

# 100GBASE-BR40

Production data and specification discussion

Dirk Lutz, Eoptolink

Aaron Ni, Eoptolink

IEEE802.3dk April 2024 meeting

# Supporters

- It is the first time that we present this data and we search for supporters for our proposal
- Supporters:
  - Fabio Bottoni - Cisco Systems

# Background

- Production data for 100GBASE-BR40 products were collected
- Current baseline will result in significant yield hit and this could become a general problem in the industry

In this contribution

- Present production data
- Propose a modification of baseline parameters

# Production data

- $OMA_{Outer}$  - TDECQ
- RX Sensitivity

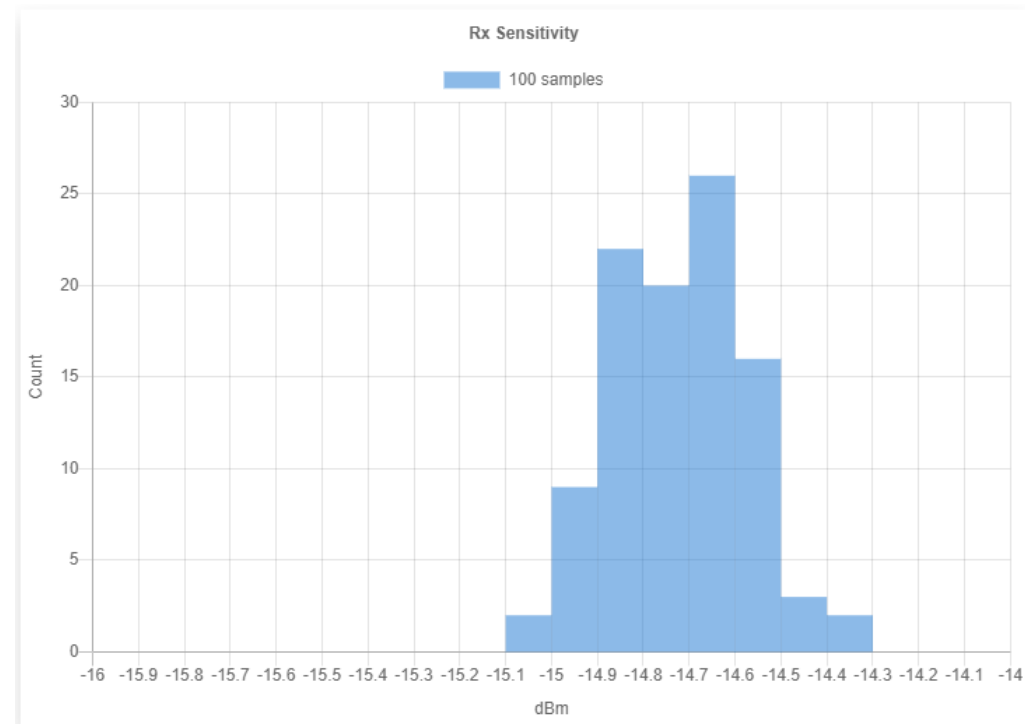
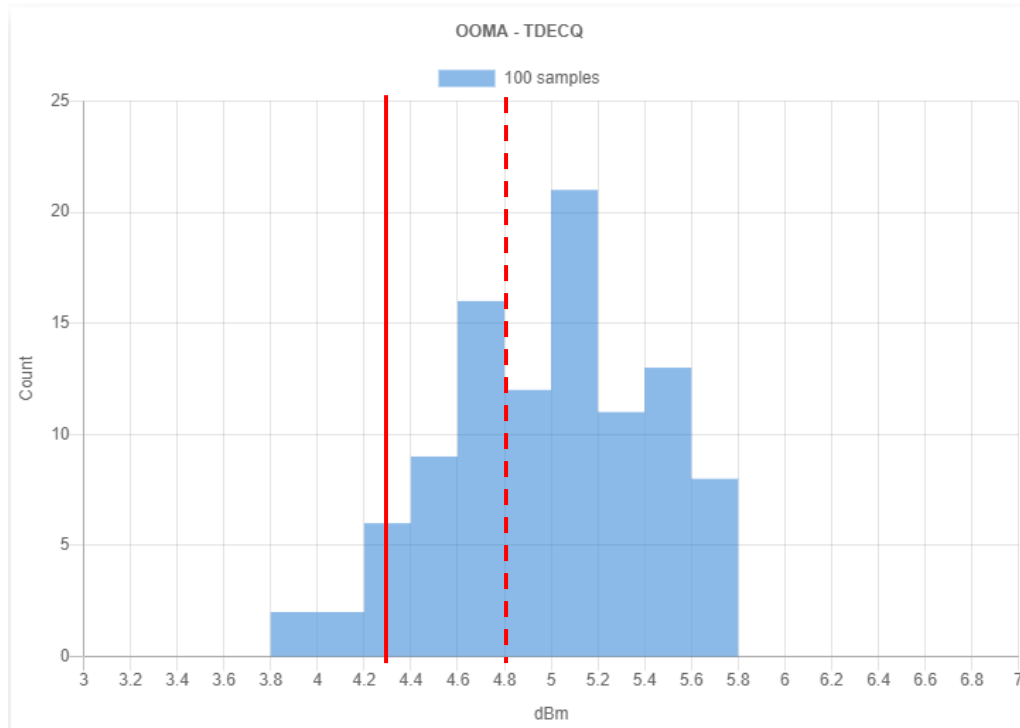
In this contribution the production data from 100pcs are analyzed and their impact of the production yield is investigated.

The data points are collected at 70°C case temperature.

# Production data

- Specification limit December 2023 meeting
- - - Production guardband = 0.5dB

Tx: 1309nm & Rx: 1304nm



Reference transmitter TDECQ = 1.4dBm

Launch power in OMAouter (min) For TDECQ < 1.4dB	dBm	5.7
For 1.4dB < TDECQ < TDECQ (max)		
		4.3 + TDECQ

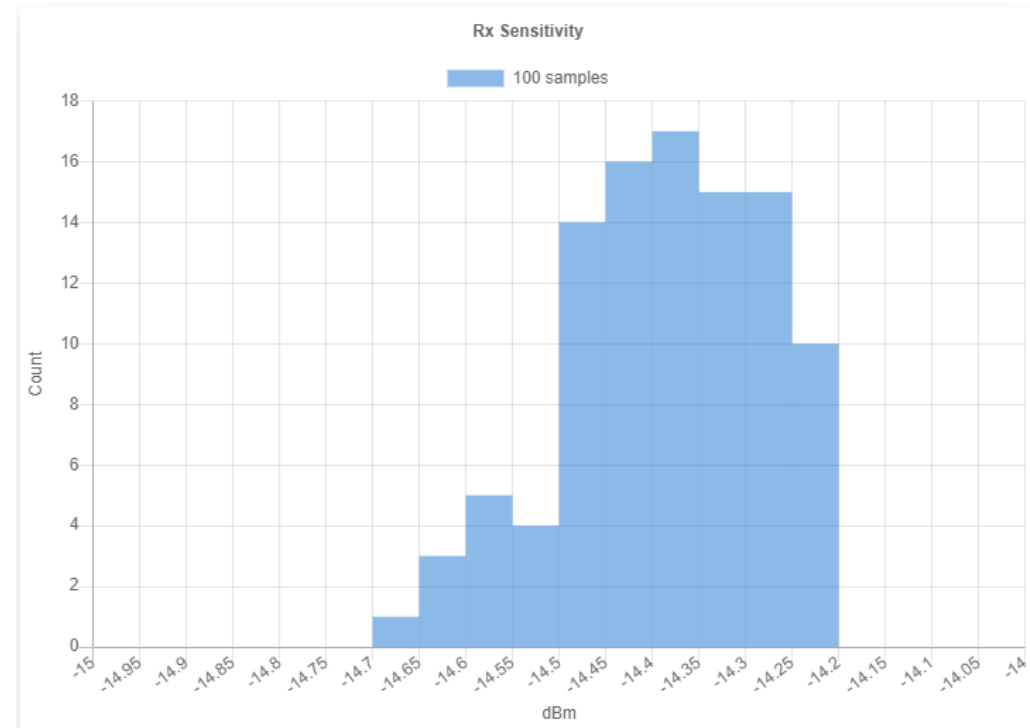
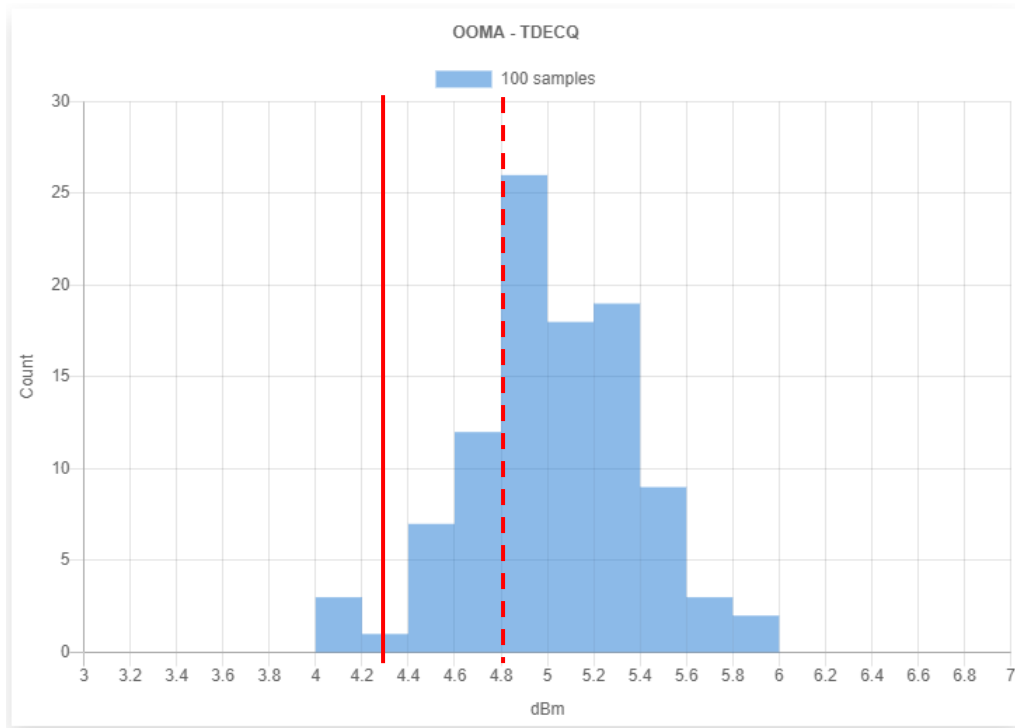
Receiver sensitivity (OMA) For TECQ < 1.4 dB	dBm	-12.8
For 1.4dB < TECQ < 3.9dB		
		-14.2 + TECQ

baseline proposal December 2023 meeting

# Production data

- Specification limit December 2023 meeting
- - - Production guardband = 0.5dB

Tx: 1304nm & Rx: 1309nm



Reference transmitter TDECQ = 1.4dBm

Launch power in OMAouter (min) For TDECQ < 1.4dB	dBm	5.7
For 1.4dB < TDECQ < TDECQ (max)		4.3 + TDECQ

Receiver sensitivity (OMA) For TECQ < 1.4 dB	dBm	-12.8
For 1.4dB < TECQ < 3.9dB		-14.2 + TECQ

baseline proposal December 2023 meeting

# 100GBASE-BR characteristics

Protocol		100G Lambda MSA	PMD parameters of 40-km specification (BR40) IEEE802.3dk December 2023 meeting	Proposal
Items	Unit	100G-ER1-40	IEEE802.3dk BR40	100G-bidi-ER-40
Nominal modulation rate	Gbit/s	53.125	53.125	53.125
Wavelength	nm	Tx: 1308.09-1310.19 nm Rx: 1304.5-1317.5 nm	1304.6 ± 1 nm /1309.1 ± 1 nm	1304.6 ± 1 nm /1309.1 ± 1 nm
Mean launch power max	dBm	7.1	TBD	7.1
Launch power in OMA <sub>outer</sub> (min) For TDECQ < 1.4dB For 1.4dB < TDECQ < TDECQ (max)	dBm	4.7 3.3 + TDECQ	5.7 4.3 + TDECQ	4.7 3.3 + TDECQ
Transmitter and dispersion eye closure for PAM4 (TDECQ) max	dB	3.9	3.9	3.9
Receiver sensitivity (OMA) For TECQ < 1.4 dB For 1.4dB < TECQ < 3.9dB	dBm	-13.8 -15.2 + TECQ	-12.8 -14.2 + TECQ	-13.8 -15.2 + TECQ
Receiver OMA max	dBm	-2.6	-1.6	-2.6
Damege threshold MAX	dB	-2.4	-1.4	-2.4
TDECQ-TECQ  (max)	dB	2.7	2.7	2.7
Extinction ratio MIN	dB	5	5	5
Bit error ratio		Less than 2.4*10 <sup>-4</sup>	Less than 2.4*10 <sup>-4</sup>	Less than 2.4*10 <sup>-4</sup>

Proposals:

a lower parameter for  
OMA<sub>Outer</sub> – TDECQ

a lower receiver sensitivity

Link budget is unchanged.

Thank you!