Tables (52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25) and/or whatever appropriate clause and subclauses this specification is eventually moved to (e.g., Clause 49).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 661.

---

*Cl* **52** *SC* **52.5.2** *P* **417** *L* **17** # **301**

Tim Warland — Nortel Networks

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

The average maximum detectable receive power is specified for the PMD type. For completeness also specify the maximumreceiver power (for damage) as is done for 10GBase-ER/EW.

*SuggestedRemedy*

Add maximum receiver power (for damage) to Table 52-14.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 300

---

*Cl* **52** *SC* **52.5.2** *P* **417** *L* **23** # **520**

Ohlen, Peter — Optillion

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

The stressed sensitivity is wrong. Probably a typo when we changed from OMA/2 to OMA.

*SuggestedRemedy*

Change "-11.68" to "-10.68".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 234 to ensure no conflicting edits.

---

*Cl* **52** *SC* **52.5.2** *P* **464-465** *L* **11-13 (p.4** # **273**

Erik van Oosten — Lucent Technologies

*Comment Type* **TR** *Comment Status* **A** *20ppm*

See comment for Subclause 52.4.1, p.452, lines 6,7,37,38

*SuggestedRemedy*

Change the line rate tolerance for the three Serial WAN PHYs (i.e., for 10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) from +/- 100 ppm to +/- 20 ppm. Make the change in the above Tables (52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25) and/or whatever appropriate clause and subclauses this specification is eventually moved to (e.g., Clause 49).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 661.

---

*Cl* **52** *SC* **52.5.3** *P* **417** *L* **52** # **710**

Dawe, Piers — Agilent

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

Unallocated margin will change following revisions to interferometric noise risetime " triple trade off and traetment of receiver eye opening penalty in "box level spec" (placeholder comment).

*SuggestedRemedy*

Update unallocated margin and vertical eye closure penalty" stressed Rx sensitivity above to TBD TBD.

*Proposed Response* *Response Status* **C**

REJECT. Need new numbers.

*Cl* **52** *SC* **52.5.3** *P* **418** *L* **1** # **173**

Williams, Trevor — Intel

*Comment Type* **E** *Comment Status* **A**

Channle Insertion Loss definition does not exist in Section 1.4

*SuggestedRemedy*

Add Channel Insertion Loss to Section 1.4

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Need to insert correct reference…

*Cl* **52** *SC* **52.6** *P* **438** *L* **Table 52-1** # **768**

Ali Ghiasi — Broadcom

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

Extinction ratio of 3 dB is adding too much penalty to the receiver and does not allow the use of optical amplifier for longer distance operation.

*SuggestedRemedy*

Increase the min extinction ratio to 6 dB.

*Proposed Response* *Response Status* **C**

REJECT. See 765.

*Cl* **52** *SC* **52.6.1** *P* **418** *L* **26** # **86**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **A**

It would be good to clarify this sentence as "attenuation" might refer to the attenuator's attenuation.

*SuggestedRemedy*

Change "The ideal attenuation" to "The ideal channel attenuation"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.6.1** *P* **418** *L* **26** # **231**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **R**

It would be good to clarify this sentence as "attenuation" might refer to the attenuator's attenuation.

*SuggestedRemedy*

Change "The ideal attenuation" to "The ideal channel attenuation"

*Proposed Response* *Response Status* **C**

REJECT. Duplicate 86.

*Cl* **52** *SC* **52.6.1** *P* **418** *L* **27** # **158**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Two full stops after "region".

*SuggestedRemedy*

erase one.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.6.1** *P* **418** *L* **27** # **838**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Double period

*SuggestedRemedy*

Remove extra period

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.6.2** *P* **419** *L* **17** # **711**

Dawe, Piers — Agilent

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

Do we need Trise or in the case of 10GBASE-ER/EW " is the eye measurement at "both ends of the link" enough?

*SuggestedRemedy*

Discuss and if appropriate" delete the line beginning Trise in table 52-17.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See also 522. Delete/fall times. Keep eye mask at TP2. Dispersion penalty & jitter at TP3.

*Cl* **52** *SC* **52.6.2** *P* **419** *L* **22** # **712**

Dawe, Piers — Agilent

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

"Dispersion penalty" is misnamed. This is serious enough to be more than editorial.

*SuggestedRemedy*

Rename "DP" and "Dispersion penalty" throughout Cl.52. esp. here and 52.8.13.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Choose "Transmitter and dispersion penalty" TDP for short.

*Cl* **52** *SC* **52.6.2** *P* **419** *L* **22** # **14**

Del Hanson — Tripath Technology

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

In Table 52-17, specifying Launch power (min) including the term "DP*" is confusing and not appropriate for a standard.

*SuggestedRemedy*

My preferred remedy is to delete DP. If a strong justification can be made to keep it, define its precise value andreference.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Change terminology of row title to "launch power min minus TDP", so that table value is just numerical. There are good motivations to keep this, attenuation margin and TDP often trade off. Change foot note to TDP according to 52.8.13.

*Cl* **52** *SC* **52.6.2** *P* **419** *L* **28** # **839**

Jonathan Thatcher — World Wide Packets

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

If Rin12OMA is measured with a -22 dB return loss, why isn't this Rin22OMA? See also 52.8.5

*SuggestedRemedy*

Help user understand apparent inconsistency: rename or explain in footnote or....

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Choose RINxOMA.

*Cl* **52** *SC* **52.6.2** *P* **419** *L* **28** # **15**

Del Hanson — Tripath Technology

*Comment Type* **E** *Comment Status* **A**

Table 52-17 has a note to make RIN measurements with 22 dB return loss, hence, the designation RIN12 is not correct.

*SuggestedRemedy*

Change the designation from RIN12 to RIN22.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Change to RIN21OMA.

*Cl* **52** *SC* **52.6.2** *P* **468-469** *L* **14-16 (p.4** # **274**

Erik van Oosten — Lucent Technologies

*Comment Type* **TR** *Comment Status* **A** *20ppm*

See comment for Subclause 52.4.1, p.452, lines 6,7,37,38

*SuggestedRemedy*

Change the line rate tolerance for the three Serial WAN PHYs (i.e., for 10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) from +/- 100 ppm to +/- 20 ppm. Make the change in the above Tables (52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25) and/or whatever appropriate clause and subclauses this specification is eventually moved to (e.g., Clause 49).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 661.

*Cl* **52** *SC* **52.6.4** *P* **470-471** *L* **11-13 (p.4** # **275**

Erik van Oosten — Lucent Technologies

*Comment Type* **TR** *Comment Status* **A** *20ppm*

See comment for Subclause 52.4.1, p.452, lines 6,7,37,38

*SuggestedRemedy*

Change the line rate tolerance for the three Serial WAN PHYs (i.e., for 10GBASE-SW, 10GBASE-LW, and 10GBASE-EW) from +/- 100 ppm to +/- 20 ppm. Make the change in the above Tables (52-8, 52-9, 52-11, 52-12, 52-15, 52-16, 52-18, 52-19, 52-22, 52-23, 52-24, and 52-25) and/or whatever appropriate clause and subclauses this specification is eventually moved to (e.g., Clause 49).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 661.

*Cl* **52** *SC* **52.7** *P* **420** *L* # **491**

Ohlen, Peter — Optillion

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

In several places, it is required that the receiver "shall have a 4th order Bessel-Thompson response". While this is common in oscilloscopes I don't know of any O/E+BERT systems which have the required frequency response. Such a system would also be required to with a good sensitivity because of some of the measurements.

*SuggestedRemedy*

This is a hard one. At best company A,B and C starts to sell these kind of things. We can't really make this happen with a simple vote though.

*Proposed Response* *Response Status* **C**

REJECT. No specific recommendation given. Although the reviewer fully agrees with the sentiment of the comment, it is not clear what other options exist or will exist. Appropriate instrumentation is a challenge for a standard for any new technology, and meeting this requirement should be possible and affordable.

*Cl* **52** *SC* **52.7** *P* **420** *L* # **518**

Ohlen, Peter Optillion

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

A "noiseless" jitter measurement for 1550 nm after 40 km of fiber can be hard to make. It is not unlikely that this measurement need to be performed on a regular basis, and the current writing probably means that a fairly complex extrapolation needs to be performed and/or a dedicated measurement station is needed for jitter test. Adds cost, but could potentially be simplified. The alternative would be to measure jitter with a _noisy_ signal. While you would not measure jitter as it is defined, you measure something which is closer to the operating condition of the link. Further, in this way the pulse/eye shape will give ot take margin in the same way it does in a real system.

*SuggestedRemedy*

Change the transmitter jitter measurement, e.g. the bathtub curve, to be made with a power level 1 or 2 dB higher than the power required to achieve a BER of 1e-12.

*Proposed Response* *Response Status* **Z**

REJECT. Withdrawn

*Cl* **52** *SC* **52.7.1** *P* **419** *L* **17** # **713**

Dawe, Piers Agilent

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

While for 10GBASE-ER/EW we don't need to specify the exact spectral width a basic requirement for a single mode source would probably be advisable. The industry standard full width -20 dB spec should not be a burden. To keep costs down we should follow standard practice.This comment is a placeholder.

*SuggestedRemedy*

Add entry to table 52-18: FWHM width maximum 1 nm at -20 dB.

*Proposed Response* *Response Status* **C**

REJECT. FWHM should be FW -20dB down. Adding spec. points does not help keeping costs down, even if they are probably "automatically" fulfilled if all other specs points are met. There is also the side-mode suppression ratio that is a basic sanity check for single-mode sources.

*Cl* **52** *SC* **52.7.1** *P* **420** *L* **44** # **714**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R**

Almost all this subclause is procedure not spec value and should be moved to Cl. 52.8.9. The exception is table 52-20 which could remain here or go into tables 52-7 12 17.

*SuggestedRemedy*

Re-order the text like other measurement topics.

*Proposed Response* *Response Status* **C**

REJECT. Procedure yes, measurement procedure no.

*Cl* **52** *SC* **52.7.1** *P* **420** *L* **50** # **514**

Ohlen, Peter Optillion

*Comment Type* **E** *Comment Status* **R**

Introduce what a bathtub curve is.

*SuggestedRemedy*

Insert:
The plot of BER as a function of sampling time (relative to the eye) is refered to as a BER "bathtub curve".

*Proposed Response* *Response Status* **C**

REJECT. This would be a new term, which seems to unnecessarily complicate the specification.

*Cl* **52** *SC* **52.7.1** *P* **421** *L* **26** # **513**

Ohlen, Peter Optillion

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

Can a BER have an eye opening?? I think not.

*SuggestedRemedy*

Remove "The bit error rate (BER) for ".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.7.1** *P* **421** *L* **29** # **840**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

line 29: comma followed by colon line 39: limited space between equations is confusing (ditto page 424, line 20) line 41: "where" should be "and" line 44: missing period.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.7.1, 52.7.2.3** *P* **421424** *L* # **517**

Ohlen, Peter Optillion

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

I recall that the A & B parameters resulted in a bathtub curve that is slightly different from the one you get with DJ=W & RJ_RMS=sigma.

*SuggestedRemedy*

Check numbers and modify as necessary. I will try to do this by the next meeting.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Choose A=-1.75. Remove equation.

*Cl* **52** *SC* **52.7.1.1** *P* **422** *L* **51** # **841**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**
This note needs to fixed/removed

*SuggestedRemedy*
See comment

*Proposed Response* *Response Status* **C**
REJECT. Remedy not complete. Suggest commenter resubmit with appropriate connection.

*Cl* **52** *SC* **52.7.1.1** *P* **422** *L* **52** # **134**
Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **R**
Footnote has an incomplete reference

*SuggestedRemedy*
Add correct reference.

*Proposed Response* *Response Status* **C**
REJECT. Need correct reference.

*Cl* **52** *SC* **52.7.1.1** *P* **423** *L* **17** # **842**
Jonathan Thatcher World Wide Packets

*Comment Type* **TR** *Comment Status* **A**
"ii) 0 (maximum)" makes no sense here since the "worst of" will always be "i)."

*SuggestedRemedy*
Remove it.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE.

Refine the text and table to make it clear that transceivers must meet specification under both dispersion conditions (and, not w/c of the two calculations).

*Cl* **52** *SC* **52.7.1.3** *P* **423** *L* **2635** # **496**
Ohlen, Peter Optillion

*Comment Type* **E** *Comment Status* **A**
This is really a description of the measurement apparatus, which should be in 52.8.9.

*SuggestedRemedy*
Delete "and has a .... 52.7.1.3." on p.431:12-13. Insert the text of section 52.7.1.3 instead. Also remove the reference to 52.7.1.3 on p. 431:14-15.Replace "in 52.7.1.3" with "as described above" or "52.8.9.1" on p. 431:46.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.7.1.3** *P* **423** *L* **30** # **302**
Tim Warland Nortel Networks

*Comment Type* **E** *Comment Status* **A**
Incorrect spelling Bessel-Thompson

*SuggestedRemedy*
Change to Bessel-Thomson

*Proposed Response* *Response Status* **C**
ACCEPT. Nice catch.. Missed this on the search-and-destroy.

*Cl* **52** *SC* **52.7.1.3** *P* **423** *L* **34** # **135**
Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **R**
Incomplete reference.

*SuggestedRemedy*
Add correct reference.

*Proposed Response* *Response Status* **C**
REJECT. Need correct reference.

*Cl* **52** *SC* **52.7.1.3** *P* **423** *L* **34** # **843**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**
Line 34: Reference needs to be fixed
Line 36: For consistency, Receiver should be "Receive"
Line 38: The jitter compliance methodology is not defined in 49.2.12

*SuggestedRemedy*
Fix

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Need correct reference.

*Cl* **52** *SC* **52.7.1.3** *P* **423** *L* **34** # **801**
Henry Hinrichs Pulse Inc.

*Comment Type* **E** *Comment Status* **A**
"section XXXXX" is not a valid section number.

*SuggestedRemedy*
I think the correct reference is section 52.8.9.4.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.7.2** *P* **423** *L* **36** # **715**
Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R**
Almost all this subclause is procedure not spec value and should be moved to Cl. 52.8.10. The exception is table 52-20 which could remain here or go into tables 52-7 12 17.

*SuggestedRemedy*
Re-order the text like other measurement topics.

*Proposed Response* *Response Status* **C**
REJECT. Procedure yes, measurement procedure no.

*Cl* **52** *SC* **52.7.2** *P* **423** *L* **38** # **533**
Ohlen, Peter Optillion

*Comment Type* **T** *Comment Status* **A**
The jitter compliance methodology in not defined in 49.2.12.

*SuggestedRemedy*
Remove the first sentence in 52.7.2.

*Proposed Response* *Response Status* **C**
ACCEPT. Not clear how this reference ever occurred.

*Cl* **52** *SC* **52.7.2** *P* **423** *L* **38** # **91**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
The Jitter compliance methodology for the receiver is not defined in 49.2.12.

*SuggestedRemedy*
Delete the sentence "The jitter methodology...."

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.7.2** *P* **423** *L* **38** # **236**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
The Jitter compliance methodology for the receiver is not defined in 49.2.12.

*SuggestedRemedy*
Delete the sentence "The jitter methodology...."

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 91.

*Cl* **52** *SC* **52.7.2** *P* **423** *L* **39** # **515**
Ohlen, Peter Optillion

*Comment Type* **T** *Comment Status* **A**
Refer to the measurement method described in 52.8.10.

*SuggestedRemedy*
Insert"according to 52.8.10" before "with an input"

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.7.2.1** *P* **423** *L* **43** # **493**
Ohlen, Peter Optillion

*Comment Type* **E** *Comment Status* **A**
This is already specified in 52.8.11.

*SuggestedRemedy*
Remove section 52.7.2.1.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.7.2.2** *P* **423** *L* **50** # **93**
Dudek, Mike Cielo Communications

*Comment Type* **TR** *Comment Status* **R**
When performing this test a CDR function must be included in the Rx. The RxEye penalty in the spread sheet would be double counted as the document now stands. The 0.2dB needs to be compensated for the 0.4dB RxEye penalty

*SuggestedRemedy*
Replace "0.2" with "0.6"

*Proposed Response* *Response Status* **C**
REJECT. Withdrawn.

*Cl* **52** *SC* **52.7.2.2** *P* **423** *L* **50** # **238**

Dudek, Mike — Cielo Communications

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

When performing this test a CDR function must be included in the Rx. The RxEye penalty in the spread sheet would be double counted as the document now stands. The 0.2dB needs to be compensated for the 0.4dB RxEye penalty

*SuggestedRemedy*

Replace "0.2" with "0.6"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Solved by 234.

---

*Cl* **52** *SC* **52.7.2.2** *P* **423** *L* **53** # **492**

Ohlen, Peter — Optillion

*Comment Type* **E** *Comment Status* **A**

This should be specified in 52.8.11 to keep everything in one place.

*SuggestedRemedy*

Remove "The vertical ...." on p.423:53-54.Insert "prior to addition of the sinusoidal jitter" between "The vertical eye closure penalty" & "shall" on p. 434:43.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Some further wordsmithing is necessary.

---

*Cl* **52** *SC* **52.7.2.2** *P* **424** *L* **1-2** # **494**

Ohlen, Peter — Optillion

*Comment Type* **E** *Comment Status* **A**

This is already specified in 52.8.11.

*SuggestedRemedy*

Remove line 1-2 on p. 424.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.7.2.3** *P* **424** *L* **47** # **526**

Ohlen, Peter — Optillion

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

RJ frequency spectrum:As currently written, the RJ "shall have auniform spectral content over the measurement frequency range of 40 kHzto 5 GHz." The low frequency jitter is tested with sinusoidal jitter ofmuch larger amplitude than the specified RJ corresponds to, so what dowe gain by requiring the RJ to go down to 40 kHz. Is not themid-frequency range the most relevant for RJ testing. Very highfrequency RJ would not infuence the PLL significantly.

*SuggestedRemedy*

Change:"The random jitter (RJ) component of the input signal shall have uniform spectral content over the measure-ment frequency range of 40 KHz to 5 GHz"to:"The random jitter (RJ) component of the input signal should have uniform spectral content over the measurement frequency range of at least 1 MHz to 80 MHz"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Reviewer believes the intent of the spec is that effectively all the RJ component should be above the tracking corner frequency of the PLL under test. Broadband noise sources below 1 MHz are less common and not necessary. Upper frequency limit is not important as long as the intent in this first sentence is met. Uniform frequency generation, although typical, is not required. Gaussian response out to >7sigma IS required and may be the toughest challenge.

Change:"The random jitter (RJ) component of the input signal shall have uniform spectral content over the measure-ment frequency range of 40 KHz to 5 GHz"to:"The random jitter (RJ) component of the input signal should have uniform spectral content over the measurement frequency range of at least 1 MHz to 1 GHz"

---

*Cl* **52** *SC* **52.7.2.3** *P* **424** *L* **50** # **501**

Ohlen, Peter — Optillion

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

The text beginning at the end of line 50 describes the measurement apparatus and should be moved to 52.8.10.1 (p. 432:41). This is actually the only place which references the said text.

*SuggestedRemedy*

Move the text "If a PLL is used .... .... ... in section 52.8.6." to p. 432:41.

*Proposed Response* *Response Status* **C**

REJECT. The frequency corner, slope and Bessel Thomson filter are a normative part of the spec rather than the measurement

7 for
2 against

*Cl* **52** *SC* **52.7.2.3** *P* **424** *L* **6** # **502**

Ohlen, Peter — Optillion

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

I do not think it is clear wheather the jitter mask for RX testing applies before or after the sinusoidal jitter is added.

*SuggestedRemedy*

Insert as appropriate"(without the added sinusoidal jitter)"or"(including the added sinusoidal jitter)"after"The input jitter".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Reviewer agrees the present wording should be clarified and believes the intent is that the bathtub mask is to be applied before addition of sine jitter. Therefore, add the commentor's 1st option. Also, reviewer proposes that a sentence be added to the end of line 6 of sublcause 52.7.2.4: "Sinusoidal jitter shall be added to the test signal that complies with clause 52.7.2.3."

*Cl* **52** *SC* **52.7.2.3** *P* **424** *L* **645** # **756**

Ewen, John — IBM

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

The jitter mask of Figure 52-7 combined with the added sinusoidal jitter (Subclause 52.7.2.4) places unreasonably tight requirements on clock recovery circuits at the receiving PMA. The eye opening of Figure 52-7 has been reduced by 0.05 UI relative to the 1Gb/s Ethernet jitter budget. With the additional sinusoidal jitter, this implies a jitter tolerance at the clock recovery circuit on the order of 0.85 UI, which pushes the limits of what can be achieved in practical circuits.

*SuggestedRemedy*

Replace W= 0.35 UI with W= 0.30 UI in Table 52-20 in order to increase the eye opening in the jitter mask at the receiver.

(clarification authorizes change to refer only to 10GBASE-LR/LW links)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Other values and PMD variants will be considered by Serial PMD ad hoc. (Only LR/LW value changed now)

30 to 1 (A= 2)

*Cl* **52** *SC* **52.8.10.1** *P* **432** *L* **32** # **874**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

change "and applying" to "while applying"

*SuggestedRemedy*

see comment

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.10.1** *P* **432** *L* **36** # **503**

Ohlen, Peter — Optillion

*Comment Type* **E** *Comment Status* **A**

The second paragraph of this section does not belong to "Block diagram".

*SuggestedRemedy*

Move it to the next section, 52.8.10.2.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Need a title…

*Cl* **52** *SC* **52.8.10.1** *P* **432** *L* **40** # **96**

Dudek, Mike — Cielo Communications

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

In order for the golden PLL not to be required for this test there must be negligible jitter below 4MHz.

*SuggestedRemedy*

Change "is also not required" to "is also not required provided there is negligible jitter below 4MHz"

*Proposed Response* *Response Status* **C**

REJECT. Golden PLL now required.

*Cl* **52** *SC* **52.8.10.1** *P* **432** *L* **40** # **241**

Dudek, Mike — Cielo Communications

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

In order for the golden PLL not to be required for this test there must be negligible jitter below 4MHz.

*SuggestedRemedy*

Change "is also not required" to "is also not required provided there is negligible jitter below 4MHz"

*Proposed Response* *Response Status* **Z**

REJECT. Duplicate of 96.

*Cl* **52** *SC* **52.8.10.3** *P* **433** *L* **38** # **504**

Ohlen, Peter — Optillion

*Comment Type* **E** *Comment Status* **A**

This section would benefit from a more suitable title.

*SuggestedRemedy*

Change title to "Jitter tolerance test procedure".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.10.3** *P* **433** *L* **40** # **505**

Ohlen, Peter Optillion

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

Some more test description is needed.

*SuggestedRemedy*

Replace with modified text:Set up the test apparatus as described above and adjust the optical input power to the receiver under test to meet the requirements of 52.7.2.2. The sinusoidal jitter is then swept across the frequency and amplitude range specified in 52.7.2.4 while monitoring the BER at the receiver.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace 1st sentance of 52.8.10.3 with Peter's text "Set up the test apparatus as described in sections 52.8.10.1 and 52.8.10.2 and adjust the optical input power to the recevier under test to meet the requirements of 52.7.2.2. The sinusoidal jitter is then swept across the frequency and amplitude range specified in 52.7.2.4 while monitoring BER at the receiver.

---

*Cl* **52** *SC* **52.8.10.3** *P* **433** *L* **42** # **414**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Replace "guaranty" with "guarantee".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.8.11** *P* **433** *L* **45** # **531**

Ohlen, Peter Optillion

*Comment Type* **E** *Comment Status* **A**

This section does not describe the entire RX conformance test, it describes the test signal used in some tests.

*SuggestedRemedy*

Change title to:"Conformance test signal at TP3 for receiver testing"

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **52** *SC* **52.8.11** *P* **433** *L* **47** # **506**

Ohlen, Peter Optillion

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

The actual test is described in other sections.

*SuggestedRemedy*

Replace:
"This test validates ..."with:"This test signal is used to validate ..."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

1. The independent Rx conformance test (52.8.11) will be removed.
2. Portions of this subclause may need to be moved to the Rx jitter test for completeness.
3. Any references to this test shall be fixed.

---

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **1** # **507**

Ohlen, Peter Optillion

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

We will not use the PRBS-31 pattern.

*SuggestedRemedy*

Remove "PRBS 2^31-1" on line 1.Replace "49.X.X" with "49.2.8"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Corrected per 506

---

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **10** # **160**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Faulty apostroph usage. Text reads "...zero's..." and "...one's..."

*SuggestedRemedy*

Change to "...zeros..." and "...ones...", respectively.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **11** # **98**
Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **A**
XXX is not the appropriate reference

*SuggestedRemedy*
Replace XXX with 52.7.2.4

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **11** # **243**
Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **R**
XXX is not the appropriate reference

*SuggestedRemedy*
Replace XXX with 52.7.2.4

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 98.

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **2** # **875**
Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**
Line 2: reference 49.X.X
Line 3: reference 50.X.X
Line 9: remove colon after (AO)
Line 11: reference XXX

*SuggestedRemedy*
fix per comment

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **47** # **508**
Ohlen, Peter — Optillion

*Comment Type* **T** *Comment Status* **A**
This line does not always apply.

*SuggestedRemedy*
Remove it.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Per 506

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **5** # **532**
Ohlen, Peter — Optillion

*Comment Type* **T** *Comment Status* **A**
You cannot measure the stressed sensitivity of a signal, which (3) requires. You measure the power of a signal and the sensitivity of a receiver.

*SuggestedRemedy*
Remove item 3. The power requirement is already stated in 52.8.8.Reword p.434:51 to: "The test signal shall meet the following specifications:"

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Per 506

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **6** # **510**
Ohlen, Peter — Optillion

*Comment Type* **T** *Comment Status* **A**
Item 4 points to 52.7. It should really point to 52.7.2.3.

*SuggestedRemedy*
See comment.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Per 506

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **7** # **509**
Ohlen, Peter — Optillion

*Comment Type* **T** *Comment Status* **A**
Item 5 is a duplicate. Item 6 is redundant and no measurement is specified to verify it.

*SuggestedRemedy*
Remove items 5-6 in the list.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE. Remove DDJ and keep DCD.

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **9** # **97**
Dudek, Mike — Cielo Communications

*Comment Type* **T** *Comment Status* **R**
The test pattern for measurement may not provide the worst case ISI, and will be difficult to measure (a repeating pattern of this type may cause PLL's to lose lock

*SuggestedRemedy*
Remove bullet 7. Or replace it with a reference to the PLL test pattern.

*Proposed Response* *Response Status* **Z**
REJECT. Duplicate 242. Withdrawn

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **9** # **242**

Dudek, Mike — Cielo Communications

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

The test pattern for measurement may not provide the worst case ISI, and will be difficult to measure (a repeating pattern of this type may cause PLL's to lose lock

*SuggestedRemedy*

Remove bullet 7. Or replace it with a reference to the PLL test pattern.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Agree with technical comments. Both patterns specified in this section should be per the work of the Serial Jitter Test Pattern ad hoc.

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **9** # **511**

Ohlen, Peter — Optillion

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

The eye opening penalty, not the eye opening has a number attatched to is.

*SuggestedRemedy*

Replace"with ISI (A0). as"with"penalty requirements"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 506

*Cl* **52** *SC* **52.8.11** *P* **434** *L* **9** # **519**

Ohlen, Peter — Optillion

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

Comment #445 on D2.1 was voted "Accept", but has not been included in D3.0.D2.1#445:The same pattern should be used to measure the vertical eye opening and the stressed sensitivity (presently the PRBS 2^23-1). If this is not done, you calibrate your measurement apparatus with one signal and use it with another. Whichever pattern is more stressful will depend on the transmitter and the receiver that are used in the test.

*SuggestedRemedy*

Replace "as measured while running the ...." with"as measured with a repeating PRBS 2^23-1 pattern". (the accepted comment)It is probably more appropriate to reference the test pattern that we are probably going to use for other tests, i.e. the jitter test pattern.

*Proposed Response* *Response Status* **Z**

REJECT. Withdrawn

*Cl* **52** *SC* **52.8.11** *P* **435** *L* **28** # **876**

Jonathan Thatcher — World Wide Packets

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

There should be no TP4

*SuggestedRemedy*

Remove TP4 from figure 52-16

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.11** *P* **435** *L* **6** # **99**

Dudek, Mike — Cielo Communications

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

Coax cable does not produce DCD

*SuggestedRemedy*

Replace "DCD" with "DDJ"

*Proposed Response* *Response Status* **Z**

REJECT. Duplicate 244.

*Cl* **52** *SC* **52.8.11** *P* **435** *L* **6** # **244**

Dudek, Mike — Cielo Communications

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

Coax cable does not produce DCD

*SuggestedRemedy*

Replace "DCD" with "DDJ"

*Proposed Response* *Response Status* **C**

ACCEPT. Passive cables are assumed to be linear.

*Cl* **52** *SC* **52.8.12** *P* **435** *L* **34** # **729**

Dawe, Piers — Agilent

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

This subclause does not represent the comment resolution of D2.0:# 360Measurement of the receiver 3 dB electrical upper cutoff frequency is not feasible this way: would need extra fast lasers.SuggestedRemedyConsider using two lasers and an optical power combiner.Consider deleting test.Consider stressing multimode receiver with split-and-delayed pulses.Proposed ResponseACCEPT IN PRINCIPLE. Using two lasers and optical combiner.Response Status C

*SuggestedRemedy*

Align text and diagram with intent.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Change "The receiver .. " to "driven by the combined signals." to "The receiver 3 dB electrical upper cutoff frequency may be measured as described below. The test setup is shown in Figure 52-17. The test uses two optical sources and an optical combiner. One source is modulated by a digital data signal. The other, approximately linear, source is modulated with an analog signal. The analog and digital signals should be asynchronous. The data pattern to be used for this test is [pattern]. Other combination methods may be used."

Align [pattern] chosen with consistent choice of pattern as per other resolutions.

Diagram to show each source followed by an O/E converter, both feed an optical combiner.

16 for
2 against
18 abstain
passes

*Cl* **52** *SC* **52.8.12** *P* **436** *L* **6** # **415**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Incorrect reference.

*SuggestedRemedy*

Replace "Figure 38-6" with "Figure 52-17".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.13** *P* **436** *L* **24** # **529**

Ohlen, Peter — Optillion

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

The same pattern should be used for jitter and dispersion penalty.

*SuggestedRemedy*

Change "a 2^23-1 PRBS ..."to"the test pattern defined in 49.2.8."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Consistent pattern will be chosen for specific measurement examples as per Serial PMD ad hoc. 52.8.xxx

*Cl* **52** *SC* **52.8.13** *P* **436** *L* **2427** # **161**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "2^23-1" and similar in line 27.

*SuggestedRemedy*

Change to "2 (superscript: 23)-1" and similar in line 27.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.13** *P* **436** *L* **26** # **877**

Jonathan Thatcher — World Wide Packets

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

Reference to fiber should include reference to 52.7.1.1 on page 422.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.13** *P* **436** *L* **48** # **878**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

...at 20 to 80%

*SuggestedRemedy*

per comment

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.2** *P* **426** *L* **11** # **528**

Ohlen, Peter Optillion

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

There are other patterns than the PRBS-23 that are suitable for average power measurements under modulated conditions.

*SuggestedRemedy*

Replace "a PRBS sequence ...."an appropriate PRBS or a representative 10GBASE-SR/LR/ER/SW/LW/EW signal, OC-192 signal, STM-64, signal or another representative test pattern.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace "a PRBS sequence of 2exp23-1." with "an appropriate PRBS, a representative 10GBASE-SR/LR/ER/SW/LW/EW signal, " a reference to the typical (unstressed) clause 49 test pattern (pointer to 52.8.xx), "or another pattern with a 50% duty cycle."

7 for
1 against

*Cl* **52** *SC* **52.8.2** *P* **428** *L* **24** # **721**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R**

As in the case of the G.691 filter " we don't want to enforce separate requirements on "converter" and "filter".

*SuggestedRemedy*

Delete sentence "The frequency response of the O/E converter shall be higher than the cut-off frequency of the low pass filter."

*Proposed Response* *Response Status* **C**

REJECT. This is a technical change, and will require another pass and vote to respond to.

*Cl* **52** *SC* **52.8.2** *P* **428** *L* **28** # **722**

Dawe, Piers Agilent

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

There is a good argument for raisng the RIN measurement bandwidth to allow for a range of actual receiver bandwidths. Also as in the case of the G.691 filter " we don't want to enforce separate requirements on "converter" and "filter".

*SuggestedRemedy*

Change "Filter: The low pass filter shall have a 3 dB bandwidth of approximately 75% of the bit rate." to "The upper -3 dB limit of the measurement apparatus shall be approximately equal to the bit rate" " i.e. 10 GHz."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.3** *P* **426** *L* **19** # **844**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **R**

"(light on)" and "(light off)" can be removed. This is adequately explained elsewhere.

*SuggestedRemedy*

Remove text.

*Proposed Response* *Response Status* **C**

REJECT. Not entirely redundant. Editor chooses to keep it.

*Cl* **52** *SC* **52.8.4** *P* **426** *L* **35** # **719**

Dawe, Piers Agilent

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

Bandwidth of 7.5 GHz could be overkill; test equipment costs money ;)

*SuggestedRemedy*

Change "7.5 GHz" to "3/T where T is the time at high or low (00001111 giving approximately 400 ps and 7.5 GHz as an example)". This too could be seen as overkill; perhaps 2.5/T would be OK.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Choose 3/T.

*Cl* **52** *SC* **52.8.4** *P* **427** *L* **11** # **845**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

From diagram (figure) it is not clear how this measurement might be made in the presence of amplitude noise.

*SuggestedRemedy*

Change to show a graded line as in figure 52-15

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.5** *P* **427** *L* **31** # **720**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A**

Terminology: RIN12OMA is sometimes RIN22OMA.

*SuggestedRemedy*

Need new generic name for RIN(OMA) under back reflection. Several instances in 52.8.5.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Use RINxOMA as per technical comment.

*Cl* **52** *SC* **52.8.5.1** *P* **427** *L* **44** # **846**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Line 44: space missing in "power meter.A"
Line 46: space missing in "rate of interest.In"

*SuggestedRemedy*

Add spaces

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.5.2** *P* **427** *L* **52** # **847**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Specifications should not be in this text. Point to the actual specification

*SuggestedRemedy*

Point to Table 52-12; 52-7 and 52-17.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.5.2** *P* **427** *L* **53** # **239**
Dudek, Mike Cielo Communications

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

As stated in another comment the sum of the Receiver return loss of 26dB and two 26dB connection return losses is 21.2dB hence a 22dB return loss is not conservative enough

*SuggestedRemedy*

Change "22" to "21"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.5.2** *P* **427** *L* **53** # **94**
Dudek, Mike Cielo Communications

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

As stated in another comment the sum of the Receiver return loss of 26dB and two 26dB connection return losses is 21.2dB hence a 22dB return loss is not conservative enough

*SuggestedRemedy*

Change "22" to "21"

*Proposed Response* *Response Status* **Z**

REJECT. Duplicate of 239.

*Cl* **52** *SC* **52.8.5.2** *P* **428** *L* **3** # **802**
Henry Hinrichs Pulse Inc.

*Comment Type* **E** *Comment Status* **A**

The title "POLARIZATION ROTOR" in figure 52-11 is not the same as the description's title on lines 19 through 21.

*SuggestedRemedy*

Change title in figure to "POLARIZATION ROTATOR".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.5.3** *P* **428** *L* **41** # **848**
Jonathan Thatcher World Wide Packets

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

It is not clear what needs to change in the measurement procedure for when the OMA measured is at 22 dB rather than 12 dB.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 237.

*Cl* **52** *SC* **52.8.5.3** *P* **428** *L* **53** # **92**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**

RIN is now measured with different return losses for the various wavelengths

*SuggestedRemedy*

Change RIN12OMA to RINxOMA and change the definition on page 429 to "RINxOMA -Relative Intensity Noise referred to optical modulation amplitude measured with xdB reflection.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.5.3** *P* **428** *L* **53** # **237**
Dudek, Mike Cielo Communications

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

RIN is now measured with different return losses for the various wavelengths

*SuggestedRemedy*

Change RIN12OMA to RINxOMA and change the definition on page 429 to "RINxOMA -Relative Intensity Noise referred to optical modulation amplitude measured with xdB reflection.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.6** *P* **429** *L* **39** # **849**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Should this note be a note? Why the font change? Ditto page 430 line 1.

*SuggestedRemedy*

Fix

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.8** *P* **430** *L* **42** # **870**

Jonathan Thatcher World Wide Packets

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

The receive sensitivity is not normative.

*SuggestedRemedy*

Remove the shall from the receive sensitivity. Change the order of the paragraphs to put the stressed receive sensitivity before the receive sensitivity.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Delete paragraph describing receiver sensitivity measurement technique.

*Cl* **52** *SC* **52.8.8** *P* **430** *L* **45** # **871**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Line 45: recommend adding, "for SR/SW; LR/LW; and ER/EW respectively"
Line 48: Change "52.8.11. The stressed receive sensitivity shall" to "52.8.11 and"

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. First part dealt with in a technical comment to remove paragraph. Second part accept (see other technical comments for resolution).

*Cl* **52** *SC* **52.8.8** *P* **430** *L* **45** # **723**

Dawe, Piers Agilent

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

This says "The receive sensitivity shall be measured ... while sampling at the eye center." We don't control the sampling point in a receiver measurement; the PMA does that.

*SuggestedRemedy*

Delete "while sampling at the eye center". Add language to the effect of the measurement shall represent a complete port and this is best accomplished by measuring PMA and PMD together" in situ.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Paragraph gone.

*Cl* **52** *SC* **52.8.8** *P* **430** *L* **48** # **175**

Williams, Trevor Intel

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

This sentence refers the reader to section 52.8.11 the test signal. Section 52.8.11 refers the reader back to this section more requirements. This circular reference is very confusing.

*SuggestedRemedy*

Get rid of the circular reference. Create a new subsection in 52.8.11 to spell out the conformance test signal more clearly and then point to that from 52.8.8.?

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove item 3 in 52.8.11.

*Cl* **52** *SC* **52.8.9** *P* **431** *L* # **499**

Ohlen, Peter Optillion

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

In a number of a the jitter sections it is stated that a PLL is notstrictly necessary to do the test, suggesting that you could use thesame clock source to synchronize the transmitter and the measurementset-up. This could actually cause problems, because you could haveexactly the same jitter on the transmitted signal and the clock used totrigger your measurement set-up. If there for some reason have is anoscillation at e.g. 10 MHz in your "master" clock, that jitter would becancelled out in a measurement without a PLL. The way out of this is tocharacterize the clock separately and then add the jitter of the clockto the measured jitter.

*SuggestedRemedy*

Remove "Since it is likely .... clock recovery" on p. 431:13-14.Replace the section on p. 432:12-15 with:
"While a Golden PLL is not strictly required, it is unlikely that the system will have ready access to the clock needed to do this test. If such a clock is available and used in the test, some jitter components can be filtered out and underestimate the jitter. The clock then needs to be characterized and necessary compensations shall be made."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See also 873.

*Cl* **52** *SC* **52.8.9.1** *P* **431** *L* **19** # **497**

Ohlen, Peter Optillion

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

There are a lot of things outside the scope of this document. I don't think we need to state what the document does not cover.

*SuggestedRemedy*

Remove line 19-20 on p. 431.Remove line 43-44 on p. 432.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.9.1** *P* **431** *L* **6** # **872**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

Need to include references for placeholders YYYY and ZZZZ

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.9.1** *P* **431** *L* **7** # **495**

Ohlen, Peter Optillion

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

ZZZZ should be changed.

*SuggestedRemedy*

Delete "the ZZZZ", insert "defined in 49.2.8." at the end of the sentence.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Reference is to new section 52.8.xxx as per dawe_2_0501.pdf and motion #1.

*Cl* **52** *SC* **52.8.9.2** *P* **431** *L* **43** # **498**

Ohlen, Peter Optillion

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

The draft states that ".. there is no known way to create a reliable channel for 850 nm operation that would yield consistent results". I do hope that a realiable 850 nm channel can be created.

*SuggestedRemedy*

Replace "reliable" with "worst-case".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.9.3** *P* **423** *L* **46** # **726**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R**

What does "fiber ... to provide worst case ... RIN penalties" mean?

*SuggestedRemedy*

Change "RIN penalties" to "back reflection"?

*Proposed Response* *Response Status* **C**

REJECT. Technical change, needs to be discussed in committee next round.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **12** # **413**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Delete "be" between "not" and "strictly".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **12** # **873**

Jonathan Thatcher World Wide Packets

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

Use of Golden PLL is not required here but is on line 14 of page 431.

*SuggestedRemedy*

Make it required. There is no likely alternative anyway. It MIGHT make sense to use the same Golden PLL in the calibration. See page 432, line 40.

*Proposed Response* *Response Status* **C**

ACCEPT. The Golden PLL can make profound differences in the presence of low and harmonic frequencies of jitter, and so the reviewer suggests use of a Golden PLL be required in all measurements.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **12** # **159**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "...is not be strictly required..."

*SuggestedRemedy*

Change to "...is not strictly required..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **12** # **95**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
Incorrect grammar

*SuggestedRemedy*
remove "be" between not and strictly

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **12** # **240**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
Incorrect grammar

*SuggestedRemedy*
remove "be" between not and strictly

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 95.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **17** # **500**
Ohlen, Peter Optillion

*Comment Type* **T** *Comment Status* **R**
I do not think we need to point out what is outside the scope of this document.

*SuggestedRemedy*
Remove the entire section from line 17-23 except for the sentence:"The Golden Rx and Golden PLL are intended to provide consistent and repeatable measurements, not to represent the worst case receiver."

*Proposed Response* *Response Status* **C**
REJECT. This wording does not hurt the document and has some precedent in former clauses.

*Cl* **52** *SC* **52.8.9.4** *P* **432** *L* **3** # **516**
Ohlen, Peter Optillion

*Comment Type* **E** *Comment Status* **A**
This section could benefit form a more descriptive title.

*SuggestedRemedy*
Change title to:
Transmit jitter test procedure.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52-12** *P* **431** *L* **5** # **778**
Doug Coleman Corning Cable System

*Comment Type* **T** *Comment Status* **R**
Insert the 1265nm attenuation coefficient usued for calculatingthe channel insertion loss into the footnote.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**
REJECT. Can't find reference.

*Cl* **52** *SC* **52-19** *P* **421** *L* **18** # **782**
Doug Coleman Corning Cable System

*Comment Type* **T** *Comment Status* **R**
Maximum link distances for single-mode fiber are calculated based on an allocation of 2.0dB total connection and splice loss.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**
REJECT. No remedy.

*Cl* **52** *SC* **52-23** *P* **418** *L* **2** # **228**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
incorrect grammar

*SuggestedRemedy*
change "values are specified" to values specified"

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **52-23** *P* **418** *L* **2** # **83**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
incorrect grammar

*SuggestedRemedy*
change "values are specified" to values specified"

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 228.

*Cl* **52** *SC* **5-6** *P* **414-419** *L* **13-22** # **537**

Rahn Lucent Technologies

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

Transmitter specification on power/OMA/extinction ratio. In new 802.3 the specification method of defining avarage power and extinction ratio as used in ITU interface specifications is left an OMA is introduced. This has been done for the reason that the minimum extinction ratio of 6 dB currently in use in ITU G.691 for directly modulated transmitters in the 1310 nm could prove too stringent, not allowing a substantial amount of usable transmitters. To this extent the OMA principle was introduced to allow a widening of the range of usable devices. Initially the extinction ratio minimum limit was completely removed which however would have lead to unacceptably low extinction ratios. E.g. the minimum OMA spec of 477 uW with a max Pav of +1 dBm (1.25 mW) would imply a minimum extinction ratio of 68% or 1.7 dB. Therefore a minimum extinction ratio of initially 3 dB and later 4 dB was introduced. Now the transmitter power and associated modulation setting is specified by max average power (+1 dBm or 1.26 mW), minimum OMA of 477 uW (leaving out the "correlation" with spectral characteristics for the time being) and a minimum extinction ratio of 4 dB.In practice this means that a minimum OMA spec of 477 uW is valid between -6.2 and -2.5 dBm average power and that a minimum ER spec 4 dB is valid between an average power of -2.5 and +1 dBm. One of the reasons to introduce the OMA spec is to allow settings well above laser threshold current. This means that average powers of -5 dBm or lower will most likely not be used because those would imply an extinction ratio of better than 8.5 dB. Even at -4 dBm average power an extinction ratio of 6 dB minimum is implied. Higher minimum extinction ratios are not considered practical. If this is the case then there is no reason to completely abandon the "ITU-style" of power budget by specifying "only" an average power range and a minimum extinction ratio. The real request is to allow lower extinction ratios, which makes sense. So instead of changing the complete way of specification one could just add a minimum OMA spec to the minimum extinction ratio spec and the same result of increasing the transmitter yield is achieved.So one proposal could be to specify an output power range of -4/+1 dBm with a minimum extinction ratio of 4dB AND a minimum OMA of 477 uW.

*SuggestedRemedy*

As written in Comment

*Proposed Response* *Response Status* **C**

REJECT. TTC obviate need for nominal specifications.

Vote 13:2

*Cl* **52** *SC* **5-6** *P* **417-421** *L* # **534**

Rahn Lucent Technologies

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

Receiver overload value:
In the 802.3 draft document the power values are defined with 2 decimal digits precision as they are coming out of the calculator. For the specification of an optical interface this is impractical. The reason is as follows. In practice the power measurement can normally de done with an accuracy of a quarter on a dB. This is the first tolerance range that should be considered when defining the values. In the specification the reference point in addition is defined 1 m in the fiber after the optical connector. Counting a possible max loss of 0.5 dB for the connector the link budget may differ about 1 dB as worst case for transmitter and receiver connector. In addition the power measurement may also vary by this connector loss. This means the values as current in the draft suggest a precession that cannot be verified by any means. Specify the interface powers penalties and losses as round dB values

*SuggestedRemedy*

Specify the interface powers penalties and losses as round dB value

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Round to a tenth of a dB. Round only final values.

*Cl* **52** *SC* **6** *P* **417** *L* **17** # **538**

Rahn Lucent Technologies

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

Receiver overload value:The Overload value for the LR/LW is set to +1 dBm. Such receivers are not available. Due to implementation ease the current receivers support normally overload values of -1 dBm in few cases 0 dBm. The overload value of systems however must in addition also consider systems aspects as operation power voltage variations and so on. This may require additional margin. This means the high overload value makes the receivers more sophisticated and therefore unnecessary more expensive than the equivalent ITU spec.

*SuggestedRemedy*

Define an overload value of -1 dBm similar to the valuein G.691

*Proposed Response* *Response Status* **C**

REJECT. Commit discussed decreasing transmitter max, decided not to, discussed attenuation, decided not to. We think our specification is correct.

10:2

*Cl* **52** *SC* **6** *P* **419** *L* **21** # **536**

Rahn — Lucent Technologies

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

Transmitter specification on spectral characteristics. The ER/EW transmitter interface specification in draft 3.0 contains in the definition of the transmitter power the term: Launch power (min) in OMA -1.39 + DP: this means that a variability of the transmitter power in relation to the path penalty is given. There are two implications. The 1550 nm interface may use attenuators to adjust the optical receiver power. However the by this flexibility, the power to be measured is not defined as an unknown power fraction for compensating the path penalty is added. This implies that in some cases the complex measurements and testing is required for verification that an interface is in range.Second implication is that this allows implementation of transmitters generating high penalties. As the path penalties is a tool for translating horizontal eye closure into "vertical " power performance it is only valid for low values of penalty. This means we could get an unstable optical performance, what means no error free transmission is possible, in situations where the optical dispersion penalty is high, implying a large change in penalty (e.g. from 2 to 10 dB) at marginally different conditions (e.g. small change in dynamic chirp) due to exponential penalty curves at high values. Therefore the maximum penalty should not exceed 2 dB as in G.691 , G 957.

*SuggestedRemedy*

Specify a maximum penalty of 2 dB and consider this also inthe budget calculations

*Proposed Response* *Response Status* **C**

REJECT. As to first implication: please draw out the linear programming diagrams to show whether choosing attenuators to set the measured power to the high end of the allowed range will or will not deliver acceptable link attenuations. As to second: Cl.52.8.13 "Dispersion penalty measurement" actually measures transmitter and dispersion penalty with respect to a fully open Tx eye. As G.691 allows up to (hypothetically) 3 dB Tx eye penalty, the overall eye closure at the receiver is better here. The remaining question is whether a very open Tx eye followed by 3 dB penalty is possible and "dangerously near to a cliff". For discussion…

*Cl* **52** *SC* **Figure 52-11** *P* **428** *L* # **170**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text in figure says "Polarization Rotor". This is inconsistent with the text in Subclause 52.8.5.2 which the figure refers to.

*SuggestedRemedy*

Change to "Polarization Rotator" as in the text.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Figure 52-14** *P* **433** *L* # **512**

Ohlen, Peter — Optillion

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

Could be clarified a little. Also, an attenuator is needed in the set-up.

*SuggestedRemedy*

Rename "Frequency senthesizer" to "Sinusoidal jitter generator".Insert an optical attenuator in the signal path between the E/O converter and the PMD(rx). The arrow to the "signal char. measurement" could also be dashed.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Retain "Frequency Synthesizer" but add "FM input" to the input to the clock source block.

*Cl* **52** *SC* **Figure 52-16** *P* **435** *L* **20** # **100**

Dudek, Mike — Cielo Communications

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

The Random noise generator has been omitted from the figure, The required random jitter cannot be generated with this test set up. It would be better to combine this figure with Figure 52-14

*SuggestedRemedy*

Add a box labelled "Random Noise Generator. Have a line from this box to the line between the coaxial cable and the limiting amplifier place a "plus" sign in a circle where the two lines meet. Combine this figure with Figure 52-14

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Figure 52-16** *P* **435** *L* **20** # **245**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **R**

The Random noise generator has been omitted from the figure, The required random jitter cannot be generated with this test set up. It would be better to combine this figure with Figure 52-14

*SuggestedRemedy*

Add a box labelled "Random Noise Generator. Have a line from this box to the line between the coaxial cable and the limiting amplifier place a "plus" sign in a circle where the two lines meet. Combine this figure with Figure 52-14

*Proposed Response* *Response Status* **C**

REJECT. Duplicate technical comment.

*Cl* **52** *SC* **Figure 52-18** *P* **437** *L* **4** # **530**
Ohlen, Peter Optillion

*Comment Type* **T** *Comment Status* **A**
A PLL is needed to do the dispersion penalty measurement.

*SuggestedRemedy*
Split the arrow after the golden RX and add a PLL in the figure. One clock and one data input to the BERT.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **Figure 52-3** *P* **411** *L* **1** # **125**
Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**
The LR/LW clause provides the triple tradeoff curve first followed by the RMS spectral width as a function of OMA but the SR/SW clause provides the RMS spectral width as a function of OMA first followed by the triple tradeoff.

*SuggestedRemedy*
Either order is acceptable but the information should be consistent subclause to subclause so reversoe the order of either the LR/LW or the SR/SW.

*Proposed Response* *Response Status* **C**
ACCEPT. This is a frame idiosyncracy that may reappear.

*Cl* **52** *SC* **Figure 52-3** *P* **411** *L* **10** # **221**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
The legend for the mW lines does not state that this is OMA

*SuggestedRemedy*
Add OMA to the legend for the various lines

*Proposed Response* *Response Status* **C**
ACCEPT. New curves anyway.

*Cl* **52** *SC* **Figure 52-3** *P* **411** *L* **10** # **76**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
The legend for the mW lines does not state that this is OMA

*SuggestedRemedy*
Add OMA to the legend for the various lines

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 221.

*Cl* **52** *SC* **Figure 52-4** *P* **415** *L* **12** # **81**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
The legend for the various lines is not complete

*SuggestedRemedy*
Add OMA to the legend for the various lines.

*Proposed Response* *Response Status* **C**
ACCEPT. New curves anyway.

*Cl* **52** *SC* **Figure 52-4** *P* **415** *L* **12** # **226**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
The legend for the various lines is not complete

*SuggestedRemedy*
Add OMA to the legend for the various lines.

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 81.

*Cl* **52** *SC* **Figure 52-5** *P* **418** *L* **30** # **131**
Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**
The attenuation max line is not positioned properly.

*SuggestedRemedy*
Move attenuation max line to the right so that it is at the midpoint of 12 and 14.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **Figure 52-5** *P* **418** *L* **34** # **132**
Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**
The legend is not consistent with the text.

*SuggestedRemedy*
Replace "attenuation best" with "attenuation ideal"

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **Table 51-6** *P* **396** *L* **18** # **44001**

Stephen Haddock Extreme Networks

*Comment Type* **T** *Comment Status* **A** *20ppm*

We have objectives to define a WAN PHY with a data rate compatible with the payload rate of OC-192c/SDH VC-4-64c, and to define a mechanism for adapting the MAC-PLS data rate to the data rate of the WAN PHY. To achieve this objective we must be compatible with the tolerance as well as the nominal rate of OC-192c. This does not violate 802.3 precedent of specifying 100 ppm clock tolerance because the mechanism that adapts the MAC-PLS rate to the WAN PHY rate is sufficiently flexible to accomodate a 100 ppm tolerance on the MAC/RS/XGMII side and a 20 ppm tolerance on the WAN PHY side of the 64B/66B endec.

*SuggestedRemedy*

Change "622.08 +/- 100ppm" to "622.08 +/- 20ppm". Make analogous change in tables 52-7, 52-9, 52-12, 52-14, 52-17, and 52-18.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment is a duplicate of #661 that is being submitted by the Editor-in-Chief to the clause 52 editor to permit clause 52 to track the closure of this comment.

Details to be determined during the break-out session.

Motion to accept the comment:
802.3 voters
Y: 45 N: 5 A: 17 (Technical >75%) PASSES

All voters
Y: 65 N: 6 A: 29 (Technical >75%) PASSES

*Cl* **52** *SC* **Table 52-10** *P* **412** *L* **44** # **127**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Table does not reflect recommendations in Tampa.

*SuggestedRemedy*

Delete the footnote mark associated 2000 MHz.km

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-10** *P* **412** *L* **44** # **126**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Table does not reflect the changes recommended in Tampa.

*SuggestedRemedy*

Replace "...(minimum overfilled launch unless otherwise noted)" with "...(see Table 52-24)"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-10** *P* **412** *L* **54** # **79**

Dudek, Mike Cielo Communications

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

Having different unallocated margins for the different systems is inconsistent.

*SuggestedRemedy*

Change the unallocated margin to 0.23dB for all columnsAdd an extra row. "Additional Insertion Loss allowed 0.84,0.81,0.63,0.57,0.0 dB (The values are the additional Insertion for each of the columns)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Add footnote to clarify that this is for insertion loss ONLY.

*Cl* **52** *SC* **Table 52-10** *P* **412** *L* **54** # **224**

Dudek, Mike Cielo Communications

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

Having different unallocated margins for the different systems is inconsistent.

*SuggestedRemedy*

Change the unallocated margin to 0.23dB for all columnsAdd an extra row. "Additional Insertion Loss allowed 0.84,0.81,0.63,0.57,0.0 dB (The values are the additional Insertion for each of the columns)

*Proposed Response* *Response Status* **Z**

REJECT. See comment #79.

*Cl* **52** *SC* **Table 52-10** *P* **413** *L* **2** # **128**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Incorrect footnote included.

*SuggestedRemedy*

Delete footnote 2: "Bandwidth measurement details....86A"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-10** *P* **413** *L* **6** # **143**

Swanson, Steve — Corning Incorporated

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

Unallocated margin is not treated as it was in GbE.

*SuggestedRemedy*

Delete the last footnote

*Proposed Response* *Response Status* **C**

REJECT. What the footnote states is actually correct. The table is informative, and supplied as information to the reader as to how the numbers add up. The values that are meant to be tested are found elsewhere, in tables 52-8,9.

*Cl* **52** *SC* **Table 52-13** *P* **416** *L* # **157**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Last row, first column is typed in a different font than the other entries.

*SuggestedRemedy*

adapt.

*Proposed Response* *Response Status* **C**

ACCEPT. New table anyhow.

*Cl* **52** *SC* **Table 52-13** *P* **416** *L* **3** # **788**

Doug Coleman — Corning Cable System

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

Insert the attenuation value used at 840 nm for calculating thechannel insertion loss,etc..

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. Bad reference.

*Cl* **52** *SC* **Table 52-14** *P* **417** *L* **33** # **82**

Dudek, Mike — Cielo Communications

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

The sensitivity and stressed sensitivity in this table are based on the 10G spread-sheet. This shows a 0.4dB allowance for sampling not being at the center of the eye. Many receivers cannot be tested prior to the CDR function and therefore the non-ideal sampling will be double-counted.

*SuggestedRemedy*

Add a footnote to the Receive Sensitivity and Stressed receive sensitivity "For a retimed receiver the sensitivity and stressed receive sensitivity shall be relaxed by 0.4dB"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 234.

*Cl* **52** *SC* **Table 52-14** *P* **417** *L* **33** # **227**

Dudek, Mike — Cielo Communications

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

The sensitivity and stressed sensitivity in this table are based on the 10G spread-sheet. This shows a 0.4dB allowance for sampling not being at the center of the eye. Many receivers cannot be tested prior to the CDR function and therefore the non-ideal sampling will be double-counted.

*SuggestedRemedy*

Add a footnote to the Receive Sensitivity and Stressed receive sensitivity "For a retimed receiver the sensitivity and stressed receive sensitivity shall be relaxed by 0.4dB"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 234.

*Cl* **52** *SC* **Table 52-15** *P* **417** *L* **47** # **785**

Doug Coleman — Corning Cable System

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

Insert 1270nm SMF attenuation coefficient into footnote.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. Bad reference.

*Cl* **52** *SC* **Table 52-15** *P* **418** *L* **3** # **84**
Dudek, Mike Cielo Communications

*Comment Type* **T** *Comment Status* **R**
Wavelength is incorrect in the footnote

*SuggestedRemedy*
Replace 1290 with 1265

*Proposed Response* *Response Status* **Z**
REJECT. Duplicate of 229

*Cl* **52** *SC* **Table 52-15** *P* **418** *L* **3** # **229**
Dudek, Mike Cielo Communications

*Comment Type* **T** *Comment Status* **R**
Wavelength is incorrect in the footnote

*SuggestedRemedy*
Replace 1290 with 1265

*Proposed Response* *Response Status* **C**
REJECT. 1290 nm is value for calculation.

*Cl* **52** *SC* **Table 52-15** *P* **418** *L* **3** # **130**
Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **R**
The incorrect minimum wavelength is called out.

*SuggestedRemedy*
Replace "...1290 nm.." with "...1265 nm..." in footnote 2.

*Proposed Response* *Response Status* **C**
REJECT. 1290 nm is where it is calculated.

*Cl* **52** *SC* **Table 52-15** *P* **418** *L* **4** # **145**
Swanson, Steve Corning Incorporated

*Comment Type* **T** *Comment Status* **R**
Unallocated margin is not treated as in GbE.

*SuggestedRemedy*
Delete the last footnote.

*Proposed Response* *Response Status* **C**
REJECT. See 143.

*Cl* **52** *SC* **Table 52-16** *P* **418** *L* **18** # **779**
Doug Coleman Corning Cable System

*Comment Type* **T** *Comment Status* **R**
1530nm vice 1565nm attenuation coefficient should be used tocalculate the "worst-case channel insertion loss. This is also consistentwith other tables in the document. It also needs to be inserted into thefootnote.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**
REJECT. Bad reference.

*Cl* **52** *SC* **Table 52-17** *P* **419** *L* **17** # **522**
Ohlen, Peter Optillion

*Comment Type* **T** *Comment Status* **A**
The rise and fall times are no longer needed for the 1550 nm serial PMD because the dispersion penalty is measured.

*SuggestedRemedy*
Remove the rise/fall time specification on line 17 in table 52-17.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **52** *SC* **Table 52-17** *P* **419** *L* **26** # **232**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
The dispersion penalty is not just the dispersion penalty. It includes ISI due to the transmitter risetime.

*SuggestedRemedy*
Change "dispersion penalty" to "dispersion and ISI penalty"

*Proposed Response* *Response Status* **C**
REJECT. Duplicate 87.

*Cl* **52** *SC* **Table 52-17** *P* **419** *L* **26** # **87**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **A**

The dispersion penalty is not just the dispersion penalty. It includes ISI due to the transmitter risetime.

*SuggestedRemedy*

Change "dispersion penalty" to "dispersion and ISI penalty"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See technical comments.

*Cl* **52** *SC* **Table 52-17** *P* **419** *L* **2934** # **88**

Dudek, Mike — Cielo Communications

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

RIN12 is not measured at 22dB return loss. Also the sum of relections from the receiver at 26dB and two connectors at 26dB is 21.2dB

*SuggestedRemedy*

Change RIN12 to Rin21 in Table 52-17 and change the footnote on line 34 from "return loss of 22dB" to "return loss of 21dB"

*Proposed Response* *Response Status* **Z**

REJECT. Duplicate of 233.

*Cl* **52** *SC* **Table 52-17** *P* **419** *L* **2934** # **233**

Dudek, Mike — Cielo Communications

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

RIN12 is not measured at 22dB return loss. Also the sum of relections from the receiver at 26dB and two connectors at 26dB is 21.2dB

*SuggestedRemedy*

Change RIN12 to Rin21 in Table 52-17 and change the footnote on line 34 from "return loss of 22dB" to "return loss of 21dB"

*Proposed Response* *Response Status* **C**

ACCEPT. Use RIN21OMA.

*Cl* **52** *SC* **Table 52-18** *P* **420** *L* **36** # **89**

Dudek, Mike — Cielo Communications

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

TThe sensitivity and stressed sensitivity in this table are based on the 10G spread-sheet. This shows a 0.4dB allowance for sampling not being at the center of the eye. Many receivers cannot be tested prior to the CDR function and therefore the non-ideal sampling will be double-counted.

*SuggestedRemedy*

Add a footnote to the Receive Sensitivity and Stressed receive sensitivity "For a retimed receiver the sensitivity and stressed receive sensitivity shall be relaxed by 0.4dB"

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn.

*Cl* **52** *SC* **Table 52-18** *P* **420** *L* **36** # **234**

Dudek, Mike — Cielo Communications

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

TThe sensitivity and stressed sensitivity in this table are based on the 10G spread-sheet. This shows a 0.4dB allowance for sampling not being at the center of the eye. Many receivers cannot be tested prior to the CDR function and therefore the non-ideal sampling will be double-counted.

*SuggestedRemedy*

Add a footnote to the Receive Sensitivity and Stressed receive sensitivity "For a retimed receiver the sensitivity and stressed receive sensitivity shall be relaxed by 0.4dB"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Increase RX Stressed Sensitivity in table 52-18 by 0.4 dB. Add note to table “The stressed sensitivity values in the table are for system level BER measurements which include the effects of CDR circuits. It is recommended that at least 0.4dB additional margin be allocated if component level measurements are made without the effects of CDR circuits.”

Make same changes to Tables 52-14 and 52-9.

Direct Serial PMD Ad-hoc to verify correct unit conversions between dBm and uW in for OMA in tables 52-9,52-14 and 52-18.

1st Vote: Y: 12 N:7 A: 13

removed base receive sensitivity….

2nd Vote: Y: 14 N: 2 A: 13 passes

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **1** # **775**

Doug Coleman Corning Cable System

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

Delete reference to dispersion for multimode fiber. Dispersion characteristics for multimode fibers are included in the referenced TIA andIEC MMF Standards.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. The comments does not have a correct reference and cannot be identified. Please resubmit with correct reference if it still applies.

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **1** # **780**

Doug Coleman Corning Cable System

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

Insert "Nominal" or "Typical" into the Table line. The tableprovides values based on nominal or typical input values.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Not clear on intent of this comment. Footnotes need to be updated to reflect nominal, typical and worst-case values as appropriate.

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **1** # **174**

Williams, Trevor Intel

*Comment Type* **E** *Comment Status* **A**

Table is not in the correct section

*SuggestedRemedy*

Move table to align with 52.6.4

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. This will probably move around due to Frame idiosyncracies anyway.

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **1** # **781**

Doug Coleman Corning Cable System

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

Insert assumptions for the 850nm cannel insertion loss, 3.5 dB/kmplus two connections at 0.75 dB.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. Assuming reference to Table 52-23, this is already covered by current footnote which applies to both 850 nm and 1310 nm (not 1550 nm) links.

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **14** # **776**

Doug Coleman Corning Cable System

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

Change title to PMD Insert NA for MMF

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. The comments does not have a correct reference and cannot be identified. Please resubmit with correct reference if it still applies.

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **19** # **133**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Editorial

*SuggestedRemedy*

Delete 2nd "are" in footnote 2.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-19** *P* **421** *L* **22** # **144**

Swanson, Steve Corning Incorporated

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

The unallocated margin is not treated as it was in GbE.

*SuggestedRemedy*

Delete the last footnote.

*Proposed Response* *Response Status* **C**

REJECT. See 143

*Cl* **52** *SC* **Table 52-20** *P* **422** *L* **50** # **789**

Doug Coleman Corning Cable System

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

Insert the attenuation value used at 1290 nm for calculating thechannel insertion loss,etc..

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. The comments does not have a correct reference and cannot be identified. What I think the commenter
referes to is actually stated. Please resubmit with correct reference if it still applies.

*Cl* **52** *SC* **Table 52-21** *P* **423** *L* **16** # **90**

Dudek, Mike — Cielo Communications

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

The dispersion formula for 10GBASE ER/EW appears to be inconsistent with the 10G spreadsheet.

*SuggestedRemedy*

Replace 0.93 with 0.2325

*Proposed Response* *Response Status* **Z**

REJECT. Withdrawn

*Cl* **52** *SC* **Table 52-21** *P* **423** *L* **16** # **235**

Dudek, Mike — Cielo Communications

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

The dispersion formula for 10GBASE ER/EW appears to be inconsistent with the 10G spreadsheet.

*SuggestedRemedy*

Replace 0.93 with 0.2325

*Proposed Response* *Response Status* **Z**

REJECT. Withdrawn.

*Cl* **52** *SC* **Table 52-21** *P* **423** *L* **9** # **527**

Ohlen, Peter — Optillion

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

1310nm test channel.I have asked two major fiber companies about the availability of worst-case fiber in the 1310 region. Basically you need fibers with a zero-dipsersion wavelength close to 1300nm and 1324nm. The answers I received do not indicate that this is something that you could buy in the market place. Now, one could argue that the method works as specified, and that this is an implementor's problem. However, this could make it quite difficult to test modules for compliance which I think we want to avoid if possible.

*SuggestedRemedy*

Either change the test channel to something that can be supplied from the fiber manufacturers or/and assure that whatever we specify is available as a standard item.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Serial PMD ad hoc to investigate.

The standard must provide a reasonable chance for test equipment to be producible and affordable. Group must determine approach.

*Cl* **52** *SC* **Table 52-23** *P* **439** *L* **3** # **791**

Doug Coleman — Corning Cable System

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

BW method should be identified as done in Table 52-13

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. No reference…

*Cl* **52** *SC* **Table 52-23** *P* **439** *L* **6** # **790**

Doug Coleman — Corning Cable System

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

The attenuation at 1530 nm should be used for calculating thechannel insertion loss since it has a higher attenuation than 1565 nm.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. I forget why we are here. Options are :1530, worst attenuation; 1550, nominal and measured;1565, worst margin expected.

*Cl* **52** *SC* **Table 52-23** *P* **439** *L* **7** # **136**

Swanson, Steve — Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Table description is incorrect.

*SuggestedRemedy*

"Modal bandwidth (min.; overfilled launch)" should read "Modal bandwidth (min)"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-24** *P* **440** *L* # **523**

Ohlen, Peter Optillion

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

"0.4 or 0.5" dB/km is confusing. I think the idea is to indicate that two different cable types can be used. However, the present writing is confusing and it is better to explain that two different cable types are supported.

*SuggestedRemedy*

Change "0.4 or 0.5" to "0.5". Explain that two different cable types apply, which have losses of either 0.4 or 0.5. We better check the wording with someone who knows fiber types and standards to get the footnote right.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 211.

*Cl* **52** *SC* **Table 52-24** *P* **440** *L* **22** # **101**

Dudek, Mike Cielo Communications

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

The dispersion slope is not specified at 850nm for the multi-mode fibers where they are used, and are specified at 1300nm where they are not used.

*SuggestedRemedy*

Remove the wavelength ranges for the dispersion slope for multimode fiber and just put in 0.11

*Proposed Response* *Response Status* **C**

REJECT. Lambda nought refers to the zero dispersion wavelength, not the operating wavelength.

*Cl* **52** *SC* **Table 52-24** *P* **440** *L* **22** # **246**

Dudek, Mike Cielo Communications

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

The dispersion slope is not specified at 850nm for the multi-mode fibers where they are used, and are specified at 1300nm where they are not used.

*SuggestedRemedy*

Remove the wavelength ranges for the dispersion slope for multimode fiber and just put in 0.11

*Proposed Response* *Response Status* **C**

REJECT. Duplicate 101

*Cl* **52** *SC* **Table 52-24** *P* **440** *L* **26** # **138**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Incorrect reference called out.

*SuggestedRemedy*

Replace "...IEC 60793-1-40..." with "...IEC 60793-1-41..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-24** *P* **440** *L* **27** # **139**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Incorrect reference called out.

*SuggestedRemedy*

Replace "...IEC 60793-1-40..." with "...IEC 60793-1-49..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-32** *P* **493** *L* **6** # **792**

Doug Coleman Corning Cable System

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

Insert text to identify the nominal wavelength attenuation usedfor channel insertion loss

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. Assuming reference to Table 52-23. In the footnote add statement: "Maximum attenuation given in table 52-24."

*Cl* **52** *SC* **Table 52-33** *P* **493** *L* **6** # **793**

Doug Coleman Corning Cable System

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

BW method should be identified as done in Table 52-13.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. No reference.

*Cl* **52** *SC* **Table 52-6** *P* **408** *L* # **787**

Doug Coleman Corning Cable System

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

BW should be identified as OFL as it applies and the 2000 MHZ-kmBW should be identified per the FO 2.2 procedural method.

*SuggestedRemedy*

Use text from Table 52-13.

*Proposed Response* *Response Status* **C**

REJECT. The launch condition was intentionally removed to remove any ambiguity (last draft). The wording describing launch conditions is now present elsewhere, removing possible discrepancies.

*Cl* **52** *SC* **Table 52-6** *P* **408** *L* **28** # **17**

Cobb, Terry Lucent Technologies

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

Title for third column incorrect. Inconsistent with wording in paragraph above or title of table.

*SuggestedRemedy*

Change Minimum to Operating

*Proposed Response* *Response Status* **C**

ACCEPT. Also correct table title!

*Cl* **52** *SC* **Table 52-7** *P* **409** *L* **13** # **75**

Dudek, Mike Cielo Communications

*Comment Type* **T** *Comment Status* **R** *840*

Table is inconsistent with table 52-8

*SuggestedRemedy*

Replace 840 with 830

*Proposed Response* *Response Status* **C**

REJECT. Use 840 nm.

*Cl* **52** *SC* **Table 52-7** *P* **409** *L* **13** # **220**

Dudek, Mike Cielo Communications

*Comment Type* **T** *Comment Status* **R** *840*

Table is inconsistent with table 52-8

*SuggestedRemedy*

Replace 840 with 830

*Proposed Response* *Response Status* **C**

REJECT. Use 840 nm.

*Cl* **52** *SC* **Table 52-7** *P* **409** *L* **34** # **18**

Cobb, Terry Lucent Technologies

*Comment Type* **E** *Comment Status* **A**

Last note for table incorrect grammer.

*SuggestedRemedy*

After less add than

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-8** *P* **410** *L* # **155**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **R**

Last row, first column is typed in a different font than the other entries.

*SuggestedRemedy*

adapt.

*Proposed Response* *Response Status* **C**

REJECT. Table was replaced anyhow, but thanks.

*Cl* **52** *SC* **Table 52-8** *P* **410** *L* **12** # **123**

Swanson, Steve Corning Incorporated

*Comment Type* **T** *Comment Status* **A** *840*

OMA is specified over a center wavelength range of 830nm to 860 nm but the transmitter is only specified over a range of 840-860 in Table 52-7.

*SuggestedRemedy*

Delete first 7 rows in Table 52-8 and adjust entries as needed.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **52** *SC* **Table 52-8** *P* **410** *L* **19** # **777**

Doug Coleman Corning Cable System

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

Insert the 840nm attenuation coefficient used for calculating thechannel insertion loss into the footnote.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT. Bad reference.

*Cl* **52** *SC* **Table 52-8** *P* **410** *L* **47** # **124**

Swanson, Steve — Corning Incorporated

*Comment Type* **E** *Comment Status* **R**

The incorrect font is used for the last center wavelength range entry.

*SuggestedRemedy*

Modify font for the last entry.

*Proposed Response* *Response Status* **C**

REJECT. Table was replaced anyhow.

*Cl* **52** *SC* **Table 52-8,52-13, Figur** *P* **410-11,15-1** *L* # **254**

Dudek, Mike — Cielo Communications

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

The triple trade off tables and figures need to be modified to incorporate accepted comments from the last meeting, including spectral width cap, latest link model, and be corrected for the unallocated margins.

*SuggestedRemedy*

Updated tables and curves will be provided to the editor and David Law for posting to the web site.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. May need to change connector losses and modify triple trade off curves and tables as appropriate.

*Cl* **52** *SC* **Table 52-9** *P* **412** *L* **16** # **223**

Dudek, Mike — Cielo Communications

*Comment Type* **T** *Comment Status* **R** *840*

The wavelength range is not consistent with Table 52-8

*SuggestedRemedy*

Replace 840 with 830

*Proposed Response* *Response Status* **C**

REJECT. We've chosen to go with 840 nm

*Cl* **52** *SC* **Table 52-9** *P* **412** *L* **16** # **78**

Dudek, Mike — Cielo Communications

*Comment Type* **T** *Comment Status* **R** *840*

The wavelength range is not consistent with Table 52-8

*SuggestedRemedy*

Replace 840 with 830

*Proposed Response* *Response Status* **C**

REJECT. We've chosen to go with 840 nm

*Cl* **52** *SC* **Table 52-9** *P* **412** *L* **4** # **222**

Dudek, Mike — Cielo Communications

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

The sensitivity and stressed sensitivity in this table are based on the 10G spread-sheet. This shows a 0.4dB allowance for sampling not being at the center of the eye. Many receivers cannot be tested prior to the CDR function and therefore the non-ideal sampling will be double-counted.

*SuggestedRemedy*

Add a footnote to the Receive Sensitivity and Stressed receive sensitivity "For a retimed receiver the sensitivity and stressed receive sensitivity shall be relaxed by 0.4dB"

*Proposed Response* *Response Status* **C**

REJECT. Withdrawn. Duplicate 77.

*Cl* **52** *SC* **Table 52-9** *P* **412** *L* **4** # **77**

Dudek, Mike — Cielo Communications

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

The sensitivity and stressed sensitivity in this table are based on the 10G spread-sheet. This shows a 0.4dB allowance for sampling not being at the center of the eye. Many receivers cannot be tested prior to the CDR function and therefore the non-ideal sampling will be double-counted.

*SuggestedRemedy*

Add a footnote to the Receive Sensitivity and Stressed receive sensitivity "For a retimed receiver the sensitivity and stressed receive sensitivity shall be relaxed by 0.4dB"

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE. See 234.

*Cl* **53** *SC* *P* *L* # **704**

Dawe Piers — Agilent

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

Let's put the zombie "power down function" to rest! At present the draft has a "MDIO-mandatory" power down feature which is not defined and may be implemented as "don't power down"" as is usual in transceiver optics. This silliness does the standard and its customers a disservice. Let's agree whether anyone wants PMD power down at 10G. If they do declare capability. If not remove it from Cl.45. This comment is repeated against 00 45 " 52 and 53.

*SuggestedRemedy*

Agree optional PMD "power down" or no PMD "power down". Minor mods to clauses 45" 52 and 53.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Eliminate the PMD PowerDown. Clause 52 voted on a similar comment to remove this also.

Leave to Editor to fix.

*Cl* **53** *SC* *P* *L* # **44009**

Booth, Brad

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

Missing delay constraint information.

*SuggestedRemedy*

Add delay constraint information as per 48.5 and information in Table 44-2.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* *P* *L* # **44003**

Dallesasse, John Molex

*Comment Type* **T** *Comment Status* **A** *cross-clause 45-53*

Clauses 45 and 53:For both transmit disable and signal detect functions, bit "0" in the corresponding MDIO register should provide global action/reporting. This bit should not be shared with a lane "0" of the WWDM PMD. The operation for individual lanes 0-3 should take place in bits 1-4 of these registers. Justification:
1) Global functionality is of primary importance to the end user. For all other PMD types, global function is provided through bit "0." The same should be true for WWDM.
2) Under normal operation, all lanes of the WWDM PMD will be in use. The main purpose of individual lane functionality for WWDM is manufacturing test, diagnostics, and proprietary implementations. These functions are thus not absolutely required on a per lane basis. This should be reflected in how they are handled by the MDIO.
3) A general rule of good engineering is to keep parts that are intended to be interchanged as similar as possible. Since hot swappability is likely in many implementations of these PMDs, working within the standard to provide an interface that is as similar as possible at the base level of functionality is good practice and makes sense. If a user wants to disable transmitter function or determine if a signal is present, they should have one place to go for all of the PMD types.
4) My recollection of the intent of the committee was that functions pertaining to the WWDM PMD would be required to be global if implemented, and could optionally be reported on a per-lane basis. As things stand currently, per lane reporting is not optional, but required if these functions are implemented.

*SuggestedRemedy*

In Tables 45-7 and 45-8, Bit "0" will become a global function for all PMD types, bit 1 will correspond to WWDM lane 0, bit 1 will correspond to lane 1, bit 2 will correspond to lane 3, and bit 4 will correspond to lane 3. Minor text editing will be needed in Sections 45.2.1.6 and 45.2.1.7. Minor text edits will also be required in Sections 53.3 and 53.4, as well as Tables 53-2 and 53-3.

*Proposed Response* *Response Status* **C**

ACCEPT.
Duplicate of comment #255 issued to clause 45 and 53 editors to track closure of this comment.

Global bit created.

*Cl* **53** *SC* *P* *L* # **733**

Dawe Piers Agilent

*Comment Type* **E** *Comment Status* **A**

Need to refer to delay constraints in Cl. 44.3

*SuggestedRemedy*

Cross reference. Suggest copy and modify 49.2.15.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53** *P* **448** *L* **2** # **881**

Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**

In this clause, we see a style of tx_bits [0:3] rather than tx_bits<0:3> as seen in other clauses. For example, see see page 244, line 4.

*SuggestedRemedy*

Fix everywhere in clause 53.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.1** *P* **446** *L* **1** # **852**

Jonathan Thatcher World Wide Packets

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

When the Higher Speed Study Group put forth a PAR to 802 and the IEEE standards board for approval to create a standard, we committed that: "10 Gb/s Ethernet technology will be demonstrated during the course of the project, prior to the completion of the sponsor ballot. " This requirement was added to our PAR because, at the time of writing the PAR, there was no evidence that PMD and PMA technology was feasible which simultaneously meet the other four criteria. Feasibility means that technology must be demonstrated with reports and working models; proven technology; reasonable testing and with confidence in reliability. Historically, Ethernet has been successful, in part, because it "leveraged" technology that existed at the time of the writing of the PAR. No such 10 Gigabit PHY technology existed in November 1999. While the time for which this must be completed is still a couple of meeting cycles away, it is not clear that sufficient effort is being made to validate the specifications; measurement procedures; engineering analysis and judgment and to assure that the PMD meets the requirement we set for ourselves in time for the May 2001 cutoff for last technical change.

*SuggestedRemedy*

DEMONSTRATE the technical feasibility of the technology specified in Clause 53 for the 10GBASE-LX4 PMD, while ensuring the attainment of the other 4 criteria. Or, change the requirements/specifications such that this goal can be achieved.

*Proposed Response* *Response Status* **U**

REJECT.

There is no specific remedy proposed.

*Cl* **53** *SC* **53.1** *P* **447** *L* **15** # **417**

Shimon Muller — Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

8B/10B is a coding method and not a name for a sublayer.

*SuggestedRemedy*

Replace "8B/10B PCS" with "10GBASE-X PCS".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.1 - 53.14** *P* **445 - 472** *L* **all** # **1**

Koichiro Seto — Hitachi Cable

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

The desertion of the clause editor in chief and helper, both from Agilent, at this stage of standardization indicates that there may be serious feasibility issues with 10GBASE-LX4 production either in technical or economical aspect. A standard without actual product would damage the credibility of 802.3 standard and confuse customers, hence we should avoid such vapor standard if at all possible.

*SuggestedRemedy*

I would like to suggest two alternative remedies:
a) Remove entire Clause 53.
Reaffirmation of technical feasibility (multivendor support) of 10GBASE-LX4 by 802.3aeTask Force.

*Proposed Response* *Response Status* **C**

REJECT.

The suggested remedy does not propose a specific change to the clause.

There is currently a new clause editor and helpers, and there are multiple vendors developing and supporting this PMD. Clause 53 will follow the same metholodoly that Clause 52 adopts to satisfy the technical feasibility objective. The vendors currently developing this PMD do not see any problems associated with achieving this objective.

*Cl* **53** *SC* **53.10.1** *P* **465** *L* **3** # **167**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "...shall comply with applicable local and national codes..."Using this expression, international bodies' EMC standards - like those of the IEC - would not be covered by the subclause. This can not be the intention of 802.3.See identical comment against 52.10.1.

*SuggestedRemedy*

Change to "...shall comply with applicable local, national and international codes..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.12** *P* **465** *L* **33** # **892**

Jonathan Thatcher — World Wide Packets

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

Figure is wrong. Compare to Figure 52-19. It is not intended that 10GBASE-LX4 be used inside buildings only.

*SuggestedRemedy*

Reference 52-19 or copy or fix.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.13** *P* **465** *L* **50** # **737**

Dawe Piers — Agilent

*Comment Type* **E** *Comment Status* **A**

Obsolete sentence "It also includes a connector plug at each end to connect to the MDI."

*SuggestedRemedy*

Remove sentence.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.13.1** *P* **466** *L* **21** # **893**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **A**

This table in construction and style should -- most likely -- be similar to 52-24.

*SuggestedRemedy*

Change one or both...

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.14** *P* **468** *L* **3, 53** # **427**

Shimon Muller — Sun Microsystems, Inc

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

The copyright release for the PICS is missing.

*SuggestedRemedy*

Add a note to this subclause with a copyright release for the PICS. See clause 46.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.14.3** *P* **469** *L* **31** # **894**

Jonathan Thatcher World Wide Packets

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

*FIB is not optional! Device must support all fiber types/ranges.

*SuggestedRemedy*

Make status: M

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

FIB should be changed to "M". Moreover, the *WDM should also be changed to "M" and the Value/Comment should be changed to state "Device supports passbands defined in Table 53-5"

*Cl* **53** *SC* **53.2** *P* **447** *L* **32** # **418**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

See SuggestedRemedy.

*SuggestedRemedy*

Change the second sentence of the paragraph to read as follows:"The service interface for this PMD is described ..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.2** *P* **447** *L* **32** # **982**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Suggest the text 'The sublayer in this PMD ...' should read 'This PMD ...' as there is only one sublayer being specified here.

*Proposed Response* *Response Status* **C**

ACCEPT.

See Suggested response for Comment #418.

*Cl* **53** *SC* **53.2.1** *P* **447** *L* **46** # **983**

Law, David 3Com

*Comment Type* **E** *Comment Status* **A**

Typo.Also appears in subclause 53.2.2.

*SuggestedRemedy*

Missing close parenthesis, the text '... 8B10B characters from ...' should read '... 8B10B characters) from ...'.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.2.1** *P* **447** *L* **46** # **419**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Add a ")" after "characters".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.2.1.1** *P* **448** *L* **2** # **420**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Typo.

*SuggestedRemedy*

Replace "tx_bits" with "tx_bit".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.2.11** *P* **448** *L* **2** # **163**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "...one steam for each lane...". Now, the steam age should definitely have terminated at the arrival of 10 Gigabit Ethernet :o)

*SuggestedRemedy*

Change to "...one stream for each lane..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.2.2** *P* **448** *L* **24** # **421**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
Add a ")" after "characters".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.2.2.1** *P* **448** *L* **32** # **422**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
Replace "rx_bits" with "rx_bit".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.2.3.1** *P* **449** *L* **2** # **882**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**
Line 2: Remove "then".
Line 5: Remove "any"

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.4.1** *P* **451** *L* **30** # **423**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **TR** *Comment Status* **A**
The second note below the block diagram is somewhat puzzling. Hasn't the PMDservice interface been already defined in subclause 53.2? Or is the intentionhere that the physical instantiation of this service interface is beyond thescope of the standard?

*SuggestedRemedy*
Clarify and fix appropriately.

*Proposed Response* *Response Status* **C**
ACCEPT IN PRINCIPLE.

Remove the second note in Figure 53-2.

*Cl* **53** *SC* **53.4.3** *P* **451** *L* **49** # **424**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**
Typo.

*SuggestedRemedy*
In the last sentence of the paragraph replace "an" with "a".

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.4.4** *P* **452** *L* **8** # **425**
Shimon Muller Sun Microsystems, Inc

*Comment Type* **T** *Comment Status* **A**
The first sentence of this paragraph contradicts the definition in 53.2.3.2.

*SuggestedRemedy*
Change this paragraph to read as follows:"The PMD Signal Detect function shall report the state of SIGNAL_DETECT via the PMD service interface. The SIGNAL_DETECT parameter is signaled continuously, while the PMD_SIGNAL.indicate message is generated when a change in the value of SIGNAL_DETECT occurs. SIGNAL_DETECT is intended to be a global indicator of the presence of optical signals on all four lanes."

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.4.5** *P* **452** *L* **36** # **735**

Dawe Piers Agilent

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

Did you really mean to specify the method of signal detection?

*SuggestedRemedy*

Reinsert paragraph "Various implementations of the Signal Detect function are permitted by this standard" " including implementations which generate the SIGNAL_DETECT parameter values in response to the amplitude of the modulation of the optical signal and implementations which respond to the average optical power of the modulated optical signal."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.4.9** *P* **453** *L* **15** # **164**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text has an obsolete reference to LX4 in brackets, probably dating from earlier versions of the clause.

*SuggestedRemedy*

Remove the reference "(LX4)", as all the clause only applies to the LX4 PMD.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.6** *P* **454** *L* **112** # **165**

Stoltz, Mario ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "10GBASE WWDM" in several instances. Obsolete denomination as only one PHY is left for WWDM.

*SuggestedRemedy*

Replace with "10GBASE-LX4", also in the heading of Table 53-6.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.6** *P* **454** *L* **3** # **426**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **E** *Comment Status* **A**

Style.

*SuggestedRemedy*

In the second sentence replace "An" with "A".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.6** *P* **454** *L* **5** # **140**

Swanson, Steve Corning Incorporated

*Comment Type* **E** *Comment Status* **R**

E

*SuggestedRemedy*

Delete ...10um...

*Proposed Response* *Response Status* **C**

REJECT.

The use of 10um in the description of Single Mode fiber has been used throughout this standard and previous standards.

*Cl* **53** *SC* **53.7.1** *P* **455** *L* **6** # **883**

Jonathan Thatcher World Wide Packets

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

-6.25 minus 15.2 (table 53-8) is not equal to 9 (table 53-9)

*SuggestedRemedy*

Fix

*Proposed Response* *Response Status* **C**

ACCEPT.

Correct the round off errors in the Receive sensitivity (per lane) in Table 53-8 to reflect the following

For 62.5 / 50um fiber column
change 38 (-14.2) to be 37.4 (-14.25)

For 10um fiber column
change 30 (-15.2) to be 29.6 (-15.25)

*Cl* **53** *SC* **53.7.2** *P* **455** *L* **46** # **884**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**
and line 48: ...Rx sensitivity, per lane in OMA (min)

*SuggestedRemedy*
per comment

*Proposed Response* *Response Status* **C**
ACCEPT.

See response for Comment #883

*Cl* **53** *SC* **53.7.3** *P* **456** *L* **28** # **885**
Jonathan Thatcher World Wide Packets

*Comment Type* **E** *Comment Status* **A**
What is with the 1270 being bold and underlined?

*SuggestedRemedy*
Fix

*Proposed Response* *Response Status* **C**
ACCEPT.

Remove BOLD and Underlined attributes from 1270

*Cl* **53** *SC* **53.8** *P* **457** *L* **11** # **886**
Jonathan Thatcher World Wide Packets

*Comment Type* **T** *Comment Status* **R**
Question: for PMDs that operate with multiple fiber types, should power measurements be required on each fiber type supported or max power using the largest core and min power on the smallest or....

*SuggestedRemedy*
Recommendation and explanation from subgroup

*Proposed Response* *Response Status* **C**
REJECT.

For this particular PMD, the optical power out of TP2 will be the same for all fibers. When one is required to use a offset-patch cord, the patch cord is a single mode fiber. When one uses a regular patch cord, the patch cord is a single mode fiber. Therefore, for this particular PMD, one would expect to see the exact same output powers at TP2.

*Cl* **53** *SC* **53.8.10** *P* **460** *L* **37** # **104**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **R**
Inxorrect reference

*SuggestedRemedy*
Replace Figure 53-7 with Figure 53-6

*Proposed Response* *Response Status* **C**
REJECT.

Duplicate comment.

See response in Comment #249

*Cl* **53** *SC* **53.8.10** *P* **460** *L* **37** # **249**
Dudek, Mike Cielo Communications

*Comment Type* **E** *Comment Status* **A**
Inxorrect reference

*SuggestedRemedy*
Replace Figure 53-7 with Figure 53-6

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.8.10** *P* **460** *L* **42** # **250**
Dudek, Mike Cielo Communications

*Comment Type* **T** *Comment Status* **A**
The test would not be conservative enough if the photodetector bandwidth is only 2.34GHz

*SuggestedRemedy*
Replace the sentence beginning "The bandwidth of the photodector", with "The output of the amplfier shall be coupled to the oscilloscope input through a filter. The combined filtering effect of the photodector, amplifier, and filter shall be a fourth order Bessel-Thomson filter of 2.34GHz bandwidth.

*Proposed Response* *Response Status* **C**
ACCEPT.

*Cl* **53** *SC* **53.8.10** *P* **460** *L* **48** # **251**

Dudek, Mike — Cielo Communications

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

The system is allowed to have more difference in power between channels than the 5dB in this spec.

*SuggestedRemedy*

Replace -5 with -6.75

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change sentence on page 460 line 47 from "The source for the channel under test shall be set to supply a signal at the output of the optical multiplexer which is at a -5dB power level with respect to the other channels" to the following

"The source for the channel under test shall be set to supply a signal at the output of the optical multiplexer at the minimum OMA with all other remaining channels set to the maximum OMA"

Add a row to Table 53-7 with the following information:
Description:
Optical Modulation Amplitude (OMA) per lane (min)
Value:
750uW (-1.25dBm)

Change the Average launch power per lane (max) in Table 53-7 to 0dBm

Change the Average launch power, four lanes (max) to 6.0dBm

Change the Average receive power per lane (max) in Table 53-8 to 0dBm

Change the Average receive power, four lanes (max) in Table 53-8 to 6.0dBm

*Cl* **53** *SC* **53.8.10** *P* **460** *L* **48** # **106**

Dudek, Mike — Cielo Communications

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

The system is allowed to have more difference in power between channels than the 5dB in this spec.

*SuggestedRemedy*

Replace -5 with -6.75

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate Comment

See response in Comment #251

*Cl* **53** *SC* **53.8.11** *P* **461** *L* **22** # **891**

Jonathan Thatcher — World Wide Packets

*Comment Type* **E** *Comment Status* **R**

It is not easy to figure out the thread of references that point to 53.8.11. This should be more explicit in other subclauses.

*SuggestedRemedy*

Per subcommittee recommendation

*Proposed Response* *Response Status* **C**

REJECT.

No suggested remedy.

*Cl* **53** *SC* **53.8.11** *P* **461** *L* **29** # **890**

Jonathan Thatcher — World Wide Packets

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

Related to clause 53.8.10; page 460; line 40 The lambdas are not accurately/precisely specified: "...in proximity." Figures do not clarify this.

*SuggestedRemedy*

Add a table with the 6 test cases showing the acceptable lambda range for lambdas 0 through 3 for each test. Optionally remove the figures.

*Proposed Response* *Response Status* **C**

ACCEPT.

Change page 460 line 40 from "specified in Table 53-7" to "specified in Section 53.8.11."

Change page 461 line 28 from "Basically, the channel directly adjacent to the channel under test will be wavelength tuned to the end of its wavelength range" to "The center wavelengths of channels adjacent to the channel under test shall be tuned to the edge of their wavelength band nearest the channel under test. When setting the wavelength of the channels adjacent to the channel under test, the center wavelength of the adjacent channels shall be set within 0.5nm of the edge of that channel's wavelength band while remaining within that channel's wavelength band."

*Cl* **53** *SC* **53.8.2** *P* **457** *L* **2630** # **166**

Stoltz, Mario — ChipIng.de, an Intel co

*Comment Type* **E** *Comment Status* **A**

Text reads "monochrometer" (two instances). Please see the identical comment #28 against D2.1 for details (which was accepted).

*SuggestedRemedy*

Change to "monochromator".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53.8.2** *P* **457** *L* **31** # **888**

Jonathan Thatcher World Wide Packets

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

Related to 53.8.3. If there are no specifications of the lambda selector in 53.8.3, how can an accurate power measurement per lambda be made while other channels are turned on?

*SuggestedRemedy*

Choose between:
1. Specify the lambda selector and show the calculations regarding optical cross talk (energy in the tails of the spectrum) and the accuracy of the measurements or
2. Specify that each channel is required to be turned off independently so that a per channel power measurement can be made.

*Proposed Response* *Response Status* **C**

ACCEPT.

Remedy 2 has been selected.

Replace 53.8.2 text with the following: "The absolute optical power of each channel shall be measured using the methods in TIA/EIA-455-95, with the sum of the optical power from all of the channels not under test below -30dBm,per the test set-up in Figure 53-3."

Delete the OSA block from Figure 53-3

Replace 53.8.3 with the following text:"The OMA measurement methodology is defined in 52.8.4 with the exception that each channel will be tested individually and the sum of the optical power from all of the channels not under test shall be below -30dBm."

Replace 53.8.4 with the following text:"The RIN measurement methodology is defined in 52.8.6 with the exception that each channel will be tested individually and the sum of the optical power from all of the channels not under test shall be below -30dBm."

Add a subclause between 53.8.2 and 53.8.3 entitled "Source Spectral Window Measurements" with the following text and Figure: "The source spectral window shall be measured for each channel individually with the sum of the optical power from all of the channels not under test below -30dBm, per the test set-up in Figure 53-x. The channel under test shall be modulated using valid 10GBASE-LX4 signals."

*Cl* **53** *SC* **53.8.2** *P* **457** *L* **31** # **887**

Jonathan Thatcher World Wide Packets

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

? "(either some document or in an Annex to this Clause)" ?

*SuggestedRemedy*

Fix reference of write requirement

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See remedy in comment #888

*Cl* **53** *SC* **53.8.8** *P* **459** *L* **29** # **889**

Jonathan Thatcher World Wide Packets

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

Annex 48B is not normative. There is, therefore, effectively no jitter methodology.

*SuggestedRemedy*

1. Reference clause 38 methodology (with or without modifications) or
2. Reference clause 52 methodology (with or without modifications --- this is probably the best technique in the industry to date) or
3. Write your own.
I do not think that the MJS is a "formal international standard" and should not, therefore, be the reference for jitter method.

*Proposed Response* *Response Status* **C**

ACCEPT.

Clause 53 will adopt the general methodology of Clause 52 with the following changes:

1) Jitter test patterns will be referenced from Annex 48A.
2) Multiple lane measurments.
3) Change the frequency masks as defined in Clause 47.
4) Modify Table 52-20 for operation of 10GBASE-LX4.
5) Specify the electrical filter used for multi-mode tests.
6) Insert a Golden Optical Filter at TP3, with an out-of-band rejection of 30dB (defined at the edges of the adjacent channels) and a maximum in-band attenuation of 1.5dB. The return loss of this Golden Optical Filter shall be at least 12dB.

*Cl* **53** *SC* **53.9.2** *P* **464** *L* **25** # **736**

Dawe Piers Agilent

*Comment Type* **E** *Comment Status* **A**

IEC 60825-1 has been revised.

*SuggestedRemedy*

Align with 52.9.2. Add " which has been updated by Amendment 2 (2001-01)."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **53-8-10** *P* **460** *L* **42** # **105**

Dudek, Mike — Cielo Communications

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

The test would not be conservative enough if the photodetector bandwidth is only 2.34GHz

*SuggestedRemedy*

Replace the sentence beginning "The bandwidth of the photodector", with "The output of the amplfier shall be coupled to the oscilloscope input through a filter. The combined filtering effect of the photodector, amplifier, and filter shall be a fourth order Bessel-Thomson filter of 2.34GHz bandwidth.

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate comment

See Comment #250

*Cl* **53** *SC* **7** *P* **455** *L* **46** # **480**

Lisa Buckman — Agilent Technologies

*Comment Type* **E** *Comment Status* **A**

Should use two significant digits for receive sensitivity to make numbers consistent with transmit numbers and link budget.

*SuggestedRemedy*

Replace -14.2 and -15.2 with -14.25 and -15.25 dBm.

*Proposed Response* *Response Status* **C**

ACCEPT.

Similar comment already submitted.

See Proposed remedy in Comment #883

*Cl* **53** *SC* **Table 53-10** *P* **456** *L* **40** # **446**

Kesling, Dawson — Intel

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

The unit interval values in Table 53-10 are identical to those in Table 38-10 (1000BASE-SX/LX). The link length has been reduced to maintain the same relative jitter budget for the fiber as the baud rate has increased. The distribution of the remaining jitter between the SERDES (TP1 and TP4) and optical interface electronics (laser driver, laser, photodiode, TIA, postamp) has been kept the same as in 1000BASE-X. Has the LX4 subtask force had time to consider wether this distribution of the remaining jitter is practical for system cost? In particular, the TP1 and TP4 allocations are tighter than common state-of-the-art as determined by the XAUI subtask force and will require premium SERDES components to satisfy.

*SuggestedRemedy*

Discussion may be needed between developers of SERDES, optical interface electronics and optoelectronics to determine a cost-effective jitter distribution between components.

*Proposed Response* *Response Status* **C**

REJECT.

No specific remedy suggested. Moreover, the values in question are informative not normative.

*Cl* **53** *SC* **Table 53-11** *P* **466** *L* **11** # **146**

Swanson, Steve — Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Minimum wavelength is incorrect.

*SuggestedRemedy*

"...1270nm..." should read "...1269nm..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **Table 53-11** *P* **466** *L* **11** # **252**

Dudek, Mike — Cielo Communications

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

There appears to be confusion here. TP2 is previously defined as the output from the offset patch cord, however it appears that the loss of the offset patch cord is included in the insertion loss here. Either that or the multimode connection losses are 2dB not the 1.5dB stated in 53.13.2.1

*SuggestedRemedy*

Redifine TP2 as the output of a normal patch cord or change the insertion loss here, or change 53.13.2.1.

*Proposed Response* *Response Status* **C**

REJECT.

The connection losses for a multimode fiber are 1.5dB. The extra 0.5dB is factored in with the link model to reflect the 2dB total loss.

*Cl* **53** *SC* **Table 53-11** *P* **466** *L* **11** # **107**

Dudek, Mike — Cielo Communications

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

There appears to be confusion here. TP2 is previously defined as the output from the offset patch cord, however it appears that the loss of the offset patch cord is included in the insertion loss here. Either that or the multimode connection losses are 2dB not the 1.5dB stated in 53.13.2.1

*SuggestedRemedy*

Redifine TP2 as the output of a normal patch cord or change the insertion loss here, or change 53.13.2.1.

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate comment

See remedy in comment #252

*Cl* **53** *SC* **Table 53-12** *P* **466** *L* **38** # **108**

Dudek, Mike — Cielo Communications

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

The dispersion slopes are not fully specified.

*SuggestedRemedy*

For 62.5 um. Change the wavelength range for the 0.11 to 1260<lambda<1348For 50 um. Add an extra wavelength range of 0.11 for 1260<lambda<1295

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate comment

See remedy in comment #253

*Cl* **53** *SC* **Table 53-12** *P* **466** *L* **38** # **253**

Dudek, Mike — Cielo Communications

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

The dispersion slopes are not fully specified.

*SuggestedRemedy*

For 62.5 um. Change the wavelength range for the 0.11 to 1260<lambda<1348For 50 um. Add an extra wavelength range of 0.11 for 1260<lambda<1295

*Proposed Response* *Response Status* **C**

REJECT.

The zero dispersion value and the dispersion slope are defined over a narrow wavelength range. The actual disperion at other wavelength is calculated by the standard disperion equation which is used in the link model.

*Cl* **53** *SC* **Table 53-16** *P* *L* # **786**

Doug Coleman — Corning Cable System

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

Insert footnote consistent with Table 53-20, "For thesingle-mode case, the 1310nm attenuation is provided for Outside Plantcable as defined in TIA 568B.3."

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **Table 53-7** *P* **454** *L* **38** # **141**

Swanson, Steve — Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Table formatting incosistent with Clause 52

*SuggestedRemedy*

Replace "62.5um MMF, 50um MMF, 10um SMF" header with "10GBASE-LX4"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **Table 53-7** *P* **455** *L* **12** # **102**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **R**

The reflection at which RIN is measured is not specified and the style of writing RIN (OMA) is not consistend with clause 52

*SuggestedRemedy*

Change "RIN (OMA)" to "RIN12OMA"

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate comment

See remedy in comment #102

*Cl* **53** *SC* **Table 53-7** *P* **455** *L* **12** # **247**

Dudek, Mike — Cielo Communications

*Comment Type* **E** *Comment Status* **A**

The reflection at which RIN is measured is not specified and the style of writing RIN (OMA) is not consistend with clause 52

*SuggestedRemedy*

Change "RIN (OMA)" to "RIN12OMA"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **Table 53-9** *P* **456** *L* **26** # **248**

Dudek, Mike — Cielo Communications

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

I thought that the offset patch cord was required with installed 50 micron fiber.

*SuggestedRemedy*

Change the footnote to read "An offset patch cord is required for 62.5 um MMF and 50 um 500 and 400 MHz.Km. It is not required for 50 um 2000MHz.Km fiber.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **Table 53-9** *P* **456** *L* **26** # **103**

Dudek, Mike — Cielo Communications

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

I thought that the offset patch cord was required with installed 50 micron fiber.

*SuggestedRemedy*

Change the footnote to read "An offset patch cord is required for 62.5 um MMF and 50 um 500 and 400 MHz.Km. It is not required for 50 um 2000MHz.Km fiber.

*Proposed Response* *Response Status* **C**

REJECT.

Duplicate comment

See remedy in comment #248

*Cl* **53** *SC* **Table 53-9** *P* **456** *L* **28** # **142**

Swanson, Steve — Corning Incorporated

*Comment Type* **E** *Comment Status* **A**

Minimum wavelength is incorrect

*SuggestedRemedy*

"...1270 nm..." should read "...1269 nm..."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **53** *SC* **Table 53-9** *P* **456** *L* **39** # **784**

Doug Coleman — Corning Cable System

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

Insert 1270nm SMF attenuation coefficient used for calculatingthe channel insertion loss into the footnote.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

REJECT.

This information in provided in Table 53-12. The footnote was meant to inform the reader of the information used in the link model that is not indicated in the draft standard.