D3.3 comments on SMF clauses

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Introduction

This contribution identifies some of the comments against P802.3bs D3.3 for discussion in the SMF Ad Hoc call.

Comments r03-5, r03-6, r03-8, r03-7

CI **121**   SC **121.7**   P **220**   L **29**   # r03-5

Welch, Brian

Comment Type   **T**   Comment Status   **X**

In table 121-6 propose reducing OMAouter each lane min from -2.5 dBm to -3.5 dBm, and revising note b to read "Even if the TDECQ < 0.9 dB, the OMAouter (min) must exceed this value". This allows for high bandwidth transmitters than can achieve lower TDECQ mins than the current stated minimum to operate at lower power, which can improve transceiver power consumtpion, yield, and cost. See supporting presentation for more details.

SuggestedRemedy

In table 121-6 propose reducing OMAouter each lane min from -2.5 dBm to -3.5 dBm, and revising note b to read "Even if the TDECQ < 0.9 dB, the OMAouter (min) must exceed this value".

Proposed Response   Response Status   **O**

These comments between them propose for all of the single-mode PMDs in the draft to reduce OMA_{outer}, each lane (min) by 1 dB and reduce the "minimum" TDECQ by 1 dB.

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Comments r03-5, r03-6, r03-8, r03-7 effect on ER

If accepted, these comments would change the effective minimum ER at the minimum OMA_{outer}:

- For 200GBASE-DR4 from 10 dB to 6.7 dB
- For 200GBASE-FR4/LR4 from infinite to 9.4 dB
- For 400GBASE-FR8/LR8 from infinite to 9.4 dB
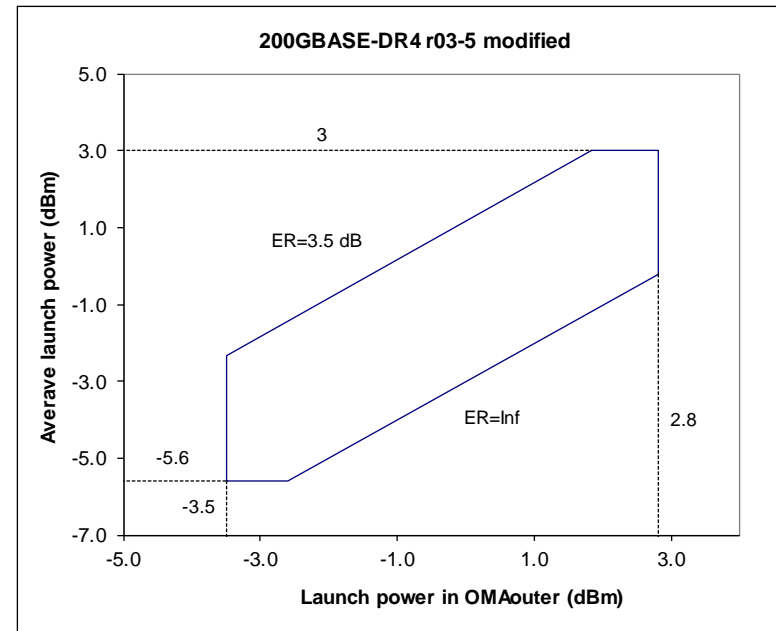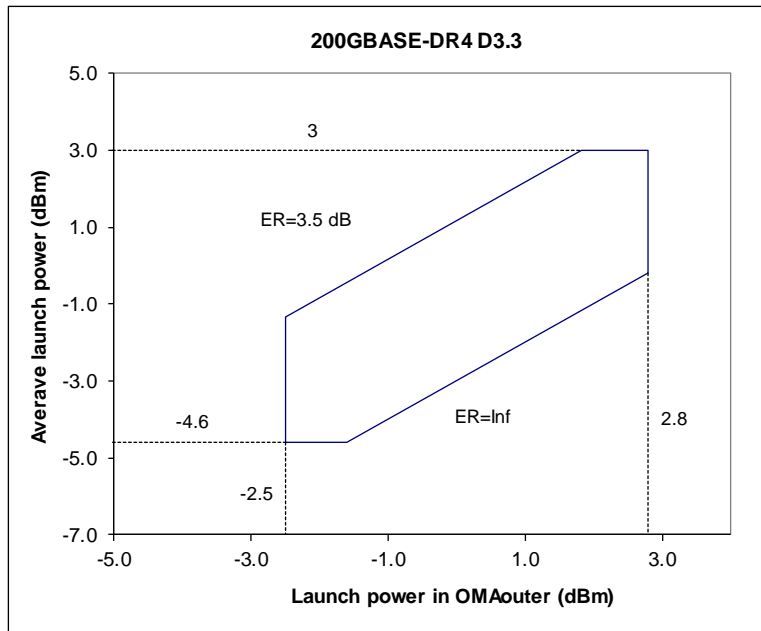- For 400GBASE-DR4 from 10 dB to 6.7 dB
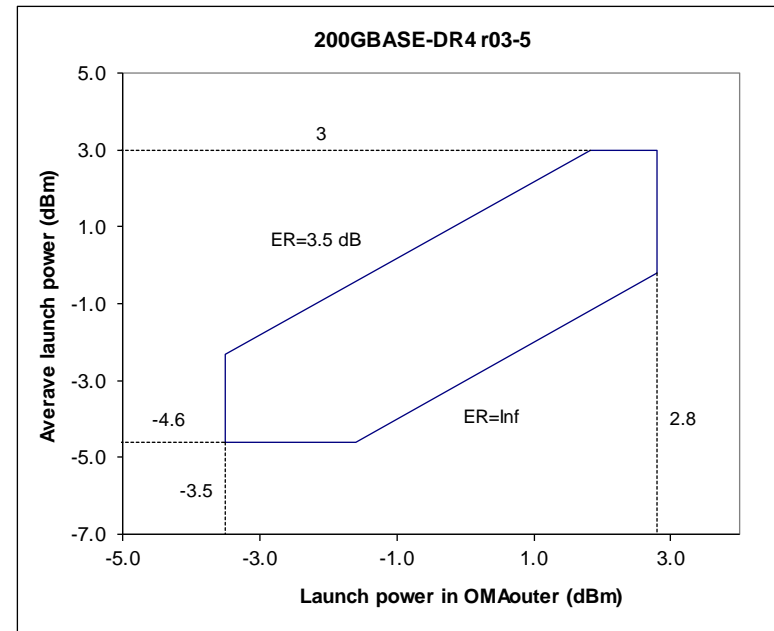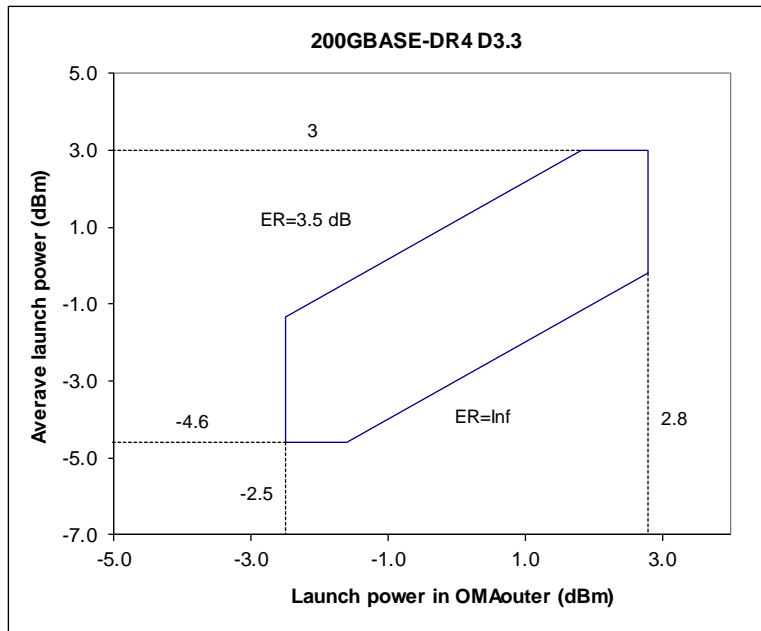
Comments r03-5, r03-6, r03-8, r03-7 proposal

If these comments are accepted, then restore the effective minimum ER at the minimum OMA_{outer} by also reducing:

- Average launch power, each lane (min) in Tx table
- Average receive power, each lane (min) in Rx table

By the same amount as the OMA_{outer} each lane (min) is reduced.

200GBASE-DR4 D3.3

Averave launch power (dBm)

5.0

3.0 — 3

ER=3.5 dB

1.0

-1.0

-3.0

-4.6   ER=Inf   2.8

-5.0

-2.5

-7.0

-5.0   -3.0   -1.0   1.0   3.0

Launch power in OMAouter (dBm)

200GBASE-DR4 r03-5 modified

Averave launch power (dBm)

5.0

3.0 — 3

ER=3.5 dB

1.0

-1.0

-3.0

-5.6   ER=Inf   2.8

-5.0

-3.5

-7.0

-5.0   -3.0   -1.0   1.0   3.0

Launch power in OMAouter (dBm)

Comments r03-15, r03-24

CI **121**   SC **121.8.8**   P **229**   L **22**   # r03-15

Dudek, Michael   Cavium

Comment Type   **TR**   Comment Status **X**

On this draft the Receiver sensitivity was changed to be with an SECQ of 0.9, but here it is defined to be for an ideal input signal.   There appears to be a conflict here.

SuggestedRemedy

Change "Receiver sensitivity, which is defined for an ideal input signal", to "Receiver sensitivity, which is defined for an ideal input signal without overshoot",   Make the same change in clauses 122.8.8 and 124.8.8

Proposed Response   Response Status **O**

Propose:

Change "Receiver sensitivity, which is defined for an ideal input signal," to "Receiver sensitivity, which is defined for an input signal with SECQ of 0.9 dB (e.g., an ideal input signal without overshoot),". Make the same change in clauses 122.8.8 and 124.8.8

Comment r03-16

CI **121**   SC **121.8.9.1**   P **231**   L **11**   # r03-16

Dudek, Michael   Cavium

Comment Type   **TR**   *Comment Status*   **X**

With this calibration method for stressed receiver sensitivity a receiver with wider bandwidth than Nyquist will have an improved stressed sensitivity. (around 0l.9dB if at 0.75*Baud rate).   This may encourage vendors of receivers to have receiver bandwidths wider than Nyquist. However Transmitters are tested for TDECQ with the Nyquist filtered reference equalizer so that Energy above Nyquist is not "aliased" degrading their TDECQ.   There will be an interoperability issue between Transmitters with bad high frequency content and Receivers which have wider bandwidth.

SuggestedRemedy

In Figure 121-6 move the sinusoidal amplitude interferer after the Low-pass filter.   On page 299 line 54/page 230 line 1. Change " to "The sinusoidal amplitude interferer is set to 0.71*Baud rate. On page 213 line 10 change "Any remaining SECQ must be created with a combination of sinusoidal jitter, sinusoidal interference, and Gaussian noise" to "0.1dB SECQ is created with th sinusoidal interference and any remaining SECQ must be created with a combination of sinusoidal jitter, and Gaussian noise"

Alternatively change the bandwidth of the reference receiver used for TDECQ back to 0.75*Baud rate and change the numbers back to what they were on earlier revisions. Or add an additional test for the transmitter where TDECQ is measured with a 0.75*Baud rate filter and has to be <2.5dB

Make the equivalent changes in clauses 122 and 124 .   (Note that if 0.71*Baud rate is changed to an exact frequency then another exception needs to be added in 124.8.9)
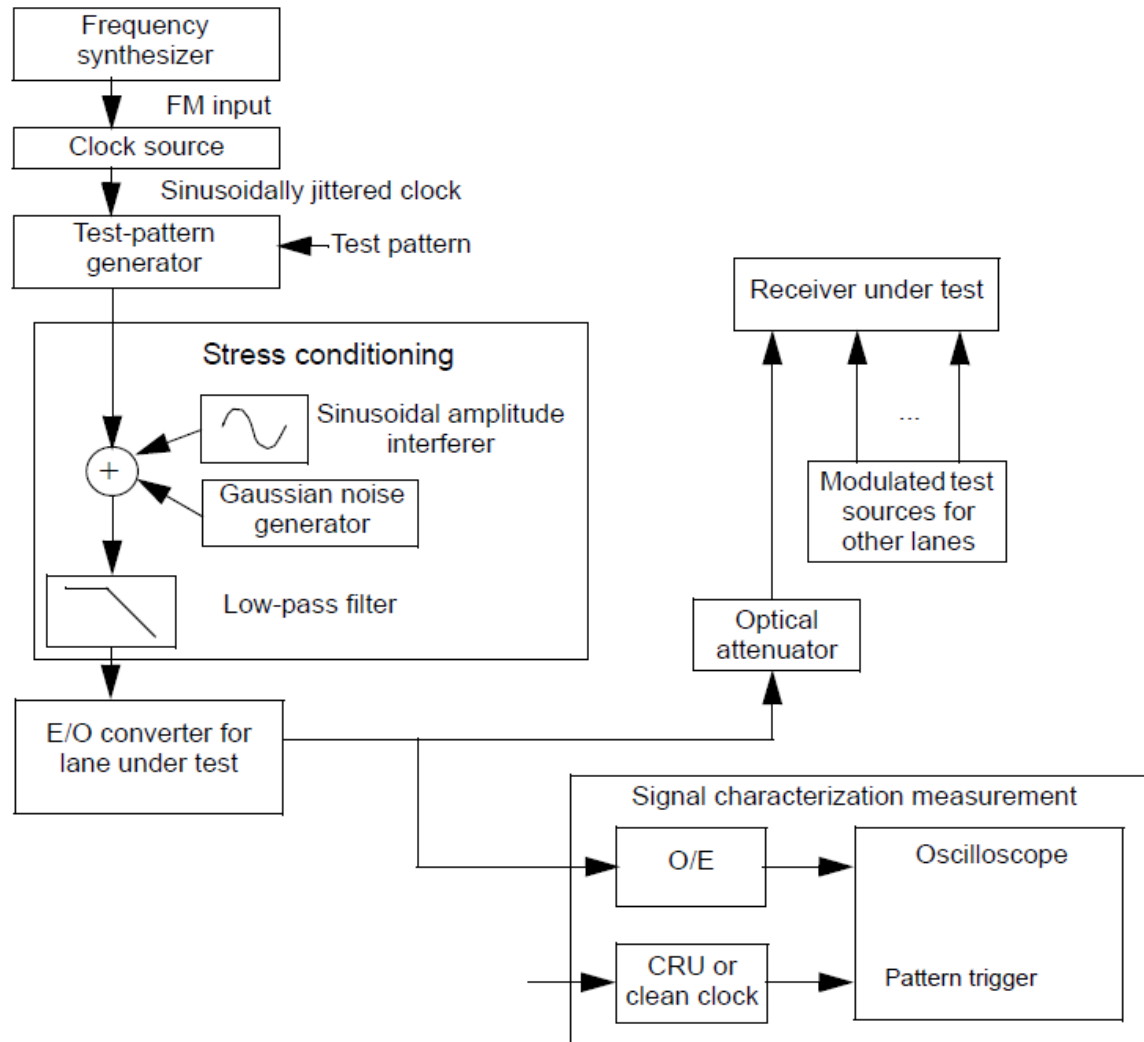
Proposed Response   *Response Status*   **O**

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Figure 121-6

Figure 121–6—Stressed receiver conformance test block diagram

Comment r03-26

CI **121**　　SC **121.8.5.3**　　　　　　　P **228**　　　　L **23**　　　　# r03-26

Dawe, Piers J G　　　　　　　　　　　　Mellanox Technologie

Comment Type　**T**　　　*Comment Status*　**X**

We need some constraints to exclude crazy transmitters and to reduce the search space for the TDECQ equalizer and for real receivers.

SuggestedRemedy

Require the cursor to be early in the equalizer, e.g. first to second tap.
Also, do we want to exclude very over-emphasized signals, e.g. by requiring that the cursor must be at least some value?
These rules could go here or in 121.8.5.4 TDECQ reference equalizer.

Proposed Response　　　　*Response Status*　**O**

Thanks!