Cl **147** *SC* **147.3.7** *P* **205** *L* **10** # r02-57

Kim, Yongbum NIO

Comment Type **TR** *Comment Status* **R** *State Diagrams*

HB function has been justified to be entirely related to auto-negotation, and the deleted text "Otherwise all the HB functions shall be disabled" has been appropirate. The deletion (changed text) should be reversed and kept.

SuggestedRemedy

Reverse the change, i.e. undo deleted text.

Response *Response Status* **U**

REJECT.
CRG Disagrees with the commenter.
The reason that the statement was deleted was because it is a "duplicate shall" on the functionality described in the state diagram, and is unnecessary. The functionality described is captured in the Heartbeat transmit state diagram by the open arc into the INIT state, and in the Heartbeat receive state diagram by the open arc into the INACTIVE state.

Cl **147** *SC* **147.8** *P* **219** *L* **2** # r02-58

Kim, Yongbum NIO

Comment Type **TR** *Comment Status* **R** *Mixing Segment*

[Related to unresolved disapprove comment]
Shared medium with 10 cm stubs (at least 8 and 25 meters in reach) references 147.7, which specifies a single link (with no stubs) up to 15 meters. So this specification basically says 40% longer reach with at least 8 x 10 cm unterminated stubs must meet the same transmission medium characteristics of a single terminated link. And this requirement is stated without any guidance on how one could met them. In an installation where one stub is added, the specificatoin states that any to any stub must meet the same requirement -- requiring the number of measurement of 1 + .. + (n-1).
The comment response (unsatified) states that there are methods that could be used WITHOUT stating what method could be used. If one exists, it should be stated and without which the standard is incomplete.
As an example, think coax (10BASE5) has very specific rules and methods on how each tap must be constructed (i.e. formal specifcation for the MDI) and how the medium must be marked so that reflections from the tap could be minimized (reduce chance of false collection deteect from all worst case reflections adding up at any particular point). Thin coax (10BASE2) also as formal MDI specification and coax segment installation requirments. These are examples of how standard includes details to assure interoperability and ease of installation. This clause on mixing segment characteristics states to meet a set of requirements (SHALL statements), but WITHOUT any details on how one could construct, preferrably incrementally, network segments that are assured to meet the requirements. This cluase just refers to simpler, shorter, terminated link segment and say do the same. Interoperability requirement only. No details that provide confidence one could be constructed in interoperable fashion. This mixing segment characteristics clause is grossly incomplete.

SuggestedRemedy

Specify how mixing segment characteristics could be met via specificatoin, methodology, or other means. Proposed change is that -- complete the draft.

Response *Response Status* **U**

REJECT.
The proposed change in the comment does not contain sufficient detail so that the CRG can understand the specific changes that satisfy the commenter.

Further, the CRG disagrees with the commenter.
While the draft describes physical length and topology, those are not the requirements. The draft does not specify the physical length, gauge, twist pitch, loss per meter, or similar physical construction parameters of the medium, consistent with practice in IEEE Std 802.3. The main specifications related to the mixing segment length and stub topology are insertion loss (147.8.1) and MDI impedance limits (Table 147-4) (for full-duplex echo cancelled transmission, delay is relevant, but it is not relevant here). Analysis and measurements have been presented to the Task Force validating that mixing segments with the described 10 cm stubs, 8 nodes, and 25 meters in length can be constructed which meet the insertion loss specified for mixing segments. See, e.g., http://www.ieee802.org/3/cg/public/Sept2017/kaindl_matheus_3cg_01c_09_2017.pdf

, and
http://www.ieee802.org/3/cg/public/Jan2018/Caliskan_3cg_01a_0118.pdf.

Cl **148** *SC* **148.2** *P* **235** *L* **11** # r02-59

Kim, Yongbum NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

This added paragraph is adds little value to the draft and frankly appears more like marketing statement than Ethernet specification. Mixed PLCA+CSMA/CD and CSMA/CD operation. configuration, etc are not specified, so this paragraph does not serve any material purpose (except, perhaps as marketing statement).
"PLCA-enabled nodes may be used in the same CSMA/CD collision domain as non-PLCA enabled nodes.
As the percentage of non-PLCA enabled nodes increases, performance advantages also decrease. If the node
with ID = 0 fails, the network is still operational with the same performance level of a CSMA/CD network
without PLCA."

SuggestedRemedy

Delete this new paragraph added in D3.2 in its entirety.

Response *Response Status* **U**

REJECT.
The CRG disagrees with the commenter.
The paragraph was not added relative to a concern from this commenter.
The referenced paragraph was added in response to "Must be satisfied" comment r01-222 (from a different commenter) and resulted in the commenter indicating satisfaction.
Consensus of the CRG is that the sentence provides a useful description of what to expect from operation of a network comprising a mixture of nodes with PLCA enabled and nodes without PLCA.

Comment r01-222 is:
"Overview does not even give a hint as to what happens in a mixed network or the impact of such on network performance."
Response to comment r01-222 was:
Add new sixth (final) paragraph to 148.2, "PLCA-enabled nodes may be used in the same CSMA/CD collision domain as non-PLCA enabled nodes. As the percentage of non-PLCA enabled nodes increases, performance advantages also decrease."

Cl **148** *SC* **148.2** *P* **235** *L* **1** # r02-60

Kim, Yongbum NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

This added sentence adds little value and addresses existing unsat concern incompletely. "If the node with ID = 0 fails, the network is still operational with the same performance level of a CSMA/CD network without PLCA." The set of unsatisfied concerns (from 802.3WG ballot and on SA ballot cycles) are:
a) how node_id=0 is chosen, handling when node_id=0 fails, b) does not exist at all, c) multiple node_id=0 node exists, etc .. all the chosen central controller complexities that are handled in IEEE 802.4 token bus or other similar systems. Simply stating node_id=0 failure = still operational sound more like marketing and provides little overall benefit to the system in regard to fault handling, completeness of specification, etc.

SuggestedRemedy

Delete this new sentence added in D3.2 in its entirety.

Response *Response Status* **U**

REJECT.
The CRG disagrees with the commenter.
The sentence was not added relative to a concern from this commenter.
The referenced sentence was added in response to "Must be satisfied" comment r01-223 (from a different commenter) and resulted in the commenter indicating satisfaction.
Consensus of the CRG is that the sentence provides a useful description of what to expect from operation when Node ID = 0 fails or disappears.

Comment r01-223 was: "Overview does not even give a hint as to what sort of recovery procedure there is if Node ID = 0 fails or disappears."
Response to comment r01-223 was:
"ACCEPT IN PRINCIPLE.
<Explanatory note - not to be incorporated in the draft>
When Node ID = 0 fails or disappears the network behaves like a non-PLCA enabled CSMA/CD network. Such behavior has been intentionally defined in the PLCA Control State Diagram. However, there is one missing corner case where the mentioned state diagram could get stuck if the Node with ID = 0 fails immediately after PLCA has been enabled, before the first BEACON is transmitted.
<end explanatory note>
(changes to draft follow):
[1] At page 234, append the following sentence to the end of the new last paragraph for 148.2 added by comment r01-222:
"If the node with ID = 0 fails, the network is still operational with the same performance level of a CSMA/CD network without PLCA."
[2] In Figure 148-3 in the transition from NEXT_TX_OPPORTUNITY to the B connector, replace the condition "(local_nodeID = 0) * (curID >= plca_node_count)" with "(local_nodeID = 0) * (curID >= plca_node_count) + curID = 255".
[3] In Figure 148-4 in the global transition to the NORMAL state, change the condition "plca_reset + (!plca_en)" to "plca_reset + (!plca_en) + (!plca_status)".
[4] In Figure 148-4 in the transition from the NORMAL state to the IDLE state replace "plca_en" with "plca_en * (!plca_reset) * plca_status"

[5] In Figure 148-4 in the TRANSMIT state box replace "
IF COL THEN
SIGNAL_STATUS <= SIGNAL_ERROR
ELSE"
with "
IF COL THEN
SIGNAL_STATUS <= SIGNAL_ERROR
a <= 0
ELSE
"
[6] At page 249, line 3 append the following:
"
plca_status
see 148.4.7.2
"

Cl **148** *SC* **148.4.1** *P* **236** *L* **5** # r02-61

Kim, Yongbum NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

This new statement is factually not correct. "This subclause specifies services provided by the PLCA RS as an extension to the RS specified in Clause 22." PLCA RS optionally *REPLACES* Clause 22 RS. The previous sentence "This subclause specifies services provided by the PLCA RS as an extension to the MII specified in Clause 22." may not be desirable but more correcct than the new sentence in D3.2.

SuggestedRemedy

Suggest replacing the referred sentence with the following one.
"This subclause specifies services provided by the PLCA RS and replaces RS specified in Clause 22."

Response *Response Status* **U**

REJECT.
Comment is arguably out of scope with respect to the recirculation. While this introductory sentence and subclause was changed, it was touched in a way that made delete a single word. The comment does not touch on the change that was made.

CRG disagrees with the commenter. The referenced subclause (148.4.1) does not replace the Clause 22 RS, but defines how the extensions, e.g., in the various primitive descriptions, fit with the Clause 22 definitions by making extensive references to where the specifications of the Clause 22 RS apply unchanged.

Cl **00** *SC* **0** *P* **0** *L* **0** # r02-66

Thompson, Geoffrey Independent Consultant

Comment Type **GR** *Comment Status* **R** *PLCA_Scope*

One of my responsibilities as a balloter is to ensure that the scope of the draft is within the scope of the work authorized by the PAR. An affirmative vote indicates your agreement that the scope of the draft does not exceed the work authorized by the PAR. I cannot, in good conscience, affirm that for reasons previously stated, therefore my vote is DISAPPROVE. It is my belief that, in spite of the converging nature of the scope of commentable text on the draft that this comment is within the scope of this ballot.

SuggestedRemedy

Since the time for modifying the PAR to change the scope of this project is long past, the only choices at this point would be to (1) disapprove the project or (2) remove clause 148 and related text elsewhere in the project.

Response *Response Status* **W**

REJECT.
The CRG disagrees with the commenter.
This comment is a restatement of previous comments from the same commenter, including particularly R01-220 and R01-227, and restates the commenter's opinion without additional technical information. The commenter has a previously existing disapprove vote.

Response to R01-227 is:
REJECT.
The CRG disagrees with the commenter, and believes the draft is within the PAR scope.
A key responsibility of the ballot pool is to evaluate whether the scope of the draft is within the scope of the PAR, and an affirmative vote indicates your agreement that the work does not exceed the scope of the PAR. The ballot pool has voted in the affirmative.
This comment is essentially a restatement of the arguments in previously rejected comments i-27 and i-270, and are not associated with a new disapprove vote.
The majority of the CRG believes that the functions are appropriately placed in the architecture of IEEE Std. 802.3 and ISO layering model.