Call for a review of the SMF optical powers

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Introduction

- It's been two years since P802.3bs adopted the SMF baselines. The state of the art in PAM4, our understanding, and the specs have evolved since then. There are recent reports of receiver margin to spare for some PMDs.
- Now, near the end of the P802.3bs project, is the time to stand back and review spec alignment to the technology sweet spot (optical power levels and TDECQ in particular)
- This presentation is to bring to P802.3cd's attention,
- A **call for the information** we need to "sign off" these PMDs
  - Relates to bs comments 28, 36, 37 and cd comments 152 and 128
  - P802.3cd could have second thoughts in the light of experience a year after P802.3bs freezes its specs, but...

50G/lane optical PMD

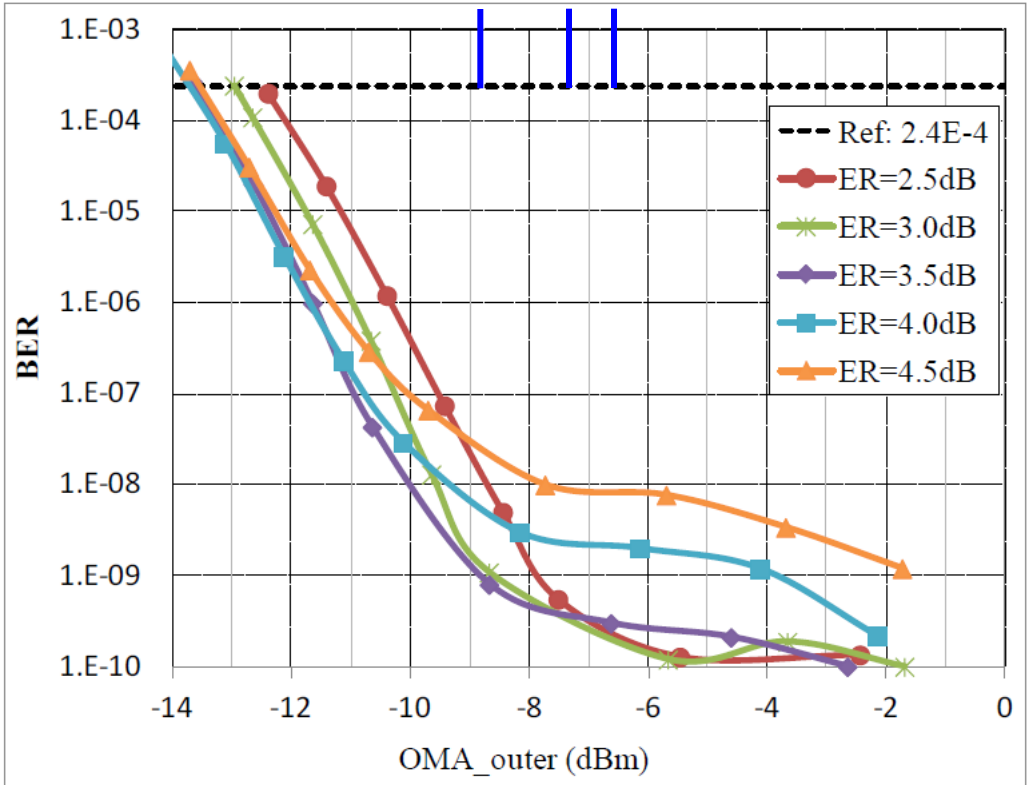

Chart from
[stassar_061417_3cd_adhoc-v2]

Rx @ 25C
Source: DML
Pattern: PRBS31

- Blue lines represent unstressed sensitivity (informative) for 50GBASE-LR (-8.8 dB), 50GBASE-FR (-7.3 dB) and 200GBASE-DR4 (-6.6 dB)
- There is possibly 4 dB margin for LR, 5½ dB for FR, 6 dB for DR4, plus the SECQ of this test transmitter
- This is much more encouraging than the early results with PAM4
  - Is this representative of performance during the life of the standard?

Is this the right amount of margin?

- From this margin, we need to allow for:
  - Manufacturing variation
  - Measurement inaccuracy
  - Temperature – see stassar_061417_3cd_adhoc-v2
  - Ageing
  - Possibly worse transmitters
- However, the transmitter usually costs more
  - Particularly power consumption
- So we should set the optical power levels so as not to waste sensitivity

100G/lane optical PMD

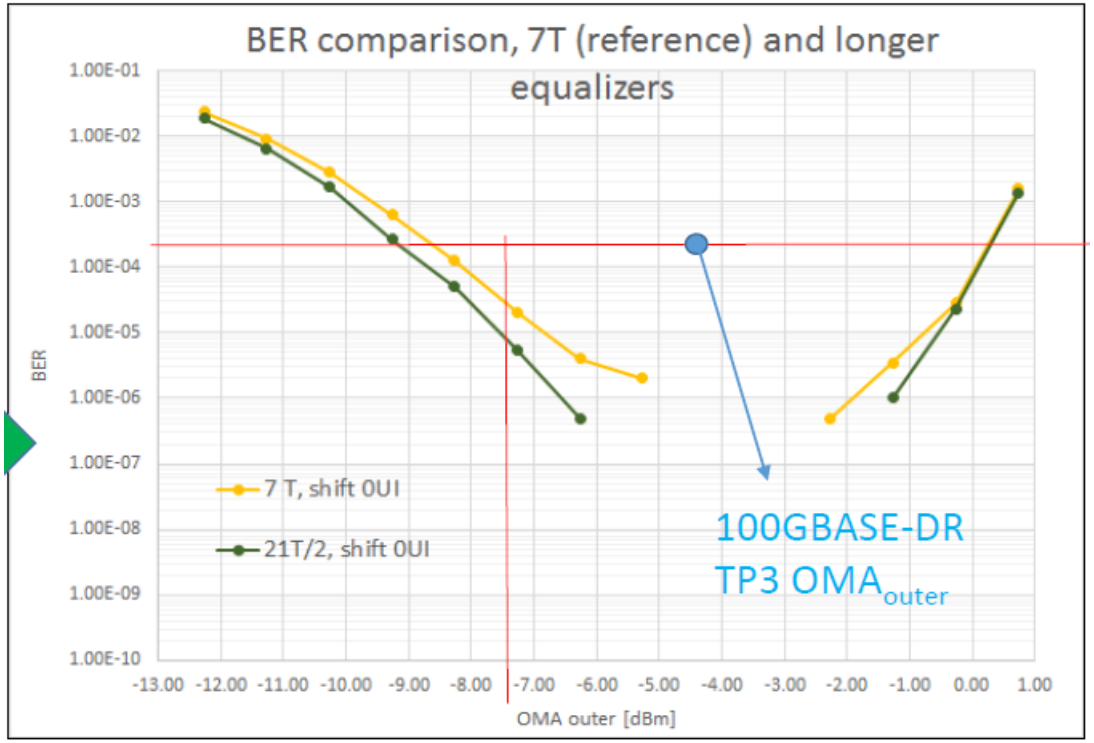

Chart from
[mazzini_051017_3cd_adhoc]

- Blue dot represents unstressed sensitivity (informative) for 100GBASE-DR and 400GBASE-DR4 (-4.4 dB)
- There is possibly 4 dB margin
- This is much more encouraging than the early results with PAM4
  - Is this representative of performance during the life of the standard?

How much lower should the power levels be set?

Suggested poll or survey:

	50GBASE-FR	50GBASE-LR	100GBASE-DR
0 dB			
0.5 dB			
1 dB			
1.5 dB			
Need more information			
Don't care			