

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 00 SC 0 P 0 L 0 # 2  
Turner, Michelle

Comment Type TR Comment Status A

Please review the useage of informative labeling throughout the document. For more information please see Clause 10 of the 2007 IEEE Style Manual.

SuggestedRemedy

Response Response Status W

ACCEPT IN PRINCIPLE.

We have reviewed many instances of informative labeling in the draft. Based on this review we have concluded these instances were originally included in order to gain consensus - and were necessary in the technical judgment of the balloting group.

Based on this BRC did not feel it should remove this labeling.

CI 00 SC 0 P 153 L # 6  
Ary, Jacob Ben Individual

Comment Type TR Comment Status R

add cables standards IEC 61156-5, IEC 61156-6, which cover screened and unscreen cables for Category applications

SuggestedRemedy

Response Response Status W

REJECT.

While there is no Clause or Subclause provided in the comment the page number seems to relates to the references clause where the reference to ISO/IEC 11801:2002 can be found.

IEEE Std 802.3 references the cabling standard ISO/IEC 11801 - and thus indirectly references the cable specifications such as IEC 61156-5 and IEC 61156-6. These cable specifications are one of a number of components used by ISO/IEC 11801 to define channel performance specifications.

IEEE style does not allow as to place a reference to a document that we do not reference in the body of the standard.

CI 01 SC 1.2.2 P 145 L 16 # 13  
Dawe, Piers J G Individual

Comment Type T Comment Status R

1.2.1 contains this paragraph: 'The state diagrams contain the authoritative statement of the functions they depict; when apparent conflicts between descriptive text and state diagrams arise, the state diagrams are to take precedence. This does not override, however, any explicit description in the text that has no parallel in the state diagrams.' In several places we have normative equations, inequalities or tables illustrated by 'informative' figures.

SuggestedRemedy

If the word 'informative' is attracting the style police, we could have a new section 1.2.2 with a similar statement that equations, inequalities and tables take precedence over graphical illustrations of them. We might need to look through the figures to see if there are any counter-examples.

Response Response Status C

REJECT.

For the time we will deal with this on a case by case basis.

CI 01 SC 1.3 P 147 L 19 # 7  
Dawe, Piers J G Individual

Comment Type T Comment Status A

'All standards are subject to revision,': don't make irrelevant and universal generalisations. This is an unnecessary statement about all the standards in the world (not just IEEE ones), and in the case of the frozen old IEC 11801 for example, and withdrawn or 'senior' standards, not true.

SuggestedRemedy

Delete 'All'

Response Response Status C

ACCEPT IN PRINCIPLE.

Will change to read 'Standards may be subject to revision ...'.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 01 SC 1.3 P 147 L 25 # 8  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

It would be helpful if mentions of normative references were clickable, leading to the entries here; the mentions of the less-important informative references are. It might be possible to do this without the [B.n] type notation.

SuggestedRemedy

If it is not a major undertaking, make mentions of normative references clickable. If it is, consider making provision so that new and changed material can have clickable mentions.

Response Response Status C

ACCEPT IN PRINCIPLE.

An attempt will be made to make some (if not all) the normative references clickable. This is subject to there being no objection to this from the IEEE-SA Staff Editor.

Further update - the normative references are not current set up to be used as cross-references. This is something we maybe should consider for future projects.

CI 01 SC 1.3 P 148 L 12 # 78  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

(Updated comment & remedy) TIA/EIA-526-4A-1997 (OFSTP-4A), Optical Eye Pattern Measurement Procedure and IEC 61280-2-2 (1998), Fiber optic communication sub-system basic test procedures--Part 2-2: Test procedures for digital systems - Optical eye pattern, waveform, and extinction ratio, are superseded by IEC 61280-2-2 Ed. 2.0 (and Ed. 3 is in preparation). IEC 61280-2-2 Ed. 2 is more convenient than and very similar to TIA/EIA-526-4A-1997 which is said to be more up-to-date than IEC 61280-2-2 (1998).

SuggestedRemedy

Update IEC reference to 61280-2-2 Ed. 2.0. Change references to OFSTP-4A to point to 61280-2-2, delete TIA reference here and as B13 in bibliography (change affects clauses 38, 52, 53, 58, 59, 60 - see other comments).

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement suggested remedy with the exception that B13 (TIA standard) will be kept in the bibliography and updated as necessary.

CI 01 SC 1.3 P 149 L 35 # 58  
 Law, David Individual

Comment Type T Comment Status R referenced ITU recommendation

This comment is submitted on behalf of Pete Anslow. The references for IEC 60825-1 and IEC 60825-2 are: IEC 60825-1:2001, Edition 1.2, Consolidated Edition; Safety of Laser Products-Part 1: Equipment classification, requirements and user's guide. IEC 60825-2:1993, Safety of laser products-Part 2: Safety of optical fibre communication systems.

And are referred to in 13 places in the document. These are:

- 1) 802.3 D2.0 Section 1 Page 355 Line 13 Subclause 9.9.7.1.2 "The recommendations of IEC 60825: 1993, if applicable, shall be adhered to in determining the optical source safety and user warning requirements."
- 2) 802.3 D2.0 Section 3 Page 121 Line 23 Subclause 38.7.2 "100BASE-X optical transceivers shall be Class 1 laser certified under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. Transceivers shall be certified to be in conformance with IEC 60825-1. Conformance to additional laser safety standards may be required for operation within specific geographic regions."
- 3) 802.3 D2.0 Section 3 Page 132 Line 26 Subclause 38.12.4.5 "OR32 Laser safety compliance test conditions 38.7.2 IEC 60825-1"
- 4) 802.3 D2.0 Section 4 Page 375 Line 14 Subclause 52.10.2 "10GBASE-R and 10GBASE-W optical transceivers shall conform to Class 1 laser requirements as defined in the IEC 60825-1:2001, under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographic regions."
- 5) 802.3 D2.0 Section 4 Page 386 Line 8 Subclause 52.15.3.11 "ES2 Laser safety -IEC Class 1 52.10.2 Conform to Class 1 laser requirements defined in the IEC 60825-1"
- 6) 802.3 D2.0 Section 4 Page 412 Line 40 Subclause 53.10.2 "The 10GBASE-LX4 optical transceivers shall be Class 1 laser certified under any condition of operation in conformance to the IEC 60825-1, which has been updated by Amendment 2 (2001-01). This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographic regions."
- 7) 802.3 D2.0 Section 5 Page 88 Line 10 Subclause 58.8.2 "100BASE-LX10 and 100BASE-BX10 optical transceivers shall conform to Class 1 laser requirements as defined in IEC 60825-1, under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographical regions."
- 8) 802.3 D2.0 Section 5 Page 94 Line 31 Subclause 58.10.3.6 "ES2 Laser safety -IEC Class 1 58.8.2 Conform to Class 1 laser requirements defined in IEC 60825-1"
- 9) 802.3 D2.0 Section 5 Page 113 Line 4 Subclause 59.8.2 "1000BASE-BX10 and 1000BASE-LX10 optical transceivers shall conform to Class 1 laser requirements as defined in IEC 60825-1, under any condition of operation. This includes

## IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographical regions."

10) 802.3 D2.0 Section 5 Page 121 Line 42 Subclause 59.10.3.6

"ES2 Laser safety - IEC Class 1 59.8.2 Conforms to Class 1 laser requirements defined in IEC 60825-1."

11) 802.3 D2.0 Section 5 Page 142 Line 10 Subclause 60.8.2

"1000BASE-PX10 and 1000BASE-PX20 optical transceivers shall conform to Class 1 laser requirements as defined in IEC 60825-1, under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographic regions."

12) 802.3 D2.0 Section 5 Page 149 Line 25 Subclause 60.10.4.8

"ES2 Laser safety - IEC Class 1 60.8.2 Conform to Class 1 laser requirements defined in IEC 60825-1"

13) 802.3 D2.0 Section 5 Page 376 Line 39 Subclause 68.10.3.5

"SE2 Laser safety - IEC Class 1 68.7.1 As 52.10.2. Conform to Class 1 laser requirements defined in IEC 60825-1"

There have been at least one corrigendum and a revision of IEC 60825-1 since 2001:

Corrigendum 1 2002

Second Edition 2007

There have been at least two amendments and three revisions of IEC 60825-2 since 1993:

Amendment 1 1997

Second Edition 2000

Third Edition 2004

Amendment 1 2006

Edition 3.1 2007

IEC 60825-1 and IEC 60825-2 are the internationally recognised base documents that country specific requirements documents are derived from. For example EN 60825-1 and EN 60825-1 are European requirements documents generated by CENELEC which follow the IEC versions and BS EN 60825-1 and BS EN 60825-2 are the UK national requirements documents.

Consequently, it is appropriate to refer to the latest versions of IEC 60825-1 and IEC 60825-2 rather than specific superseded versions.

### *Suggested Remedy*

As the titles have changed the references should become:

IEC 60825-1, Safety of Laser Products-Part 1: Equipment classification and requirements.

IEC 60825-2, Safety of laser products-Part 2: Safety of optical fibre communication systems (OFCS).

Change the text in subclause 9.9.7.1.2 from:

"The recommendations of IEC 60825: 1993, if applicable, shall be adhered to in determining the optical source safety and user warning requirements."

to become:

"The recommendations of IEC 60825-1, if applicable, shall be adhered to in determining the optical source safety and user warning requirements."

Change the text in subclause 52.10.2 from:

"10GBASE-R and 10GBASE-W optical transceivers shall conform to Class 1 laser requirements as defined in the IEC 60825-1:2001, under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore.

Conformance to additional laser safety standards may be required for operation within specific geographic regions."

to become:

"10GBASE-R and 10GBASE-W optical transceivers shall conform to Class 1 laser requirements as defined in the IEC 60825-1, under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographic regions."

Change the text in subclause 53.10.2 from:

"The 10GBASE-LX4 optical transceivers shall be Class 1 laser certified under any condition of operation in conformance to the IEC 60825-1, which has been updated by Amendment 2 (2001-01). This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographic regions."

to become:

"The 10GBASE-LX4 optical transceivers shall be Class 1 laser certified under any condition of operation in conformance to IEC 60825-1. This includes single fault conditions whether coupled into a fiber or out of an open bore. Conformance to additional laser safety standards may be required for operation within specific geographic regions."

*Response*

*Response Status* **C**

REJECT.

It appears that there is a interpretation under development for IEC 60825-2 - Interpretation sheet for Publication IEC 60825-2 (Third edition - 2005 and its amendment 1 - 2006) - Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCS)

[ <http://www.iec.ch/cgi-bin/procgi.pl/www/iecwww.p?wwwlang=&wwwprog=doc-det.p&progdb=db1&wcom=76&wclass=&wdoc=376&wsup=> ]

Since there appears to work ongoing on this area we will keep the referbces as they are and request the IEEE P802.3ba Task Force to consider updates to these references when they do their optical work.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 01 SC 1.3 P 150 L 20 # 9  
 Dawe, Piers J G Individual

Comment Type T Comment Status A  
 ANSI/TIA/EIA-526-4A-1997 (OFSTP-4A), Optical Eye Pattern Measurement Procedure and IEC 61280-2-2 (1998), Fiber optic communication sub-system basic test procedures--Part 2-2: Test procedures for digital systems - Optical eye pattern, waveform, and extinction ratio, are superseded by IEC 61280-2-2 Ed. 2 (and Ed. 3 is in preparation)

Suggested Remedy

I have an action (not completed) to check if IEC 61280-2-2 Ed. 2 can be used instead of ANSI/TIA/EIA-526-4A-1997 and IEC 61280-2-2 (1998). If so, update IEC reference and delete TIA reference (affects probably clauses 38, 52, 53, 68).

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Action item completed - see comment #78.

CI 01 SC 1.3 P 153 L 18 # 57  
 Law, David Individual

Comment Type T Comment Status A referenced ITU recommendation

- This comment is submitted on behalf of Pete Anslow.  
 ITU-T Recommendation G.652, 2000-Characteristics of a single-mode optical fibre cable. And is referred to in 17 places in the document. These are:
- 1) 802.3 D2.0 Section 4 Page 378 Line 21 Subclause 52.14.2  
 "aFor the single-mode case, the 0.4 dB/km attenuation for optical fiber cables is defined in ITU-T G.652."
  - 2) 802.3 D2.0 Section 4 Page 398 Line 22 Subclause 53.8.1.1  
 "Have an ITU-T G.652 fiber or fibers with lengths chosen to have a total dispersion larger than specified in Table 53-14 for the wavelength of the device under test."
  - 3) 802.3 D2.0 Section 4 Page 405 Line 3 Subclause 53.9.10.2  
 "For 10GBASE-LX4 (singlemode), the transmitter shall be compliant with dispersion at least as negative as the "minimum dispersion" and at least as positive as the "maximum dispersion" columns. This shall be achieved using ITU-T G.652 fiber (note 2) or fibers with lengths chosen to have a total dispersion larger than specified in Table 53-12 for the wavelength of the device under test."
  - 4) 802.3 D2.0 Section 4 Page 415 Line 23 Subclause 53.14.1  
 "aFor the single-mode case, the 0.4 dB/km attenuation for optical fiber cables is defined in ITU-T G.652."
  - 5) 802.3 D2.0 Section 4 Page 423 Line 26 Subclause 53.15.4.5 "Achieved using ITU-T G.652 fiber."
  - 6) 802.3 D2.0 Section 5 Page 89 Line 4 Subclause 58.9  
 "The 100BASE-LX10 and 100BASE-BX10 fiber optic cabling shall meet the dispersion specifications of IEC 60793-2 and ITU-T G.652, as shown in Table 58-15."
  - 7) 802.3 D2.0 Section 5 Page 89 Line 38 Subclause 58.9.2  
 "The fiber optic cable requirements are satisfied by the fibers specified in IEC 60793-2, Types B1.1 (dispersion un-shifted single-mode) and B1.3 (low water peak single-mode) and ITU-T G.652 as noted in Table 58-15."
  - 8) 802.3 D2.0 Section 5 Page 89 Line 53 Subclause 58.9.2  
 "cAttenuation values are informative not normative. Attenuation for single-mode optical fiber cables is defined in ITUT G.652."
  - 9) 802.3 D2.0 Section 5 Page 89 Line 54 Subclause 58.9.2  
 "dSee IEC 60793 or G.652 for correct use of zero dispersion wavelength and dispersion slope."
  - 10) 802.3 D2.0 Section 5 Page 113 Line 52 Subclause 59.9  
 "The 1000BASE-BX10 and 1000BASE-LX10 fiber optic cabling shall meet the dispersion and modal bandwidth specifications defined in IEC 60793-2 and ITU-T G.652, as shown in Table 59-16."
  - 11) 802.3 D2.0 Section 5 Page 114 Line 52 Subclause 59.9.2  
 "The fiber optic cable requirements are satisfied by the fibers specified in IEC 60793-2 Type B1.1 (dispersion un-shifted single-mode fiber) and Type B1.3 (low water peak single-mode fiber) and ITU-T G.652 as noted in Table 59-16."
  - 12) 802.3 D2.0 Section 5 Page 115 Line 23 Subclause 59.9.2  
 "cAttenuation values are informative. Attenuation for single-mode optical fiber cables is defined in ITU-T G.652 and for multimode fiber cables is defined in ISO/IEC 11801."
  - 13) 802.3 D2.0 Section 5 Page 115 Line 26 Subclause 59.9.2

## IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

"eSee IEC 60793 or G.652 for correct use of zero dispersion wavelength and dispersion slope."

14) 802.3 D2.0 Section 5 Page 143 Line 4 Subclause 60.9

"The 1000BASE-PX fiber optic cabling shall meet the dispersion specifications defined in IEC 60793-2 and ITU-T G.652, as shown in Table 60-14."

15) 802.3 D2.0 Section 5 Page 143 Line 45 Subclause 60.9.2

"The fiber optic cable requirements are satisfied by the fibers specified in IEC 60793-2 Type B1.1 (dispersion un-shifted single-mode fiber) and Type B1.3 (low water peak single-mode fiber) and ITU G.652 as noted in Table 60-14."

16) 802.3 D2.0 Section 5 Page 144 Line 16 Subclause 60.9.2

"Attenuation for single-mode optical fiber cables is defined in ITU-T G.652."

17) 802.3 D2.0 Section 5 Page 144 Line 17 Subclause 60.9.2

"dSee IEC 60793 or ITU-T G.652."

G.652 has had two revisions since 2000:

Revision 2003

Revision 2005

A comparison of the 2005 version with the 2000 version gives the following main changes:

The title has changed to "Characteristics of a single-mode optical fibre and cable"

Two new categories G.652.C and G.652.D for low water peak fibre have been added.

The maximum zero -dispersion slope coefficient, S0max has changed from 0.093 to 0.092 ps/nm<sup>2</sup>

The mode field diameter tolerance has changed from 0.7 to 0.6 um

The maximum core concentricity error has changed from 0.8 to 0.6 um

The maximum cladding noncircularity has changed from 2% to 1%

The radius for the macrobend loss limit has changed from 37.5 to 30 mm

The maximum loss for 100 turns at 1550 nm has changed from 0.5 to 0.1 dB A

specification of 0.5 ps/sqrt(km) maximum PMDQ has been added for G.652.A fibre

The maximum PMDQ value for G.652.B fibre has changed from 0.5 to 0.2 ps/sqrt(km)

Looking at the 17 references to G.652 in 802.3 D2.0:

Instances 1), 4), 8), 12), 16) refer to the attenuation values. These are the values for G.652.B fibre (although this is not stated). The values are explicit in 802.3 D2.0 and they are unchanged in G.652 2005.

Instances 2), 3) and 5) simply refer to G.652 as a generic fibre type (i.e. standard SM fibre) and there has not been enough change in G.652 to invalidate this.

Instances 6), 10), 14), 17) refer to the zero dispersion maximum and minimum and the maximum zero -dispersion slope coefficient. Of these only the latter (S0max) has changed and in all cases the value of 0.093 ps/nm<sup>2</sup> from G.652 2000 is explicit in 802.3 D2.0.

Instances 7), 11) and 15) state that the requirements are satisfied by fibres specified in G.652. Since the specification changes in G.652 are all tightening of the requirements this remains true for G.652 2005

Instances 9) and 13) refer to G.652 for correct use of the zero dispersion wavelength and dispersion slope parameters. The equations that deal with this topic in G.652 have not changed.

From all of this, the only issue with changing the reference from G.652 2000 to G.652 2005 is that there will be a discrepancy between the value of S0max required in 802.3 (0.093 ps/nm<sup>2</sup>) and the value in G.652 (0.092 ps/nm<sup>2</sup>). Since all of the instances in 802.3 have the value explicitly the benefit of referring to the newer version of G.652 which includes low water peak fibre outweighs the inconsistency of the slope value.

While looking at the text of these references two issues emerge:

In Instance 2) "Have an ITU-T G.652 fiber or fibers with lengths chosen to have a total dispersion larger than specified in Table 53-14 for the wavelength of the device under test." The requirement for the total dispersion points to Table 53-14. However, this table does not specify the total dispersion, whereas Table 53-12 does.

In instance 3) "For 10GBASE-LX4 (singlemode), the transmitter shall be compliant with dispersion at least as negative as the "minimum dispersion" and at least as positive as the "maximum dispersion" columns. This shall be achieved using ITU-T G.652 fiber (note 2) or fibers with lengths chosen to have a total dispersion larger than specified in Table 53-12 for the wavelength of the device under test." What does the "(note 2)" refer to?

### *Suggested Remedy*

G.652 is a stable Recommendation which is referred to throughout the industry. Small changes are, however, made from time to time to keep it up to date with current requirements and there is some possibility that a future revision could cause a significant inconsistency with 802.3. Therefore it seems prudent to update the reference to G.652 to become:

ITU-T Recommendation G.652, 2005- Characteristics of a single-mode optical fibre and cable.

Also change the text in subclause 53.8.1.1 to:

"Have an ITU-T G.652 fiber or fibers with lengths chosen to have a total dispersion larger than specified in Table 53-12 for the wavelength of the device under test."

### *Response*

*Response Status* C

ACCEPT IN PRINCIPLE.

Change 53.8.1.1 to read 'The transmitter shall be tested for single-mode fiber use using the single-mode simulation channel defined in 53.9.10.2. The transmitter shall also be tested for multimode fiber use using the multimode simulation channel defined in 53.9.10.2.'

Since IEEE 802.3 was written to support the 2000 version fibers, to change these references to the 2005 version - which has tighter specifications on the fiber - has the potential to make current complaint installations non-complaint. Based on this the references will remain to 2000.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 01 SC 1.3 P 153 L 20 # 55  
 Law, David Individual

Comment Type T Comment Status A referenced ITU recommendation

This comment is submitted on behalf of Pete Anslow.  
 The reference for G.691 is:  
 ITU-T Recommendation G.691, 2000-Optical interfaces for single-channel STM-64, STM-256 and other SDH systems with optical amplifiers.  
 And is referred to in 3 places in the document. These are:  
 1) 802.3 D2.0 Section 4 for 10GBASE-S, 10GBASE-L and 10GBASE-E  
 Page 366 Line 10 Subclause 52.9.7  
 "and where the filter response vs. frequency range for this fourth-order Bessel-Thomson receiver is defined in ITU-T G.691, 2000, along with the allowed tolerances for its physical implementation."  
 2) 802.3 D2.0 Section 4 for 10GBASE-S, 10GBASE-L and 10GBASE-E  
 Page 369 Line 23 Subclause 52.9.9.1  
 "The vertical and horizontal eye closures to be used for receiver conformance testing are verified using an optical reference receiver with a 7.5 GHz fourth order ideal Bessel-Thomson response. Use of G.691 tolerance filters may significantly degrade this calibration. Care should be taken to ensure that all the light from the fiber is collected by the fast photodetector and that there is negligible mode selective loss, especially in the optical attenuator and the optical coupler, if used."  
 3) 802.3 D2.0 Section 5 for 10GBASE-LRM  
 Page 357 Line 1 Subclause 68.6.5  
 "The eye is measured with respect to the mask using a receiver with the fourth-order Bessel-Thomson response with nominal fr of 7.5 GHz as specified for STM-64 in ITU-T G.691, with the tolerances there specified."  
 G.691 has had two revisions and an amendment since 2000:  
 Revision 2003  
 Amendment 1 2005  
 Revision 2006  
 All of the references to G.691 in 802.3 are for the Bessel-Thomson filter (and tolerances) described in clause A.1 of G.691. This clause is identical in the current version (2006) as it was in the 2000 version except that it refers to G.957 for the definition of the Bessel-Thomson filter and this definition has changed to define the 0dB level as the attenuation at 0.03 fr. This was done to clarify the specification and prevent someone from effectively doubling the allowed tolerance by choosing an arbitrary reference point to be 0 dB.  
 For the 3 places that G.691 is referenced (detailed above) instance 3) clearly indicates which of the alternative tolerances (in Table A.1/G.691) should be used. For instances 1) and 2) this information is missing.  
 For instance 1) the rate is 10.3125 GbD which is the same as for instance 3) so the same tolerances (STM-64 at 9.95328 Gbit/s) are appropriate.  
 For instance 2) the reference to G.691 is only a comment that a filter with tolerance according to G.691 will affect the calibration rather than a requirement on the tolerance, so this text can remain as it is.

*Suggested Remedy*

It would be beneficial to change the reference from G.691, 2000 to indicate the latest version. Since the ITU-T is not actively developing the text of G.691 but is only making

changes to correct errors etc. and considering that several other ITU-T Recommendations refer to G.691 for the tolerance of the Bessel-Thomson filter at 10G, the best option seems to be to remove the date so that future corrections in G.691 are captured without modification being required in 802.3. Failing this, changing to G.691, 2006 would be beneficial. As the title of G.691 has changed the reference should be: ITU-T Recommendation G.691- Optical interfaces for single channel STM-64 and other SDH systems with optical amplifiers.  
 To remove any ambiguity in the tolerances change the text in subclause 52.9.7 to: "and where the filter response vs. frequency range for this fourth-order Bessel-Thomson receiver is defined in ITU-T G.691, 2000, along with the allowed tolerances (STM-64 values) for its physical implementation."

Response Response Status C

ACCEPT IN PRINCIPLE.

The consensus of the BRG was to keep the date which will be updated to 2006. Subclause 52.9.7 will be updated to reference the STM-64 tolerances.

Change the 6th paragraph of subclause 52.9.7 to read 'and where the filter response vs. frequency range for this fourth-order Bessel-Thomson receiver is defined in ITU-T G.691, 2000, along with the allowed tolerances (STM-64 values) for its physical implementation.'

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 01 SC 1.3 P 153 L 23 # 54  
 Law, David Individual

Comment Type T Comment Status A referenced ITU recommendation

This comment is submitted on behalf of Pete Anslow.  
 The reference for G.957 is:  
 ITU-T Recommendation G.957, 1999-Optical interfaces for equipments and systems relating to the synchronous digital hierarchy (SDH).  
 And is referred to in 5 places in the document. These are:  
 1) 802.3 D2.0 Section 3 for 1000BASE-LX and 1000BASE-SX  
 Page 117 Line 1 Subclause 38.6.5  
 "and where the filter response vs. frequency range for this fourth order Bessel-Thomson filter is defined in ITU-T G.957, along with the allowed tolerances for its physical implementation."  
 2) 802.3 D2.0 Section 4 for 10GBASE-LX4  
 Page 402 Line 15 Subclause 53.9.7  
 "and where the filter response vs. frequency range for this fourth-order Bessel-Thomson filter is defined in ITU-T G.957, along with the allowed tolerances for its physical implementation."  
 3) 802.3 D2.0 Section 5 for 100BASE-LX10 and 100BASE-BX10  
 Page 76 Line 18 Subclause 58.7.8  
 "For 100BASE-LX10 and 100BASE-BX10, the eye is measured with respect to the mask of the eye using a receiver with a fourth-order Bessel-Thomson response with nominal fr of 116.64 MHz as specified for STM-1 in ITU-T G.957, with the tolerances there specified."  
 4) 802.3 D2.0 Section 5 for 1000BASE-LX10 and 1000BASE-BX10  
 Page 109 Line 46 Subclause 59.7.8  
 "The eye shall comply to the mask of the eye using a fourth-order Bessel-Thomson receiver response with fr = 0.9375 GHz, and where the relative response vs. relative frequency is defined in ITU-T G.957, Table B.2 (STM-16 values), along with the allowed tolerances for its physical implementation."  
 5) 802.3 D2.0 Section 5 for 1000BASE-PX10 and 1000BASE-PX20  
 Page 138 Line 1 Subclause 60.7.8  
 "The eye shall comply to the mask of the eye using a fourth-order Bessel-Thomson receiver response with fr = 0.9375 GHz, and where the relative response vs. relative frequency is defined in ITU-T G.957, Table B.2 (STM-16 values), along with the allowed tolerances for its physical implementation."  
 G.957 has had two amendments and a revision since 1999:  
 Amendment 1 2003  
 Amendment 2 2005  
 Revision 2006  
 Since all of the references in 802.3 are for the Bessel-Thomson filter (and tolerances) described in clause B.2 of G.957, the only change in the current version compared to the 1999 version that needs to be considered is the change from:  
 The reference frequency is fr = 0.75 f0. The nominal attenuation at this frequency is 3 dB.  
 to  
 The reference frequency is fr = 0.75 f0. The nominal attenuation at this frequency is 3 dB, where 0dB is defined to be the attenuation at 0.03 fr.  
 Which was done to clarify the specification and prevent someone from effectively doubling the allowed tolerance by choosing an arbitrary reference point to be 0 dB.

For the 5 places that G.957 is referenced (detailed above) 3), 4), and 5) clearly indicate which of the alternative tolerances (in Table B.2/G.957) should be used. For the instances 1) and 2) this information is missing.  
 For instance 1) the rate is 1.25 GBd which is the same as for instances 4) and 5) so the same tolerances (STM-16) are appropriate.  
 For instance 2) the rate is 3.125 GBd so the tolerances for the nearest SDH rate (STM-16 2.48832 GBd) are appropriate.

Suggested Remedy

It would therefore be beneficial to change the reference from G.957, 1999 to indicate the latest version. Since the ITU-T is not actively developing the text of G.957 but is only making changes to correct errors etc. and considering that several other ITU-T Recommendations refer to G.957 for the definition of the Bessel-Thomson filter, the best option seems to be to remove the date so that future corrections in G.957 are captured without modification being required in 802.3. Failing this, changing to G.957, 2006 would be beneficial.  
 To remove any ambiguity in the tolerances change the text in subclause 38.6.5 to:  
 "and where the filter response vs. frequency range for this fourth order Bessel-Thomson filter is defined in ITU-T G.957, along with the allowed tolerances (STM-16 values) for its physical implementation."  
 Similarly change the text in subclause 53.9.7 to:  
 "and where the filter response vs. frequency range for this fourth-order Bessel-Thomson filter is defined in ITU-T G.957, along with the allowed tolerances (STM-16 values) for its physical implementation."

Response Response Status C

ACCEPT IN PRINCIPLE.

The consensus of the BRG was to keep the date which will be updated to 2006. Subclause 38.6.5 and 53.9.7 will be updated to reference the STM-16 tolerances.

Change the 5th paragraph of subclause 38.6.5 to read 'and where the filter response vs. frequency range for this fourth order Bessel-Thomson filter is defined in ITU-T G.957, along with the allowed tolerances (STM-16 values) for its physical implementation.'

Change the 5th paragraph of subclause 53.9.7 to read 'and where the filter response vs. frequency range for this fourth-order Bessel-Thomson filter is defined in ITU-T G.957, along with the allowed tolerances (STM-16 values) for its physical implementation.'

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 01 SC 1.3 P 153 L 26 # 56  
 Law, David Individual

Comment Type T Comment Status A referenced ITU recommendation

This comment is submitted on behalf of Pete Anslow.  
 The reference for G.975 is:  
 ITU-T Recommendation G.975, 2000-Forward error correction for high bit rate DWDM submarine systems.  
 And is referred to in 1 place in the document. This is:  
 1) 802.3 D2.0 Section 5 for 1000BASE-X  
 Page 315 Line 3 Subclause 65.2.3.1  
 "The FEC code specification, properties and performance analysis are specified in ITU-T G.975."  
 G.975 has had no modifications made to it since the 2000 version.  
 The title of G.975 is "Forward error correction for submarine systems" whereas the title of G.975.1 (which is a different Recommendation that does not contain the RS(255,239) definition) is "Forward error correction for high bit-rate DWDM submarine systems"

SuggestedRemedy

G.975 is a stable Recommendation which is not being actively developed. The only modifications likely to be made to G.975 are corrections to fix errors in the text. There is therefore a low risk that modifications to G.975 will cause a problem to 802.3 and the benefit of removing the specific date is that future corrections in G.975 are captured without modification being required in 802.3. As the title in the reference to G.975 is incorrect the reference should become:  
 ITU-T Recommendation G.975-Forward error correction for submarine systems.

Response Response Status C  
 ACCEPT.

CI 01 SC 1.4.346 P 177 L 10 # 14  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

Missing entry in definitions list

SuggestedRemedy

transmitter and dispersion penalty: a measure of the performance of a transmitter relative to an ideal transmitter. (See IEEE 802.3, 52.9.10 and 58.7.9.)

Response Response Status C  
 ACCEPT.

CI 01 SC 1.4.357 P 177 L 44 # 15  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

Missing entry in definitions list

SuggestedRemedy

uncorrelated jitter: jitter that is not associated with the sequence being transmitted. (See IEEE 802.3, 68.6.8.)

Response Response Status C  
 ACCEPT.

CI 01 SC 1.4.361 P 178 L 5 # 16  
 Dawe, Piers J G Individual

Comment Type T Comment Status R

Missing entry in definitions list (this one isn't essential and may need wordsmithing)

SuggestedRemedy

vertical eye closure penalty: approximately the ratio of the inner eye height of a signal to its eye height. (See IEEE 802.3, 52.9.9.2 and 58.7.11.2.)

Response Response Status C  
 REJECT.

This comment was WITHDRAWN by the commenter.

CI 01 SC 1.4.96 P 160 L 28 # 71  
 Thompson, Geoffrey Individual

Comment Type GR Comment Status A

There are direct references to "IEEE 100" but IEEE 100 is not in the list of references nor in the bibliography.

SuggestedRemedy

Remove references or add it (or something else more appropriate) as a reference

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This will be added to the bibliography.

IEEE 100, a glossary of standards terms titled <l>The Authoritative Dictionary of IEEE Standards Terms</l>, New York, Institute of Electrical and Electronics Engineers, Inc.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 01 SC 1.5 P 182 L 5 # 10  
 Dawe, Piers J G Individual

Comment Type T Comment Status A  
 Missing entries in abbreviations list: there may be a few more

SuggestedRemedy  
 Add:  
 TDP transmitter and dispersion penalty  
 VECP vertical eye closure penalty  
 UJ uncorrelated jitter

Response Response Status C  
 ACCEPT.

CI 01 SC 1.5 P 182 L 8 # 72  
 Thompson, Geoffrey Individual

Comment Type ER Comment Status A  
 There is a abbreviation key for the term "TLV" as short for "Type/Length/Value" but there is no definition for the term itself. Now normally one would have a reference of last resort but lacking an actual "Concise Dictionary" to refer to all reference to IEEE 100 has been removed.  
 Further in, I find "TLV" used in conjunction with the word "tuple". While I can find something on the web for "tuple", I do not consider "Wiki" to be an authoritative source of definitions. I find no entry for "tuple" in the American Heritage dictionary.

SuggestedRemedy  
 Please add or refer to appropriate definitions for both "TLV" and "tuple".

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Definition for TLV:

type, length, value (TLV): A short, variable length encoding of an information element consisting of sequential type, length, and value fields where the type field identifies the type of information, the length field indicates the length of the information field in octets, and the value field contains the information, itself. The type value is locally defined and needs to be unique within the protocols defined in this standard.

Definition of 'tuple' from Merram Websters dictionary is as follows:

Function: noun combining form  
 Etymology: quintuple, sextuple  
 : set of (so many) elements —usually used of sets with ordered elements <the ordered 2-tuple (a, b)>

In total 'tuple' is used 21 time in this draft, once in Clause 40, 14 times in Clause 57 and 6 times in Annex 61B. The usage in 40.1.3 'Operation of 1000BASE-T' which reads '.. as a 4-tuple (An, Bn, Cn, Dn) of ..' is therefore correct. The usage in Annex 61B is consistently '.. 3-tuple ..' which again is correct. Finally the usage in Clause 57 is either 'TLV-tuple', 'TLV\_tuple' or 'TLV tuple'. With the editorial correction of 'TLV\_tuple' and 'TLV tuple' to 'TLV-tuple' this clause will also then be correct.

SUMMARY:

- [1] A definition of TLV will be added.
- [2] The instances of 'TLV\_tuple' and 'TLV tuple' will be corrected to 'TLV-tuple'.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 03 SC 3.2.10 P 191 L 51 # 18  
 Dawe, Piers J G Individual

Comment Type E Comment Status R MAC

The length of the Extension field will be zero

SuggestedRemedy

The length of the Extension field is zero

Response Response Status C

REJECT.

The zero length is a consequence of the Clause 4 MAC specification. The Clause 3 text is accurate either way, because Clause 3 doesn't provide the complete MAC behavioral specification, Clause 4 does (consequently with a conformant implementation of Clause 4, 'the Extension field will be zero').

CI 03 SC 3.2.8 P 191 L 11 # 19  
 Dawe, Piers J G Individual

Comment Type T Comment Status R MAC

This section defines the size of the Pad / length of the Pad field, but not what should go in the Pad field; e.g. does it have to be all zeros?

SuggestedRemedy

If it matters, state the requirement. If it doesn't matter, say so.

Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

CI 03 SC 3.2.8 P 191 L 11 # 88  
 Dawe, Piers J G Individual

Comment Type T Comment Status R MAC

(Updated remedy) This section defines the size of the Pad / length of the Pad field, but not what should go in the Pad field; e.g. does it have to be all zeros?

SuggestedRemedy

If it doesn't matter, it would be helpful to say so. 4.2.3.3 says 'The content of the Pad is unspecified.'

Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

CI 03 SC 3.3 P 192 L 3 # 20  
 Dawe, Piers J G Individual

Comment Type T Comment Status A MAC

Do not know what if anything 'low-order bit' means. 3.2.3 tells me that 'Each octet of each address field shall be transmitted least significant bit first', but there is no definition or explanation of 'low-order bit', so I don't know which way to order the bits in the MAC Client Data field.

SuggestedRemedy

If it means the least significant bit, say so and get rid of 'low-order bit' from the rest of the document, e.g. 57B.1.

Response Response Status C

ACCEPT IN PRINCIPLE.

Instances throughout the draft of 'low-order bit' will be changed to read 'least significant bit' to match LSB used in figure 3-1.

CI 04 SC 4.2.3.3 P 206 L 54 # 23  
 Dawe, Piers J G Individual

Comment Type T Comment Status R

Through does not mean to. This 'from the DA field through the FCS field inclusive' is a bastard hybrid of standard international English and a regionalism (dialect). I expect it once said 'from the DA field to the FCS field inclusive'. The touchstone regionalism is 'Monday through Friday, 9 am to 5 pm'. which is a sort of folded/transferred epithet. It's possible to go part way through a day, but not part way through a point in time, or a point on a frequency scale. Similarly, we do not want to suggest to the reader that we slice up MAC fields, and elsewhere, that we might be talking about part of a status bit.

SuggestedRemedy

Change to 'from the DA field to the FCS field inclusive'. Scrub the maintained clauses. 'From A through B': fix. 'Through the wonder of television', 'as it travels through the network.' OK.

Response Response Status C

REJECT.

Straw poll. Should this be changed or not.

No change - 8

Change - 2

Based on the above there is no consensus to make this change.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

Cl 06 SC 6 P 248 L 1 # 80  
 Dawe, Piers J G Individual

Comment Type E Comment Status R

(Updated comment) whaling scaling inhaling regaling baling impaling wholesaling, victualling marshalling scaly, locally finally brutally plane planing, plan planning

SuggestedRemedy

Spell 'signalling' properly, with two ells. Scrub the maintained clauses

Response Response Status C

REJECT.

While Merriam Websters dictionary state that it can be spelt either way the Merriam Websters dictionary also states that the preferred method is with one 'l'. It has also been confirmed by the IEEE editor that their preferred spelling which is with the one 'l'. The IEEE 802.3 dictionary will be updated to record this.

Note the draft uses one 'l' 487 times and two 'l's 0 times so the draft is consistent.

Cl 06 SC 6 P 248 L 1 # 11  
 Dawe, Piers J G Individual

Comment Type E Comment Status R

whaling scaling inhaling regaling baling impaling wholesaling, victualling marshalling scaly, locally finally brutally

SuggestedRemedy

Spell 'signalling' properly, with two ells. Scrub the maintained clauses

Response Response Status C

REJECT.

See comment #80.

Cl 21 SC 21.1.2 P 2 L 42 # 17  
 Dawe, Piers J G Individual

Comment Type TR Comment Status A

21. Introduction to 100 Mb/s baseband networks...' This is mendacious because it includes some but not all 100 Mb/s types. It doesn't matter whether there is an introduction to EFM elsewhere or not, the reader is reading this, here. 100BASE-LX10, 100 Mb/s Ethernet on traditional SMF, is part of the core portfolio, and deserves a mention here, more than Backplane Ethernet does in Clause 34. By core portfolio I mean the matrix 100/1000/10G by SMF, MMF, electrical. Whether or not we need a list of all the port types, we do need a list of the places in the document where they are to be found. 'Distinct Identity: ... Easy for document reader to select relevant spec': it's not easy to select if the document pretends it doesn't exist. What I ask for is not an onerous change.

SuggestedRemedy

Add a new paragraph '100BASE-LX10 and 100BASE-BX10 (Clause 58) use a pair of single-mode fibers and one single-mode fiber, respectively.'

Response Response Status C

ACCEPT IN PRINCIPLE.

Straw poll in realtion to these PHYs:

Do nothing 6  
 Add these PHYs 2  
 Do something else 7

Motion

Change the text to read:

The following portion of this standard specifies a family of Physical Layer implementations. Typically 100BASE-TX (Clauses 24 and 25) uses two pairs of Category 5 balanced cabling as defined by ISO/IEC 11801, 100BASE-FX (Clauses 24 and 26) uses two multimode fibers. There are a number of other PHY types and their associated media.

M: Thompson S: Dawe  
 Y: 10 N:1 A: 1

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 22 SC 22.2.1.3.3 P 13 L 48 # 74  
 Frazier, Howard M Individual

Comment Type TR Comment Status A MII

The following text: "At any time after CRS and RX\_DV are both asserted, de-assertion of RX\_DV must cause CARRIER\_STATUS to transition to the CARRIER\_OFF value. This transition of CARRIER\_STATUS from the CARRIER\_ON to the CARRIER\_OFF value must be recognized by the MAC sublayer, even if the CRS signal is still asserted at the time." looks like a hold-over from the pre-802.3z days when the MAC process BitReceiver still used carrierSense to frame the received data. With the changes introduced in 802.3z, the MAC BitReceiver uses receiveDataValid to frame the data.

SuggestedRemedy

I think that the problem can be fixed by changing the second paragraph of this subclause to read: "Any transition of the CRS signal from de-asserted to asserted must cause a transition of CARRIER\_STATUS from the CARRIER\_OFF to the CARRIER\_ON value, and any transition of the CRS signal from asserted to de-asserted must cause a transition of CARRIER\_STATUS from the CARRIER\_ON to the CARRIER\_OFF value."

Response Response Status C  
 ACCEPT.

CI 22 SC 22.2.1.3.3 P 14 L 1 # 73  
 Frazier, Howard M Individual

Comment Type TR Comment Status A MII

The note is wrong! The MII signal RX\_DV no longer maps to the carrierSense variable in MAC process BitReceiver. In fact, the carrierSense variable is no longer used in the MAC process BitReceiver. This should have been changed in 802.3z (mea culpa).

SuggestedRemedy

Change the second sentence of the note to read: The behavior of the RX\_DV signal is specified within this clause so that it can be mapped directly to the receiveDataValid variable in the MAC process BitReceiver, which is described in 4.2.9, provided that the MAC process BitReceiver is implemented to receive a nibble of data on each cycle through the inner loop.

Response Response Status C  
 ACCEPT.

CI 22 SC 22.2.4.2 P 30 L 14 # 90  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

Read Only, Latching Low, Latching High

SuggestedRemedy

Read only, Latching low, Latching high. Scrub the maintained clauses

Response Response Status C  
 ACCEPT IN PRINCIPLE.

A best attempt will be made to scrub this.

CI 28 SC 28.2.4.1.8 P 239 L 41 # 84  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

Unwanted new-lines after Negotiation link partner (twice?)

SuggestedRemedy

Response Response Status C  
 ACCEPT.

CI 28 SC 28.3.1 P 238 L 22 # 85  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

Blank line

SuggestedRemedy

Remove

Response Response Status C  
 ACCEPT.

This is actually on page 248, line 22.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

**Cl 28**    **SC 28.3.1**                      **P 238**            **L 54**            # **86**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **E**            **Comment Status**    **A**  
 Widow  
**SuggestedRemedy**  
 Keep with next  
**Response**                      **Response Status**    **C**  
 ACCEPT.  
 This is actually on page 248, line 54.

**Cl 30**    **SC 30.5**                                      **P 359**            **L 29**            # **96**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **E**            **Comment Status**    **A**  
 'Layer management for 10 Mb/s, 100 Mb/s, 1000 Mb/s and 10 Gb/s medium attachment units (MAUs)': are there MAUs for any other nominal speeds?  
**SuggestedRemedy**  
 If not, shorten title to 'Layer management for medium attachment units (MAUs)'  
**Response**                      **Response Status**    **C**  
 ACCEPT.

**Cl 28**    **SC 28.5.4**                                      **P 258**            **L 38**            # **75**  
 Frazier, Howard M                                      Individual  
**Comment Type**    **TR**            **Comment Status**    **A**                      **PICS**  
 Another mea culpa, I'm afraid. How did we let the Clause 28 PICS carry on for all these years without unique item identification numbers? I believe that each item in the PICS for a given clause should have a unique identifier.  
**SuggestedRemedy**  
 For items under "scope", precede each item number with "SC" e.g. "SC1", "SC2".For items under "Auto-Negotiation" precede each item number with "AN".For items under "Transmit Functions" precede each item number with "TF".For items under "Receive Functions" precede each item number with "RF".For items under "Arbitration Functions" precede each item number with "AF".For items under "Management Functions" precede each item number with "MF".For items under "Technology Dependent" precede each item number with "TD".For items under "State Diagrams", precede each item number with "SD".Precede the item under "Electrical Characteristics" with "EC".For items under "Auto-Negotiation Annexes", precede each item number with "AA"  
**Response**                      **Response Status**    **C**  
 ACCEPT IN PRINCIPLE.  
 As well as Clause 28 similar labels will be added to Clause 14.

**Cl 30**    **SC 30.5.1.1.2**                                      **P 361**            **L 28**            # **91**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **E**            **Comment Status**    **A**  
 It is easier to add new MAU types if this list is in the identical order to TypeValue in 30B.2, which is ordered by speed and then type number  
**SuggestedRemedy**  
 Put this list in the same order. It may help to add an informative NOTE explaining that the order follows 30B.2 and is not alphabetical  
**Response**                      **Response Status**    **C**  
 ACCEPT IN PRINCIPLE.  
 The list will be changed to be in the same order as TypeValue in 30B.2.

**Cl 30**    **SC 30.7**    **P 373**            **L 4**            # **3**  
 Lemon, John    Individual  
**Comment Type**    **G**            **Comment Status**    **R**  
 I don't understand why subclauses 30.7, 30A.11, and 30A.14 have been retained. I believe that they should be removed, not just preceded with non-normative notes indicating that they have been deprecated.  
**SuggestedRemedy**  
 Remove subclauses 30.7, 30A.11, and 30A.14, and related support in 1,4 and 1.5.  
**Response**                      **Response Status**    **C**  
 REJECT.

**Cl 28**    **SC 28.5.4.8**                                      **P 269**            **L 10**            # **83**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **E**            **Comment Status**    **A**  
 Bad English, word not justified by normative subclause referred to  
**SuggestedRemedy**  
 Delete 'between', three times. Also, should item 4 refer to 28.3.2 like the other timers?  
**Response**                      **Response Status**    **C**  
 ACCEPT.

We do not want a complaint implementation to IEEE Std 802.3-2005 that includes this MIB to be suddenly made non-compliant to the new revision of IEEE Std 802.3. Due to this the management definitions for link aggregation as they were in 2005 are "grandfathered" in whilst new implementations are pointed towards the new definitions in IEEE P802.1AX. This means that the object definitions, the branches etc. must all be kept, with the descriptions recording the status change.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

Cl 34 SC 34.1.2 P2 L 43 # 21  
 Dawe, Piers J G Individual

Comment Type TR Comment Status A

As we are modifying this introduction to 1000 Mb/s to include Backplane Ethernet, to be even handed we have to point to the other 1000 Mb/s Ethernet types. Whether or not we need a list of all the port types, we do need a list of the places in the document where they are to be found. 'Distinct Identity: ... Easy for document reader to select relevant spec': it's not easy to select if the document pretends it doesn't exist. What I ask for is not an onerous change.

SuggestedRemedy

Insert a new sentence 'For 1000BASE-LX10, 1000BASE-BX10, 1000BASE-CX, 1000BASE-PX10 and 1000BASE-PX20, see Clause 56.'

Response Response Status U

ACCEPT IN PRINCIPLE.

M:Grow S: Noseworthy

The following portion of this standard specifies a family of Physical Layer implementations. 1000BASE-T (Clause 40) uses four pairs of balanced copper cabling. 1000BASE-SX (Clause 36, Clause 37 and Clause 38) uses two multimode fibers. There are a number of other PHY types and their associated media.

Y: 4  
 N: 0

Cl 34 SC 34.1.2 P3 L 1 # 22  
 Dawe, Piers J G Individual

Comment Type E Comment Status R

Table with no number or title or header row.

SuggestedRemedy

Give the table a number and title and header row, refer to it properly on previous page.

Response Response Status C

REJECT.

IEEE-SA Style Guide does permit tables without titles and numbers. Subclause 15.6 'Informal tables' states 'Simple tabulations that are not referred to outside of the subclause in which they appear may be organized into informal tables that do not exceed five or six lines in depth; no table number or title is required. However, it is recommended that all tables be numbered and titled if possible.'

Cl 36 SC 36.1.2 P35 L 32 # 76  
 Frazier, Howard M Individual

Comment Type TR Comment Status A

More gigabugs. The objectives listed for 1000BASE-X in 36.1.2 are inconsistent with the link spans identified in Clause 38 for 1000BASE-LX. We should have caught this in 802.3z.

SuggestedRemedy

Change "3 km" to "5 km" and 3000 meters to 5000 meters in these objectives.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change '.. of up to 3 km ..' to read '.. of at least 5 km ..' and '.. of 3000 m ..' to '.. of at least 5000 m ..'.

Cl 36 SC 36.5 P76 L 2 # 102  
 Law, David

Comment Type E Comment Status A

The text reads 'MAC constraints are contained in 35.2.4 and Table 36-5.'. Table 36-5 is 'TBI combinations of control signals' which Table 35-5 is MAC delay constraints (with GMII). Suspect therefore that 36-5 should read 35-5.

SuggestedRemedy

Change '36-5' to read '35-5'.

Response Response Status C

ACCEPT.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 38 SC 38.6.3 P 116 L 20 # 89  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

Updating reference, definition not requirement to measure, pattern is not data, would one partly modulate, reflections might disturb the measurement in either direction so not helpful. Change:  
 Extinction ratio shall be measured using the methods specified in ANSI/TIA/EIA-526-4A-1997 [B13]. This measurement may be made with the node transmitting a data pattern defined in 36A.2. This is a repeating K28.7 data pattern. The extinction ratio is measured under fully modulated conditions with worst-case reflections.

SuggestedRemedy

Extinction ratio is defined by the methods of IEC 61280-2-2 with the pattern defined in 36A.2. This is a repeating K28.7 pattern.  
 Also update PICS OR5.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change 'ANSI/TIA/EIA-526-4A-1997' to read 'IEC 61280-2-2', update PICS OR5.

CI 44 SC 44.1.4.4 P 4 L 6 # 24  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

The missing words 'implementations based upon 64B/66B data coding method', in 44.1.4 Summary of 10 Gigabit Ethernet sublayers, were the first mention of 64B/66B in 10GE and were correct: 64B66B is what type R is about, otherwise we would call 8B/10B port types 'R' also and we call them 'X'.

SuggestedRemedy

Reinstate 'implementations based upon 64B/66B data coding method'

Response Response Status C

ACCEPT.

CI 47 SC 47.3.4.4 P 219 L 34 # 100  
 Law, David

Comment Type E Comment Status A

As pointed out to me by Marek Hajduczenia there are a few instances of Gbps rather than Gb/s in the draft. The latter is correct based on IEEE Std 260.1-2004 'IEEE Standard Letter Symbols for Units of Measurement (SI Units, Customary Inch-Pound Units, and Certain Other Units)' table 3.

SuggestedRemedy

Change Gbps to Gb/s in the following locations:  
 Subclause 47.3.4.4, page 219, line 34.  
 Subclause 54.6.4.3, page 438, line 40.  
 Subclause 71.7.2.3, page 411, line 4.  
 Subclause 72.7.2.3, page 444, line 35.  
 Subclause 73.5.1, page 457, lines 20 and 21 (twice).  
 Subclause 73.7.6, page 464, lines 51, 52 and 53.  
 Change Mbps to Mb/s in the following locations:  
 Subclause 40.7, page 227, line 4.  
 Subclause 40.7.4, page 229, line 31.  
 Subclause 60.1.1, page 124, lines 5 and 6.  
 Figure 62C-2, page 579, line 7.  
 Figure 62C-3, page 579, line 32.  
 Figure 62C-4, page 580, line 7.

Response Response Status C

ACCEPT.

CI 49 SC 49.3.6.5 P 287 L 42 # 79  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

Font size

SuggestedRemedy

Also line 51

Response Response Status C

ACCEPT.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

Cl 52 SC 52.5.1 P 350 L 36 # 25  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 'Average launch power (min) is informative and not the principal indicator of signal strength'  
 SuggestedRemedy  
 I don't think it would hurt to delete 'informative and'. Look for other similar cases  
 Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 52 SC 52.5.1 P 350 L 45 # 26  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R Informative  
 defined in Table 52-8 and are shown graphically in the informative Figure 52-3  
 SuggestedRemedy  
 defined in Table 52-8 and illustrated in Figure 52-3. Delete the '(informative)' tag from the figure title. Similarly for other figures, e.g. 52-4 which needs a mention in the text, 52-15.  
 Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 52 SC 52.9.10 P 372 L 3 # 27  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 This two-page section needs at least a sentence of introduction. The proposed sentence is copied from 58.7.9.  
 SuggestedRemedy  
 Insert at beginning of paragraph: The transmitter and dispersion penalty (TDP) measurement tests for transmitter impairments with chromatic effects for a transmitter to be used with single-mode fiber, and for transmitter impairments with modal (not chromatic) dispersion effects for a transmitter to be used with multimode fiber.  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.3 P 373 L 1 # 50  
 Dawe, Piers J G Individual  
 Comment Type E Comment Status A  
 Test receiver? It's called 'reference receiver' almost every time.  
 SuggestedRemedy  
 Change test receiver to reference receiver here and in 52.9.10.4 line 36.  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.4 P 362 L 21 # 87  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 Extinction ratio shall be measured using the methods specified in ANSI/TIA/EIA-526-4A-1997 [B13].  
 SuggestedRemedy  
 Extinction ratio is defined by the methods of IEC 61280-2-2. Also update PICS OM4.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Replace 'ANSI/TIA/EIA-526-4A-1997 [B13]' with 'IEC 61280-2-2' and update PICS.

Cl 52 SC 52.9.7 P 357 L 44 # 53  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 Transmitter eye mask acceptable hit count examples (informative)  
 SuggestedRemedy  
 If expedient, delete '(informative)'  
 Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 52 SC 52.9.7 P 365 L 18 # 51  
 Dawe, Piers J G Individual  
 Comment Type E Comment Status A  
 as per  
 SuggestedRemedy  
 per? Also in 52.15.3.2  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 In subclause 52.9.7 change 'Measurements should be made as per ANSI/TIA/EIA-526-4A-1997 (OFSTP-4A).' to read 'Measurements should be made as defined by ANSI/TIA/EIA-526-4A-1997 (OFSTP-4A).'  
 Note - referenced to ANSI/TIA/EIA is changed to IEC standard by another comment.  
 In subclause 52.15.3.2 change 'Mapped as per Table 52-3 and Table 52-4' to read 'As defined in Table 52-3 and Table 52-4'.

CI 52 SC 52.9.7 P 365 L 25 # 98  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 ANSI/TIA/EIA-526-4A-1997 (OFSTP-4A).  
 SuggestedRemedy  
 IEC 61280-2-2.  
 Response Response Status C  
 ACCEPT.

CI 52 SC 52.9.7 P 366 L 36 # 52  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 When we wrote 52.9.7 we asked how mask dimensions were established and how the measurements were carried out. We were told that the dimensions were chosen by judgement, and the industry standard for measurements was 'zero hits in 200 waveforms' (waveforms not well specified). This measurement has poor reproducibility. Because of the huge noise bandwidth at 10 Gb/s, acceptable noise processes in the transmitter under test and in the oscilloscope cause scatter on the measured eye margin: this problem has been worse than expected and remains an obstacle to cost reduction for 10 Gb/s and its aspirations to high volume. It is common to repeat the measurement a few times - but this is time consuming (adds cost). Another approach is to continue the measurement for an increased number of waveforms. This biases the result towards the pessimistic, attempts to measure a Tx noise that is drowned by Rx noise anyway, does not cure the reproducibility issue, and of course takes longer. A synthesis of these approaches uses a larger number of waveforms in a single measurement, and accepts a non-zero number of hits. This removes the bias and addresses the repeatability issue.  
 We chose our mask by judgement, intending that the mask criterion would be easier than the more thorough and representative TDP specification. It turns out that unless the hit ratio is chosen wisely, the mask criterion becomes more demanding than TDP, failing interoperable transmitters and adding to requirements of cost, SERDES jitter, and thermals.

SuggestedRemedy  
 To bring order to this confusion, EFM and 10GBASE-LRM use a defined hit ratio. The ratio is chosen to have the mask margin give the best correlation to transmitter penalty. This clause should also use a defined hit ratio, and to avoid changing the mask dimensions, needs to choose a hit ratio so that a marginal-mask transmitter has a TP worse than the spec TDP offset by a reasonable estimate of dispersion penalty. A hit ratio between 10<sup>-4</sup> and 10<sup>-6</sup> is suitable; I'm still refining my calculations.  
 At the end of 52.9.7, add:  
 The transmitter shall achieve a hit ratio lower than 5x10<sup>-5</sup> hits per sample, where "hits" are the number of samples within the grey areas of Figure 52-8, and the sample count is the total number of samples from 0 UI to 1 UI. Some illustrative examples are provided in 68.6.5.1.

Response Response Status C  
 REJECT.

The presentation was received with interest and general support however the BRG believes this is best approached through the maintenance request process.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 52 SC 52.9.9 P 367 L 3 # 28  
 Dawe, Piers J G Individual

Comment Type T Comment Status R

This 'Stressed receiver tolerance testing shall be performed in accordance with the requirements of 52.9.9.1, 52.9.9.2, and 52.9.9.3.' is wrong. This isn't a mil. spec, we don't say that items need be 100% tested, just that if an item is tested, the test should be done in a certain way and the system under test should pass.

SuggestedRemedy

Delete this sentence-paragraph and change the next to 'Receivers shall operate with BER less than 10<sup>-12</sup> when tested with a conditioned input signal that combines vertical eye closure and jitter according to 52.9.9.1, 52.9.9.2, and 52.9.9.3.'

Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

CI 52 SC 52.9.9.1 P 368 L 3 # 29  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

Rogue capitals: Synthesizer, Source, Input, Under Test, Pattern Generator, Attenuator and so on

SuggestedRemedy

Change to lower case

Response Response Status C

ACCEPT IN PRINCIPLE.

A best effort will be made to correct all of these.

CI 52 SC 52.9.9.1 P 369 L 13 # 31  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

'jitter ... should be less than 0.25 UI peak-peak of jitter' is uselessly vague. It probably meant jitter at the 10<sup>-12</sup> points, which is not directly measurable but can only be inferred by extrapolation, but it could be interpreted as at 1% per histograms in 52.9.9.2, which is far too slack (at 0.25 UI).

SuggestedRemedy

Either insert "(less than 0.02 UI RMS)" after "peak to peak" here, and consider doing similar at p370 line 29, or provide guidance at a meaningful and relevant and measurable measure of statistical significance (between 10<sup>-3</sup> and 10<sup>-6</sup> on a histogram), with an appropriately scaled limit.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add to the end of the sentence '.. at the 10<sup>-12</sup> points.'

CI 52 SC 52.9.9.1 P 369 L 15 # 32  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

It's not our concern how the filter is divided between O/E converter and an explicit filter. Just like for scopes, very fast O/E or E/O such that its bandwidth is irrelevant may not be practical, so we should specify the combination. Also, let's give the reader a hint about what bandwidth might be 'appropriate'.

SuggestedRemedy

Change 'The Bessel-Thomson filter should have the appropriate frequency response to result in the appropriate level of initial ISI eye closure before the sinusoidal terms are added. The E/O converter should be fast and linear such that the waveshape and edge rates are predominantly controlled or limited by the electrical circuitry.' to 'The transfer function of the filter and the O/E converter should have a linear response and an appropriate Bessel-Thomson frequency response to result in the appropriate level of initial ISI eye closure before the sinusoidal terms are added. An electrical bandwidth of 4 to 5 GHz is thought appropriate.'

Response Response Status C

ACCEPT IN PRINCIPLE.

Change first sentence to read:

'The Bessel-Thomson filter and the E/O converter should have the appropriate frequency response to result in the appropriate level of initial ISI eye closure before the sinusoidal terms are added.'

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 52 SC 52.9.9.1 P 369 L 16 # 33  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 The same item gets three different names in the same paragraph!  
 SuggestedRemedy  
 Change 'the E/O modulator' and 'the modulator' to 'the E/O converter'  
 Response Response Status C  
 ACCEPT.

CI 52 SC 52.9.9.1 P 369 L 5 # 30  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 A Bessel-Thomson filter can't have a flat frequency response  
 SuggestedRemedy  
 Change 'wide and flat' to adequately smooth'  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change to read 'wide and smooth'.

CI 52 SC 52.9.9.2 P 369 L 42 # 36  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 'defined by peak values that include all but 0.1% for VECP and all but 1% for jitter of their histograms': if 0.1% is right for VECP, why is it or a more stringent (lower) level of statistical significance not right for jitter?  
 SuggestedRemedy  
 Review  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 The 0.1% has been reviewed and found to be adequate and the 1% has practical convenience. No change to the draft is required.

CI 52 SC 52.9.9.2 P 369 L 42 # 34  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 'Histograms should include at least 10 000 hits'  
 SuggestedRemedy  
 'Histograms should include at least 10 000 samples'? Anyway, why are we saying this at all?  
 Response Response Status C  
 REJECT.

This comment was WITHDRAWN by the commenter.

CI 52 SC 52.9.9.2 P 369 L 42 # 35  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 This is ambiguous: 'defined by peak values that include all but 0.1% for VECP and all but 1% for jitter of their histograms', especially as the jitter histogram has two ends of interest.  
 SuggestedRemedy  
 I believe the instrument makers have a consensus for what this means. I'll try to wordsmith something in time for the meeting.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Add to end of new 52.9.9.2 'Parameter definitions' the text 'AO is defined from the 99.95th percentile of the lower histogram to the 0.05th percentile of the upper histogram. J is defined from the 0.5th to the 99.5th percentile of the jitter histogram'.  
 See also comment #38.

CI 52 SC 52.9.9.2 P 369 L 45 # 37  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 'should be as steep as possible down to very low probabilities' is just waffle. We have given a limit for jitter; need to do the same for vertical noise  
 SuggestedRemedy  
 Provide guidance at a meaningful and relevant and measurable measure of statistical significance (between 10^-3 and 10^-6 on a histogram), with an appropriate limit.  
 Response Response Status C  
 REJECT.

This would be nice to do but the suggested remedy does not provide alternative text.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

Cl 52 SC 52.9.9.2 P 369 L 52 # 49  
 Dawe, Piers J G Individual  
 Comment Type E Comment Status A  
 but increases the risk  
 SuggestedRemedy  
 but this increases the risk  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.9.2 P 370 L 26 # 39  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 greater than two thirds' is ambiguous; is that 2/3 of the dB or 2/3 of the quantity before the log?  
 SuggestedRemedy  
 I believe the industry has come to a consensus on this question; write it down.  
 Response Response Status C  
 REJECT.  
 It appears that the industry has not come to a consensus on the remedy therefore lacking any recommended text the comment is rejected.

Cl 52 SC 52.9.9.2 P 370 L 30 # 40  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 'should ... verify ... not to exceed 0.25 UI peak-peak. If not, the stress may be more than desired, leading to conservative results. However, compensation is not allowed.' This gives a metric that can be arbitrarily, and without limit, as pessimistic as the tester likes to make it - not the clear, precise, unambiguous metric that we expect of a good standard.  
 SuggestedRemedy  
 Exclude testers with excessive jitter or noise and/or provide guidance for small adjustments to J and/or VECP to counterbalance unavoidable equipment deficiencies of jitter or noise.  
 Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 52 SC 52.9.9.2 P 370 L 52 # 41  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status R  
 Text says 'If high linearity exists, then the sinusoidal interference should not change the OMA value.' That's true, under the definition of OMA here, but VECP (dependent on OMA) does not have the same effect on the receiver if sinusoidal interference is present as it does if not. Previously I proposed a modified definition of OMA to address this. Another approach would be to provide different VECP numbers where sinusoidal interference is present.  
 SuggestedRemedy  
 For study.  
 Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 52 SC 52.9.9.2 P 370 L 9 # 38  
 Dawe, Piers J G Individual  
 Comment Type T Comment Status A  
 Bullet 5 is FAR too long.  
 SuggestedRemedy  
 Consider moving the definitions of VECP and J (lines 9-21 with figure 52-11) out of the bulleted recipe, into 52.9.9.1 or a separate definitions subclause. Consider moving the sentence beginning 'The frequency of the sinusoidal interference to 52.9.9.1. Consider moving the paragraph beginning 'If high linearity exists' to bullet 6.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 See new text at [http://www.ieee802.org/3/axay/public/jan\\_08/dawe\\_2\\_0108.pdf](http://www.ieee802.org/3/axay/public/jan_08/dawe_2_0108.pdf)

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 52 SC 52.9.9.2 P 371 L 36 # 42  
 Dawe, Piers J G Individual

Comment Type T Comment Status R

This text causes confusion: 'Care should be taken when characterizing the signal used to make receiver tolerance measurements. In the case of a transmit jitter measurement, excessive and/or uncalibrated noise/jitter in the test system makes it more difficult to meet the specification and may have a negative impact on yield but will not effect interoperability.' It would be more comprehensible if it used the proper terminology. Spelling of 'effect'.

SuggestedRemedy

If I have understood the text correctly, change to: 'Care should be taken when characterizing the conformance test signal. Excessive and/or uncalibrated noise and/or jitter transmitted by the E/O converter makes it more difficult for a receiver to pass the test and may have a negative impact on yield, but will not affect the interoperability of passing receivers.' Alternatively, as they are statements of the obvious, delete this sentence and the next.

Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

CI 52 SC 52.9.9.2 P 371 L 42 # 43  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

it is recommended that the implementer fully characterize their test equipment'. Grammar!

SuggestedRemedy

it is recommended that the implementer fully characterize the test equipment'

Response Response Status C

ACCEPT.

CI 52 SC 52.9.9.3 P 371 L 49 # 44  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

The BER is to be compliant at all frequencies': does BER have frequencies?

SuggestedRemedy

The BER is to be compliant for all jitter frequencies

Response Response Status C

ACCEPT.

CI 52 SC 52.9.9.3 P 371 L 54 # 45  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

What does this mean: 'The value for sinusoidal jitter must be met at all test frequencies'? Is it a re-statement of something in the paragraph above?

SuggestedRemedy

Make it clear or delete it

Response Response Status C

ACCEPT IN PRINCIPLE.

It is believed to be redundant to sentence 3 of the paragraph above, therefore this sentence will be deleted.

CI 53 SC 53.9.4 P 401 L 34 # 92  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

TIA/EIA-526-4A

SuggestedRemedy

IEC 61280-2-2. Also 53.9.7, and 53.15.4.5 OM6 and OM9

Response Response Status C

ACCEPT.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 55 SC 55.4.2.5.14 P 498 L 18 # 106  
Barrass, Hugh

Comment Type T Comment Status A

Clause 55.4.2.5.14 defines a startup sequence consisting of 7 states with associated actions that must be performed before the PHY can start transmitting data (Fig. 55-24). The standard requires that the transition through these 7 states must take place in less than 2000 ms, however there is no guidance for the amount of time that may be spent in each individual state. There is a further requirement that the two PHYs operating as link partners make most of the link transitions simultaneously. Thus a situation exists where each PHY may be capable of meeting the 2000 ms overall startup restriction when connected to a like PHY but a pair of PHYs may exceed the timing restriction and therefore be unable to bring up link.

SuggestedRemedy

Add the following at the end of the first paragraph:  
Note: The operation of the maxwait\_timer requires that the PHY complete the startup sequence from states PMA\_Training\_Init\_M or PMA\_Training\_Init\_S to PMA\_Fine\_Adjust in less than 2000mS to avoid link\_status being changed to FAIL by the link monitor state machine (Fig 55-27). However to avoid interoperability problems between PHYs that spend different amounts of time in the various startup states it is recommended that any PHY should complete the startup sequence in less than 1000ms when connected to another PHY of similar construction.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add to subclause 55.4.2.5.14

The operation of the maxwait\_timer requires that the PHY complete the startup sequence from states PMA\_Training\_Init\_M or PMA\_Training\_Init\_S to PMA\_Fine\_Adjust in less than 2000mS to avoid link\_status being changed to FAIL by the link monitor state machine (Fig 55-27). To ensure interoperability the following timing should be observed:

	Recommended	Recommended	
Master	Max time (ms)	average time (ms)	Slave
PMA_Training_Init, enable slave tx=0	350	315	Silent
PMA_Training_Init, enable slave tx=1 and PMA_PBO_Exchange	480	432	PMA_Training_Init, timing lock OK = 1 and PMA_PBO_Exchange
PMA_Coef_Exchange	520	468	PMA_Coef_Exchange
PMA_Fine_Adjust	650	585	PMA_Fine_Adjust

Sum	2000	1800	
-----	------	------	--

Update PICS as required.

Motion:

Adhoc chartered to confirm, and if required, adjust the above numbers by Friday 25th Jan.  
M: Grow S: Barrass  
Passed by voice without opposition.

CI 55 SC 55.5.4.1 P 515 L 51 # 4  
Barrass, Hugh Individual

Comment Type T Comment Status A

The PCS rules regarding errored LDPC frames cause some error multiplication that will increase the Frame Error Rate (FER) corresponding to a BER of 10^-12. For 800 octet frames with minimum IPG, a BER of 10^-12 corresponds to a FER of approximately 9.6 x 10^-9. This is also the case in 55.5.4.5.

SuggestedRemedy

Change  
This specification shall be satisfied by an Ethernet frame error rate less than 6.4 x 10^-9 for 800 octet frames.  
To  
This specification shall be satisfied by an Ethernet frame error rate less than 9.6 x 10^-9 for 800 octet frames with minimum IPG.  
Also applies to location 55.5.4.5.

Response Response Status C

ACCEPT IN PRINCIPLE.

This specification shall be satisfied by a frame error ratio less than 9.6 x 10^-9 for 800 octet frames with minimum IPG or greater than 799 octet IPG.

Also applies to subclause 55.5.4.5.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

Cl 57A SC 57A.2 P 513 L 37 # 1  
 Beck, Michael A Individual

Comment Type T Comment Status A

Due to the introduction of the Organization-Specific Slow Protocol (OSSP), the 10 frames per second rule is ambiguous: does it apply to each protocol under the OSSP codepoint separately, or to all of them together?

SuggestedRemedy

Add a note under a), reading "NOTE - This constraint is per slow protocol that may be defined per clause 57B (i.e., OSSP)"

Response Response Status C

ACCEPT IN PRINCIPLE.

a) No more than 10 frames shall be transmitted in any one-second period per Slow Protocol subtype.

Item b), Slow Protocols to Slow Protocol subtypes. Delete the note.

Item c) Delete the note.

Cl 57B SC 57B.1.1 P 518 L 26 # 46  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

This states 'Within an octet, bits are shown with bit 0 to the left and bit 7 to the right, and are transmitted from left to right.' while 3.3 Order of bit transmission says 'Each octet of the MAC frame, with the exception of the FCS, is transmitted low-order bit first.'

SuggestedRemedy

Reconcile

Response Response Status C

ACCEPT IN PRINCIPLE.

Change 'Bits within frame transmitted left-to-right' to read 'Bits within octet transmitted left-to-right'.

Change title 'Table 57B-1 ..' to read 'Figure 57B-1 ..'.

Cl 57B SC 57B.1.1 P 518 L 33 # 47  
 Dawe, Piers J G Individual

Comment Type E Comment Status R

Bad English. An international standard should be written in standard international English, not dialect.

SuggestedRemedy

Change 'and so on through the eighth bit' to 'and so on up to the eighth bit.' or 'and so on until the eighth bit.' Similarly on line 34: 'least significant to most significant bits of the second octet are assigned the value of the ninth to seventeenth bits'. If consistency is a concern, scrub the document, in some cases reverting to what the committee approved by ballot and never resolved to change.

Response Response Status C

REJECT.

See comment #23.

Cl 58 SC 58.10.3.5 P 94 L 15 # 95  
 Dawe, Piers J G Individual

Comment Type E Comment Status A

PICS OM6 does not follow normative subclause

SuggestedRemedy

Change to 'per 58.7.8 with specified test pattern'

Response Response Status C

ACCEPT.

Cl 58 SC 58.7.4 P 71 L 48 # 94  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

ANSI/TIA/EIA-526-4A

SuggestedRemedy

IEC 61280-2-2. Also PICS OM5

Response Response Status C

ACCEPT.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

**Cl 59**    **SC 59.7.4**                      **P 109**                      **L 19**                      # **82**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **T**                      **Comment Status**    **A**  
 ANSI/TIA/EIA-526-4A  
**SuggestedRemedy**  
 IEC 61280-2-2. Also PICS OM5  
**Response**                                      **Response Status**    **C**  
 ACCEPT.

**Cl 60**    **SC 60.10.4.6**                      **P 148**                      **L 36**                      # **93**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **E**                      **Comment Status**    **A**  
 PICS OM6 does not follow normative subclause  
**SuggestedRemedy**  
 Change to 'per 58.7.8 and references therein'  
**Response**                                      **Response Status**    **C**  
 ACCEPT.

**Cl 60**    **SC 60.7.4**                                      **P 137**                      **L 3**                                      # **97**  
 Dawe, Piers J G                                      Individual  
**Comment Type**    **T**                      **Comment Status**    **A**  
 ANSI/TIA/EIA-526-4A  
**SuggestedRemedy**  
 IEC 61280-2-2. Also PICS OM4  
**Response**                                      **Response Status**    **C**  
 ACCEPT.

**Cl 64**    **SC 64.1.1**                                      **P 246**                      **L 23**                                      # **104**  
 Hajduczenia, Marek  
**Comment Type**    **E**                      **Comment Status**    **A**  
 This comment was submitted after the ballot closed through the rogue comment interface. Terms "Single Copy Broadcast" and "Single-Copy Broadcast" are used interchangeably in the Clause. The term is defined more than once in the text.

**SuggestedRemedy**  
 Adopt only one spelling of the full acronym - suggested to accept "Single Copy Broadcast (SBC). Remove multiple definitions in the text of Clause 64. Add definition of the term SCB to Clause 1.5.  
**Response**                                      **Response Status**    **C**  
 ACCEPT.

**Cl 64**    **SC 64.3.3.6**                                      **P 275**                      **L 45**                                      # **105**  
 Hajduczenia, Marek  
**Comment Type**    **T**                      **Comment Status**    **A**  
 This comment was submitted after the ballot closed through the rogue comment interface. Affects Figure 64-20. Processing OLT Register State Diagram: "data\_tx[88:96] < pending\_grants" - it would suggest that pending\_grants is 9 bits wide (88, 89, ... 96). It is defined as 8 bits wide.

**SuggestedRemedy**  
 Change "data\_tx[88:96] < pending\_grants". to "data\_tx[88:95] < pending\_grants"  
**Response**                                      **Response Status**    **C**  
 ACCEPT.

**Cl 64**    **SC 64.3.4.6**                                      **P 280**                      **L 45**                                      # **103**  
 Hajduczenia, Marek  
**Comment Type**    **E**                      **Comment Status**    **A**  
 This comment was submitted after the ballot closed through the rogue comment interface. Comment against C64 from 802.3-2005\_REV\_D1p3\_section5.pdf. Check the figure references in this subclauses and all the following clauses i.e. Figure 64-23 is references while 64-24 is meant, Figure 64-24 is referenced while 64-25 is meant etc. The said problem propagates through all the subclauses until 64.3.5.6 inclusive.

**SuggestedRemedy**  
 Fix the references to figures in the clauses 64.3.4.6 through 64.3.5.6.  
**Response**                                      **Response Status**    **C**  
 ACCEPT.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

Cl 68 SC 68.6.5.1 P 357 L 44 # 99

Dawe, Piers J G

Individual

Comment Type T Comment Status R

(Replacement comment with the correct subclause number) Transmitter eye mask acceptable hit count examples (informative)

SuggestedRemedy

If expedient, delete '(informative)'

Response Response Status C

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 70 SC 70.3 P 385 L 37 # 12

Dawe, Piers J G

Individual

Comment Type TR Comment Status R

D1.1 comment 45 was implemented in reverse, undoing part of what was implemented of D1.0 comment 132. The response to D1.2 comment 53 does not resolve the issue raised by these comments. As we have established previously, we are discussing a requirement on the PCS, and this is not the PCS clause. The PCS is specified in Clause 36. This requirement is explicit in 36.2.5.2.7 with PICS in 36.7.4.3. Clause 70 cannot make requirements on something outside its scope: the sentence in this draft is improper. All Clause 70 can do is inform the reader that another clause has normative requirements that are of interest. The style guide allows 'must' 'to describe unavoidable situations', which is exactly what we have here. But I note that the style guide says 'shall equals is required to.'

SuggestedRemedy

Change 70.3 to the intention of D1.1: to read 'The reader is advised that 36.2.5.2.7 requires the PCS associated with this PMD to support the AN service interface primitive AN\_LINK.indication as defined in 73.9.' Make the similar change in 71.3 and 72.3. Delete 71.10.4.1 and 72.10.4.1 (whole subclauses - the equivalent in Clause 70 has gone since D1.1). Alternatively 'The PCS associated with this PMD must support the AN service interface primitive AN\_LINK.indication as defined in 73.9 (See 36.2.5.2.7).', make the similar change in 71.3 and 72.3, delete 71.10.4.1 and 72.10.4.1.

Response Response Status U

REJECT.

There is no consensus to make this change.

Straw poll:

How many like:

Shall 5

Must 2

Motion:

Change 'shall' to must in 71.3 and 72.3.

M: Dawe S: Frazier

Y: 3

N: 6

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 70 SC 70.3 P 385 L 37 # 81  
 Dawe, Piers J G Individual

Comment Type TR Comment Status R

(Updated comment) TD1.1 comment 45 was implemented in reverse, undoing part of what was implemented of D1.0 comment 132. The response to D1.2 comment 53 does not resolve the issue raised by these comments. As we have established previously, we are discussing a requirement on the PCS, and this is not the PCS clause. The PCS is specified in Clause 36. This requirement is explicit in 36.2.5.2.7 with PICS in 36.7.4.3. Clause 70 cannot make requirements on something outside its scope: the sentence in this draft is improper. All Clause 70 can do is inform the reader that another clause has normative requirements that are of interest. The style guide allows 'must' to describe unavoidable situations', which is exactly what we have here. But I note that the style guide says 'shall equals is required to.' 71.3 and 72.3 have a similar problem; attempting to do what's already done in 48.2.7 and 49.2.16.

SuggestedRemedy

Change 70.3 to the intention of D1.1: to read 'The reader is advised that 36.2.5.2.7 requires the PCS associated with this PMD to support the AN service interface primitive AN\_LINK.indication as defined in 73.9.' Make the similar change in 71.3 and 72.3. Delete 71.10.4.1 and 72.10.4.1 (whole subclauses - the equivalent in Clause 70 has gone since D1.1). Alternatively 'The PCS associated with this PMD must support the AN service interface primitive AN\_LINK.indication as defined in 73.9 (See 36.2.5.2.7).', make the similar change in 71.3 and 72.3, delete 71.10.4.1 and 72.10.4.1.

Response Response Status U

REJECT.

See comment #12.

CI 72 SC 72.10.3 P 447 L 25 # 48  
 Dawe, Piers J G Individual

Comment Type T Comment Status A

Having a "major capability" that is the absence of another major capability is silly. It doesn't seem to be used by following PICS e.g. FS5 to FS9 (if it were, !SD could be used instead). Nor can I see text in 72.6.4 to allow an implementation without signal detect.

SuggestedRemedy

Reconcile

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete items SD and ND from 72.10.3.

FS8 - Set to OK when training is complete.

FS9 - Set to OK when training disabled.

CI 74 SC 74.7 P 493 L 43 # 101  
 Law, David

Comment Type E Comment Status A

We are not consistent with the use of 64B/66B and 64b/66b:

Section 4  
 64B/66B - 42  
 64b/66b - 0  
 Section 5  
 64B/66B - 1  
 64b/66b - 31

In respect to 8B/10B we are more consistent and never use 'b' although we seem to use 8B/10B rather than 8b/10b is some of the later caluses.

Section 2  
 8B/10B - 5  
 8b/10b - 0  
 8B10B - 0  
 8b10b - 0  
 Section 3  
 8B/10B - 40  
 8b/10b - 0  
 8B10B - 0  
 8b10b - 0  
 Section 4  
 8B/10B - 69  
 8b/10b - 0  
 8B10B - 3  
 8b10b - 0  
 Section 5  
 8B/10B - 21  
 8b/10b - 0  
 8B10B - 3  
 8b10b - 0

SuggestedRemedy

While the correct usage would be to use lower case 'b' as this is bits in recognition that the inventors of these codes used upper case 'B' we should consistently use 64B/66B and 8B/10B through the draft.

Response Response Status C

ACCEPT IN PRINCIPLE.

Use:

8B/10B and 64B/66B

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 99 SC 0 P L # 61  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 60  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 65  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 62  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 59  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 64  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

CI 99 SC 0 P L # 66  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 69  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 67  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 70  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 68  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

CI 99 SC 0 P L # 63  
 Law, David Individual

Comment Type G Comment Status R  
 This comment is submitted on behalf of Pete Anslow.  
 SuggestedRemedy

Response Response Status C  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

IEEE 802.3ay (IEEE P802.3) D2.0 Maintenance #9 (Revision) comments

---

Cl **99** SC **99** P **5** L **12** # **77**  
 Grow, Robert Individual  
 Comment Type **G** Comment Status **A**  
 WG Chair needs to provide the list of past participants for the front matter.  
 SuggestedRemedy  
 WG Chair will provide.  
 Response Response Status **C**  
 ACCEPT.

---

Cl **Table** SC **table of contents** P **7** L L # **5**  
 Nikolich, Paul Individual  
 Comment Type **GR** Comment Status **A**  
 Mr. Grow, The table of contents starts at page 7, ends on page 139. 132 pages of TOC. Wow. Their is too much obsolete material in the standard, to the point of rendering it difficult to use--possibly hindering what I believe is 802's top level objective of facilitating interoperable implementations. Much of the standard covers obsolete technologies that are no longer never were implemented in volume or are not relevant anymore: AUI, 10BASE5, FOIRL, 10BASE2, 10BROAD36 (my personal favorite), 1BASE5, 10BASE-F, 10BASE-FP, 10BASE-FB, 10BASE-FL, System Guidelines, and a lot more that I am not able or qualified to identify.  
 SuggestedRemedy  
 The obsolete material should be removed. I know this is not trivial work, nor work that many stakeholders are willing to invest resources in. But it should be done. In order to approve this revision, I would like the WG to explain what, if any plans there are to remove the obsolete material. If there are no such plans--what are the obstacles and why cannot they be overcome? I welcome the opportunity to engage in a dialog with the WG to explore ways to improve the useability of the standard.  
 Response Response Status **W**  
 ACCEPT IN PRINCIPLE.  
 While much of this material is old and may not have many implementations it can't simply be deleted as the LOAs would then no longer apply and in some cases these LOAs may be required for newer portions of the standard. In addition this material is only a minor portion of the whole standard.  
 To use stabilization would require the obsolete material to be moved to a new standard - portions of a standard can't be stabilized - however extracting the material to a new standard would require new LOAs to be obtained.  
 Based on the above one approach that seems to be available is to consider creating a deprecated volume (section) that contains this material and related changes to the TOC. We will work with editorial staff on this approach. We will also see if a new higher level TOC could be made that is useful.