CommentID: (Leave Blank)
CommenterName: Peter Bradshaw
CommenterEmail: pbradsha@intersil.com
CommenterPhone: +1 408 935 4647
CommenterCo: Intersil Corpn
Item (Std 802.3, Request number): IEEE P802.3REVam comment #74

Page: 336
Line:
Clause: 54
Subclause: 54.5.4
CommentType: (E, T, or TR) TR
Comment:
It seems to me that the proposed remedy does NOT reflect the
intended operation of the SIGNAL_DETECT function in the 802.3ak standard.
Furthermore, I think it has merely moved the "=/- 0.001 mV" delta issue
from the 50mV threshold level to the 175mV threshold level.

The intent, as expressed in the 802.3ak Working Group, appeared to me to be as follows:-

If the (as defined) input level exceeds some threshold whose maximum value is 175 mV, for a time that would occur at least during the time span of an IPG, then SIGNAL_DETECT = OK is to be asserted, and SIGNAL_DETECT = FAIL cannot then be asserted for at least 250 usec, regardless of the intervening input level. Once the input level has fallen below some level, whose minimum value is 50 mV, and remained below that level for more than 500 usec, then SIGNAL_DETECT = FAIL is to be asserted.

I agree that the actual text of 802.3ak does not correctly reflect this planned operation. However, I do not think that merely removing the sentence as proposed in the comment restores the intended operation.

I would like to propose two possible remedies, one involving minimal edits, the other more extensive.

CommentEnd:
SuggestedRemedy:

First proposal:
Append to the first paragraph, after "shall assert SIGNAL_DETECT = OK within 100 µs after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded 175 mV for at least 1 UI (unit interval)."

the following:

"The PMD may reassert SIGNAL_DETECT = OK within 100 µs after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded 50 mV for at least 1 UI (unit interval).

Replace the first sentence of the second paragraph with

" The PMD shall not assert SIGNAL_DETECT = FAIL until at least 250 usecs after any event causing the assertion or reassertion of SIGNAL_DETECT = OK. "

First Remedy End

Second Remedy

Change the ending of the second paragraph to read as follows:
"shall assert SIGNAL_DETECT = OK within 100
µs after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded an assertion threshold. for at least 1 UI. This assertion threshold shall be greater than 50 mV, and not more than 175 mV. "

Change the beginning of the third paragraph as follows:
"After any such assertion of SIGNAL_DETECT = OK, SIGNAL_DETECT = FAIL shall not be asserted for at least 250 usecs, regardless of the input signal. The PMD shall assert SIGNAL_DETECT = FAIL after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has fallen below and remained below a deassertion threshold for 500 usec. This deassertion threshold shall be greater than 50 mV, and not more than 175 mV, and may be the same as, or different from, the assertion threshold."

RemedyEnd:

Resolution; to be submitted to Sponsor Ballot as
Changes to the first sentence of the second paragraph below:

SIGNAL_DETECT is a global indicator of the presence of electrical signals on
all four lanes. The PMD receiver is not required to verify whether a compliant 10GBASE-CX4 signal is being received; however, it shall assert
SIGNAL_DETECT = OK within 100 µs after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded
175 mV for at least 1 UI (unit interval).

After any such assertion of SIGNAL_DETECT = OK, SIGNAL_DETECT = FAIL shall
not be asserted for at least 250 usecs. The PMD shall have asserted SIGNAL_DETECT = FAIL when the absolute differential peak-to-peak input voltage on any of the four lanes at the MDI has dropped below 50 mV and has
remained below 50 mV for longer than 500 µs.