

Maintenance Revision #5 Comments

comment number 1
commentor id 8
comment type E
location "AS REVISED" Figure 27-8,
comment The transition condition statements for changes 1.3 and 1.4 do not match those presented in the prior text. In particular, there is a missing closing parenthesis following "(command(X)=copy)" in change 1.4, and there is a missing pair of parentheses around "command(X)=collision" in change 1.3.
response accept--editorial fix
accept response

comment number 2
commentor id 8
comment type E
location Change 1.7, Page 4, Lines
comment There is either a redundant pair of parentheses around the entire expression "(scarrier_present(x)=false ... (command(x)=quiet))"

OR (depending on your view of boolean syntax)

there is a missing closing parenthesis after "(command(x)=copy)" and a missing opening parenthesis before "(scarrier_present(x)=true)"

This should then be reflected in the "AS REVISED" Figure 27-8, page 7.
response accept--editorial fix
accept response

comment number 3
commentor id 8
comment type E
location Change 1 (throughout), pages
comment The variable port identifier "(x)" should be capitalized in all cases to agree with current practice for state diagrams. Note:
the "AS REVISED" Figure 27-8 on page 7 already implements
response accept--editorial fix
accept response

comment number 4
commentor id 58
comment type TR
location 22.2.4
comment in para 3 replace "Registers 2 through 7" with "Registers 2 through 10"
response reject for this ballot: correct in 802.3y editorial or add to next change list
accept response

comment number 5
commentor id 58
comment type TR
location 22.2.4.1.3
comment in para 1 & 2 replace "1.15:11" with "1.15:9"
response reject for this ballot: correct in 802.3y editorial or add to next change list
accept response

comment number 6
commentor id 58
comment type TR
location 22.2.4.1.8
comment in para 1 and 3 replace "1.15:11" with "1.15:9"
response reject for this ballot: correct in 802.3y editorial or add to next change list
accept response

comment number 7
commentor id 58
comment type TR
location 22.2.4.2.10
comment in para 1 replace in 2 places "1.15:11" with "1.15:9"
response reject for this ballot: correct in 802.3y editorial or add to next change list

accept response

comment number 8
commentor id 58
comment type TR
location 22.2.4.3
comment in para 1 replace "Six registers" with "Nine registers"
response reject for this ballot: correct in 802.3y editorial or add to next change list

accept response

comment number 9
commentor id 58
comment type TR
location text for comments 4-8
comment A stable base document is required to produce the changes to 802.3z. The following items apparently missed in production of 802.3y make this difficult. since most of the items below will be further modified by 802.3z.

 If they cannot be included in 802.3x & 802.3y by the IEEE editor (they are all editorial fixes in support of technical changes included in 802.3y), then they should be included in 802.3aa for the earliest possible correction of the information. Only as a last resort should they be included in 802.3z as currently documented in 802.3z/D3.0.

 Technical Required--As currently edited the paragraphs listed below are not in agreement with changes to tables 22-6 and 22-8. Because of the addition of two new subsections 22.2.4.2.6 and 22.2.4.2.7 and renumbering of current subsections 22.2.4.2.6 through 22.2.4.2.13, the subclause references in 22.7.3.4, MF39 through MF51 need to be updated (least significant subsection number incremented by 2).

 SuggestedRemedy:

 This comment will be resolved with a clear determination on which document will include the above changes.

response put on list for maintenance & change management policy
accept response

comment number 10
commentor id 69
comment type T
location Fig. 27-2 illustration
comment The diagram on page 10 entitled "Figure 27-2 -- Repeater core diagram (AS CURRENTLY PUBLISHED)" is the diagram including the proposed change, not the diagram as currently published.

response Accept--editorial fix
accept response

comment number 11
commentor id 77
comment type E
location pg 3, line 29
comment EDITORIAL -- capitalization:

replace "transmit Is" with "transmit is".
response Accept--editorial fix
accept response

comment number 12
commentor id 77
comment type E
location pg 5, line 15
comment EDITORIAL -- spelling:

replace "activity form the" with "activity from the".
response Accept--editorial fix
accept response

comment number 13
commentor id 77
comment type E
location pg 5 lines 19-20
comment EDITORIAL -- grammar:

replace "in any way; i.e. through" with "in any way, i.e.,
response Accept--editorial fix
accept response

comment number 14
commentor id 77
comment type E
location pg 5 lines 34-35
comment TECHNICAL REQUIRED -- wrong symbol:

replace "underscore" by "greater than or equal symbol"

(in ASCII, that is to replace "_" by ">")
response Accept--editorial fix
accept response

comment number 15
commentor id 77
comment type E
location pg 6 line 17
comment EDITORIAL -- grammar:

insert "on" before "each collision" in replacement text.
response Accept--editorial fix
accept response

comment number 16
commentor id 77
comment type E
location disposition of 77 comments--in
comment BTW, I assume you will either make the obvious correction to the "greater than or equal" symbols and automatically flip my vote to "approve with comments" or contact me again, right? I'd just like to point out that I am NOT planning to attend the Maui meeting, so I don't want to create a problem when you go to tally the votes.

response Accept--editorial fix
accept response

comment number 17
commentor id 92
comment type E
location pg 6, line 17
comment EDITORIAL

insert the word "on" before the inserted text "each collision..
response Accept--editorial fix
accept response

comment number 18
commentor id 92
comment type E
location
comment wish I had been in attendance earlier as I would have proposed some changes to the CIM state machine defined by Figure 27-9.

Currently, the state machine is sensitive to links with BER rates that are below acceptable levels. Because the squelch criteria for 100Base-TX is not directly related to signal quality, its possible for a link to operate at $10e-4$ (better or worse) levels. This is because squelch is based upon the low frequency pulse amplitudes that exist in a scrambled IDLE signal which are not substantially impacted by weak links. The higher frequency pulses

can be affected to the point that the 100Base-TX receiver can not

recover them, yet squelch is negated. When such a link exists, its possible for a false carrier event to reduce the effect of `idle_timer_done` time to zero bit times.

This is done because `carrier_status(X)=ON` transition from STABILIZATION WAIT state does not depend on `rxerror_status(X)` in the state machine described in Figure 27-9.

Looking at Figure 24-11 shows any NON-IDLE reception will cause `receiving<= TRUE` which causes `CRS<=TRUE` which causes `carrier_status(X)<=TRUE`. Thus, a link may cause rapid cycling through the LINK UNSTABLE, `ipg_timer_done`-> STABILIZATION

WAIT, `carrier_status(X)=ON` -> SSD PENDING WAIT loop. During this loop, `carrier_status` is going on and forcing the transmit state machine to begin transmitting onto remaining ports of the repeater.

I have observed marginal 100TX transceiver implementations which will cause repeaters to reach 30% utilization levels when attached to IDLE links. The BEST transceivers I have seen will not cause this problem until the link exceeds the TP-PMD cable specs. The average device will cause this to occur at cable lengths that are beyond the 100m nominal cable spec, but before

the TP-PMD spec. The worst devices, will cause this occurrence at link lengths that are below the 100m nominal cable length.

An extension of this problem is that since carrier-sense is not

controlled by the CSMA/CD protocol deferral or collision

Saturday, November 01, 1997

Page 7 of 26

response arbitration procedures, the network throughput is effectively brought to almost zero despite the fact that only 30% of the No response actual bandwidth is being consumed by false carriers.

accept response A solution would be to modify 27-9 STABILIZATION WAIT

comment number 19

commentor id 92

comment type E

location re comment 18

comment Regarding my earlier message; I mailed it out *just a little too soon*.

Actually, the root cause of the behavior I have observed can't be what

I suspected because the port must be isolated during the loop.

Upon

further inspection, it must be that the idle_timer is just not sufficiently long enough to protect the network with a bad

100Base_TX

Link.

Assuming that people are using the minimum idle_timer value, the

duration of the idle_timer is 24,750 BT which is approximately 3Kbytes

worth of time. This is actually pretty close to the measured level of

utilization on IDLE links that I mentioned earlier.

Therefore, a better solution would be to either improve the squelch

criteria for 100Base-TX or increase the idle_timer value to a much

larger value.

I'm not going to suggest a specific remedy at this time. I think I will think this through more carefully first.

response Accept--editorial fix

accept response

comment number 20
commentor id 93
comment type E
location REVISION #5--LINE 17
comment There appears to be a typographical error on page 6 of Maintenance Revision #5 at line #17. It currently reads as:

"The count shall be incremented each collision and shall..."

I am assuming that this should be reworded to read as:

"The count shall be incremented for each collision and shall..."

response Accept--editorial fix
accept response
comment number 22
commentor id 103
comment type E
location pg 4-lines 15-17
comment change to: no_collision_timer_Done * (((scarrier_present(x) = false) * (command(x) = copy)) + ((scarrier_present(x) = true) * (command(x) = quiet)))
Rationale: Parenthesis incorrectly placed

response Accept--editorial fix
accept response
comment number 23
commentor id 103
comment type E
location pg 4, line 18
comment change: 'a receive' to: 'receipt'
response Accept--editorial fix
accept response

comment number 24
commentor id 103
comment type E
location pg 4 line 18
comment Line 18 change: 'transmitting a' to: 'as transmission of a'
Rationale: Incorrect grammar
response Accept--editorial fix
accept response

comment number 25
commentor id 103
comment type E
location pg 4, lines 23-24
comment change to: 'The count shall be incremented on each collision
and shall be reset upon a transmit or receive event which
exceeds the
no_collision_timer.'
Rationale: Incorrect grammar and does not stipulate
no_collision_timer
information. State diagram indicates that
no_collision_timer_Done
must be true.
response Accept--editorial fix
accept response

comment number 26
commentor id 103
comment type E
location pg 4, line 31
comment change to 'receive meeting no_collision_timer.'
Rational: As above, state diagram indicates that
no_collision_timer_Done
must be true.
response Accept--editorial fix
accept response

comment number 27
commentor id 109
comment type TR
location
comment The changes made render existing implementations non-compliant. The changes should be optional in order to preserve backward compatibility with existing implementations
response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 28
commentor id 133
comment type TR
location
comment While I understand the rationale for the revisions, I am concerned about the impact on existing implementations. Although the indication is that there is no impact on existing networks, there is a potentially huge impact on existing shipping products, which will all potentially become non-compliant if these changes are adopted.

I would strongly suggest that the changes are re-worded to allow the current 802.3u implementations to remain compliant, and offer this improvement as a strongly worded alternate implementation. This will allow silicon and system vendors to migrate to this preferred implementation over time, without making the entire installed base of 100BASE-T repeaters non-compliant in the mean time.

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 29
commentor id 136137138
comment type TR
location Figure 27-8
comment 1) Change transition:
COLLISION COUNT IDLE to WATCH FOR COLLISION
Update to read:
(scarrier_present(x) = true) +
((part_opt(X) = true) * (command(x) != quiet))
This ensures that the COLLISION COUNT IDLE state is exited for both
receive activity (scarrier_present(x) = true) and transmit activity
(command(x) != quiet). The term (command(x) != quiet) has to be
Ored in to

ensure transmits also cause an exit from the COLLISION COUNT
IDLE
state.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 30
commentor id 136137138
comment type TR
location Figure 27-8
comment 2) Change transition:
WATCH FOR COLLISION to COLLISION COUNT IDLE
Update to read:
(scarrier_present(x) = false) *
(((part_opt(X) = false) * (command(x) != collision)) +
((part_opt(X) = true) * (command(x) = quiet)))
This ensures that the collision counter is neither incremented nor

cleared if both transmit and receive activity have ceased before
the
no_collision_timer has completed. The term (command(x) = quiet)
has to
replace the term (command(x) != collision) to ensure that if the
WATCH FOR
COLLISION state is entered due to a transmit it remains there until

that transmit is completed.
response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 31
commentor id 136137138
comment type TR
location Figure 27-8
comment 3) Change Transition:
WATCH FOR COLLISION to COLLISION COUNT INCREMENT
Update to read:
(command(x) = collision) *
((part_opt(X) = true) * (scarrier_present(x) = true))
This change ensures that the collision counter is only incremented
when a
collision is happening on port X. The term (scarrier_present(x) =
true)
is ANDed to qualify the fact that the collision is occurring and that
port
X is
receiving and hence taking part in the collision.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 32
commentor id 136137138
comment type TR
location Figure 27-8
comment 4) Change transition:
WATCH FOR COLLISION to CLEAR COUNTER
Update to read:
no_collision_timer_Done *
(command(x) != collision) *
((scarrier_present(x) = true) +
((part_opt(X) = true) * (command(x) = copy)))
This change ensures that either a transmit or a receive for
duration
greater than no_collision_timer will reset the collision counter.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 33
commentor id 136137138
comment type TR
location Figure 27-8
comment 5) Change transition:
PARTITION HOLD to PARTITION COLLISION WATCH
Update to read:
(command(x) != quiet) +
((part_opt(X) = true) * (scarrier_present(x) = true))
This change ensures a receive or a transmit will start the
no_collision_timer and un-partition the port once the timer is done.

Note also that the present condition (command(x) = copy) +
(command(x) =
collision) is
equivalent to (command(X) != quiet) hence that optimisation is
also made.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 34
commentor id 136137138
comment type TR
location Figure 27-8
comment 6) Change transition:
PARTITION COLLISION WATCH to PARTITION WAIT
Update to read:
((part_opt(X) = false) * (scarrier_present(x) = true)) +
((part_opt(X) = true) * (scarrier_present(x) = true) * (command(x)
!=
quiet))
This change ensures that if a receive is occurring while the port is
transmitting (Command(x) = copy or collision) the port remains

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 35
commentor id 136137138
comment type TR
location Figure 27-8
comment 7) Change transition:
PARTITION COLLISION WATCH to WAIT TO RESTORE PORT
Update to read:
no_collision_timer_Done * (((scarrier_present(x) = false) *
(command(x) =
copy))
+
((part_opt(X) = true) * (scarrier_present(x) = true) * (command(x)
=
quiet)))
This change ensures that a receive of a good packet as well
transmitting a packet without contention restores the port to full
operation.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 36
commentor id 136137138
comment type TR
location Figure 27-8
comment 8) Addition to Variables sub-clause 27.3.2.1.2

part_opt(X)
Implementation option. Either value may be chosen (see
27.3.1.6).

Values: true; port will support the enhanced partition state
machine.
false; port will not support the enhanced partition state
machine.

This change adds the variable required to control the
enhancements added to
the
partition state machine described above.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 37
commentor id 136137138
comment type TR
location Figure 27-8
comment 9) Change Text in sub-clause 27.3.1.6 (Second paragraph):
Change
'... The repeater PMA interface shall count consecutive collisions. The count shall be incremented on each transmission that suffers a collision and shall be reset on a successful transmission...'
to read
'... The repeater PMA interface shall count collisions. The count shall be incremented on each transmission that suffers a collision. The count shall be reset on a transmission of duration in excess of no_collision_timer (see 27.3.2.1.4) without incurring a collision...'
response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 38
commentor id 136137138
comment type TR
location Figure 27-8
comment 0) Change Text in sub-clause 27.3.1.6 (Fourth paragraph, item b):
Change
'b) The repeater has detected activity on the port for more than the number of bits specified for no_collision_timer (see 27.3.2.1.4) without incurring a collision'
to read
'b) The repeater has transmitted on the port for a duration in excess of no_collision_timer without incurring a collision'
response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 39
commentor id 136137138
comment type TR
location Figure 27-8
comment Changes 9 and 10 above bring the text into line with the existing state machine, the text in 11 below adds text to describe the new features a optional.
response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 40
commentor id 136137138
comment type TR
location Figure 27-8
comment 11) Add the following note:-
'NOTE: It is possible that under some network conditions the partition state machine will partition a port due to normal network collisions rather than a fault condition. To reduce the likelihood of this occurring the following optional measures, as described in figure 27-8, are recommended.'
a) The collision count is additionally reset when the repeater has received activity on the port for a duration in excess of no_collision_timer (see 27.3.2.1.4) without detecting a collision
b) The Partition function is additionally reset when the repeater has received activity on the port for a duration in excess of no_collision_timer without detecting a collision.

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 41
commentor id 136137138
comment type TR
location 27.7.4
comment 12) Add the following items to the PICS
Add addition item to 27.7.3, Major capabilities/options:-
Item: 'OPF', Feature: 'Partition function supports optional
measures as
described',
Sub-clause: '27.3.1.6', Status: 'O'.
Add the following three additional items to 27.7.4.8, Partition
Function:-
Item 'PA9', Feature: 'Collision counter reset'
response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 42
commentor id 136137138
comment type TR
location 27.7.4.8
comment 13) Change Text in subclause 27.7.4.8 (PICS items PA2 and
PA3).-
Replace text
'Consecutive Collision Count'
to read
'Collision Count'
response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 43
commentor id 136137138
comment type TR
location 27.7.4.8
comment 14) Change Text in subclause 27.7.4.8 (PICS items PA4).-
 Change this entry to read:-

Item	Feature	Subclause	Status	Support
	Value/Comment			

Collision Counter 27.3.1.6
 Reset

PA4		M		Count reset on transmission in excess of no_collision_timer without collision
-----	--	---	--	---

PA5		OPF:M		Count reset on receive activity in excess of no_collision_timer without collision
-----	--	-------	--	---

The following Items will have to be re-numbered

PA6 and PA7 become PA7 and PA8

Reword Item PA8 as follows:-

Item	Feature	Subclause	Status	Support
	Value/Comment			

Reset of Partition 27.3.1.6
 State

PA9		M		Power-up reset or transmission in excess of no_collision_timer without collision
-----	--	---	--	--

PA10		OPF:M		Receive activity in excess of no_collision_timer without collision
------	--	-------	--	--

This change matches the PICS to the changes in the text and also fixes a ambiguity that exists in the comment field of PA4

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 44

commentor id 136137138

comment type TR

location Figure 27-8

comment Name: Law
SubClause: Figure 27-8
Page: 5 & 6
Line: 26 to 54, 1 to 22
Comment type: Technical

Suggest for the reasons stated in my comment above this change should made optional by the use of the same mechanism suggested above. Suggest that the jabber timer is renamed as it is now shared between the Jabber and Partition state machines. The body of the clause text and the PICS have

to be changed to match this.
Suggest that the body of the clause be changed to list the additional reason for entry into the partition state.
Suggest that the PICS should be updated to include this additional reason for entry into the partition state.

The changes in detail would be:-

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 45
commentor id 136137138
comment type TR
location Figure 27-8
comment 1) In sub-clause 27.3.2.1.4 rename the jabber_timer to be the excess_carrier_timer
reword to read:-
'excess_carrier_timer
Timer for length of carrier which must be present before the Jabber state (27.3.2.7), and optionally during a collision the Partition state (27.3.1.6), is entered. The timer is done when it reaches 40 000 - 75 000 BT.' This is required as this timer is now shared between the Partition and Jabber functions.

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 46
commentor id 136137138
comment type TR
location Figure 27-8
comment 2) In sub-clause 27.3.1.7 replace the word 'jabber_timer' with the word 'excess_carrier_timer'
This is required to match with the change of name of this variable.

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 47
commentor id 136137138
comment type TR
location Figure 27-8
comment 3) In Figure 27-7, Receive timer state diagram for port X, replace the variable name 'jabber_timer' with 'excess_carrier_timer' and the variable name 'jabber_timer_done' with the variable name 'excess_carrier_timer_done'. This is required to match with the change of name of this variable.

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 48
commentor id 136137138
comment type TR
location Figure 27-8
comment 4) In Figure 27-8 Partition State Diagram, change right exit term out of COLLISION COUNT INCREMENT state to PARTITION WAIT state;

From:-
CC(X) >= CCLimit
To:-
CC(X) >= CCLimit +
((part_opt(X) = true) * excess_carrier_timer_done)

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 49
commentor id 136137138
comment type TR
location Figure 27-8
comment 5) In sub-clause 27.7.4.9, item RJ2, replace the word
'jabber_timer' with
'excess_carrier_timer'.
This is required to match with the change of name of this variable.

response Accept in principle--referred to David Law and David Fifield to
define an acceptable compromise

accept response

comment number 50
commentor id 136137138
comment type TR
location Figure 27-8
comment 6) ASSUMING that the other partition change request has been accepted the definition of part_opt will have been provided. The note in 27.3.1.6 will have to be amended to read:-

'NOTE: It is possible that under some network conditions the partition state machine will partition a port due to normal network collisions rather than a fault condition. It is also possible that some double fault conditions will remain undetected. To reduce the likelihood of these events occurring the following optional measures, as described in figure 27-8, are recommended.'
a) The collision count is additionally reset when the repeater has received activity on the port for a duration in excess of no_collision_timer (see 27.3.2.1.4) without detecting a collision
b) The Partition function is additionally reset when the repeater has received activity on the port for a duration in excess of no_collision_timer without detecting a collision.
c) The Partition condition is additionally detected due to a carrier event of duration in excess of excess_carrier_timer in which a collision has occurred.

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 51
commentor id 136137138
comment type TR
location Figure 27-8
comment An addition PICS item will have to be added to read:-

Add new item PA11:-

Item Feature Subclause Status Support
Value/Comment

PA11 Excessive Carrier 27.3.1.6 OPF:M Carrier in
excess
of
Duration entry into
excess_carrier_timer
Partition state with a collision

response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 52
commentor id 136137138
comment type TR
location Figure 27-8
comment (See attached file: PART_23.PPT)
response Accept in principle--referred to David Law and David Fifield to define an acceptable compromise

accept response

comment number 53
commentor id 134
comment type T
location Change 2
comment Comment: I am voting for this change because it fixes the problem identified, but there is a better fix which I would like you to consider. That is to change the exit from Active to Jam to activity(ANYXN). This is the same method used in the 10 Mbit/s repeater. The change as proposed in the ballot will produce a transition of the repeater core briefly to the idle state and then back through Assign to Active state (for the case where 1 port that is not N is receiving activity). The other ports will see a brief interpacket gap. The alternative I propose will cause a transition to JAM then through Assign to Active so that the activity is continuous on other ports.

CommentEnd:

SuggestedRemedy: Leave the transition from Active to Idle unchanged and change the transition from Active to Jam activity(ANYXN).
RemedyEnd:

response Accept--to be incorporated into general fix
accept response