

IEEE P802.3bz D1.2 2.5G/5GBASE-T 3rd Task Force review comments

Cl 00 SC 0 P L # 193
Schicketanz, Dieter consultant

Comment Type ER Comment Status A References

the Reference ISO/IEC 11801:2002 does not exist any more and would confuse the reader. There is an actual consolidated version with all information needed

SuggestedRemedy

The exact reference is:
ISO/IEC 11801:2002/AMD 1:2008, AMD 2:2010

The shortcut ISO/IEC 11801 could be used if in the bibliography the complete reference is shown.

Response Response Status C

ACCEPT IN PRINCIPLE.
According to IEEE Std 802.3-2015, the current reference for the full 11801 standard is still ISO/IEC 11801:2002, which is listed in the bibliography of IEEE Std 802.3-2015 including the two amendments cited.

Cl 00 SC 0 P L # 194
Schicketanz, Dieter consultant

Comment Type TR Comment Status D Cabling

There is a disruption in the max frequencies used:
for 2.5G the link is specified up to 100 MHz, for 5 G up to 250 MHz.

In The ALSNR clause the frequencies are 100 MHz for 2.5 G and 200 MHz for 5G.

SuggestedRemedy

Explain the issue or correct it.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

The ALSNR computation frequencies are not specifications for the link segment but are based on equations for optimal DFE, hence they do not need to be completely consistent with the link segment specifications.

Cl 1 SC 1.3 P 20 L 20 # 178
Jones, Peter Cisco Systems

Comment Type E Comment Status D References

Do we need to add "ISO/IEC TR 11801- 9904" to "1.3 Normative references"?

SuggestedRemedy

Add if needed.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Task force to discuss - should be either in the bibliography or normative references.

In 1.3 Normative references we have
TIA TSB-5021-201x, Guidelines for the use of Installed Cabling to Support 2.5GBASE-T and 5GBASE-T. This suggests we treat ISO 9904 the same.

However, there are currently no requirements refer to the TR, so bibliography might be more appropriate. Additionally, including the TR normatively would both couple IEEE 802.3bz to requirements we have not yet seen, and also possibly delay publication of the standard unnecessarily.

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CI 1 SC 1.4.127 P 20 L 50 # 175
Maguire, Valerie Siemon

Comment Type T Comment Status D Definitions

This comment applies to subclause 1.4.127a.

Revisions to the category definitions, as proposed by Val Maguire and implemented during 802.3bz comment resolution, were not accepted by the Maintenance Task Force. A revised Maintenance Request has been submitted to correct application references only. The change proposed below is aligned with 802.3-2015 and this new Maintenance Request.

Note: "W" below should be replaced with the ohms symbol.

SuggestedRemedy

Replace: Category 5e balanced cabling: Balanced 100 W cables and associated connecting hardware whose transmission characteristics are specified up to 100 MHz per ISO/IEC 11801:2002 and ANSI/TIA-568-B.2-2001. (See IEEE Std 802.3, Clause 14, Clause 25, Clause 40, Clause 33, and Clause 126.)

with: Category 5e balanced cabling: Balanced 100 W cables and associated connecting hardware whose transmission characteristics are specified up to 100 MHz (i.e., cabling components meet the performance specified in ISO/IEC 11801:2002 and ANSI/TIA-568-B.2-2001). In addition to the requirements outlined in ISO/IEC 11801:2002 and ANSI/TIA-568-B.2-2001, IEEE 802.3 Clause 14, Clause 23, Clause 25, Clause 40, and Clause 126 specify additional requirements for this cabling when used with 10BASE-T, 100BASE-T4, 100BASE-TX, 1000BASE-T, 2.5GBASE-T, and 5GBASE-T.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Align draft with outcome of maintenance, and add in 2.5G/5GBASE-T and clause 126 references.

CI 1 SC 1.4.128 P 21 L 3 # 176
Maguire, Valerie Siemon

Comment Type T Comment Status D Definitions

Revisions to the category definitions, as proposed by Val Maguire and implemented during 802.3bz comment resolution, were not accepted by the Maintenance Task Force. A revised Maintenance Request has been submitted to correct application references only. The change proposed below is aligned with 802.3-2015 and this new Maintenance Request.

Note: "W" below should be replaced with the ohms symbol.

SuggestedRemedy

Using revision marks, change the 802.3-2015 definition for category 6 to read:
Category 6 balanced cabling: Balanced 100 W cables and associated connecting hardware whose transmission characteristics are specified up to 250 MHz (i.e., cabling components meet the performance specified in ISO/IEC 11801:2002 and ANSI/TIA-568-C.2). In addition to the requirements outlined in ISO/IEC 11801:1995 and ANSI/TIA-568-C.2, IEEE 802.3 Clause 14, Clause 23, Clause 25, Clause 40, Clause 55, and Clause 126 specify additional requirements for this cabling when used with 10BASE-T, 100BASE-T4, 100BASE-TX, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, and 10GBASE-T.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Align draft with maintenance outcome, and add in 2.5G/5GBASE-T and clause 126 references.

CI 1 SC 1.4.129 P 21 L 13 # 177
Maguire, Valerie Siemon

Comment Type T Comment Status A Definitions

2.5GBASE-T and 5GBASE-T are also supported by category 6A, category 7, and category 7A cabling.

SuggestedRemedy

Include the subclause 1.4.129, 1.4.130, and 1.4.131 definitions from 802.3-2015 and modify accordingly to include references to clause 126, 2.5GBASE-T, and 5GBASE-T.

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement suggested remedy.

Additionally, add 2.5GBASE-T and 5GBASE-T and Clause 126 references to 1.4.131a category 8.

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Cl 126 SC 126.7.1 P 158 L 17 # 195
Schicketanz, Dieter consultant

Comment Type TR Comment Status R Cabling

In line 17 and 19 the sentence includes "with additional installation requirements".

First there are no installation requirements in this clause and second in line 5 it is mentioned to look at the TRs

SuggestedRemedy

delete this part of the sentence twice

Response Response Status C

REJECT.
Replace "this clause" with "Clause 126" in Language is consistent with other 802.3 clauses. 'This clause' refers to Clause 126 (not subclause 126.7.1). Clause 126.9.3 contains installation and maintenance guidelines.

Cl 126 SC 126.7.3 P 164 L 6 # 191
Schicketanz, Dieter consultant

Comment Type E Comment Status A References

ISO TR missing

SuggestedRemedy

Add ISO/IEC 11801-9904 like in line 22

Response Response Status C

ACCEPT.
Add "and ISO/IEC TR 11801-9904" after "TIA TSB 5021" on P164 L6

Cl 126 SC 126.7.3.1 P 166 L 14 # 196
Schicketanz, Dieter consultant

Comment Type TR Comment Status D Cabling

While the formulas of Step 8 are correct they may not be applicable if alien crosstalk had been measured using IEC 91635 (field measurements of installed cabling) were the summation had already been done and details to use Step 8 are lost.

SuggestedRemedy

Add a note that if alien crosstalk had been measured already the summation has to be applied differently.

- Either show this difference or just mention it.

in step 8 the frequency should be up to 100 MHz line 35 and for step 9 200 MHz are missing.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

IEEE Std 802.3bz is specifying the characteristics of the link segment, not the measurement of it. Referenced cabling standards are expected to provide detail on the field measurements and any necessary conversions.

Cl 126 SC 126.7.3.1 P 167 L 33 # 192
Schicketanz, Dieter consultant

Comment Type E Comment Status A Cabling

Step 12 is rather cumbersome

SuggestedRemedy

Simplify step 12 to :
ALSNR from step 11 should be greater than 32 dB

Response Response Status C

ACCEPT IN PRINCIPLE.
SNRlinkreq notation is used and explained earlier in the subclause.
See comment 199.

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Cl 126 SC 126.7.3.1 P 167 L 37 # 199
 Yu, Jerome Realtek

Comment Type T Comment Status A Cabling

The ALSNRcriteria shall be greater than zero. As a result, the equation 126-35 should be rewritten as ALSNRcriteria = ALSNRlinkNR - SNRlinkreq

SuggestedRemedy

the equation 126-35 should be rewritten as ALSNRcriteria = ALSNRlinkNR - SNRlinkreq

Response Response Status C

ACCEPT.

Cl 126 SC 126.9.3 P 170 L 36 # 183
 Jones, Peter Cisco Systems

Comment Type E Comment Status A Cabling

in "126.9.3 Installation and maintenance guidelines" it says
 "In addition, Annex 55B provides additional cabling guidelines for
 2.5G/5GBASE-T deployment on balanced copper cabling systems, which may
 be helpful to 2.5G/5GBASE-T installations."

Annex 55B (Additional cabling design guidelines for 10GBASE-T) is not modified by
 802.3bz, so I suspect that the first use of "2.5G/5GBASE-T" is search/replace error and it
 should say "10GBASE-T"

SuggestedRemedy

"In addition, Annex 55B provides additional cabling guidelines for
 10GBASE-T deployment on balanced copper cabling systems, which may
 be helpful to 2.5G/5GBASE-T installations."

Response Response Status C

ACCEPT.

Cl 126 SC 7.2 P 159 L 18 # 197
 Brillhart, Theodore Fluke Electronics Corp

Comment Type T Comment Status D Cabling

Statements that link segment transmission parameters for 2.5GBASE-T and 5GBASE-T
 are equivalent to ISO/IEC 11801 Class D and ANSI/TIA-568-C.2 Category 5e (with any
 exceptions listed in clause 126) has led to some confusion as to requirements for
 impedance balance characteristics like TCL and ELTCTL. The aforementioned parameters
 are specified by the referenced ISO/IEC cabling standard but not the referenced ANSI/TIA
 standard for this cabling category/class. One is left wondering whether, or when, to
 account for the minimum performance of these parameters when implementing the
 2.5/5GBASE-T standard.

Additional considerations for the TG:

Given that vast majority of installed ClassD and Category 5e cabling is unshielded
 construction, and given that impedance balance is the primary noise rejection mechanism
 for differential mode transmission in twisted pair wiring, then it follows that clear minimum
 performance requirements for these properties are needed for consistent implementation.

SuggestedRemedy

Insert a new sub-clause within clause 126.7 with specific requirements for TCL and
 ELTCTL that are equivalent to the ISO/IEC Class D requirements for these parameters.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

These parameters have not been recognized as necessary for other BASE-T PHYs.
 Commenter fails to provide information detailing the need to include the new requirements
 for TCL and ELTCTL. Inclusion as requirements would preclude the reference to ANSI/TIA-
 568-C.2 Category 5e.

Change "are equivalent to" to "correspond to" and insert "channel" prior to "specifications"

Change: The link segment transmission parameters for 2.5GBASE-T are equivalent to
 ISO/IEC 11801 Class D and
 ANSI/TIA-568-C.2 Category 5e.

To: The link segment transmission parameters for 2.5GBASE-T correspond to ISO/IEC
 11801 Class D and ANSI/TIA-568-C.2 Category 5e channel specifications.

Change: The link segment transmission parameters for 5GBASE-T are equivalent to
 ISO/IEC 11801 Class D and ANSI/TIA-568-C.2 Category 5e specifications with the upper
 frequency extended to 250 MHz and appropriate adjustments for length when applicable as
 specified in ISO/IEC TR 11801-9904 and TIA TSB-5021.

To: The link segment transmission parameters for 5GBASE-T correspond to ISO/IEC
 11801 Class D and ANSI/TIA-568-C.2 Category 5e channel specifications with the upper
 frequency extended to 250 MHz and appropriate adjustments for length when applicable as
 specified in ISO/IEC TR 11801-9904 and TIA TSB-5021.

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Cl 126.5 SC 126.5.4.3 P 151 L 17 # 187
 moffitt, bryan commscope
 Comment Type T Comment Status A EMI Test
 The sentence "All components in the test remain over the ground reference plane." is not true and should be deleted or modified to match the test in the Annex.
 SuggestedRemedy
 Delete or could be corrected, such as:
 Components that are exposed to the induced fields remain over a ground reference plane.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Change "All components in the test remain over the ground reference plane." to "All components that are exposed to the induced fields should remain over the ground reference plane."

Cl 126.5 SC 126.5.4.3 P 151 L 17 # 184
 moffitt, bryan commscope
 Comment Type E Comment Status A EMI Test
 the requirement in 126.7 is for a link segment, but this refers to a "channel" instead of link segment.
 SuggestedRemedy
 change to link segment
 Response Response Status C
 ACCEPT.

Cl 126.5 SC 126.5.4.3 P 151 L 20 # 188
 moffitt, bryan commscope
 Comment Type T Comment Status A EMI Test
 6dBm should be verified against more recent ad-hoc test data
 SuggestedRemedy
 review test results and change if necessary
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 No test results to review at this time. Ad hoc to solicit any test results and submit working group ballot comments if needed.

Cl 126.5 SC 126.5.4.3 P 151 L 30 # 189
 moffitt, bryan commscope
 Comment Type T Comment Status D EMI Test
 This note has created several ambiguous issues:
 The 10% refers to a calibration procedure of the Annex (113A.3) that is not carried into the actual Annex test (113A.4) where it only says "impairment as specified". It is also clearly identified in the annex as optional. While there are a number of issues on the annex that this brings up and will need to be resolved, there is no good reason to drag it into the main document.
 SuggestedRemedy
 It should be recognized that 10% in any interpretation is a small deviation by conventional EMC methods and since it was not clearly defined, delete the note.
 Proposed Response Response Status Z
 REJECT.

This comment was WITHDRAWN by the commenter.

This note was added specifically to resolve ambiguities brought by previous commenters.

Cl 126.7 SC 126.7.2 P 158 L 26 # 190
 moffitt, bryan commscope
 Comment Type T Comment Status D Cabling
 insufficient criteria:
 that meets the transmission parameters of this subclause provides a reliable medium
 SuggestedRemedy
 move up to 126.7 or change to "that meets the transmission parameters of subclauses 126.7.2 and 126.7.3 provides a reliable medium"
 Proposed Response Response Status Z
 REJECT.

This comment was WITHDRAWN by the commenter.

Change "that meets the transmission parameters of this subclause provides a reliable medium" to
 "that meets the transmission parameters of this subclause and 126.7.3 Coupling parameters between link segments".....

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Cl 126.7 SC 126.7.3.1 P L # 185
moffitt, bryan commscope

Comment Type E Comment Status D Cabling

computing the 10GBASE-T or 5GBASE-T power back off is a PHY operation. This is just an estimation for cable assessment. Also missing 2.5G.

SuggestedRemedy

change to:
estimating the 10GBASE-T, 5GBASE-T or 2.5GBASE-T power back off

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Unclear which statement the commenter is referring to, but assuming it is the note on P164 L32, "Neglecting the higher frequencies has no appreciable effect in computing the 10GBASE-T or 5GBASE-T power back off." (because that one doesn't have 2.5G):

replace "computing" with "estimating the minimum required"

2.5G is left out on purpose, because its entire frequency span is in the range discussed.

Cl 126.7 SC 126.7.3.1 P 164 L 39 # 186
moffitt, bryan commscope

Comment Type E Comment Status D Cabling

index K seems to be implied as referring to the rate since both should be calculated instead of for each pair. All pairs would be the same.

SuggestedRemedy

Understand calculation, but not sure if the step requires a fix

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

K refers to the disturbed link segment. See immediately preceding line of text.