

# Comparison of transmitter metrics for 100GBASE-SR4

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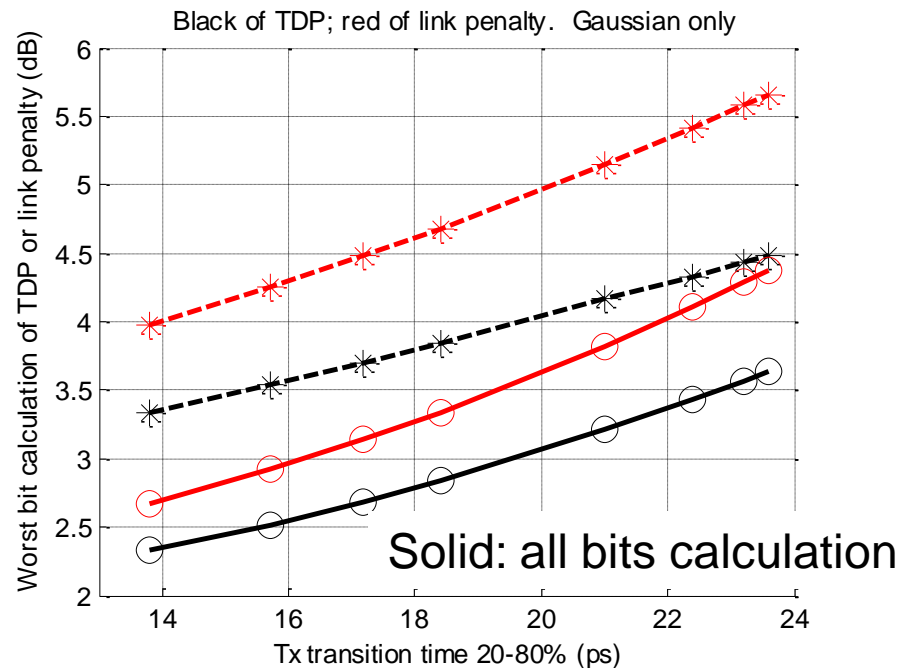
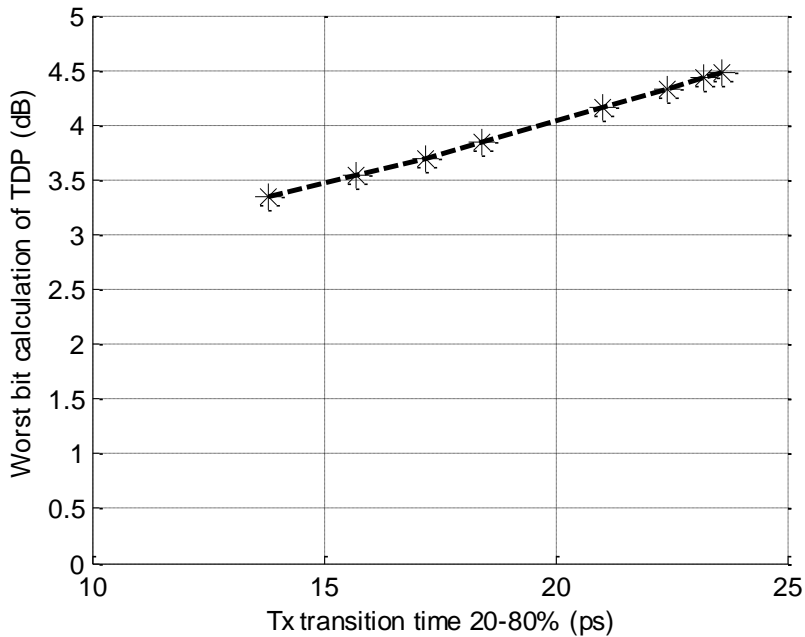
Mellanox Technologies

# Introduction

- Seeking a metric for transmitter specification for 100GBASE-SR4
- TDP calibration was difficult; VEC has not been proven
  - Spreadsheet model contains approximations
- This work uses simulated waveforms and calculates the TDP, VEC and link penalty with fewer approximations
- Looking for correlation between transmitter metric and link penalty so we can use a "OMA-TDP" approach
- Next slide starts with some Gaussian waveforms, all with the same jitter at TP1

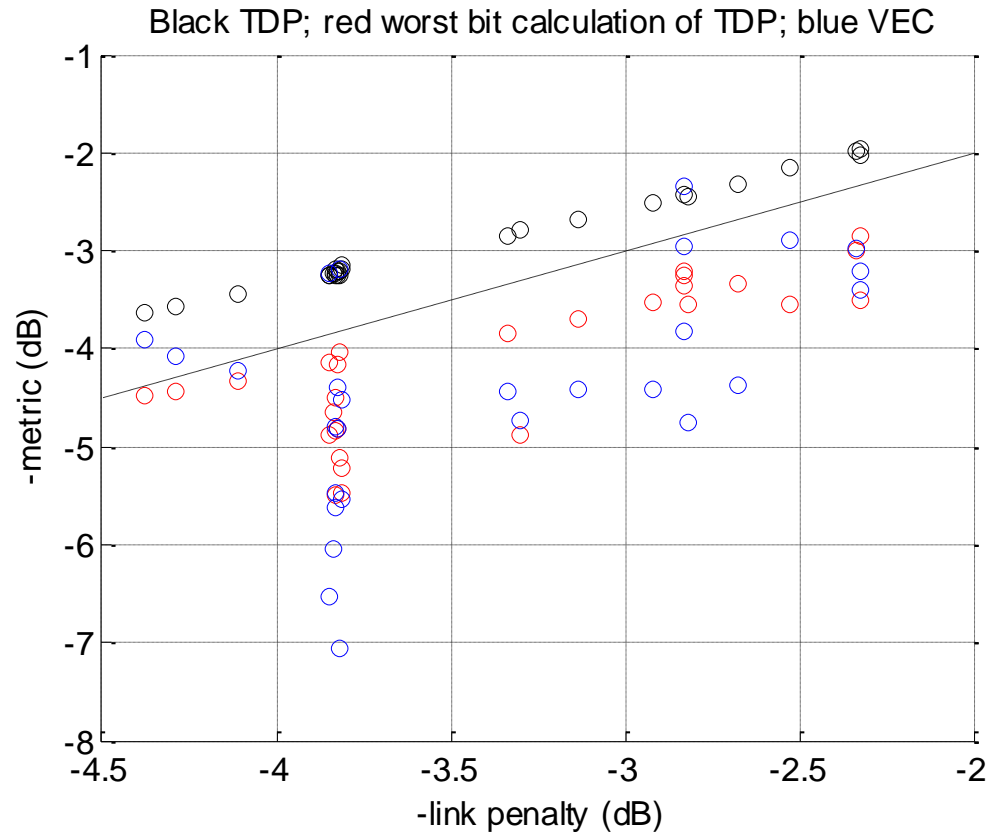
# TDP vs. Gaussian rise time, varying RIN

## "Worst bit" calculations



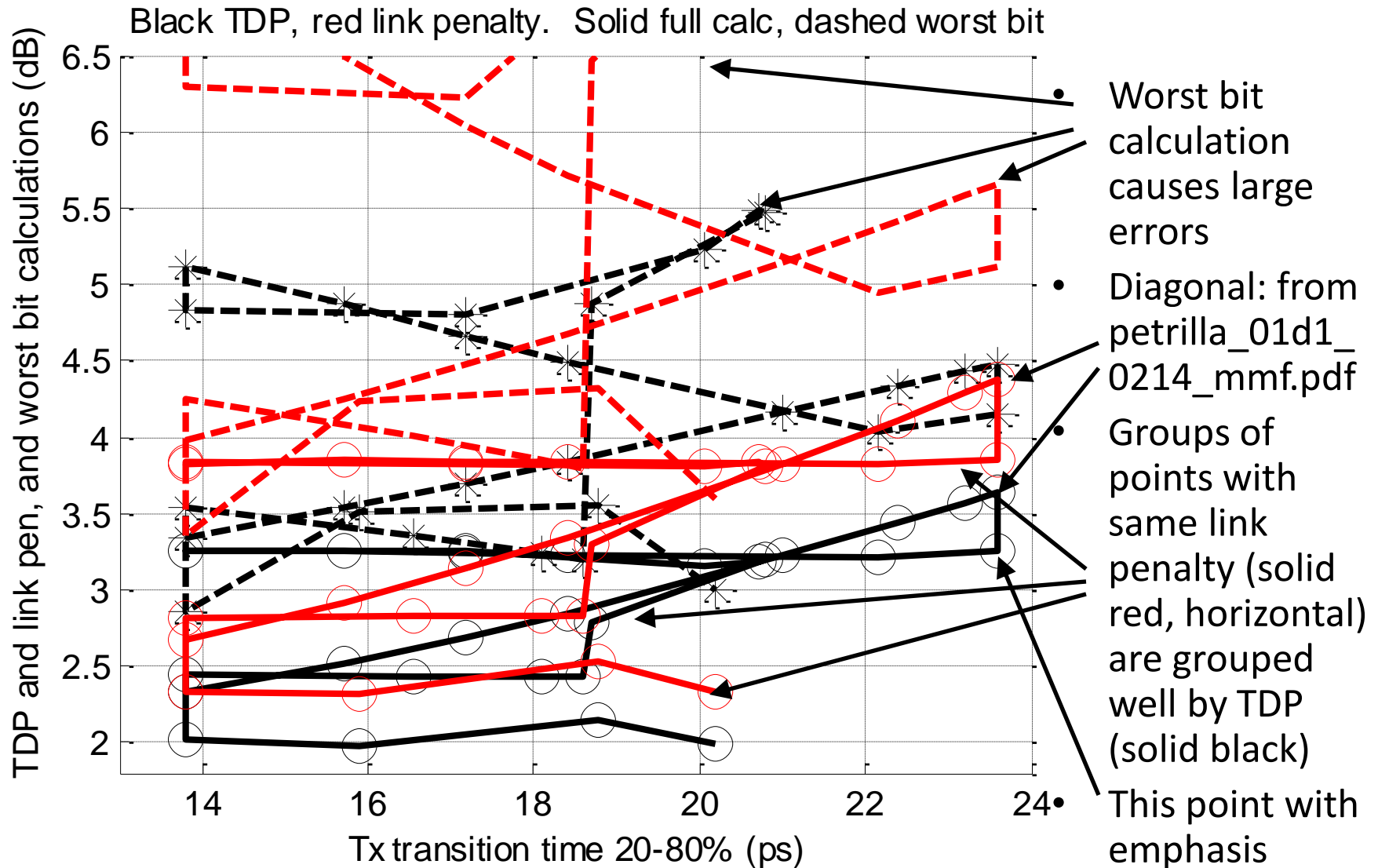
- Compare petrilla\_01d1\_0214\_mmf.pdf slide 4

# Three metrics for predicting link penalty

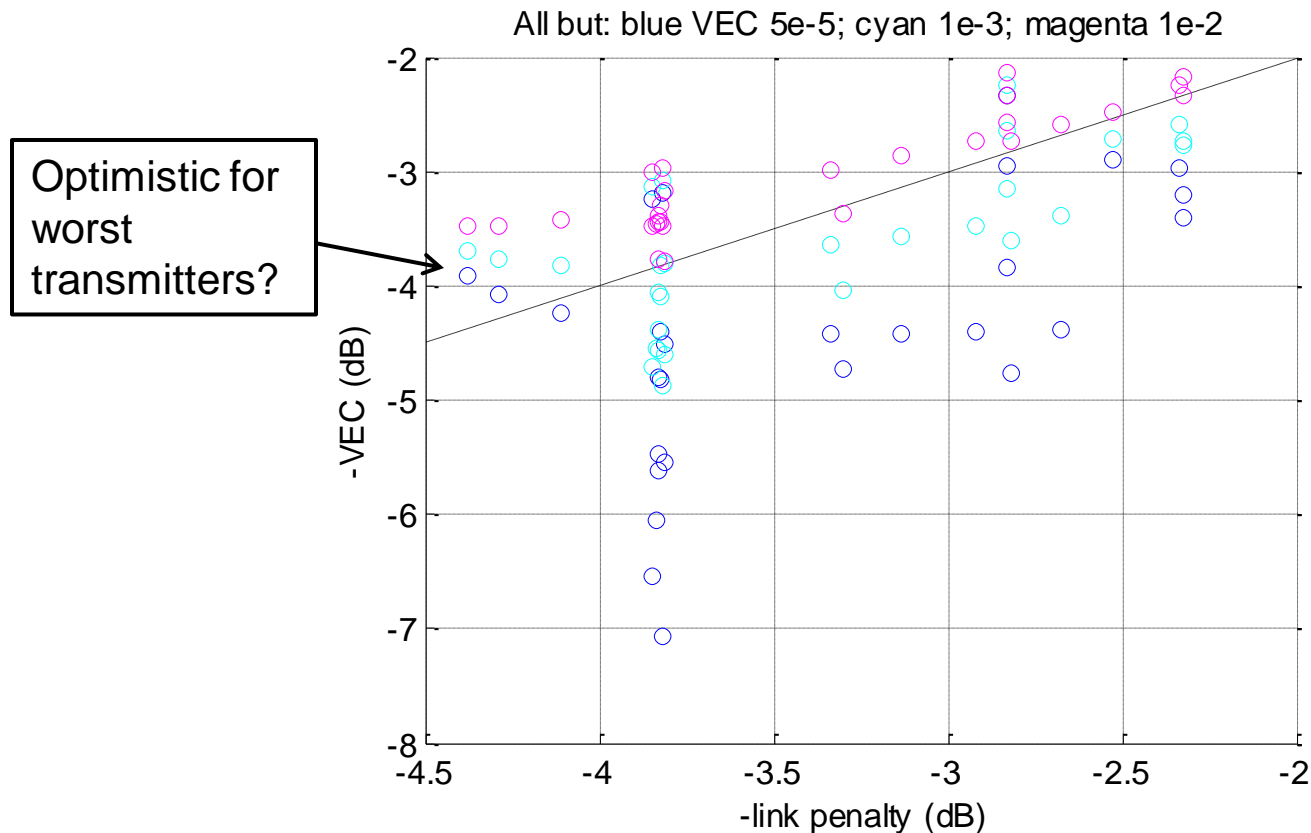


- Including Gaussian and a few laser-like waveforms
- TDP correlates well to link penalty
- Worst bit calculation of TDP not well
- VEC badly

# Link penalty and TDP, more waveforms

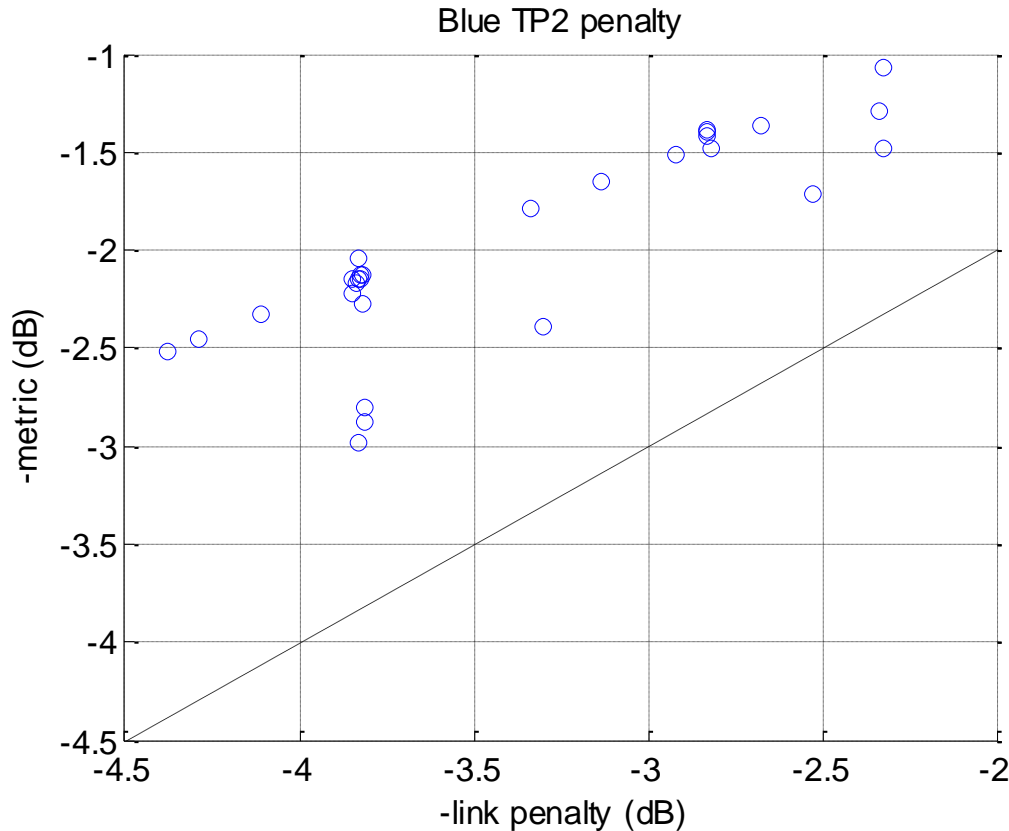


# VEC: trying different "all but" values

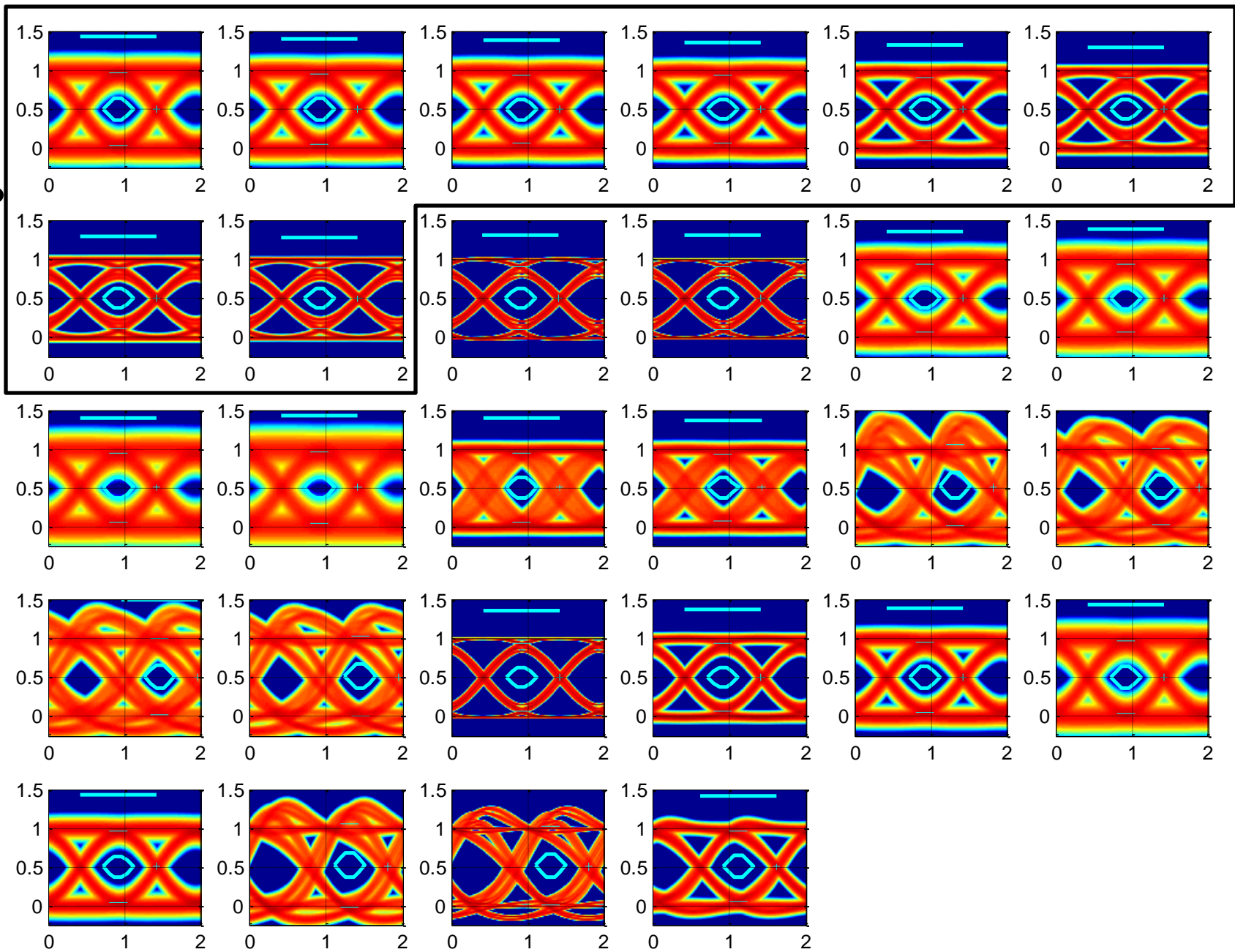


- Better at 1e-2, still much less accurate than TDP

# Is transmitter penalty a viable metric?



- Although it seems to work for Gaussian waveforms, doesn't work so well in general
- Have not yet tried to improve this e.g. by adjusting timing offsets – this is with +/-0.1 UI



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