

P802.3ae Draft 4.3 Comments

Cl 52 SC P L # 99102

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Comment Type TR Comment Status A D4.1 #11

The receiver sensitivity is currently specified using the stressed sensitivity, measured with a conditioned input signal to which both jitter and ISI has been added. Although the method has been simplified, it still has a limited track record. There are a few parameters which can put you in different corners of a multi-dimensional "stress space". Different receivers designs have different strong and weak points, and depending on which corner you choose, you punish or favor different devices. For some, the nominal sensitivity is more critical, for others, SJ stress is most difficult. For yet another rx, DCD is more difficult. What do we really want to do? We want to find a set of parameters for the stressed eye such that the subsets (1)[passes_test & not_working] and (2)[fails_test & works] are both minimized. This calls for extensive testing and development of test procedures. At the time we want to make products that we can sell to the market-place without revising the spec numbers every other month. These two things don't go along very well, and we might need to give up one of the two options.

Suggested Remedy

Settle on something that we think works today, with numbers that can easily be validated. Do one or several of the following:

1. Make the currently informative receiver sensitivity normative. This measurement is easier to calibrate but does not test jitter.

Separate the jitter and the ISI in the RX stress tests:

2. Remove the jitter from the stressed eye, only use a low-pass filter. This would guard against low-bandwidth signals caused by TX and/or fiber impairments.

3. Introduce a SONET-style jitter tolerance test to ensure that the receiver can cope with a jittered input signal.

Other things we could do:

4. Keep the stressed eye, but follow the precedent of 1GbE and take out the margin for the stressed sensitivity because of the large uncertainty in how the actual penalty and stress (VECP measured on the oscilloscope) correlate.

5. Recognize that we have gathered enough measurement data to say that the stressed eye methodology is well understood and the we have confidence in the chosen numbers and know their significance to "mission mode" performance.

Response Response Status U

ACCEPT IN PRINCIPLE.

Specifications were refined and reflected in D4.2 & D4.3.

The stressed eye test procedures have been modified and we are now in a position where we believe the following:

- subset 1 (passes test and not working) has been minimized
- subset 2 (fails test and works) has been reduced

by the changes in the specification within D4.2 & D4.3 described below.

We limited the amount of sinusoidal amplitude interferer, thereby narrowing the 3D stress space. We introduced histogram definitions of VECP and jitter to make the calibration more accurate. We strengthened the spec to describe a low noise stressed eye generator. We tightened the TDP spec and added .05 UI offset to ensure that receivers that pass the stressed eye test would interoperate with the specified transmitters. By applying a variable amount of sinusoidal jitter, we now achieve the correct total jitter.

Measurements have been made which support the current specification. The committee believes the current specifications will produce interoperability with conformant products.

11:0:1

Cl 52 SC 52 P 461 L # 99202

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Comment Type TR Comment Status R D4.2 #76

Time to move forward.

Written on Thursday: as the experimental error created by the stressed sensitivity methodology seems to exceed the error it is trying to buy out, I am still not convinced that it has a place in the standard.

Suggested Remedy

If the stressed sensitivity technique is not provably working with acceptable accuracy at Vancouver meeting, make the nominal sensitivity normative and the stressed sensitivity informative throughout clause 52.

Response Response Status U

REJECT. The informative receive sensitivity specification may be insufficient, but the normative stressed receive sensitivity is sufficient. Making no change to the methodology may produce false negatives, but will not produce false positives.

16:2

See response to comment #99102.