Usage of SECQ and its definition

Related to comment #7.

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IEEE P802.3cu Task Force , Waikoloha, 11 - 12 November 2019

Usage of SECQ and its definition

- During the cu ad hoc call on 6 November 2019 call it became evident that many see SECQ as a receiver parameter instead of a (general) transmitter parameter.

- The intent of the parameter SECQ in the context of stassar_3cu_adhoc_110619 was to mean TDECQ for the no fiber case, thus for L = 0.

- Maybe the term SECQ is / has been used in two ways. If so it may requiring fixing.

- It is the intent of this presentation to try to resolve the potential confusion.

Usage of SECQ and its definition, continued

IEEE 802.3-2018:

- Clause 121: Table 121-7:
  - Under “Conditions of stressed receiver sensitivity test”, first mentioning of SECQ as “Stressed eye closure for PAM4 (SECQ), lane under test” with value 3.4 dB.
  - Its note c: “Receiver sensitivity (OMAouter), each lane (max) is informative and is **defined for a transmitter with a value of SECQ** up to 3.4 dB.”

- In this context, SECQ is the worst case distortion, equal to the maximum TDECQ value, which a test transmitter should have for SRS testing.

Usage of SECQ and its definition, continued2

IEEE 802.3-2018:

- 121.8.8 Receiver sensitivity:
  - “Receiver sensitivity is informative and is **defined for a transmitter with a value of SECQ** up to 3.4 dB.”
  - Associated formula: RS = max(-6.1, SECQ - 7.5) (dB)
  - And the definition: “**SECQ is the SECQ of the transmitter used to measure the receiver sensitivity**”.

- In this context SECQ is not a receiver parameter, but rather a characteristic of the transmitter used to test the receiver. This could apply to any transmitter thus also a “regular” transmitter inside a module.

Usage of SECQ and its definition, continued 3

So what is the exact definition of SECQ and how to test it?

IEEE 802.3-2018:

- 121.8.9.2 Stressed receiver conformance test signal characteristics and calibration:
  - The primary parameters of the **stressed receiver conformance test signal** are its stressed eye closure (SECQ ….. .
  - The SECQ of the stressed receiver conformance test signal is measured according to 121.8.5, except that the test fiber is not used.

- 121.8.5 Transmitter and dispersion eye closure for PAM4 (TDECQ)

This states that the test method for SECQ is identical to that for TDECQ (in 121.8.5) except that no fiber is used. Therefore in several previous presentations and discussions SECQ has been used to actually express TDECQ (no fiber).

For discussion

In the strawman proposals in stassar_3cu_01_0919, stassar_3cu_adhoc_110619 and stassar_3cu_01a_1119 it was/is proposed to set a limit of 2.5 dB maximum for “TDECQ – SECQ”

It was/is the intent to specify a maximum for TDECQ minus TDECQ (no fiber), instead of TDECQ minus SECQ.

In order to separate the SECQ used for SRS testing from TDECQ (no fiber), the latter may need a separate definition.

The definition would be very similar to that for SECQ.

Thanks!