

CI 82 SC 82.2.17.2 P36 L5 # 1

Ran, Adee Cisco Systems

Comment Type T Comment Status X

"RXD<63:0> and RXC<7:0> are set to the constant LBLOCK_R (see 82.2.19.2.1)"
A cleaner way to write this is using the variable rx_raw (defined in 82.2.19.2.2), which encodes RXD and RXC. This would also be more consistent with the state-diagram decoder.

SuggestedRemedy

Change to
"rx_raw (see 82.2.19.2.2) is set to the constant LBLOCK_R (see 82.2.19.2.1)"

Proposed Response Response Status O

CI 30 SC 30.17.1.4 P22 L7 # 2

Ran, Adee Cisco Systems

Comment Type T Comment Status X

"When set to enabled and the remote peer also supports the packet metadata capability (confirmed through a mechanism beyond the scope of this standard), the packet metadata capability becomes active. The default value is disabled. All packet metadata capabilities are disabled upon link failure."
This means "enable=true" does not actually activate the EMS - it is conditional on negotiation with the remote peer. If that's the case then negotiation should be in scope, because it gates the activation of the function after the management enables it. And strictly speaking, management does not know whether the "enable" took effect or not because the negotiation result is not defined in the standard (out of scope).
It would be cleaner to define this attribute as direct enablement of the capability, and specify that it shall be enabled only after confirmation that the remote peer also supports the capability.

Similarly for 30.17.1.5 aEMSLinkMetadataEnable.

SuggestedRemedy

Change to
"When set to TRUE the packet metadata capability becomes active. The default value is FALSE. This attribute shall not be set to TRUE until it has been confirmed that the remote peer also supports the packet metadata capability. The confirmation mechanism is beyond the scope of this standard. Upon link failure this attribute is set to FALSE.

Apply corresponding changes in 30.17.1.5 for link metadata capability.

Proposed Response Response Status O

CI 30 SC 30.17.1.4 P22 L7 # 3

Ran, Adee Cisco Systems

Comment Type ER Comment Status X

The "Syntax" of this attribute is defined as BOOLEAN with values TRUE and FALSE, but the "BEHAVIOR DEFINED AS" uses the values enabled and disabled.
Similarly for 30.17.1.5 aEMSLinkMetadataEnable.

SuggestedRemedy

Change to TRUE/FALSE, also in 30.17.1.5.

Proposed Response Response Status O

CI 82 SC 82.2.3.6 P34 L21 # 4

Ran, Adee Cisco Systems

Comment Type E Comment Status X

The "40GBASE-R and 100GBASE-R control code" value for the Sequence ordered set row is poorly written - "control codes are set to 0x00" is unclear. The new Control ordered set has a clearer description, and the existing one would be improved by aligning it to the new one.

SuggestedRemedy

Change from
"Encoded by block type 0x4B plus O code, control codes are set to 0x00"
to
"Encoded by block type 0x4B and a zero O code"

Proposed Response Response Status O

Cl 82 SC 82.2.3.9 P34 L33 # 5

Ran, Adee Cisco Systems

Comment Type TR Comment Status X

The subclause title "Ordered set (/O/)" is inadequate - there is no /O/ in Table 82-1 so /O/ is not a known notation. (this is a problem in the base document, but since the text is changed significantly, it's a good opportunity to fix it).

More importantly, the new sentence "The notation /O/ is used to represent either the /Q/ or /C/ control characters" in the subclause text is not helpful, because treatment of these control characters is completely different. The term "/O/" is only used once in clause 82 other than in this definition, in 82.2.19.2.3, which is part of the state diagram encoder; its original definition was effectively /Q/. However, the state diagram decoder should not be changed, because EMS requires use of the stateless encoder. The text in D1.0 would make the state diagram decoder recognize the new control code /C/ that appears in Table 82-1.

The suggested remedy keeps the state diagram encoder definition unmodified (only accounting for sequence ordered sets) and removes the confusing /O/ notation.

SuggestedRemedy

In 82.2.3.9, change the subclause title to "Ordered sets (/Q/ or /C/)", and delete the sentence "The notation /O/ is used to represent either the /Q/ or /C/ control characters".

In the last paragraph of 82.2.19.2.3, change from
"A valid ordered set consists of a valid /O/ character in the first character and data characters in the seven characters following the /O/. A valid /O/ is any character with a value for O code in Table 82-1"
to
"A valid ordered set consists of a valid /Q/ character in the first character and data characters in the seven characters following the /Q/".

Proposed Response Response Status O

Cl 82 SC 82.2.19.2.3 P36 L35 # 6

Ran, Adee Cisco Systems

Comment Type T Comment Status X

The definition of T_TYPE in 82.2.19.2.3 (in 802.3-2022, currently not included in the draft) includes the term /O/ twice in the definitions of values "C" and "T". As noted in another comment, this should be changed because the meaning of /O/ is changed by this amendment.

Note also that for "C", the definition includes "control characters other than ..." which effectively (based on the original Table 82-1) means only 8 idles (/I/), but it's not obvious; the definition can be simplified and clarified.
The definition of "T" can be similarly simplified.

If the suggested remedy is not accepted, at the minimum, change the two instances of /O/ to /Q/ (subject of another comment).

SuggestedRemedy

Bring in the definition of T_TYPE in 82.2.19.2.3 (currently not included in the draft).
Change item a) in the definition of "C" from
"Eight valid control characters other than /O/, /S/, /T/, /L/, and /E/"
to
"Eight /I/ characters"
In the definition of "T", change from
"all characters following the /T/ are valid control characters other than /O/, /S/ and /T/"
to
"all characters following the /T/ are /I/, /L/, or /E/".

Proposed Response Response Status O

CI 82 SC 82.5a P39 L7 # 7

Ran, Adeo Cisco Systems

Comment Type TR Comment Status X

The new subclause for EMS mixes the concepts of support, functionality/capabilities, and enablement. A PCS may support have the functionality required to support EMS but not enable it. In that case, the "shall" statements are irrelevant.

Also, RS-FEC is a different sublayer so the "shall" statements for the RS-FEC are out of place in the PCS clause; they should be made in clauses 91 and 161. The EMS functions of the PCS and the RS-FEC can be enabled/disabled by the same management variable

SuggestedRemedy

Rewrite 82.5a in terms of required PCS functionality (support of stateless encoder and decoder, control ordered sets, and disabling the BER monitor).
Move the RS-FEC requirements to clauses 91 and 161.

Define new variables `ems_link_ability`, `ems_link_enable`, `ems_packet_ability`, `ems_packet_enable`, in both the PCS clauses and the RS-FEC clauses. Specify in each clause which functionality is controlled by the "enable" variable. Use the variables in the definitions of the functions, e.g. in 82.2.4.

Proposed Response Response Status O

CI 82 SC 82.7.4.1 P41 L17 # 8

Ran, Adeo Cisco Systems

Comment Type TR Comment Status X

As defined in 82.2.4 the state diagram encoder is mandatory (if the stateless encoder is not enabled, the state diagram must be used).
Similarly for the state diagram decoder in 82.2.17, and possibly in other PCS clauses.

SuggestedRemedy

In items C11 and C14, change the status to "M".
Apply in other PCS clauses if necessary.

Proposed Response Response Status O

CI 82 SC 82.7.4.1 P41 L20 # 9

Ran, Adeo Cisco Systems

Comment Type TR Comment Status X

Stateless encoder is mandatory when EML is supported, as defined by item C13. C12 contradicts that by making it optional.

Similarly for the stateless decoder, and possibly in other PCS clauses

SuggestedRemedy

Delete items C12 and C15.
Apply in other PCS clauses if necessary.

Proposed Response Response Status O

CI 119 SC 119.2.6.2.3 P48 L4 # 10

Ran, Adeo Cisco Systems

Comment Type TR Comment Status X

119.2.6.2.3 (in 802.3-2022, currently not in the draft) includes definition of `T_TYPE`, which should be modified similarly to the one in 82.2.19.2.3.

SuggestedRemedy

Bring in this subclause and apply the necessary changes (also subject of other comments).

Proposed Response Response Status O

CI 195 SC 195.2 P70 L15 # 11

Ran, Adeo Cisco Systems

Comment Type E Comment Status X

"EMS provides two optional capabilities"

It is an implementation that provides capabilities (or doesn't).

The word "comprises" is suitable here, but the simpler "includes" would also work.

SuggestedRemedy

Change "provides" to "includes".

Proposed Response Response Status O

CI 195 SC 195.3.2 P71 L34 # 12

Ran, Adeo Cisco Systems

Comment Type E Comment Status X

"The EMS client initiates the transmission of metadata by delivering it to the gRS over the EMSI transmit interfaces. The EMS client accepts received metadata from the gRS over the EMSI receive interfaces."
 "transmit interfaces" and "receiver interfaces" are undefined; There are service interface primitives.

Also, "accepts received metadata" is inaccurate - it simply receives it.

SuggestedRemedy

Change "EMSI transmit interfaces" to "EMS_PM.request or EMS_LM.request primitives".
 Change "EMSI receive interfaces" to "EMS_PM.indication or EMS_LM.indication primitives".
 Change "accepts received metadata" to "receives metadata".

Proposed Response Response Status O

CI 195 SC 195.3.4.2.1 P72 L47 # 13

Ran, Adeo Cisco Systems

Comment Type TR Comment Status X

"The data conveyed by EMS_PM.indication might not be valid for use by the EMS client if the MAC client detects a packet framing error or FCS error in the received packet"

This is a frightening statement!
 But in fact it refers to an almost impossible situation. The assumption is that the packet data is protected by the FEC and errors are fully marked, so FCS and framing errors should prevent packets from being delivered to MAC (FEC failure to detect an errored codeword has negligible probability).

Also, "packet framing error" is undefined, and CRC errors are checked in the MAC (e.g. 4A.2.4.1.2), not in the MAC client. The MAC client will simply not receive a packet that fails a CRC check.

SuggestedRemedy

Delete the quoted sentence.

Proposed Response Response Status O

CI 195 SC 195.3.4.2.1 P72 L49 # 14

Ran, Adeo Cisco Systems

Comment Type TR Comment Status X

"Communication from the MAC client to the EMS client is beyond the scope of this standard"
 This does not need to be stated - the standard is about Ethernet, not its clients.
 Assuming the previous sentence will also be deleted (subject of another comment), this statement would also be out of place.

SuggestedRemedy

Delete the quoted sentence.

Proposed Response Response Status O

CI 195 SC 195.3.4.2.3 P73 L9 # 15

Ran, Adeo Cisco Systems

Comment Type E Comment Status X

"the EMS client extracts metadata from the packet_metadata parameter. The action it takes, if any, is beyond the scope of this standard"

"if any" better matches the statement "extracts metadata" because metadata does not exist for all packets. if there is metadata, the EMS client is very likely to take some action, so "if any" makes little sense. Also, it goes without saying, and less is more.

Similarly in 195.3.5.2.3.

SuggestedRemedy

Delete "if any", here and in 195.3.5.2.3.

Proposed Response Response Status O

CI 195 SC 195.4 P74 L14 # 16

Ran, Adeo Cisco Systems

Comment Type E Comment Status X

"These two gRS functions are defined to support the EMSI."
 This sentence is redundant - the remainder of the paragraph says the same.
 An implementation supports the EMSI (or doesn't), not the functions.

SuggestedRemedy

Delete the quoted sentence.

Proposed Response Response Status O

CI 195 SC 195.4.1.1 P75 L9 # 17

Ran, Adee Cisco Systems

Comment Type E Comment Status X

The "packet metadata" subclause has many instances of "shall" and some instances of "can" that don't go together.

Also, for the first "shall" (which encompasses the rest) it is unclear that the gRS is responsible for the actions.

Also applies in 195.4.1.2.

SuggestedRemedy

Change "the following actions shall occur" to "the gRS shall perform the following actions".
Change the remaining "shall" statements in this subclause to description of the actions - "is replaced", "discards", "replaces", "is transmitted".

Make similar changes in 195.4.1.2.

Proposed Response Response Status O

CI 195 SC 195.4.1.1 P75 L13 # 18

Ran, Adee Cisco Systems

Comment Type E Comment Status X

"Octets 1 through 7 can be replaced with packet metadata"

This statement is redundant due to the subsequent sentences.

SuggestedRemedy

Delete the quoted sentence.

In the subsequent sentence, change "whether octet i of the next transmitted packet shall be replaced" to "whether octet i of the next transmitted packet is replaced by packet metadata"

Proposed Response Response Status O

CI 195 SC 195.4.1.2 P76 L9 # 19

Ran, Adee Cisco Systems

Comment Type T Comment Status X

"The impact of control ordered set insertion on the Deficit Idle Count (DIC) (see 81.3.1.4) is application dependent and beyond the scope of this standard"

This sentence is out of place in the list item it is in. DIC is potentially affected by an EMS_LM.request received during idle too (the first item), and in fact it is more relevant there.

The impact is definitely within the scope of the standard, even if it is application dependent.

If a CtIOS replaces idle characters it practically reduces the number of idles and the receiving PCS cannot delete the CtIOS (unlike idles) so apparently the DIC should be affected - more idles should be inserted to ensure the receiver can delete idles for frequency offset compensation.

If the CtIOS is within packet data then it does not reduce the number of idles so DIC should not be affected.

SuggestedRemedy

If it is desired to keep the effect on DIC implementation dependent move this statement to a paragraph after the list, and delete "and beyond the scope of this standard".

But preferably, specify that a request received during idle increases the DIC by 8 (such that idles will be inserted to compensate), and a request received during packet transmission does not..

Proposed Response Response Status O

CI 195 SC 195.4.1.2 P76 L22 # 20

Ran, Adee Cisco Systems

Comment Type E Comment Status X

"Table 81-3 specifies all permissible encodings of TXC and TXD including the control character for control ordered sets (0x5C)"

This sentence is redundant due to the next paragraph and Table 195-1.

SuggestedRemedy

Delete the quoted sentence. In the paragraph above this sentence, change "(TXC=1)" to ""(TXC=1, TXD=0x5C)""

Proposed Response Response Status O

CI 195 SC 195.4.2.1 P77 L32 # 21

Ran, Adee Cisco Systems

Comment Type E Comment Status X

"The gRS does not propagate packet metadata to the MAC."
This sentence is redundant due to the next sentence. Say what is done, not what is not done.

SuggestedRemedy
Delete the quoted sentence.

Proposed Response Response Status O

CI 195 SC 195.4.2.2 P77 L52 # 22

Ran, Adee Cisco Systems

Comment Type E Comment Status X

"Table 81-4 specifies all permissible encodings of RXC and RXD including the value for the control character for control ordered sets (0x5C)"
The only relevant information in Table 81-4 is the fact that the control character is 0x5C. So say it in the previous paragraph.

SuggestedRemedy
Delete the quoted sentence. In the second paragraph, change "(RXC=1)" to ""(RXC=1, RXD=0x5C)".

Proposed Response Response Status O

CI 195 SC 195.5.4.1 P80 L24 # 23

Ran, Adee Cisco Systems

Comment Type ER Comment Status X

There is a requirement in 195.4.2.1 to restore the original preamble.
The value/comment of PM2 does not mention this requirement, so the item does not fully cover the requirements of the subclause.

SuggestedRemedy
Delete the value/comment of PM2.

Proposed Response Response Status O

CI 195 SC 195.5.4.2 P80 L35 # 24

Ran, Adee Cisco Systems

Comment Type ER Comment Status X

Why "can generate" in LM1 - metadata from the EMS client must cause generation of CtlOS
Also for PM1

SuggestedRemedy
Delete the value/comment of LM1 and PM1

Proposed Response Response Status O

CI 195 SC 195.5.4.2 P80 L38 # 25

Ran, Adee Cisco Systems

Comment Type ER Comment Status X

There is a requirement in 195.4.2.2 to drop the CtlOS from the bit stream delivered to the MAC.
The value/comment of LM2 does not mention this requirement, so the item does not fully cover the requirements of the subclause.

SuggestedRemedy
Delete the value/comment of LM2.

Proposed Response Response Status O

CI 30 SC 30.2.5 P20 L23 # 26

Ran, Adee Cisco Systems

Comment Type E Comment Status X

30.17 is in this amendment

SuggestedRemedy
Make it an active xref

Proposed Response Response Status O

IEEE P802.3dt D1.0 Ethernet Metadata Services 1st Task Force review comments

Received comments

CI 30 SC 30.17.1.1 P21 L20 # 27
Ran, Adee Cisco Systems
Comment Type E Comment Status X
Clause 195 is in this amendment
SuggestedRemedy
Make it an active xref
Proposed Response Response Status O

CI 30 SC 30.17.1.11 P23 L41 # 28
Ran, Adee Cisco Systems
Comment Type E Comment Status X
missing space in "50Gb/s"
Also in 30.17.1.12
Also in 174 in "1.6Tb/s"
SuggestedRemedy
Insert spaces
Proposed Response Response Status O

CI 45 SC 45.2.1.116.aa P25 L37 # 29
Ran, Adee Cisco Systems
Comment Type E Comment Status X
Cross-references to subclauses should not include "clause" (several times in this subclause)
SuggestedRemedy
Change the xref format to omit "clause"
Proposed Response Response Status O

CI 82 SC 82.2.3.1 P32 L27 # 30
Ran, Adee Cisco Systems
Comment Type E Comment Status X
number mismatch "four bits" / "is labeled"
SuggestedRemedy
Change "four bits" to "nibble"
Proposed Response Response Status O

CI 82 SC 82.2.4 P35 L13 # 31
Ran, Adee Cisco Systems
Comment Type E Comment Status X
"option not enabled"
SuggestedRemedy
Change to "option is not enabled"
Proposed Response Response Status O

CI 195 SC 195.4.1.2 P76 L18 # 32
Ran, Adee Cisco Systems
Comment Type E Comment Status X
"The general format of a control ordered set is similar to a sequence ordered set (see 81.3.4 and Table 81–5) but uses a different control character."
could be less wordy.
SuggestedRemedy
Change to
"The format of a control ordered set is similar to a sequence ordered set (see 81.3.4 and Table 81–5) with a different control character."
Proposed Response Response Status O

IEEE P802.3dt D1.0 Ethernet Metadata Services 1st Task Force review comments

Received comments

CI 195 SC 195.2 P70 L24 # 33

Ran, Adeel Cisco Systems

Comment Type E Comment Status X

"Within the scope of this clause, the term gRS is used"
Unnecessarily wordy; the term is used in the clause, not in its scope

SuggestedRemedy

Delete "the scope of"

Proposed Response Response Status O

CI 82 SC 82.2.4 P35 L10 # 34

de Koos, Andras Microchip Technology

Comment Type E Comment Status X

Typo : BASR-R

SuggestedRemedy

BASE-R

Proposed Response Response Status O

CI 82 SC 82.2.4.2 P35 L27 # 35

de Koos, Andras Microchip Technology

Comment Type T Comment Status X

Should include the motivation for mandating the statless encoder, similar to what is done for the HIBER disable.

SuggestedRemedy

Add sentence : "The ability to enable the stateless encoder is required to support EMS (see 82.5a)."

Proposed Response Response Status O

CI 82 SC 82.2.17.2 P36 L7 # 36

de Koos, Andras Microchip Technology

Comment Type T Comment Status X

Should include the motivation for mandating the statless decoder, similar to what is done for the HIBER disable.

SuggestedRemedy

Add sentence : "The ability to enable the stateless decoder is required to support EMS (see 82.5a)."

Proposed Response Response Status O

CI 82 SC 82.2.17.2 P36 L4 # 37

de Koos, Andras Microchip Technology

Comment Type E Comment Status X

"When PCS reset is asserted or align_status is false, or r_test_mode is true,"
"When A or B or C" should be replaced with "When A, B, or C"

SuggestedRemedy

replace with:
"When PCS reset is asserted, align_status is false, or r_test_mode is true,"

Proposed Response Response Status O

Cl 82 SC 82.5a P39 L24 # 38

de Koos, Andras

Microchip Technology

Comment Type T Comment Status X

"The CAUI-n, which are not protected by FEC, are not supported with EMS. To support EMS, a 100GAUI-n shall be used in any 100 Gb/s Physical Layer which requires a C2C or C2M interface."

CAUI-4 does NOT necessarily mean there is no FEC. It could use an RS(528,514). (I often use CAUI-4 to mean no-FEC, but that's not actually correct!) Look at figure 83E-1 in 802.3-2022 for an example.

- 100GAUI-n implies the use of the RS(544,514) FEC. 100GAUI-4 runs at 26.5625 Gbps/lane
- CAUI-4 may or may not have an RS(528,514). Runs at 25.78125 Gbps/lane

So could EMS be used where there is a CAUI-4 with RS(528,514) FEC??

(note that the LAUI-2 sentence in clause 134 is correct - the LAUI-2 indeed never has a FEC).

SuggestedRemedy

Remedy depends on the intent:

If CAUI-4 with RS(528,514) is intended to be allowed with EMS, then rephrase as:
"CAUI-n without RS-FEC are not supported with EMS. To support EMS, CAUI-4 with RS(528,514) or 100GAUI-n (always with RS(544,514)) shall be used in any 100 Gb/s Physical Layer which requires a C2C or C2M interface."

If the intent is to exclude all CAUI-n interfaces, including those using the RS(528,514) FEC, then rephrase as:

"CAUI-n are not supported with EMS"

AND change the bullet point above that "A Reed-Solomon FEC (RS-FEC) shall be used as defined in either Clause 91 or Clause 161." to specify that it must be an RS(544,514) FEC.

Proposed Response

Response Status O

Cl 91 SC 91.5.3.3 P43 L16 # 39

de Koos, Andras

Microchip Technology

Comment Type E Comment Status X

"codeword contains errors that were not corrected... it shall ensure than for every other 257-bit block within the codeword..."

Breaking up the old sentence makes the new sentences less clear.

Comment also applies to Clauses 134 and 161

SuggestedRemedy

Rephrase using the word "errored" in the new sentences.

"When using the sparse error marking method, for every other 257-bit block within the errored codeword starting with..."

"When using the full error marking method, for every 66-bit block within the errored codeword and the first four 66-bit blocks of the following codeword..."

Proposed Response

Response Status O

Cl 91 SC 91.5.3.3 P43 L26 # 40

de Koos, Andras

Microchip Technology

Comment Type T Comment Status X

"and the first four 66-bit blocks of the following codeword (accounting for any alignment marker removal),"

I don't understand why/how erroring the first four 66-bit blocks of the codeword following the errored codeword "accounts for alignment marker removal". I don't see why erroring additional 66-bit blocks beyond the errored CW is necessary at all. The 20x 66-bit blocks that make up the PCS alignment markers always fall entirely within one FEC CW. They are removed and re-inserted at the same place in the stream of 66b blocks, and this removal/insertion is just so that they bypass the 257b-66b transdecoder.

Comment applies to Clauses 134 and 161 as well.

SuggestedRemedy

Consider whether the erroring the first 4 66-bit blocks of the next codeword is truly necessary.

Proposed Response

Response Status O

CI 91 SC 91.7.4.2 P45 L # 41
de Koos, Andras Microchip Technology
Comment Type E Comment Status X
Why is the RF11 PICS item needed in Clause91? It is little different than RF10 ("supports" vs "uses").

Similar comment applies to many PICS items: If it's mandatory for EMS (or EML/EMP) and otherwise optional, then can the existing PICS item just be optional in general, but mandatory when EMS is supported? for example, the item TF10 in Clause 91 (802.3-2022) avoids duplicating the PICS item by specifying two contexts in the 'status' column :
"KR4:M or SR4:M"

SuggestedRemedy
Add EMS:M to the status column of RF10, and delete RF11.

Proposed Response Response Status O

CI 195 SC 195.4.1.2 P76 L 5 # 42
de Koos, Andras Microchip Technology
Comment Type T Comment Status X
"If the EMS_LM.request is received during idle, the gRS shall insert a control ordered set in place of an IDLE block on the xMII transmit path."

IF it is a long string of idles, then overwriting idles with CtlOS is fine.
But if the number of idles is already at it's allowable minimum, then I don't believe that overwriting idles is appropriate. If too many idles are overwritten with CtlOS in the RS, then there could be too few idles available for removal downstream
- in the TxPCS (to compensate for AM insertion),
- in an MII-Extender (which may need to remove idles to adapt the stream to a slower clock).

SuggestedRemedy
Some rules around overwriting idles, especially when the idles are already close to the allowable minimum, is necessary.

Add a caveat to the end of the sentence as follows:
"If the EMS_LM.request is received during idle, the gRS may insert a control ordered set in place of an IDLE block on the xMII transmit path, while still respecting the minimum required IDLE content of the link."

Also, the note about DIC could be applied to the first two bullet points, not only the 2nd one.
"The impact of control ordered set insertion on the Deficit Idle Count (DIC) (see 81.3.1.4) is application dependent and beyond the scope of this standard."

Proposed Response Response Status O

CI 119 SC 119.2.3.1 P48 L 4 # 43
Opsasnick, Eugene Broadcom
Comment Type TR Comment Status X
The notation conventions for the 64B/66B code in 119.2.3.1 need to be modified for the new control ordered set in the same way that was done in 82.2.3.1.

SuggestedRemedy
Bring subclause 119.2.3.1 into the draft and modify the second paragraph in the same way as 82.2.3.1 as needed for the sequence ordered sets and control ordered sets

Proposed Response Response Status O

CI 82 SC 82.2.3.6 P34 L 24 # 44

Opsasnick, Eugene Broadcom

Comment Type E Comment Status X

In Table 82-1, the notation /C/ is defined to represent the new Control ordered set. But the capital letter C (without slashes) is also used to represent the control characters /I/ and /E/ as defined in 82.2.3.1 and used in Figure 82-5. The different meanings for "C" and "/C/" may be confusing. A different letter could be used for the new control ordered set notation.

SuggestedRemedy

In Table 82-1, change the Notation definition for the Control ordered set from "/C/" to "/R/". Make corresponding changes wherever /C/ is currently used, including 82.2.3.1, 82.2.3.9, and 82.2.19.2.3.

Proposed Response Response Status O

CI FM SC FM P11 L 28 # 45

Huber, Thomas Nokia

Comment Type E Comment Status X

Corrigendum 2 has been approved and published

SuggestedRemedy

Change Cor 2-20xx to Cor 2-2026

Proposed Response Response Status O

CI 30 SC 30 P19 L # 46

Huber, Thomas Nokia

Comment Type T Comment Status X

Clause 30.1.4 has text in the penultimate paragraph that needs to be modified to reflect the addition of clause 30.17: "The above items are defined in 30.3 through 30.16.1 of this clause in terms of the template requirements of ISO/IEC 10165-4:1991."

SuggestedRemedy

Bring 30.1.4 into the document, and update the sentence in question to replace 30.16.1 with 30.17.1.

Proposed Response Response Status O

CI 30 SC 30.17 P21 L 14 # 47

Huber, Thomas Nokia

Comment Type E Comment Status X

Throughout the clause, the way the attributes with BOOLEAN syntax are defined is not consistent with other subclauses. If the APPROPRIATE SYNTAX is BOOLEAN, there is no need to spell out TRUE and FALSE in the APPROPRIATE SYNTAX, as by definition a BOOLEAN only takes those values. The meaning of TRUE and FALSE should be explained in the BEHAVIOUR DEFINED AS.

SuggestedRemedy

Update all the BOOLEAN variables so that they read like this:
 APPROPRIATE SYNTAX
 BOOLEAN
 BEHAVIOUR DEFINED AS:
 True if and false otherwise. <other behavior as needed>

Proposed Response Response Status O

CI 45 SC 45.2.1.116.aa P25 L 38 # 48

Huber, Thomas Nokia

Comment Type T Comment Status X

When full error marking is disabled, does that imply that sparse error marking is what is done if error marking is otherwise enabled? If so, it it would be good to state that here.

SuggestedRemedy

Add this text before the last sentence of the first paragraph: "When the full error marking method is disabled, sparse error marking (see Clause 91.5.3.3, Clause 134.5.3.3 and Clause 161.5.3.3) is performed if error marking is enabled."

Proposed Response Response Status O

CI 81 SC 81.3.1.2 P30 L 48 # 49

Huber, Thomas Nokia

Comment Type E Comment Status X

The wording "Control control character combination of TXC and TXD" is awkward.

SuggestedRemedy

Rewrite the sentence to use a structure more like the existing sentence regarding EEE:
 A PHY with EMS capability shall use the combination of TXC and TXD as shown in Table 81-3 for Control to transmit control ordered sets (see 195.4.1.2).

Proposed Response Response Status O

CI 81 SC 81.3.2.3 P31 L49 # 50

Huber, Thomas

Nokia

Comment Type E Comment Status X

"Control control character" is awkward.

SuggestedRemedy

Replace "...Start control character, Terminate control character, Sequence control character, Control control character, or Error control character..."
with

"...Start, Terminate, Sequence, Control, or Error control character..."

Replace "The Control control character is used for control ordered sets as described in 195.4.2.2."
with

"A PHY with EMS capability uses the combination of RXC and RXD as shown in Table 81-4 for Control to identify control ordered sets as described in 195.4.2.2."

Proposed Response Response Status O

CI 82 SC 82.2.1 P32 L18 # 51

Huber, Thomas

Nokia

Comment Type T Comment Status X

The last sentence seems to be justifying the rest of the text that is added, which seems unnecessary. It is also written too softly - 82.5a mandates that BER monitor be disabled, not just the ability to disable it, in order to use EMS.

SuggestedRemedy

Delete "The ability to disable the BER monitor process is required to support EMS (see 82.5a)." or replace it with "Support for EMS requires the BER monitor to be disabled (see 82.5a)."

Proposed Response Response Status O

CI 82 SC 82.2.3.3 P33 L17 # 52

Huber, Thomas

Nokia

Comment Type T Comment Status X

While this was not the intent, changing format 0x4B is potentially creating issues with other SDOs that have defined ordered sets (as documented in note a to Table 82-1) based on the prior definition of control block type 0x4B. The changes in 82.2.3.6 are effectively converting those non-802.3 ordered sets into a new format, i.e., they are effectively altering the specs of INCITS, OIF, and ITU-T (or forcing them to refer to an older version of 802.3 for the definition). Specifically, since the only option for ordered sets previously was /Q/, and the associated xMII code 0x9C, that is what they used. The new Table 82-1 says that is not the case, so it's actually incorrect regarding O codes 0xF, 0x5, and 0xC. At the same time, the ordered sets defined by OIF and ITU-T (and maybe also INCITS) do have the property that they cannot be deleted for rate adaptation purposes - so they do share some of the behavior of the newly defined control ordered sets.

SuggestedRemedy

Reconsider whether reuse of control block type 0x4B is the best way to indicate the new ordered set format used by EMS, or if maybe it would be better to use a different control block type to introduce a format that is different from how 0x4B was originally defined.

If the preference is to continue using 0x4B and distinguish the format only based on the O code, it needs to be more clear that the ordered sets defined by INCITS, OIF, and ITU-T are not using the "new" format with D4'-D7 bytes, but rather have fixed those bytes to zeros per the previous definition with Z4-Z7. 802.3 should probably not attempt to classify those ordered sets as sequence or control, since 802.3 didn't define them and has no control over how they are used. The purpose of note a in the table was to ensure that future 802.3 enhancements would not use those O codes, so the main body of the table should not reference them.

Modify the "O code" column in Table 82-1 to replace "0x1 - 0xF" with "0x1-0x4, 0x6-0xB, 0xD-0xE".

Proposed Response Response Status O

CI 82 SC 82.2.4 P35 L3 # 53

Huber, Thomas

Nokia

Comment Type E Comment Status X

Since the third paragraph is being replaced by two paragraphs, it would be more clear if the editing instruction also indicated the insertion of the fourth paragraph

SuggestedRemedy

Revise the editing instruction to read:

Change the 3rd paragraph of 82.2.4 and insert new 4th paragraph as follows:

Proposed Response Response Status O

CI 82 SC 82.2.4 P35 L12 # 54

Huber, Thomas Nokia

Comment Type E Comment Status X

Missing an 'is' in the last sentence

SuggestedRemedy

Change "If the stateless encoder option not enabled, then the state-diagram encoder defined in 82.2.4.1 is used."
to
"If the stateless encoder option is not enabled, then the state-diagram encoder defined in 82.2.4.1 is used."

Proposed Response Response Status O

CI 82 SC 82.2.19.2.2 P36 L21 # 55

Huber, Thomas Nokia

Comment Type T Comment Status X

If r_disable_ber_monitor exists only to replicate the value of BER_monitor_disable, why do we need to define it?

SuggestedRemedy

Remove r_disable_ber_monitor definition, and change figure 82-15 and the associated editor's note (in 82.2.19.3) to use BER_monitor_disable rather than r_disable_ber_monitor

Proposed Response Response Status O

CI 82 SC 82.7.3 P40 L21 # 56

Huber, Thomas Nokia

Comment Type E Comment Status X

The PCS itself doesn't support EMS, or have any awareness of whether metadata is being used; as 82.5a explains, the PCS just needs to be configured in a certain way if the gRS (and thus the PHY as a whole) is supporting EMS.

SuggestedRemedy

Change the Feature to "PHY supports EMS packet or link metadata", and make similar changes to EML and EMP.

Proposed Response Response Status O

CI 82 SC 82.7.3 P40 L27 # 57

Huber, Thomas Nokia

Comment Type E Comment Status X

EMP is not used in any of the subsequent tables, so it should not have a * in front of it

SuggestedRemedy

Change *EMP to EMP

Proposed Response Response Status O

CI 82 SC 82.7.4.1 P41 L17 # 58

Huber, Thomas Nokia

Comment Type E Comment Status X

There are some oddities in this table. C12 says the stateless encoder is optional, while C13 says it's mandatory based on EML (and likewise C15 and 16 wrt the decoder). The set of items is correctly expressing the requirements for compliance, but having multiple items with the same feature (eg. C12 and C13 both saying supports stateless encoder) sort of looks like a copy-paste mistake.

SuggestedRemedy

Consider adding text in the value/comment column for C13 and C16 indicating that the stateless encoder/decoder is in general optional, but is required if EML is supported. (yes, the table already says all that, but putting it in words in the comment column makes it more clear that the two rows for "supports stateless encoder/decoder" are intentional).

Proposed Response Response Status O

CI 82 SC 82.7.4.1 P41 L17 # 59

Huber, Thomas Nokia

Comment Type T Comment Status X

A PCS either uses the state diagram encoder or the stateless encoder (and likewise for the decoder). As such, the groups should be O/n (one and only one of the options) rather than O.n (at least one of the options).

SuggestedRemedy

Change the O.1 for C11 and C12 to O/1. Change the O.2 for C14 and C15 to O/2.

Proposed Response Response Status O

CI 91 SC 91.7.3 P45 L18 # 60
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 The FEC sublayer doesn't have any awareness of EMS (since the EMS functions are in the gRS), and in fact the behavior of a FEC sublayer that supports EMS vs one that does not, but happens to use the full error marking method, would be indistinguishable. As such, having a feature of "Supports EMS packet or link metadata", with no reference to any subclause, is awkward
 SuggestedRemedy
 Change the Feature to "PHY supports EMS packet or link metadata", and add a reference to 195.2
 Proposed Response Response Status O

CI 119 SC 119.7.3 P49 L19 # 61
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 The PCS itself doesn't support EMS, or have any awareness of whether metadata is being used; as 119.5a explains, the PCS just needs to be configured in a certain way if the gRS (and thus the PHY as a whole) is supporting EMS.
 SuggestedRemedy
 Change the Feature to "PHY supports EML packet or link metadata" and make a similar change to the EMP row.
 Proposed Response Response Status O

CI 119 SC 119.7.4.1 P49 L42 # 62
 Huber, Thomas Nokia
 Comment Type T Comment Status X
 The structure of this table isn't quite right. In the table in 802.3dj, TF2 and TF3 determine whether the state diagram or stateless encoder is used, based on the answer to item *SE. TF3 (uses stateless encoder) has the status SE:M. In that context, adding SEM as yet another item that can make the stateless encoder mandatory seems awkward.
 SuggestedRemedy
 Delete the new item SEM. Bring TF2 and TF3 into the table. Change the status of TF3 to "SE + EML: M"
 Proposed Response Response Status O

CI 119 SC 119.7.4.2 P50 L12 # 63
 Huber, Thomas Nokia
 Comment Type T Comment Status X
 The structure of this table isn't quite right. In the table in 802.3dj, RF7 and RF8 determine whether the state diagram or stateless encoder is used, based on the answer to item *SD. RF8 (uses stateless decoder) has the status SD:M. In that context, adding SDM as yet another item that can make the stateless encoder mandatory seems awkward.
 SuggestedRemedy
 Delete the new item SDM. Bring RF7 and RF8 into the table. Change the status of RF7 to "SD + EML: M"
 Proposed Response Response Status O

CI 119 SC 119.7.4.3 P50 L38 # 64
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 Formatting issue on the bottom border of the lower right corner cell
 SuggestedRemedy
 Fix the formatting
 Proposed Response Response Status O

CI 133 SC 133.5.3 P53 L17 # 65
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 The PCS itself doesn't support EMS, or have any awareness of whether metadata is being used; as 133.3a explains, the PCS just needs to be configured in a certain way if the gRS (and thus the PHY as a whole) is supporting EMS.
 SuggestedRemedy
 Change the Feature to "PHY supports EMS packet or link metadata", and make similar changes to EML and EMP.
 Proposed Response Response Status O

CI 133 SC 133.5.3 P53 L23 # 66
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 EMP is not used in any of the subsequent tables, so it should not have a * in front of it
 SuggestedRemedy
 Change *EMP to EMP
 Proposed Response Response Status O

CI 133 SC 133.5.4.1 P54 L20 # 67
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 There are some oddities in this table. C12 says the stateless encoder is optional, while C13 says it's mandatory based on EML (and likewise C15 and 16 wrt the decoder). The set of items is correctly expressing the requirements for compliance, but having multiple items with the same feature (eg. C12 and C13 both saying supports stateless encoder) sort of looks like a copy-paste mistake.
 SuggestedRemedy
 Consider adding text in the value/comment column for C13 and C16 indicating that the stateless encoder/decoder is in general optional, but is required if EML is supported. (yes, the table already says all that, but putting it in words in the comment column makes it more clear that the two rows for "supports stateless encoder/decoder" are intentional).
 Proposed Response Response Status O

CI 134 SC 134.7.3 P57 L18 # 68
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 The FEC sublayer doesn't have any awareness of EMS (since the EMS functions are in the gRS), and in fact the behavior of a FEC sublayer that supports EMS vs one that does not, but happens to use the full error marking method, would be indistinguishable. As such, having a feature of "Supports EMS packet or link metadata", with no reference to any subclause, is awkward
 SuggestedRemedy
 Change the Feature to "PHY supports EMS packet or link metadata", and add a reference to 195.2
 Proposed Response Response Status O

CI 134 SC 134.7.4.2 P57 L45 # 69
 Huber, Thomas Nokia
 Comment Type T Comment Status X
 The intent is that the FEC must support at least one of the two error marking options - so the group number in the status should be the same for RF6 and RF7.
 SuggestedRemedy
 in RF7, change the status from O.2 to O.1
 Proposed Response Response Status O

CI 161 SC 161.7.3 P61 L18 # 70
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 The FEC sublayer doesn't have any awareness of EMS (since the EMS functions are in the gRS), and in fact the behavior of a FEC sublayer that supports EMS vs one that does not, but happens to use the full error marking method, would be indistinguishable. As such, having a feature of "Supports EMS packet or link metadata", with no reference to any subclause, is awkward
 SuggestedRemedy
 Change the Feature to "PHY supports EMS packet or link metadata", and add a reference to 195.2
 Proposed Response Response Status O

CI 172 SC 172.3.1 P63 L12 # 71
 Huber, Thomas Nokia
 Comment Type E Comment Status X
 The editorial instruction is referring to the wrong table
 SuggestedRemedy
 Change Table 176-6 to Table 172-1.
 Proposed Response Response Status O

CI 172 SC 172.3.1 P 63 L 20 # 72

Huber, Thomas Nokia

Comment Type E Comment Status X

Two formatting problems: right border of the right-most cell in the second row should be consistent with the rest of the table, and the newly inserted row should be shown as inserted (with underlines).

SuggestedRemedy

Fix the formatting

Proposed Response Response Status O

CI 172 SC 172.7.3 P 64 L 17 # 73

Huber, Thomas Nokia

Comment Type E Comment Status X

The PCS itself doesn't support EMS, or have any awareness of whether metadata is being used; as 172.5a explains, the PCS just needs to be configured in a certain way if the gRS (and thus the PHY as a whole) is supporting EMS.

SuggestedRemedy

Change the Feature to "PHY supports EMS link metadata", and make a similar change for the EMP row.

Proposed Response Response Status O

CI 175 SC 175.9.3 P 68 L 17 # 74

Huber, Thomas Nokia

Comment Type E Comment Status X

The PCS itself doesn't support EMS, or have any awareness of whether metadata is being used; as 175.6a explains, the PCS just needs to be configured in a certain way if the gRS (and thus the PHY as a whole) is supporting EMS.

SuggestedRemedy

Change the Feature to "PHY supports EMS link metadata", and make a similar change for the EMP row.

Proposed Response Response Status O

CI 175 SC 175.9.4.1 P 68 L 36 # 75

Huber, Thomas Nokia

Comment Type T Comment Status X

The structure of this table isn't quite right. In the table in 802.3dj, TF1 and TF2 determine whether the state diagram or stateless encoder is used, based on the answer to item *SE. TF3 (uses stateless encoder) has the status SE:M. In that context, adding SEM as yet another item that can make the stateless encoder mandatory seems awkward.

SuggestedRemedy

Delete the new item SEM. Bring TF1 and TF2 into the table. Change the status of TF2 to "SE + EML: M"

Proposed Response Response Status O

CI 175 SC 175.9.4.3 P 69 L 15 # 76

Huber, Thomas Nokia

Comment Type T Comment Status X

The structure of this table isn't quite right. In the table in 802.3dj, RF13 and RF14 determine whether the state diagram or stateless encoder is used, based on the answer to item *SD. RF14 (uses stateless decoder) has the status SD:M. In that context, adding SDM as yet another item that can make the stateless encoder mandatory seems awkward.

SuggestedRemedy

Delete the new item SDM. Bring RF13 and RF14 into the table. Change the status of RF14 to "SD + EML: M"

Proposed Response Response Status O

CI 195 **SC 195.3.4.2.1** **P72** **L48** # **77**

Huber, Thomas

Nokia

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

"The data conveyed by EMS_PM.indication might not be valid for use by the EMS client if the MAC client detects a packet framing error or FCS error in the received packet.". The text implies that a frame with a bad FCS could be an indication of a corrupted preamble, but that is not really the case. The set of octets covered by the FCS does not include the preamble - so the status of the FCS says nothing at all about the integrity of the preamble octets, assuming that packet alignment is correct. A packet framing error would mean the metadata delivered may not have been in the preamble of a packet at all, so that indeed would be suspect. A bad FCS could of course be an indication of incorrect packet alignment also, so maybe that is what is intended.

SuggestedRemedy

Rewrite the text to focus purely on framing errors:

"The data conveyed by EMS_PM.indication might not be valid for use by the EMS client if the MAC clients detects a packet framing error in the received packet."

Proposed Response **Response Status** **O**

CI 195 **SC 195.3.5.1.1** **P73** **L27** # **78**

Huber, Thomas

Nokia

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

The control order set includes a 4-bit O code, which is not part of the metadata but rather part of the encoding in the PCS (just like the control block type is not part of the metadata). It is architecturally awkward to expect the EMS client to be aware of this PCS encoding detail and create a 7-octet string that includes the correct bit pattern for the O code.

SuggestedRemedy

Describe the link_metadata parameter as 52 bits:

"The link_metadata parameter contains the 52 bits to be transmitted in the control ordered set."

Proposed Response **Response Status** **O**

CI 195 **SC 195.3.5.2** **P73** **L41** # **79**

Huber, Thomas

Nokia

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

As noted wrt the request primitive, there are only 52 bits of metadata, not 7 octets, because of the O code.

SuggestedRemedy

Change "This primitive defines the transfer of the seven data octets of a received control ordered set from the gRS to the EMS client"

to

"This primitive defines the transfer of the 52 bits of metadata of a received control ordered set from the gRS to the EMS client"

Proposed Response **Response Status** **O**

CI 195 **SC 195.3.5.2.1** **P73** **L50** # **80**

Huber, Thomas

Nokia

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

As noted wrt the request primitive, there are only 52 bits of metadata, not 7 octets, because of the O code.

SuggestedRemedy

Change "The link_metadata parameter contains the seven data octets received in the control ordered set."

to

"The link_metadata parameter contains the 52 bits received in the control ordered set."

Proposed Response **Response Status** **O**

CI 195 SC 195.4.1.2 P76 L10 # 81

Huber, Thomas

Nokia

Comment Type T Comment Status X

The last sentence about the impact of inserting LM ordered sets mid-packet is not quite right. To maintain the data rate of the MAC, it is a firm requirement that an Idle control block be removed for every LM ordered set that is inserted, so that aspect is neither application-dependent nor beyond the scope of the standard. Whether the requirement is satisfied using the Deficit Idle Counter or via some other process is implementation-dependent.

SuggestedRemedy

Replace "The impact of control ordered set insertion on the Deficit Idle Count (DIC) (see 81.3.1.4) is application- dependent and beyond the scope of this standard." with
"To compensate for the insertion of the control ordered set, an Idle control block must be deleted. The details of how this is accomplished, and the impact it has on the Deficit Idle Counter (DIC) (see 81.3.1.4), are implementation-dependent."

Proposed Response Response Status O

CI 195 SC 195.4.1.2 P76 L35 # 82

Huber, Thomas

Nokia

Comment Type T Comment Status X

Since the O code is part of the encoding and not part of the metadata, a bit more detail is needed to describe the mapping if other comments to change the link_metadata parameter to a 52-bit string are adopted.

SuggestedRemedy

Replace "The gRS shall use the link_metadata parameter of the EMS_LM.request primitive as the source of the seven octets of the control ordered set transmitted on lanes 1 to 7 of the xMII. The least significant four bits transmitted on lane 4, D4<3:0>, contain the 4-bit O code of the ordered set. The same format is used by sequence ordered sets. Valid O code values for each type of ordered set are defined in Table 82-1." with
"The gRS shall use the link_metadata parameter of the EMS_LM.request primitive as the source of the seven octets of the control ordered set transmitted on lanes 1 to 7 of the xMII. D1-D3 are taken from bits 0-23 of the link_metadata parameter. D4<0:3> contain the 4-bit O code of the ordered set. D4<4:7> and D5-D7 are taken from bits 24-51 of the link_metadata parameter."

Proposed Response Response Status O

CI 195 SC 195.4.2.2 P77 L46 # 83

Huber, Thomas

Nokia

Comment Type T Comment Status X

Need to align with the concept that the link_metadata is 52 bits rather than 7 octets.

SuggestedRemedy

Replace "The link_metadata parameter of the EMS_LM.indication primitive shall be set to the value of the seven data octets of the control ordered set received on lanes 1 to 7 of the xMII receive signals." with
"The link_metadata parameter of the EMS_LM.indication primitive shall be set to the value of the 52 data bits of the control ordered set received on lanes 1 to 7 of the xMII receive signals. Bits 0-23 are taken from D1-D3. Bits 24-52 are taken from D4<4:7> and D5-D7."

Proposed Response Response Status O

CI 195 SC 195.5 P78 L7 # 84

Huber, Thomas

Nokia

Comment Type T Comment Status X

Insertion of link metadata, and corresponding removal of Idle control blocks, can impact the accuracy of TimeSync / PTP since the location of the PTP packet can change. It may be helpful to have some explanation of this.

SuggestedRemedy

Add a new subclause 195.5 (before the PICS) titled "Interaction with TimeSync Services" explaining the potential impacts that use of link metadata can have on TimeSync services.

Proposed Response Response Status O

CI 82 SC 82.2.1 P32 L18 # 85

Shrikhande, Kapil

Upscale AI

Comment Type E Comment Status X

It will be nice if the sentence 'The ability to disable the BER monitor process is required to support EMS (...)' comes towards the beginning of the paragraph, so that the reader knows why they should care about disabling the BER mon.

SuggestedRemedy

Take the last sentence of 82.2.1 and place it earlier in the paragraph, as follows : "When the receive channel is in normal mode, the 100GBASE-R PCS may provide the ability to disable the BER monitor process. The ability to disable the BER monitor process is required to support EMS (see 82.5a).".....

Proposed Response Response Status O

IEEE P802.3dt D1.0 Ethernet Metadata Services 1st Task Force review comments

Received comments

CI 82 SC 82.7.3 P40 L20 # 86
 Shrikhande, Kapil Upscale AI
 Comment Type ER Comment Status X
 Spelling error
 SuggestedRemedy
 Change "Etherent" to "Ethernet"
 Proposed Response Response Status O

CI 195 SC 195.1 P70 L8 # 87
 Shrikhande, Kapil Upscale AI
 Comment Type E Comment Status X
 Could use a comma in the first sentence
 SuggestedRemedy
 add a comma in the first sentence after "packet", as follows "Metadata is information about the data contained within a packet, or about the Ethernet link and the data it is communicating."
 Proposed Response Response Status O

CI 195 SC 195.4.1.2 P76 L8 # 88
 Shrikhande, Kapil Upscale AI
 Comment Type E Comment Status X
 Shouldn't sixty-four be 64 ?
 SuggestedRemedy
 Replace sixty-four by 64. If you agree, there is another instance on pg. 77 line 32.
 Proposed Response Response Status O

CI 82 SC 82.2.3.1 P32 L28 # 89
 Nicholl, Shawn AMD
 Comment Type E Comment Status X
 Currently says "The most significant four bits ... is labeled D'4."
 SuggestedRemedy
 "The most significant four bits ... are labeled D'4."
 Proposed Response Response Status O

CI 82 SC 82.2.19.3 P36 L48 # 90
 Nicholl, Shawn AMD
 Comment Type E Comment Status X
 Currently says "... paragraph of 182.2.19.3 ..."
 SuggestedRemedy
 It should say 82.2.19.3 (typo).
 Proposed Response Response Status O