

IEEE P802.3da D2.0 10 Mbps Multidrop Enhancements

Cl 188 SC 188.4.2.7 P72 L13 # 24

Jones, Peter Cisco Systems

Comment Type TR Comment Status R New Feature

"188.4.2.9 Jabber functional requirements" describes how to detect jabber, and that's implemented in Figure 188-5, but there isn't a definition to a counter to record the error.

SuggestedRemedy

Define a "local jabber" counter in "188.4.2.2 Variables" and increment it in the "PCS Transmit state diagram".
Add a clause 45 object to expose this.
Base the new object on "45.2.3.74 10BASE-T1M / 10BASE-T1S PCS diagnostic 1"

Response Response Status U

REJECT.

Comment provides insufficient information to implement remedy.

No consensus for change.

Cl 188 SC 188.4.3.7 P76 L51 # 25

Jones, Peter Cisco Systems

Comment Type TR Comment Status R New Feature

"188.4.3.9 Jabber diagnostics" discusses how to detect "remote jabber" and how it is exposed via MDIO register 3.2293. but the "PCS Receive state diagram" does not show how/where this is done.

SuggestedRemedy

Define a "remote jabber" counter in "188.4.3.2 Variables" and increment it in the "PCS Receive state diagram".

Response Response Status U

REJECT.

Comment provides insufficient information to implement remedy.

No consensus for change.

Cl 30 SC 30.6 P25 L20 # 52

Ran, Adee Cisco

Comment Type TR Comment Status A Management

188.1.1 says that Auto-negotiation is not available for 10GBASE-T1M. So why does this subclause need to be changed to add 10BASE-T1M?

SuggestedRemedy

Delete 30.6 and its subclauses.

Response Response Status W

ACCEPT.

Cl 79 SC 79.3.9.3 P41 L52 # 61

Ran, Adee Cisco

Comment Type TR Comment Status A LLDP

"If PLCA is not enabled, this field reports 255"
Which field? The subclauses title is "PLCA TLV usage rules" and it does not mention any specific field.

SuggestedRemedy

Clarify or delete this sentence.

Response Response Status W

ACCEPT IN PRINCIPLE.

Accommodated by comment #282.

Delete the sentence from 79.3.9.3

Replace content of 79.3.9.2 with:

"The PLCA nodeID field contains an integer value indicating the value of the variable local_nodeID (see 148.4.4.2). If PLCA is not enabled, this field reports 255."

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Cl 79 SC 79.5.13 P43 L30 # 62

Ran, Adeo Cisco
 Comment Type TR Comment Status R LLDP

"PLCA support/status TLV should contain no more than one PLCA TLV" is a recommendation, not an option. Recommendations typically don't have PICS items. It is unclear why this is not a mandatory requirement (what usage model has more than one TLV) and assuming it's optional, is it important that an implementation reports whether it sends more than one?

SuggestedRemedy

Delete PICS item PLC3, unless the "rule" is made mandatory.

Response Response Status W

REJECT.

This is an option in clause 79 and mirrors the PICS related to usage of the other TLVs in the clause. Clause 79 has this style because LLDP refers to a client that IEEE Std 802.3 cannot put requirements on.

Cl 147 SC 147.1 P45 L10 # 63

Ran, Adeo Cisco
 Comment Type TR Comment Status A Naming

The new paragraph inserted makes a statement about a PHY in another clause, which is unclear (what does "refined" mean?). This statement is not required in clause 147 and is out of scope (the project is not intended to change the 10BASE-T1S PHYs). It is also repeated in 188.1, where it seems to belong.

SuggestedRemedy

Delete this statement (and the whole of clause 147).

Response Response Status U

ACCEPT IN PRINCIPLE.

Accommodated by comment #288:

Change "refined" to "provided"

Cl 188 SC 188.4.2.2 P67 L11 # 65

Ran, Adeo Cisco
 Comment Type TR Comment Status A PCS

link_control definition says "This variable is generated by the Auto-Negotiation function" - but 188.1.1 says this function is not available for this PHY. The definition makes it unclear whether this is a control variable or a status indicator. If it is programmable it should be mapped to some MDIO register?

SuggestedRemedy

Delete the text about Auto-Negotiation, and clarify if this variable is a control or a status indicator. Add MDIO register mapping if necessary.

Response Response Status W

ACCEPT IN PRINCIPLE.

Accommodated by comment #160.

P67 L10 - Delete the link_control variable entry (lines 10-15)

Cl 188 SC 188.4.2.7 P71 L15 # 66

Ran, Adeo Cisco
 Comment Type TR Comment Status A State Diagrams

In Figure 188-4, the condition for the transition arc from SILENT to itself contains the phrase "(tx_sym <= TXCMD_ENCODE(tx_cmd))" - this is an assignment that cannot be a condition.

It looks like a copy of the assignment within this state, rather than the intended condition; perhaps the intent was "tx_cmd != COMMIT".

SuggestedRemedy

Correct the condition to whatever it should be, without an assignment.

Response Response Status W

ACCEPT IN PRINCIPLE.

Accommodated by comment #164

In the transition condition from SILENT to SILENT, change the last term from:
 (tx_sym <= TXCMD_ENCODE(tx_cmd))

to:
 (tx_cmd != COMMIT)

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Cl 188 SC 188.4.2.8 P72 L49 # 67

Ran, Adee Cisco

Comment Type TR Comment Status A PCS

"In no case shall the scrambler state be initialized to all zeros."

This is a valid requirement for an additive scrambler, but it is not necessary for a multiplicative (self-synchronizing) scrambler. Furthermore, it is impossible to detect whether this requirement is met; the scrambler state can occasionally be set to zero even during normal operation (assuming the incoming data in TXD is random, it will statistically happen once every 2^{17} bits, many times per second). A temporary zero state is not a problem; the state will change whenever a nonzero bit appears in TXD, and the output is DME-encoded anyway so there is no clock recovery issue. Neither is it a problem if it is initialized to this value at PCS reset.

Compare to the self-synchronizing scrambler of 49.2.6 (which is used in multiple high-speed PCS sublayers); it has no requirements for initialization, and in fact its state is initialized to 0 in many implementations.

There is also a PICS item for this unnecessary requirement.

SuggestedRemedy

Delete the quoted sentence.
Delete PICS item PCST5.

Response Response Status W

ACCEPT IN PRINCIPLE.

At P72 L50, Delete "The initialization of the scrambler state is left to the implementer. In no case shall the scrambler state be initialized to all zeros."

Delete PICS item PCST5

(Editor's note: Commenter should consider maintenance on Clause 147 which has the same sentence.)

Cl 188 SC 188.4.3.8 P78 L5 # 68

Ran, Adee Cisco

Comment Type TR Comment Status A PCS

The self-synchronizing descrambler cannot be a linear feedback shift register, because it needs to implement the inverse operation of the scrambler in 188.4.2.8. Since the scrambler is modeled by a linear feedback shift register, the descrambler has to be a linear feedforward shift register in order to be its inverse.

Figure 188-9 actually shows a linear feedforward (rather than feedback) shift register, except that an arrow to clarify the direction is missing.

SuggestedRemedy

Change "feedback" to "feedforward".
In Figure 188-9, format the line above the "+" on the left side as an arrow (downward), to clarify the flow direction.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change P78 L 5 "linear-feedback" to "linear-feedforward"

Add arrowhead on down branch into first "+" in figure 188-9

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Cl 188 SC 188.5.3 P81 L22 # 70

Ran, Adeo Cisco

Comment Type TR Comment Status A PMA

"In order to meet the specifications of 188.6.5.1, the PMA Receive function must achieve proper synchronization on both the DME stream and the 5B boundary within 800 ns."

1. According to the style guide, the word "must" is deprecated and should not be used when stating mandatory requirements; must is used only to describe unavoidable situations. There is no unavoidable situation here.
2. the PMA receive function can synchronize on the DME stream, but from the information in the PMA specification alone it is unclear how it can find the 5B boundary; the output of the DME decoder is just a bit stream. Finding the 5B boundary requires some knowledge of the PCS transmit function behavior (e.g. Figure 188-4) which is not mentioned here
3. within 800 ns of what? I assume it is the appearance of a valid DME-encoded signal at the input following a SILENCE period?

SuggestedRemedy

- Rewrite this sentence:
- As a normative requirement, using "shall" instead of "must", and clarifying where the 800 ns period starts.
 - Add some reference to the expected initial 5B symbols and a reference to Figure 188-4.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change: "In order to meet the specifications of 188.6.5.1, the PMA Receive function must achieve proper synchronization on both the DME stream and the 5B boundary within 800 ns."

to:

Change: "In order to meet the specifications of 188.6.5.1, the PMA and PCS Receive functions have at most 800 ns from when the first DME symbol after SILENCE is detected to find the 5B boundary, and to synchronize on the DME stream respectively. "

Cl 188 SC 188.5.3 P81 L28 # 71

Ran, Adeo Cisco

Comment Type TR Comment Status A PMA

"When the PMA Receive function does not detect activity on the line, it shall convey the symbol 'I' "

It is not specified what the PMA receive function should do when there is "activity on the line" but it is not valid input; for example, if the signal is not proper DME.

It is also possible that after DME decoding the output contains 5B symbols other than the ones listed in Table 188-1. It is unclear if the detection of this condition is done by the PMA or by the PCS.

SuggestedRemedy

Change the quoted sentence to include cases where the input is not valid DME.

Consider whether invalid 5B codes should also be mentioned here or elsewhere.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change: "When the PMA Receive function does not detect activity on the line, it shall convey the symbol 'I' "

to: "When the PMA Receive function does not detect a DME symbol on the line, it shall convey the symbol 'I'"

Change Value/comment of PICS PMA3 (at 188.12.4.5.1, P98), to "See 188.5.3."

Editor's note: Energy is either decoded as DME or not - achieving synchronization is implementation dependent. 188.4.3.4 DECODE function in the PCS Receive State diagram defines what happens if invalid 5B codes are received.)

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Cl 188 SC 188.6.1 P81 L38 # 72

Ran, Adee Cisco
 Comment Type TR Comment Status A Editorial

"Direct Power Injection (DPI) and 150 Ω emission tests for noise immunity and emission as per 188.6.1.1 and 188.6.1.2 may be used to establish a baseline for PHY EMC performance"

"may" suggests this is optional (per the style manual, "may" equals "is permitted to"). It is not even a recommendation ("should"). Is this the intent?

As it stands, it means that the standards does not have normative EMC specifications or recommendations - there is a set of tests in 188.6.1.1 and 188.6.1.2 but it is optional, and other requirements that applications may have and are beyond the scope.

This style is appropriate for a white paper, not for a standard.

My assumption is that the standard sets some minimum requirements; applications can always have additional ones.

(after reading further I see that there is another subclause about EMC in 188.10.2.2. Should the text in 188.6.1 be merged into the latter?)

SuggestedRemedy

Change "may be used to establish a baseline" to "should be the baseline". Consider writing it more strongly with "shall" unless the intent is not to have normative requirements in this standard.

Alternatively, move the EMC test subclauses into 188.10.2.2.

Response Response Status W

ACCEPT IN PRINCIPLE.

Replace "may be used" with "can be used".

(Editor's note: this text has been substantially debated in all SPE PHYs, and should not be given higher status as a requirement or even a should. Commenter is correct as to the special meaning of "may" and the change from "may" to "can" parallels clause 146. Commenter may wish to consider similar maintenance to clauses 96 and 147.)

Cl 188 SC 188.6.1.1 P81 L48 # 73

Ran, Adee Cisco
 Comment Type TR Comment Status R PMA Electrical

"In a real application, radio frequency (RF) common mode (CM) noise at the PHY is the result of electromagnetic interference coupling to the cabling system"

"In a real application" is redundant.
 CM noise can result from multiple reasons; RF EM interference is one of them.

"Additional differential mode (DM) noise at the PHY is generated from the CM noise by mode conversion of all parts of the cabling system and the TCI"

If the cabling system and the TCI convert CM to DM then it is not "additional noise", it's just a different representation of the noise.

Note that with signaling frequency of 125 MHz (and receiver BW much below 1 GHz) it seems that mode conversion would not be a significant issue unless there is a very large intra-pair mismatch (in the order of ~1 m); it may not be a practical issue worth mentioning.

SuggestedRemedy

Change the quoted sentences to
 "Radio frequency (RF) electromagnetic interference coupled to the cabling system can result in both common mode (CM) and differential mode (DM) noise at the PHY input".

Consider dropping the DM part.

Response Response Status W

REJECT.

The DPI test method specified here does not reflect the real application as it is a direct pin injection of RF interference and the text makes the relevance to the real application clear (it is not redundant). Mode conversion on the cabling is important at these frequencies because the levels are much greater than commonly encountered in data center ethernet LANs.

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Cl 188 SC 188.6.1.1 P81 L51 # 74

Ran, Adeo Cisco

Comment Type TR Comment Status R Test Modes

"may be tested" means it is optional.

Similarly in 188.6.1.2.

See reasoning in another comment.

SuggestedRemedy

Rephrase the sentences that include "may" to be recommendations ("should") or normative requirements ("shall").

Response Response Status W

REJECT.

These provide tests which "are permitted" which is the proper use of may. The test is not required to be performed in this way. Additionally, this language is related to the method of test, without a specific requirement. (such requirement may be a user requirement beyond our standard)

Cl 188 SC 188.6.2 P82 L29 # 76

Ran, Adeo Cisco

Comment Type TR Comment Status A Test Modes

"the transmitter shall output the 'I' symbol" - this symbol is defined by the PCS as 5B "11111".

All other test modes define the signal at the PMA output (which is not necessarily generated by the normal PMA transmit function). If the PMA is to generate this pattern as a test mode, it would be a high-frequency toggling after DME encoding - this is probably not the intent.

To test the requirements of 188.5.2, the PCS should generate the 'I' symbol, and the PMA should behave normally.

Note that this requirement is also written in 188.6.4.5 (in a way that matches the suggested remedy); it may be simpler to just point to that and avoid duplicated requirements.

SuggestedRemedy

Change "the transmitter shall output" to "the PCS transmit function shall output" and clarify that the PMA behaves as in 188.5.2.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change: "When test mode 4 is enabled, the transmitter shall output the 'I' symbol" (P82 L29)

to:

"When test mode 4 is enabled, the PCS transmit function shall output the 'I' symbol, and the PMA operates as specified in 188.5.2. "

Cl 188 SC 188.6.3 P83 L3 # 77

Ran, Adeo Cisco

Comment Type TR Comment Status R PMA Electrical

"fixtures... can be used"

"can" indicates capability. Many fixtures can be used, but some may not be adequate.

Here it looks like a requirement for specific fixtures (with allowance of "functional equivalent").

SuggestedRemedy

Change "can be" to "shall be" or "is".

Response Response Status W

REJECT.

Specific test fixtures are not required.

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Cl 188 SC 188.6.4.2 P84 L10 # 78

Ran, Adeo

Cisco

Comment Type TR Comment Status R PMA Electrical

The waveform seems to asymptotically approach some non-zero levels (it is almost flat before the transition). Shouldn't droop from AC coupling cause it to decay to 0 after long enough time?

SuggestedRemedy

Change the figure such that the signal has nonzero slope right before the transitions.

Response Response Status W

REJECT.

Decay does not asymptotically go to a flat level. The purpose of Figure 188-14 is not to provide a precise picture of a waveform, but rather to show the holdoff from the peak value that the droop is measured at.

Cl 188 SC 188.6.4.3 P84 L32 # 80

Ran, Adeo

Cisco

Comment Type TR Comment Status R PMA Electrical

The clock for measuring the jitter should be specified in some way; measuring jitter with respect to the tx_clk itself (without filtering) would not include the jitter of tx_clk, which may be a considerable component. If tx_clk is not available then a clock recovery unit has to be used, and the measured jitter can vary based on its bandwidth.

The suggested clock recovery bandwidth is 1/100 of the signaling rate, assuming that such bandwidth is feasible for receivers. It may be reduced if the CRG finds it too high.

SuggestedRemedy

Specify that the jitter is measured corresponding to a clock generated from either the measured signal or tx_clk, by a clock recovery unit that acts as a 1st-order high-pass jitter filter with a corner frequency of 1.25 MHz.

Response Response Status W

REJECT.

Commenter provides insufficient information for a remedy.

Cl 188 SC 188.6.5.2 P86 L16 # 81

Ran, Adeo

Cisco

Comment Type TR Comment Status A PMA Electrical

"with a Gaussian distribution bandwidth of 40 MHz and magnitude of -101 dBm/Hz" Gaussian distribution is independent of the bandwidth.

The numbers cannot be exact; I assume they are they represent the minimum stress (if not, the wording can be changed).

SuggestedRemedy

Change to

"with a Gaussian distribution and a spectral density of at least -101 dBm/Hz at a bandwidth of at least 40 MHz"

Response Response Status W

ACCEPT.

Cl 188 SC 188.6.5.2 P86 L20 # 82

Ran, Adeo

Cisco

Comment Type ER Comment Status R PMA Electrical

"may be considered" - but is not an option (allowed behavior).

SuggestedRemedy

Change to "is considered".

Response Response Status W

REJECT.

This same language has been debated in multiple clauses. The "may" is permission to test this way, but not a requirement that the test be performed exactly that way. Saying "is" can be misinterpreted as a requirement on the user.

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Cl 188 SC 188.6.5.2 P86 L36 # 83

Ran, Adeo Cisco

Comment Type TR Comment Status A PMA Electrical

"Resistor matching to 1 part in 1000"

I assume this requirement is placed to make the source mostly common-mode.

This is good, but it should be accompanied by some requirement about the placement of the coupling into the mixing segment. If the two connections are too far apart, the noise can be partly converted to differential.

There is an additional label "< 0.1 m" but it is not attached to anything. The intent is perhaps that both coupling points are less than 0.1 m from the TCI?

SuggestedRemedy

Clarify in the figure, and preferably also in the subclause text, the requirements from the two connection points of the noise source.

Response Response Status W

ACCEPT IN PRINCIPLE.

Delete "< 0.1m" next to the noise source.

Change "NOTE - " to NOTE 1 -"

Add "NOTE 2 - The connection from the noise source to the TC under test should be less than 0.1 meter in length."

Cl 188 SC 188.6.5 P86 L50 # 84

Ran, Adeo Cisco

Comment Type TR Comment Status A PMA Electrical

The text does not specify anything about the behavior during PMA local loopback.

The "shall" statement applies always, not just in local loopback mode.

Is it the intent that the PMA and PCS behave normally, but the collision detection specified in 188.4.5 is disabled? If so, it should be written explicitly.

SuggestedRemedy

Clarify what the effect of PMA local loopback is.

Response Response Status W

ACCEPT IN PRINCIPLE.

(Editor's note: The statement about collisions isn't useful here. Collisions may be detected in multiple ways, so it shouldn't be a requirement.)

(P86 L50) Change:

"The PMA and PCS Receive functions shall pass the data decoded from the signal to the MII RX. This data is normally received during a transmission and may be used to detect collisions."

to:

"During PMA loopback, the PMA and PCS Receive functions shall pass the data decoded from the looped-back signal to the MII RX."

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Cl 188 SC 188.7 P87 L7 # 85

Ran, Adeo Cisco
 Comment Type **TR** Comment Status **R** Management

Is it just the MDIO electrical interface that is optional? In many places in this draft the text suggests that the MDIO registers are optional and alternative management methods can be used.
 The PICS MDIO item also suggests that the registers are optional.

SuggestedRemedy

Rephrase to clarify that the registers are optional, or if that is not the intent, apply changes across the draft to clarify that a MDIO registers are required.

Response Response Status **W**

REJECT.

The registers themselves are not optional. See Clause 45: "The MDIO electrical interface is optional. Where no physical embodiment of the MDIO exists, provision of an equivalent mechanism to access the registers is recommended."

Nowhere does it say that the registers are optional, and they are an essential part of the management functionality not only of this PHY but most 802.3 PHYs. Most 802.3 clauses have similar text.

Cl 188 SC 188.8 P88 L5 # 86

Ran, Adeo Cisco
 Comment Type **TR** Comment Status **A** Editorial

The mixing segment and DTE stub in the diagram include pipe-like elements that imply some kind of shield. Is it the intent that the balanced pairs be electrically shielded? or is it just a non-conducting protection?

In addition, the balanced pairs do not appear to be twisted in the figure; is there an expectation that non-twisted pairs can be used? (note that the words "twisted-pair" only appear in 189.6.1.1.1 and 189.6.1.1.3)

SuggestedRemedy

Clarify in this figure and/or elsewhere if the medium is expected to be shielded and/or twisted. If multiple options are considered, please state that explicitly.

Specifically, clarify what the "pipes" in the figure mean.

Response Response Status **W**

ACCEPT IN PRINCIPLE.

Remove the "pipes", leaving the pairs connecting the TCI to the PMA on the left branch. Only a pair of conductors is required - grouping under a sheath, which is common in 802.3 systems is not required.

Change both instances of "a balanced twisted-pair MPI" and change to "an MPI" in 189.6.1.1.1 and 189.6.1.1.3 (first sentence of each). This correctly applies the isolation requirements to all MPIs regardless of twists, balance, or construction.

Use of twisted media is not required, see 188.1 2nd paragraph:

"The performance requirements for the mixing segment are specified in 188.8. This allows implementers to specify their own media to use with the 10BASE-T1M PHY as long as the normative requirements included in this clause are met."

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Cl 188 SC 188.8.1 P88 L33 # 87

Ran, Adee Cisco
 Comment Type ER Comment Status A Mixing Segment

Equation 188-3 is not easy to mentally visualize. It would help readers if a plot of the insertion loss limit is provided.

Also applies to other equations, RL in 188-4, mode conversion in 188-5, TCI IL in 188-6, and TCI RL in 188-7; figures would help. Equations like these are typically accompanied with figures in other clauses, and this amendment should follow precedence.

Also, the equation is almost too long for the page width; consider changing "Insertion loss" to "IL" (matching Equation 188-4), removing some parentheses, etc. to make it fit better into the page. Similarly in other equations.

SuggestedRemedy

Edit equations and add figures per comment.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change Insertion Loss to IL in equation

Implementation note: Change to IL and RL in other equations for harmonization.

Remove extra parentheses around "53log(f)"

(Editor's note: Do not add plots. A reader wishing to visualize the equation generally has better plotting tools available than reading a printed plot on a PDF.)

Cl 188 SC 188.9 P90 L30 # 88

Ran, Adee Cisco
 Comment Type TR Comment Status A TCI

Item 1 says "a two-conductor connection to the DTE" - but from figure 188-18, a TCI needs at least 4 conductors (2 for TC1 and 2 for TC2)?

Item 3 suggests that the TCI is integrated with the PMA - in which case there will indeed be 4 conductors.

Is item 1 intended to represent a DTE which includes a termination, and thus has only one TC?

Note that Figure 188-17 shows only two TCIs, not three as suggested by the last sentence in this subclause.

SuggestedRemedy

Please clarify or correct.

Response Response Status W

ACCEPT IN PRINCIPLE.

(Editor's note: The text represents possible implementations of the TCI. Each is a possible implementation. The other conductors the commenter mentions (two at TC1 and two at TC2) are interface planes at the mixing segment, not connection to the DTE. In Item 3, if the TCI is integrated with the DTE, it still connects to the DTE (PMA) via two conductors. There is no mention of a DTE which includes a termination - that would be unspecified in this standard. The reference to Figure 188-17 is from an earlier rendition of the figure, and the current figure really isn't intended to show the configurations. Additionally, such figures have been confused to be normative specification of how devices must be built, and remove clarity.)

Delete "Figure 188-17 shows one example of each configuration."

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Cl 188 SC 188.9.3 P91 L35 # 89

Ran, Adee Cisco

Comment Type TR Comment Status R TCI

The subclause is under TCI specifications, but the requirement is from the DTE. A standalone TCI can probably withstand much higher voltages.

Similarly for 188.8.4; The TCI should have no issue with having an interface shorted or grounded - it's the PMA that should tolerate it.

SuggestedRemedy

Move these specifications to 188.6 PMA electrical specifications. Possibly under 188.6.1 (which would require renaming it).

Response Response Status W

REJECT.

This specification usually is incorporated under the MDI section, and is appropriate in it's place as worded. It is in the TCI section because the voltage is applied at TC1 or TC2 of the TCI.

Cl 188 SC 188.10.3 P93 L31 # 90

Ran, Adee Cisco

Comment Type TR Comment Status A Environmental

"may connect telephony voltages to a DTE", in standard language, makes it allowed by the standard. It should not be so.

These statements about telephony are legacy and may not be required nowadays. If they are mentioned, these connections should be discouraged, as the voltages listed in this subclause are higher than the normal requirements and can damage components.

Also applies to 189.7.5.

SuggestedRemedy

Change "may" to "might" here and in the next sentence.
Add statements that care should be taken to avoid such connections because they can damage equipment.

Apply similarly in 189.7.5.

Response Response Status W

ACCEPT IN PRINCIPLE.

Change "may" to "might" at P93 L31. (that may connect)

Change "may" to "can" at P93 L 33 (that may be encountered)

Add new sentence at the end of the paragraph (P93 L38) : "Care should be taken to avoid such connections as they can damage equipment."

in 189.7.5, P128, make same changes at Lines 17 and 18.

Add new sentence at the end of the paragraph (P128 L24) : "Care should be taken to avoid such connections as they can damage equipment."

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Cl 189 SC 189.3 P104 L3 # 93

Ran, Adee Cisco

Comment Type TR Comment Status A Power

It is unclear what "system type" means and whether MPSE of one system type is compatible with PMD of a different system type. If so, is it a device type rather than a system type?

Also on the 3rd paragraph there is "Type Mixed MPDs" which is not explained.

You have to go to 189.5.1 to figure out what "Type Mixed" is, and also to understand the compatibility considerations, which are not straightforward.

SuggestedRemedy

Find a better term than "system type" that applies to devices rather than systems.

Move the compatibility considerations to 189.3 or provide appropriate cross-references.

Response Response Status W

ACCEPT IN PRINCIPLE.

Replace the first two sentences of 189.3 with "MPSEs and MPDs are categorized by their system type. The system type is defined by the operating voltage and specifications shown in Table 189-1."

Add at the end of the first paragraph of 189.3 (P104 L5), "MPDs may support more than one system type."

Cl 189 SC 189.5.2 P116 L16 # 95

Ran, Adee Cisco

Comment Type TR Comment Status R MPD

"MPDs are current sinks. See Figure 189-5"
It is not clear what "current sink" means. By Kirchhoff's current law, a 2-port network (which an MPD is) has the same current entering and exiting it, so cannot be current sink. Figure 189-5 does not clarify this statement.

SuggestedRemedy

Clarify the sentence. Perhaps "power sink" is intended.

Response Response Status W

REJECT.

No consensus for change.

Current sink is a term of art in power engineering.

Cl 189 SC 189.5.2 P116 L40 # 96

Ran, Adee Cisco

Comment Type TR Comment Status A EZ

"MPSD" in the figure is not defined. I assume it is "MPD", but if not, some other change needs to be made.

SuggestedRemedy
Change to "MPD".

Response Response Status W

ACCEPT.

(Editor's note added 01/21/2025: Comment resolved, but needs Commenter Accepts Resolution in final mode)

Cl 189 SC 189.5.5 P123 L44 # 100

Ran, Adee Cisco

Comment Type ER Comment Status A Editorial

Per the style manual (16.3.2) "the decimal point should be preceded by a zero". Also, other current values in this table are in mA.

SuggestedRemedy
Change ".01" to "10" and units from "A" to "mA".

Response Response Status W

ACCEPT IN PRINCIPLE.

(Editor's note added 01/21/2025: Comment resolved, but needs Commenter Accepts Resolution in final mode)

Accommodated by comment #229.

Item 3, replace "must be an integer" with see 189.5.5.2

Item 5, add "See 189.5.5.1" to Additional Information column

Item 5, Change ".01" to "10" and units from "A" to "mA"

Item 8, add 189.5.5.1 to Additional Information column

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Cl 189 SC 189.7.8 P129 L12 # 108
 Ran, Adee Cisco
 Comment Type **TR** Comment Status **R** Editorial
 "Type 0" and "Type 1" seem to apply to MPDs rather than to systems. See 189.5.1.
 SuggestedRemedy
 Change "System type" to "MPD type".
 Response Response Status **W**
 REJECT.
 This applies also to the MPSE type. See Table 189-1, System power types.

Cl J SC J.1 P135 L13 # 111
 Ran, Adee Cisco
 Comment Type **ER** Comment Status **A** Editorial
 Removing the subclause references is not a good idea. This Annex is referenced from many places and many readers may not know what PI or MPI are and where the "relevant specific requirements associated with option c" can be found.
 SuggestedRemedy
 Keep the references to clause 33 and 145, add references to clause 189 as appropriate, with editorial license.
 Response Response Status **W**
 ACCEPT IN PRINCIPLE.
 Change J.1 NOTE edit to read:
 "NOTE 1 - If the MDI is also a Clause 33 or Clause 145 PI then see 33.4.1 or 145.4.1 for specific requirements associated with option c). If the MDI is also an MPI then see 189.6.1.1 for specific requirements associated with option c)."
 Implementation note: Believe this should be 189.6.2.

Cl 189 SC 189.8.4.3 P133 L17 # 112
 Ran, Adee Cisco
 Comment Type **ER** Comment Status **A** EZ
 Typo "wiht"
 SuggestedRemedy
 change to "with"
 Response Response Status **W**
 ACCEPT.
 (Editor's note added 01/21/2025: Comment resolved, but needs Commenter Accepts Resolution in final mode)

Cl 78 SC 78.3 P41 L17 # 121
 Jones, Peter Cisco Systems
 Comment Type **TR** Comment Status **A** New Feature
 It's always been assumed the MPoE will use LLDP to exchange status and negotiate power for MPoE, but we have not specified this in the draft.
 SuggestedRemedy
 Implement proposal to be submitted at least one week before January interim
 Response Response Status **U**
 ACCEPT IN PRINCIPLE.
 Insert an Editor's note at 78.3 stating:
 "Editor's Note (to be removed prior to final Working Group recirculation): The CRG is considering adding new features associated with new LLDP TLVs in response to required comments. This text does not currently have consensus to adopt, but is included here for the ballot pool to consider the concept. Please see <https://www.ieee802.org/3/da/public/0125/<JASON TO PROVIDE>.pdf>, https://www.ieee802.org/3/da/public/0125/jones_3da_01_lldp_mpoe.pdf, and https://www.ieee802.org/3/da/public/0125/jones_3da_01_lldp_mpoe_proposal.pdf for use cases and information. Unapproved text related to this follows:"
 Insert text from SPMD_potterf_LLDLP_TLV_Proposals.pdf
 (Editor to put unapproved text in a box)

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Cl 78 SC 78.3 P41 L17 # 122

Jones, Peter Cisco Systems

Comment Type TR Comment Status A New Feature

It's been assumed the MPoE will provide the equivalent function to the "Power via MDI Measurements TLV" defined for 4 pair PoE, but we have not specified this in the draft.

SuggestedRemedy

Implement proposal to be submitted at least one week before January interim

Response Response Status U

ACCEPT IN PRINCIPLE.

Accommodated by comment # 121.

Insert an Editor's note at 78.3 stating:

"Editor's Note (to be removed prior to final Working Group recirculation): The CRG is considering adding new features associated with new LLDP TLVs in response to required comments. This text does not currently have consensus to adopt, but is included here for the ballot pool to consider the concept. Please see <https://www.ieee802.org/3/da/public/0125/<JASON TO PROVIDE>.pdf>, https://www.ieee802.org/3/da/public/0125/jones_3da_01_lldp_mpoes.pdf, and https://www.ieee802.org/3/da/public/0125/jones_3da_01_lldp_mpoes_proposal.pdf for use cases and information. Unapproved text related to this follows:"

Insert text from SPMD_potterf_LLDP_TLV_Proposals.pdf

(Editor to put unapproved text in a box)

Cl 188 SC 188.1 P61 L13 # 145

D'Ambrosia, John Futurewei, U.S. Subsidiary of Huawei

Comment Type TR Comment Status A MII

Fig 188-1 indicates that the MII is optional via Note 1. However, other parts of Clause 188 are written in such a way that assumes the MII is present. Therefore, it is assumed that Note 1 is really discussing a physical implementation of the MII.

Other BASE-T clauses address this by inclusion of a subclause that addresses interfaces and notes that implementations of the xMII interface are optional. Reference 165.1.5

SuggestedRemedy

Following changes are proposed -

1. Modify Note 1 of Figure 188-1 to read "Physical implementation of MII is optional."
2. Add new subclause - Interfaces

All 10BASE-T1M PHY implementations are compatible at the MDI and at the MII, if implemented. Physical implementation of the MII is optional. Designers are free to implement circuitry within the PCS and PMA in an application-dependent manner provided that the MDI and MII (if the MII is implemented) specifications are met. System operation from the perspective of signals at the MDI and management objects are identical whether the MII is physically implemented or not.

Response Response Status W

ACCEPT IN PRINCIPLE.

(Editor's note: Commenter did not indicate where to add new subclause. Editor proposes as 188.1.2 - re-numbering "Conventions in this clause" as 188.1.3. No other changes to Suggested Remedy.)

1. Modify Note 1 of Figure 188-1 to read "Physical implementation of MII is optional."
2. Add new subclause 188.1.2 and re-number following subclauses. Interfaces

All 10BASE-T1M PHY implementations are compatible at the MDI and at the MII, if implemented. Physical implementation of the MII is optional. Designers are free to implement circuitry within the PCS and PMA in an application-dependent manner provided that the MDI and MII (if the MII is implemented) specifications are met. System operation from the perspective of signals at the MDI and management objects are identical whether the MII is physically implemented or not.

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Cl 1 SC 1.4.63a P22 L7 # 188

Zimmerman, George CME Consulting/ADI,APLgp,Cisco,Marvell,Onsemi,So

Comment Type TR Comment Status R Naming

I have found that 10BASE-T1M gets confused in the industry as a totally new phy, with "10BASE-T1S" being short-reach, T1L being long reach, and T1M, instead of being "M" for "multidrop", MEDIUM reach... I suggest a better naming would be the relationship between 10BASE-T and 10BASE-Te, where the only real difference is the PMD/media spec. Therefore, I would suggest a global change to 10BASE-T1Sm or perhaps 10BASE-T1Se. indicating that it is the same PHY with some restriction.

Definition should parallel how 10BASE-Te relates to 10BASE-T and reference the 10BASE-T1S PHY. (SUBTYPE_MASTER_COMMENT)

SuggestedRemedy

Globally change references to 10BASE-T1M to 10BASE-T1Sm.
change references 10BASE-T1M / 10BASE-T1S to 10BASE-T1S / T1Sm
Change definition to read "IEEE 802.3 Physical Layer specification for a version of 10BASE-T1S supporting only the multidrop mode of operation (with an enhanced mixing segment specification) for a 10 Mb/s Ethernet local area network using a single balanced pair of conductors as a shared medium. (See IEEE Std 802.3, Clause 188.)"

Response Response Status U

REJECT.

No consensus for change.

Straw Poll:

I support (indicate as many as possible):

No change (stay with 10BASE-T1M): 19

Change to 10BASE-T1Se: 10

Change to 10BASE-T1Sm: 7

Change to 10BASE-T1S+: 16

Change to 10BASE-T1Sp: 4

No consensus for change

Cl 30 SC 30.3.2 P24 L36 # 192

Zimmerman, George CME Consulting/ADI,APLgp,Cisco,Marvell,Onsemi,So

Comment Type TR Comment Status R Naming

If the construct for 10BASE-T1M to become 10BASE-T1Sm (a variant of 10BASE-T1S) is accepted, then, following the usage for 10BASE-T vs 10BASE-Te, there is no need for separate PhyType and MauType - you just use 10BASE-T1S. (SUBTYPE)

SuggestedRemedy

Delete 30.3.2 and subclauses. (P24 L36-54)

Response Response Status U

REJECT.

No consensus for change, see comment #188.

Cl 188 SC 188.4.2.7 P71 L15 # 250

Opsasnick, Eugene Broadcom Inc.

Comment Type TR Comment Status A EZ

In Figure 188-4, the transition condition for the state SILENT to go back to itself contains an assignment which is not appropriate for a state transition condition. It also has an unblanced parenthesis. The condition is "STD * (!TX_EN) * (tx_sym <= TXCMD_ENCODE(tx_cmd))".

SuggestedRemedy

This state transition should probably be "STD * (!TX_EN) * (tx_cmd != COMMIT)".

Response Response Status W

ACCEPT IN PRINCIPLE.

(Editor's note added 01/21/2025: Comment resolved, but needs Commenter Accepts Resolution in final mode)

Accommodated by comment #164.

In the transition condition from SILENT to SILENT, change the last term from:

(tx_sym <= TXCMD_ENCODE(tx_cmd))

to:

(tx_cmd != COMMIT)

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Cl 189 SC 189.3 P104 L26 # 297
 Paul, Michael Analog Devices
 Comment Type ER Comment Status R Power
 Vpse,min has a typo.
 SuggestedRemedy
 26 should be 21.6
 Response Response Status U
 REJECT.
 This is not a typo. Task Force needs to consider if a change to Pmpse min is needed. No consensus to change.

Cl 148 SC 148.7.5 P56 L18 # 299
 McClellan, Brett Marvell
 Comment Type TR Comment Status A D-PLCA
 In Figure 148–8 D-PLCA Control State Diagram, in the COORDINATOR state, a coordinator lockup happens when two nodes send the BEACON at the same time. The PLCA is not able to register activity from other nodes while transmitting BEACON.
 SuggestedRemedy
 I will submit a presentation on proposed changes to the D-PLCA Control State Diagram.
 Response Response Status U
 ACCEPT IN PRINCIPLE.
 Change the duration of the wait_beacon_timer (in 148.4.7.4, P55 L45) to read:
 Duration: the duration of this timer is four times a random integer uniformly distributed ranging from 40 and 295 inclusive, in bit times, selected upon entering the DISABLED state. (tolerance remains unchanged)
 Delete 30.16.1.1.12 aDPLCAWaitBeaconTimer
 Delete row for aDPLCAWaitBeaconTimer in Table 30-11 in 30.2.5

Cl 188 SC 188.8.2 P89 L14 # 317
 Schreiner, Stephan Rosenberger Hochfrequenztechnik GmbH & Co. KG
 Comment Type TR Comment Status A Mixing Segment
 Channel Return Loss Limit and TCI Return Loss Limit crossing each other at 22.2 MHz and 36.9 MHz. Within this range, the Channel Return Loss Limit is higher than the TCI Return Loss Limit. This can lead to a case, where the TCI specification is met but the channel specification is not met caused by the TCI.
 SuggestedRemedy
 Change Return Loss Limit in the frequency range from 2.8 MHz <= f <= 40 MHz from: "-42.5-20*log10(f)-(0.024/f)+47.5*sqrt(f)-6.39*f+0.0259*f^2" to: "-45.8-20*log10(f)-(4.3/f)+53*sqrt(f)-8*f+0.046*f^2"
 Response Response Status U
 ACCEPT IN PRINCIPLE.
 Change Mixing Segment Return Loss to:
 19.5 - Max (0, 25*log10(F/12.5) dB for 40 MHz > F > 6.8 MHz
 0.65 + Max (0, .65+30*log10(F/1.6)) dB for 0.3 < F < 6.8 MHz
 Editorial license to reformat equation per other comments and 802.3 style.