

IEEE P802.3bz D3.0 2.5G/5GBASE-T Initial Sponsor ballot comments

Cl 126 SC 126.7.3.1 P 170 L 14 # i-112
 McClellan, Brett Marvell Semiconducto

Comment Type **TR** Comment Status **D** ALSNR

100MHz is enough bandwidth for for 2.5G and 5G PBO calculation, but 200MHz should be used for 10GBASE-T.

SuggestedRemedy

Change the note from:

NOTE--While disturbing signals may contain higher frequencies, the received power, which determines the power backoff, is dominated by the power below 100 MHz. Neglecting the higher frequencies has no appreciable effect in computing the 10GBASE-T or 5GBASE-T power backoff."

To:

"NOTE--While disturbing signals may contain higher frequencies, the received power, which determines the power back off, is dominated by the power below 100 MHz, for 2.5GBASE-T and 5GBASE-T, and neglecting the frequencies above 100MHz has no appreciable effect in computing the 2.5GBASE-T or 5GBASE-T power back off. When 10GBASE-T power back off is to be computed, frequencies up to at least 200 MHz should be used."

Proposed Response Response Status **W**

PROPOSED ACCEPT.

Cl 126 SC 126.7.3.1 P 171 L 9 # i-96
 Moffitt, Bryan CommScope

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

The result is not a function of frequency

SuggestedRemedy

remove frequency dependence

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 Delete "(f)" in "TotalRXTPdBmDisturbing(f) ="

Cl 126 SC 126.7.3.1 P 171 L 28 # i-97
 Moffitt, Bryan CommScope

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

This is not a function of frequency , and line 28 is not needed

SuggestedRemedy

delete: where
 fmin and fmax are given in Table 126-20.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 Duplicate of comment i-75.

Cl 126 SC 126.7.3.1 P 171 L 40 # i-98
 Moffitt, Bryan CommScope

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

(see Step 8 for further details of calculations for all possible permutations) is incorrect and not needed

SuggestedRemedy

delete this

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 Change "Step 8" to "Step 9"

Cl 126 SC 126.7.3.1 P 172 L 49 # i-99
 Moffitt, Bryan CommScope

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

The result is not a function of frequency

SuggestedRemedy

remove frequency dependence

Proposed Response Response Status **W**

PROPOSED ACCEPT.
 Delete "(f)" in "TotalRXTPdBmDisturbing(f) ="

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Cl 126 SC 126.7.3.1 P 173 L 16 # i-100
Moffitt, Bryan CommScope
Comment Type E Comment Status D ALSNR
This is not a function of frequency
SuggestedRemedy
delete: where
fmin and fmax are given in Table 126-20.
Proposed Response Response Status W
PROPOSED ACCEPT.
Duplicate of comment i-75

Cl 126 SC 126.7.3.1 P 174 L 2 # i-102
Moffitt, Bryan CommScope
Comment Type E Comment Status D ALSNR
broken indexing
SuggestedRemedy
change first index variable to m and second index variable to k
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 126 SC 126.7.3.1 P 174 L 7 # i-103
Moffitt, Bryan CommScope
Comment Type E Comment Status D ALSNR
repeated from page 173 line 32
SuggestedRemedy
delete
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Delete "M is the number of disturbing link segments"

Cl 126 SC 126.7.3.1 P 174 L 32 # i-105
Moffitt, Bryan CommScope
Comment Type E Comment Status D ALSNR
scrambled definitions
SuggestedRemedy
fmin and fmax are given in Table 126-20, and Df is the step size between frequency points
at each data point in the same frequency units (e.g., both MHz or both Hz).
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 126 SC 126.7.3.1 P 169 L 30 # i-79
Zimmerman, George Aquantia, and CommS
Comment Type E Comment Status D ALSNR
The text looks like TSB-5021 specifies which signalling rates to consider, making 802.3bz
incomplete or perhaps conflicting on the subject.
SuggestedRemedy
Change "The selection of the number..." to "Guidelines for evaluating the ALSNR criterion
in the field, including the selection of the number..."
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Change "The selection of the number..." to "Guidelines for evaluating the ALSNR criterion
in installed cabling, including the selection of the number..."
(aligns with the title of TSB-5021)

Cl 126 SC 126.7.3.1 P 171 L 29 # i-75
Zimmerman, George Aquantia, and CommS
Comment Type T Comment Status D ALSNR
The legend under the equation 126-27 does not match the equation (which does not have
any frequency term). The table referred is titled "Template PSD for disturbing link segment"
which seems unrelated, and anyway it does not define a frequency range.
SuggestedRemedy
Delete "where fmin and fmax are given in Table 126-22" (leave period for full stop after
equation 126-27).
Repeat deletion on P173 L15-16 (step 3d, after equation 126-32).
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy. Table referenced in deleted text is Table 126-20, not 126-22.
Duplicates resolution of comments i-97 and i-100

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Cl 126 SC 126.7.3.1 P 169 L 30 # i-78
 Zimmerman, George Aquantia, and CommS

Comment Type T Comment Status D ALSNR

Readers may be confused at the inclusion of 1G and 10GBASE-T as disturbers. More explanatory text is necessary.

SuggestedRemedy

v

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. P169, L30 Add text: The combinations of signalling used on the disturbing link segments is intended to provide a worst-case set of interfering power spectral densities which may be present.

Cl 126 SC 126.1.3.3 P 77 L 40 # i-54
 Yu, Jerome

Comment Type E Comment Status D EEE

The alert signal alignment which begins on a LDPC 2-frame 256 4D-symbol boundary is inconsistent with the other chapter in the base standard. Such as following:

1. P100, Line 37 (begins on a LDPC frame boundary)
2. P122, Line 54 (begins on a LDPC frame boundary)
3. P120, Figure 126-18 EEE transmit state diagram

SuggestedRemedy

1. Replace "begins on a LDPC frame boundary" with "begins on a LDPC 2-frame 256 4D-symbol boundary aligned to the inversion on pair A during PMA training" for P100 Line 37 and P122 Line 54.
2. Create a new variable "ldpc_two_frame_done" which aligned to the inversion on pair A during PMA training. Replace all "ldpc_frame_done" with "ldpc_two_frame_done" in Figure 126-18 EEE transmit state diagram.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 See presentation Graba_3bz_1_0516.pdf

Implement commenters suggested remedy and:

Change Sleep description on page 100, lines 2-6 as indicated in red: If the sleep signal begins on an even LDPC frame boundary, then it contains 18 full LDPC frames each composed entirely of LDPC encoded LP_IDLE blocks. If the sleep signal does not begin on an even LDPC frame boundary, then it contains one to two LDPC frames partially composed of LP_IDLE blocks followed by 18 LDPC frames fully composed of LP_IDLE blocks.

Also, page 124 line 7 from "on a LDPC frame boundary" to "on an even LDPC frame boundary"

Cl 126 SC 126.8.2 P 175 L 51 # i-106
 Moffitt, Bryan CommScope

Comment Type E Comment Status D MDI

improper introduction and I find no specified MDI test plug

SuggestedRemedy

Change to: when mated with a nominal category 5e balanced cabling connector (plug). 126.8.2 also seems to serve as an introduction to all 4 MDI specifications but goes right into FEXT. It seems like FEXT should be 126.8.2.1, etc.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Change "specified" (balanced cabling connector) to "nominal category 5e"

Cl 126 SC 126.3.2.2.5 P 93 L 1 # i-68
 Zimmerman, George Aquantia, and CommS

Comment Type T Comment Status D PCS

Figure 126-7 does not include the conversion from the 4D-PAM16 groups to a bit pattern (counterpart of "Bit mapper" and possibly PAM16 symbol distribution in figure 126-6).

SuggestedRemedy

Show the conversion from 4D-PAM16 to bits out of the LDPC decoder

Proposed Response Response Status W

PROPOSED REJECT.
 Conversion to bits is within the decoder, and is shown by the next block being explicitly labeled as 'decoded bits'.

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Cl 126 SC 126.4.2.5.14 P 131 L 17 # i-6
 Rolfe, Benjamin Blind Creek Associate

Comment Type TR Comment Status D PMA

"Shall implement the CRC16 polynomial $(x+1)(x^{15}+x+1)$ of the previous 10 octets,"
 The requirement is not clear. This is describing a field in and fields may contain values but do not implement values.
 I *think* the intent is to say the field contains a 16-bit CRC value equivalent to the output of figure 126-25, if the input were the previous 10 octets (octet 5 through octet 14 as shown in the figure) and described in the text.
 (which is a total of 3 different ways to specify the same normative requirement re which 10 octets are the calculation field for the CRC).

SuggestedRemedy

Change to:
 This field shall contain CRC16 calculated over the following octets:
 Octet 5<7:0>, Octet 6<7:0>, Octet 7<7:0>, Octet 8<7:0>, Octet 9<7:0>, Octet 10<7:0>,
 Octet 11<7:0>,
 Octet 12<7:0>, Octet 13<7:0> and Octet 14<7:0>.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Resolve with comment i-9, i-7

Change "Shall implement the CRC16 polynomial $(x+1)(x^{15}+x+1)$ of the previous 10 octets," to "This field shall contain CRC16 value calculated using the polynomial $(x+1)(x^{15}+x+1)$ over the previous 10 octets,"

Cl 126 SC 126.4.2.5.14 P 131 L 21 # i-7
 Rolfe, Benjamin Blind Creek Associate

Comment Type TR Comment Status D PMA

RE: "Afterwards Octet 5 through Octet 14 are used to compute the CRC16 with the switch connected, which is setting CRCgen in Figure 126-25. After all the 10 octets have been processed, the switch is disconnected (setting CRCout) and the 16 values stored in the delay elements are transmitted in the order illustrated, first S15, followed by S14, and so on, until the final value S0."
 1) I see no switch in figure 126-25, thus "with the switch connected" makes no sense nor does "the switch is disconnected";
 "setting CRCout" also makes little or no sense as this is not used anywhere in normative text.
 I think this may be intending to say that the CRC16 field is set to the output of the CRC generator depicted in the figure, and that the value is transmitted so that S15...S0 (which is also shown in the figure) aka highest term first.

SuggestedRemedy

Replace with:
 "The CRC16 value is transmitted in the order shown in Figure 126-25, with the highest order term first."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Change Figure 126-25 to show a switch at the arrow by "CRCgen" and "CRCout" with the two settings of the switch indicated, and logic 0 input at the CRCout setting.

Change "with the switch connected, which is setting CRCgen" to "with the switch set to CRCgen".

Change "the switch is disconnected (setting CRCout)" to "the switch set to CRCout"

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Cl 126 SC 126.4.2.5.14 P 131 L 17 # i-9
 Rolfe, Benjamin Blind Creek Associate

Comment Type T Comment Status D PMA

This clause appears to be a cut and past of 55.4.2.5.13 of the base standard.
 Suggest rather than replicate the text, reference the existing text on the CRC16.
 Doing so would also resolve comments on the technical errors and rather confusing language of 55.4.2.5.13 ;-)

SuggestedRemedy

Delete text and figure and replace with a reference to 55.4.2.5.13.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 DEFER - text is broken in clause 55 and others.

Comment i-6:

Change "Shall implement the CRC16 polynomial $(x+1)(x^{15}+x+1)$ of the previous 10 octets," to "This field shall contain CRC16 value calculated using the polynomial $(x+1)(x^{15}+x+1)$ over the previous 10 octets,"

Comment i-7:

Change Figure 126-25 to show a switch at the arrow by "CRCgen" and "CRCout" with the two settings of the switch indicated, and logic 0 input at the CRCout setting.

Change "with the switch connected, which is setting CRCgen" to "with the switch set to CRCgen".

Change "the switch is disconnected (setting CRCout)" to "the switch set to CRCout"

Final text:

CRC16 (2 octets). This field shall contain CRC16 value calculated using the polynomial $(x+1)(x^{15}+x+1)$ over the previous 10 octets, Oct5<7:0>, Oct6<7:0>, Oct7<7:0>, Oct8<7:0>, Oct9<7:0>, Oct10<7:0>, Oct11<7:0>, Oct12<7:0>, Oct13<7:0>, and Oct14<7:0>. The CRC16 shall produce the same result as the implementation shown in Figure 126-25. In Figure 126-25 the 16 delay elements S0,..., S15, shall be initialized to zero. Afterwards Oct5 through Oct14 are used to compute the CRC16 with the switch set to CRCgen in Figure 126-27. After all the 10 octets have been processed, the switch is set to CRCout and the 16 values stored in the delay elements are transmitted in the order illustrated, first S15, followed by S14, and so on, until the final value S0.

Cl 126 SC 126.9.4 P 178 L 18 # i-12
 Rolfe, Benjamin Blind Creek Associate

Comment Type GR Comment Status D Safety

"shall not result in any safety hazard." is not a precise testable requirement.
 "any" should be defined, preferably by reference to an external safety standard.

SuggestedRemedy

Change to "shall not result fire, flame, explosion, exposure to excessive radiation, wild bores, rabid antelopes or extreme political unrest" (my guess at "any")

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 Change "shall not result in any safety hazard." to "shall not preclude conformance with IEC 60950-1."

The identical requirements wording (any safety hazard) is used throughout IEEE Std 802.3 for similar BASE-T interfaces. See, e.g., 1BASE-5 (12.10.2), 10BASE-T (14.7.2.4), 100BASE-T4 (23.9.2.4), 100BASE-T2 (32.10.2.4), DTE Power via MDI (33.7.5), 1000BASE-T (40.9.2.3), and 10GBASE-T (55.9.4)