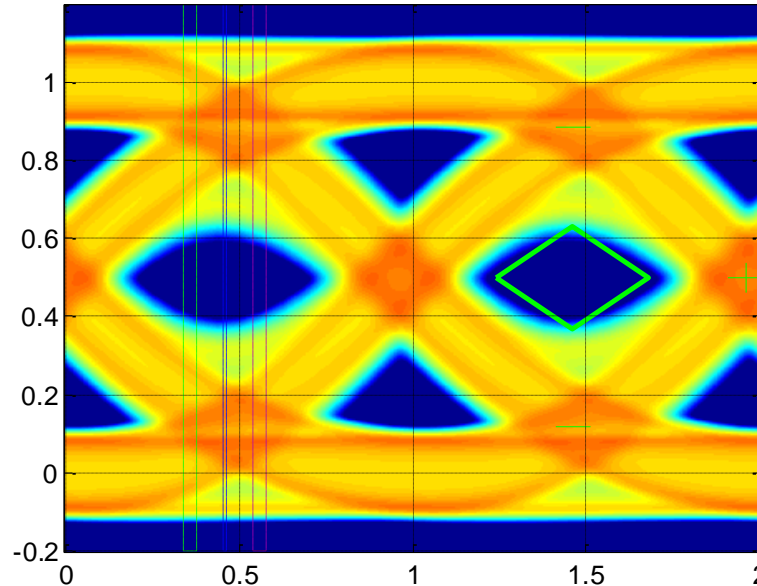


SRS generator update (revised)

Piers Dawe

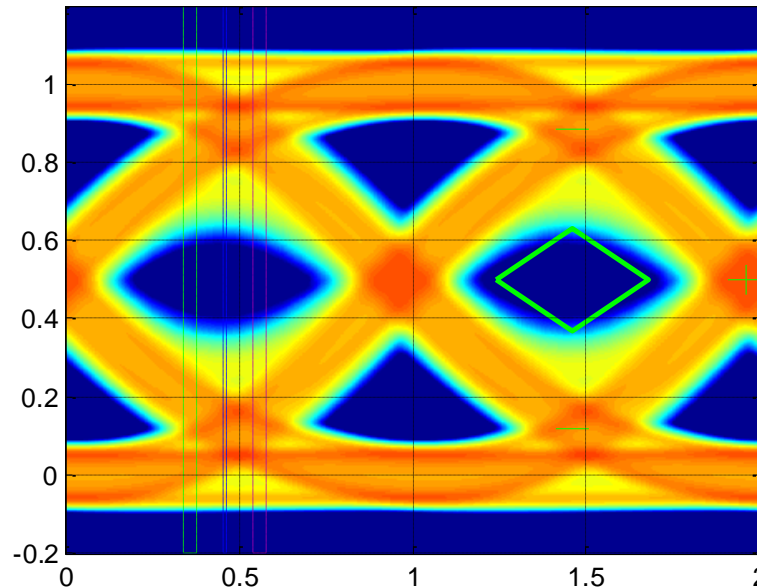
Mellanox Technologies

Simulated D3.2 stressed eye



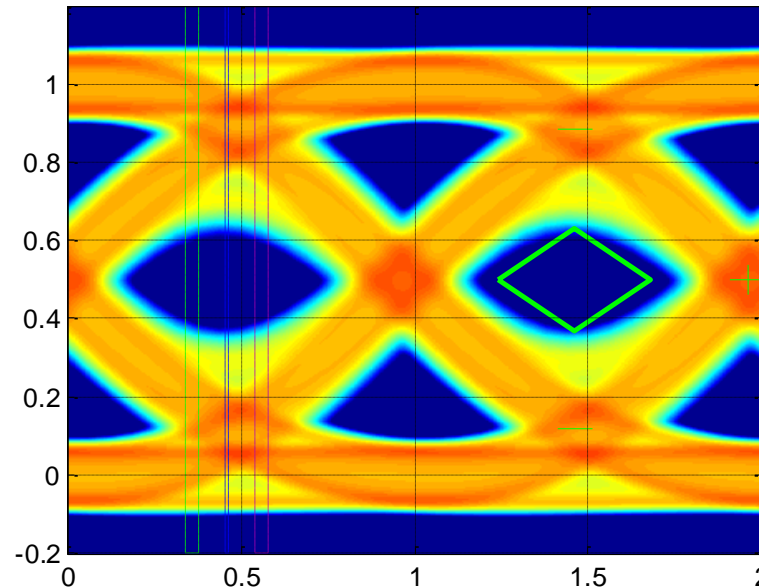
- Trying to meet D3.2 spec with ideal BT4 filters and wideband Gaussian noise (Second low pass filter gives 2.1 dB SEC, the minimum allowed by D3.2)
- SEC = 4.9 dB Target 4.9 dB
- J2 between 0.37 and 0.41 UI Target 0.39 UI
- J4 between 0.53 and 0.59 UI Target 0.53 UI
- J4-J2 = 0.16 to 0.18 UI (target) 0.14 UI
- Too much Gaussian tails. Eye is very shallow compared with mask

Another simulated D3.2 stressed eye



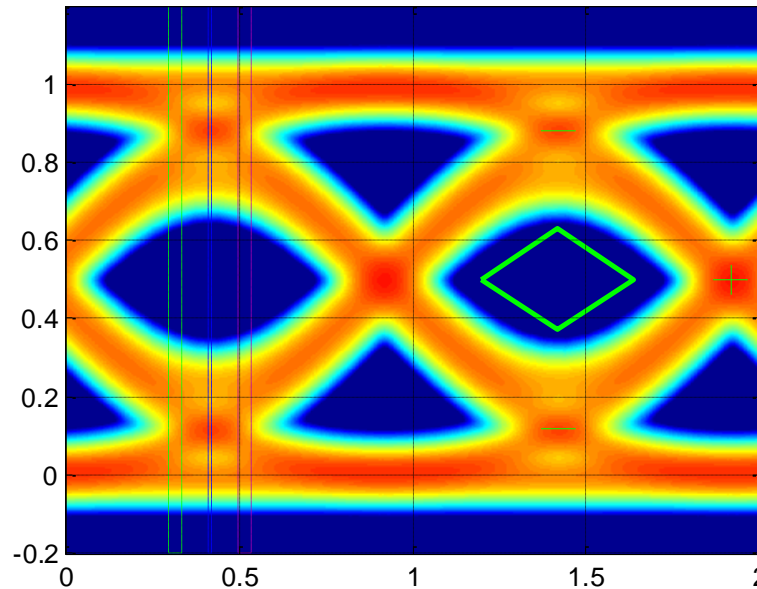
- Trying to meet D3.2 spec with ideal BT4 filters and **low frequency** Gaussian noise
- SEC = 4.9 dB Target 4.9 dB
- J2 between 0.33 and 0.37 UI Target 0.39 UI
- J4 between 0.52 and 0.60 UI Target 0.53 UI
- J4-J2 = 0.19 to 0.23 UI (target) 0.14 UI
- **Even more** Gaussian tails. Eye is very shallow compared with mask

Simulated improved stressed eye



- Target 4.3 dB with ideal BT4 filters and wideband Gaussian noise
- SEC = 4.3 dB Target 4.3 dB
- J2 between 0.33 and 0.36 UI Target 0.39 UI
- J4 between 0.48 and 0.52 UI Target 0.53 UI
- J4-J2 = 0.15 to 0.16 UI (target) 0.14 UI
- Too much Gaussian tails. Eye is still shallow compared with mask

Simulated worst case received signal



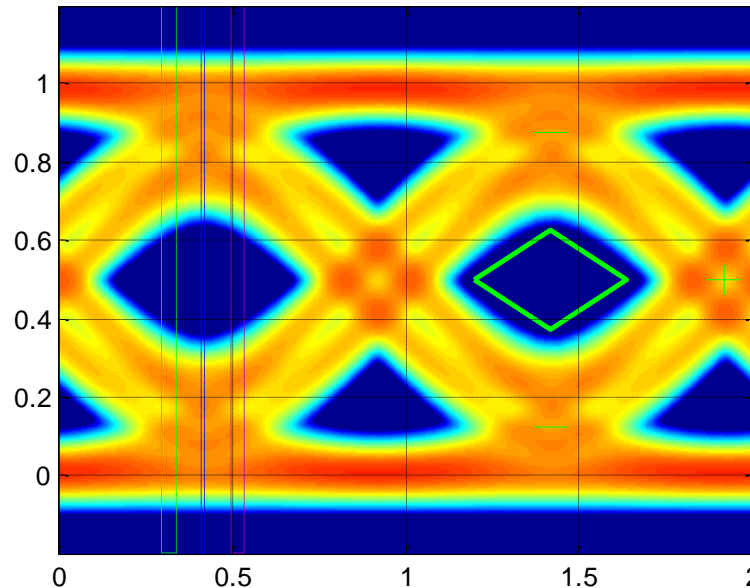
Preliminary

- Parameters partly as link model (0.08 UI of high probability jitter, MPN and MN were missed out)
- SEC = 3.4 dB Target ? dB
- J2 between 0.28 and 0.31 UI Target ? UI
- J4 between 0.40 and 0.44 UI Target ? UI
- J4-J2 = 0.12 to 0.13 UI (target) ? UI
- Eye shape is more like the mask

Additional material

- The next three slides were added in response to questions at the meeting on 2 October 2014

Simulated worst case received signal

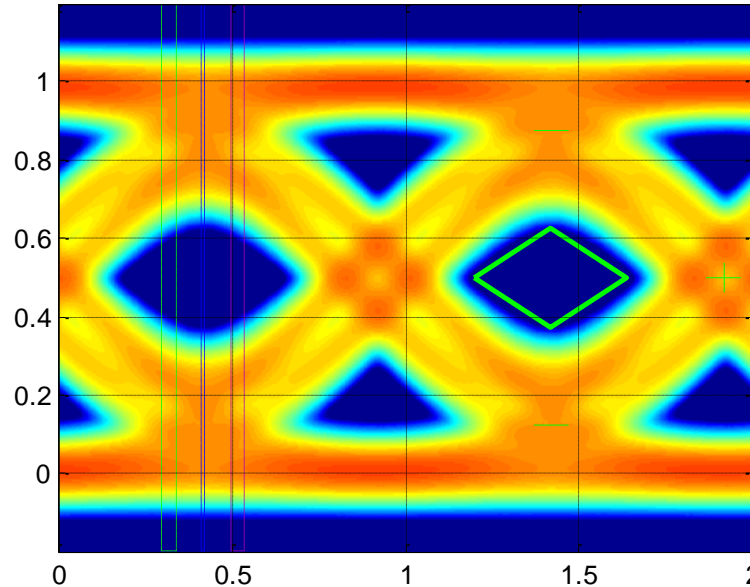


Corrected

*SEC is still
much less
than 4.9 dB*

- Parameters as link model *(missing items added, more aggressive periodic jitter)*
- SEC = 3.9 dB Target ? dB
- J2 between 0.37 and 0.40 UI Target ? UI
- J4 between 0.49 and 0.53 UI Target ? UI
- J4-J2 = 0.12 to 0.13 UI (target) ? UI
- More high probability jitter, less tails, than SRS Eye shape is more like the mask

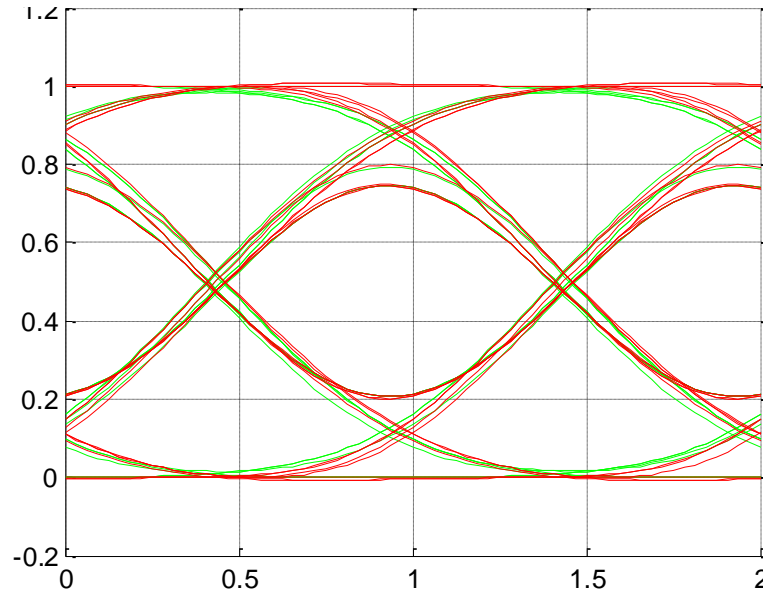
Simulation of \sim TDEC analysis of worst case received signal



SEC "+ M" is still much less than 4.9 dB

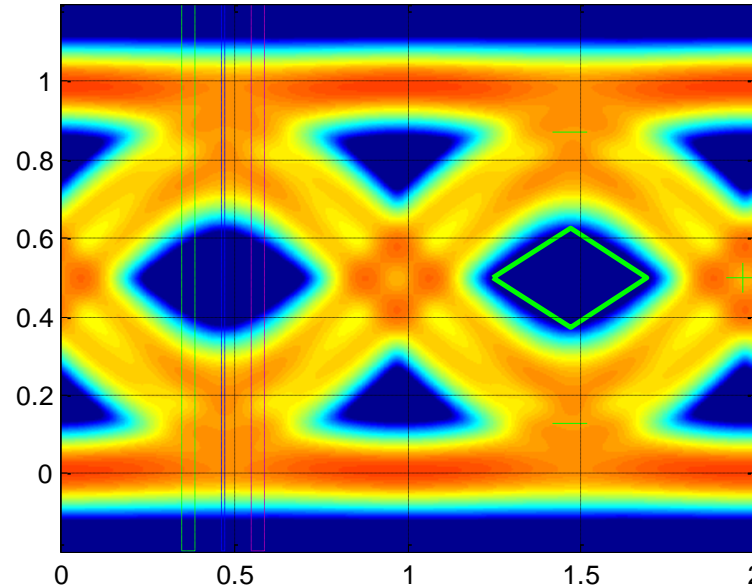
- Deterministic parameters and RIN as link model, estimated MPN and MN as TDEC algorithm (In this case, TDEC estimates more MPN than model)
- SEC "+ M" = 4.3 dB Target ? dB
- J2 between 0.40 and 0.43 UI Target ? UI
- J4 between 0.53 and 0.59 UI Target ? UI
- J4-J2 = 0.13 to 0.16 UI (target) ? UI
- More high probability jitter than SRS Eye shape is more like the mask

Checking the SRS filter



- Green: Gaussian laser and fibre models, Bessel-Thomson observation filter
- Red: Bessel-Thomson SRS filter, Bessel-Thomson observation filter
- Very good agreement

Simulation of TDEC analysis of worst case transmitted signal



*TDEC is still
much less
than 4.9 dB*

- Tx parameters as link model, 12.6 GHz filter and estimated MPN and MN as TDEC algorithm (In this case, TDEC estimates more MPN than model)
- TDEC = 4.4 dB Target ? dB
- J2 between 0.40 and 0.44 UI Target ? UI
- J4 between 0.54 and 0.59 UI Target ? UI
- J4-J2 = 0.14 to 0.15 UI (target) ? UI
- More high probability jitter than SRS Eye shape is more like the mask