DFE EYE
and
SAS-2 Channel Data

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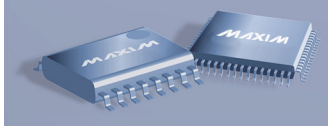
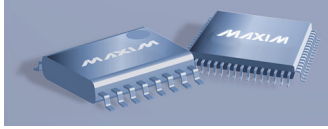
T10/07-448r0

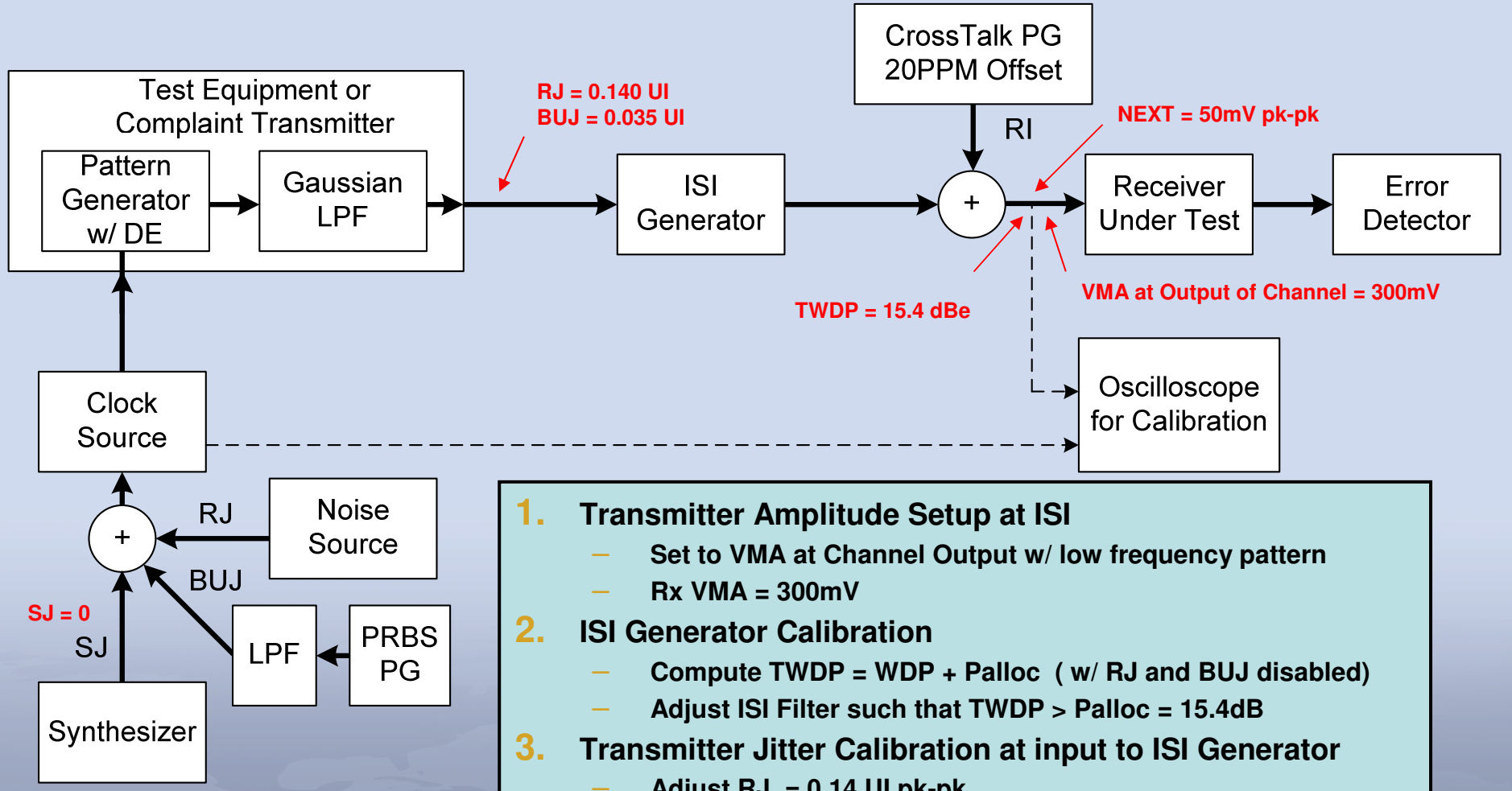


Goals

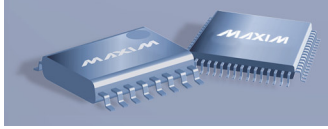
- Collect Data to support validation of DFEEYE results
- Setup and Calibrate the Comprehensive Stressed Receiver Sensitivity Test.
- Data files
  - Near End: rx_vma_sascjtt10-vma1000-2db-ne-16samle_16avg.dat
  - Far End: rx_vma_sascjtt10-vma1000-2db-fe-16samle_16avg.dat
- Format
  - 16 samples / UI
  - Differential (Vp-Vn)
  - 6 Gbps



Receiver Comprehensive Sensitivity Test Set Up

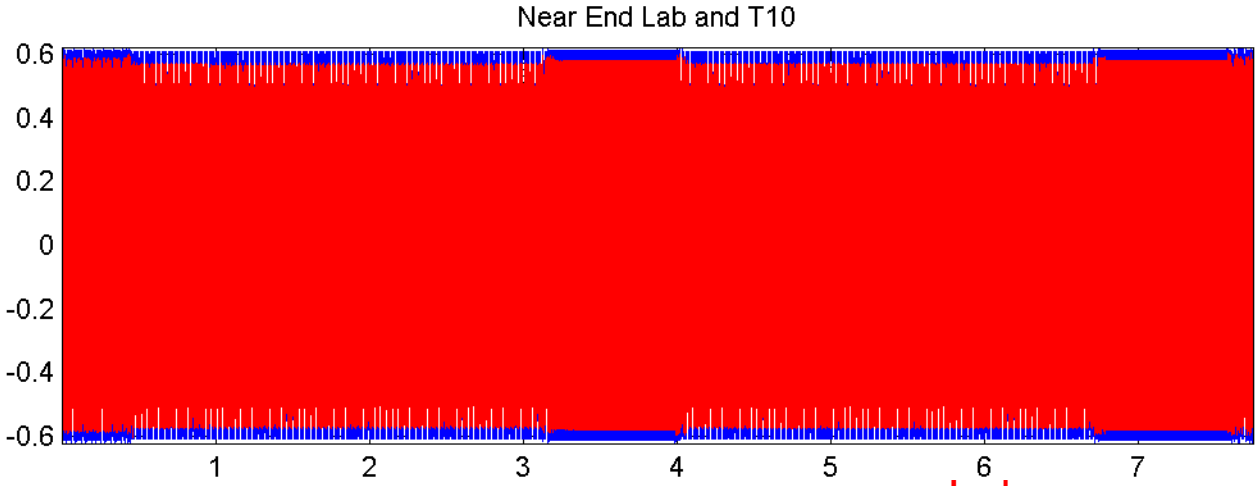


1. **Transmitter Amplitude Setup at ISI**
   - Set to VMA at Channel Output w/ low frequency pattern
   - Rx VMA = 300mV
2. **ISI Generator Calibration**
   - Compute TWDP = WDP + Palloc (w/ RJ and BUJ disabled)
   - Adjust ISI Filter such that TWDP > Palloc = 15.4dB
3. **Transmitter Jitter Calibration at input to ISI Generator**
   - Adjust RJ = 0.14 UI pk-pk
   - Adjust BUJ = 0.035 UI pk-pk
4. **Crosstalk**
   - Use Bounded Crosstalk Source and Adjust Amplitude to 50mV
5. **Test – Confirm BER < 1e-12**



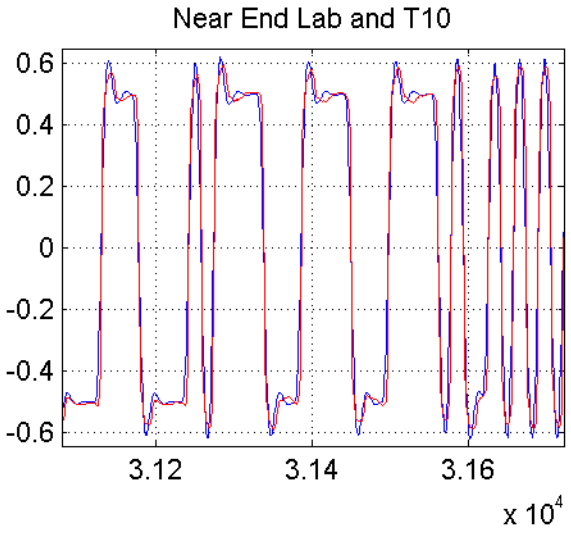
Near-End Measurement Comparison to Simulation

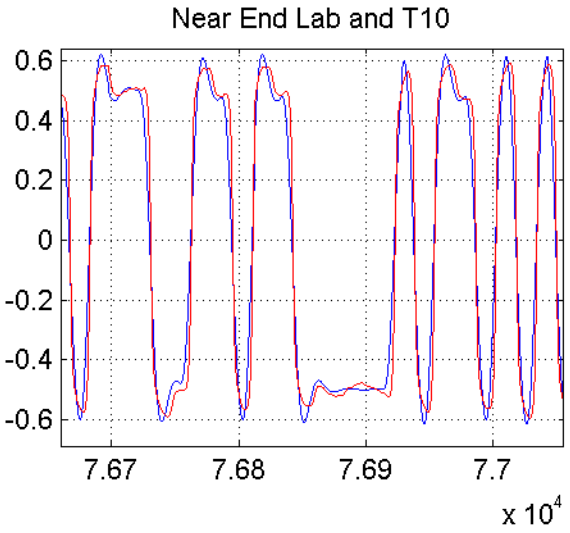
PG 1000mV VMA, ~2 dB De-Emphasis



Tx=real(ifft(fft(y0).*fftshift(Hr))) ;

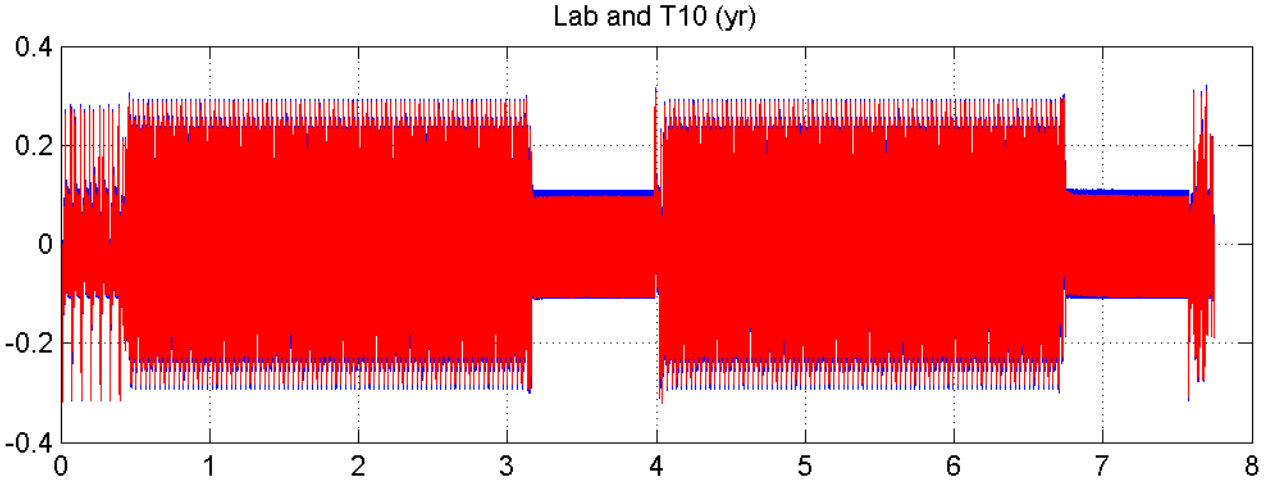
Lab





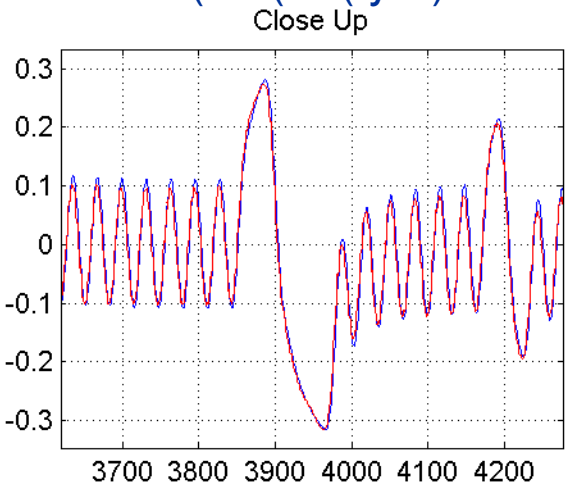
Far-End Measurement Comparison to Simulation

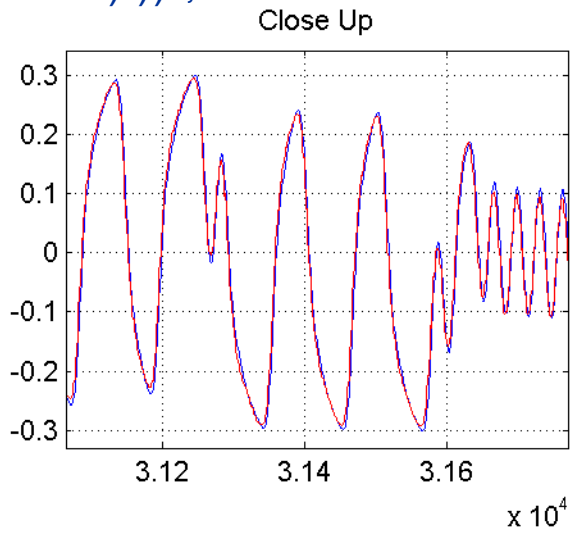
Lab Measurement Amplitude is within 2.5% the Amplitude of the Simulations.



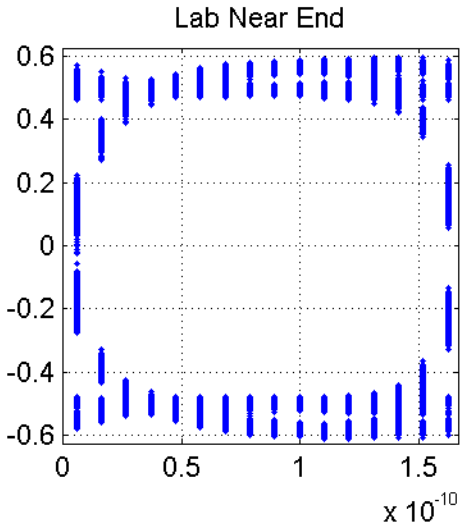
Yr=real(ifft(fft(y0).*fftshift(Hc.*Hr))) ;

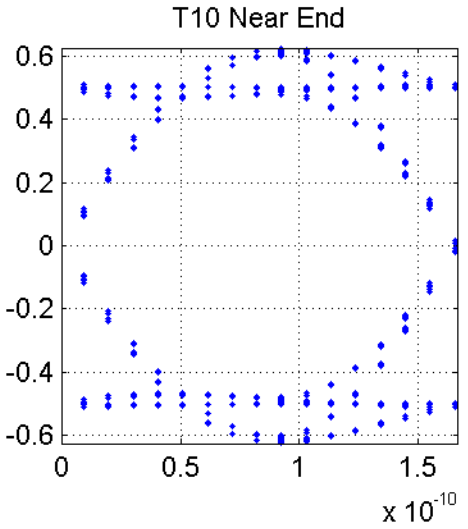
Lab

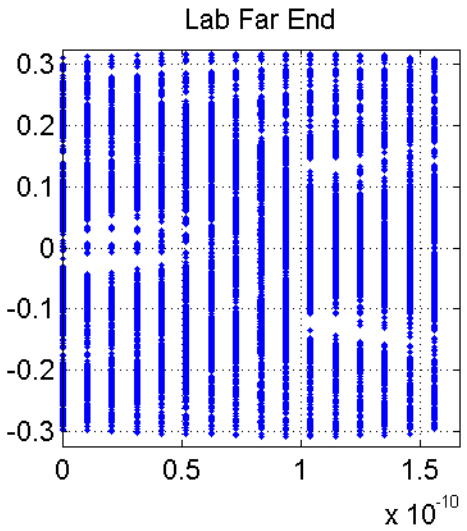


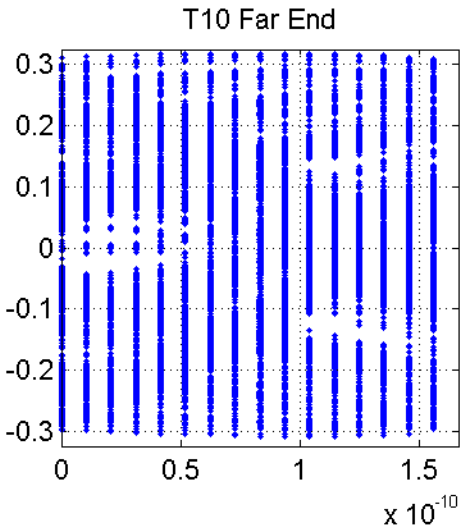


Measurement Comparison to Simulation





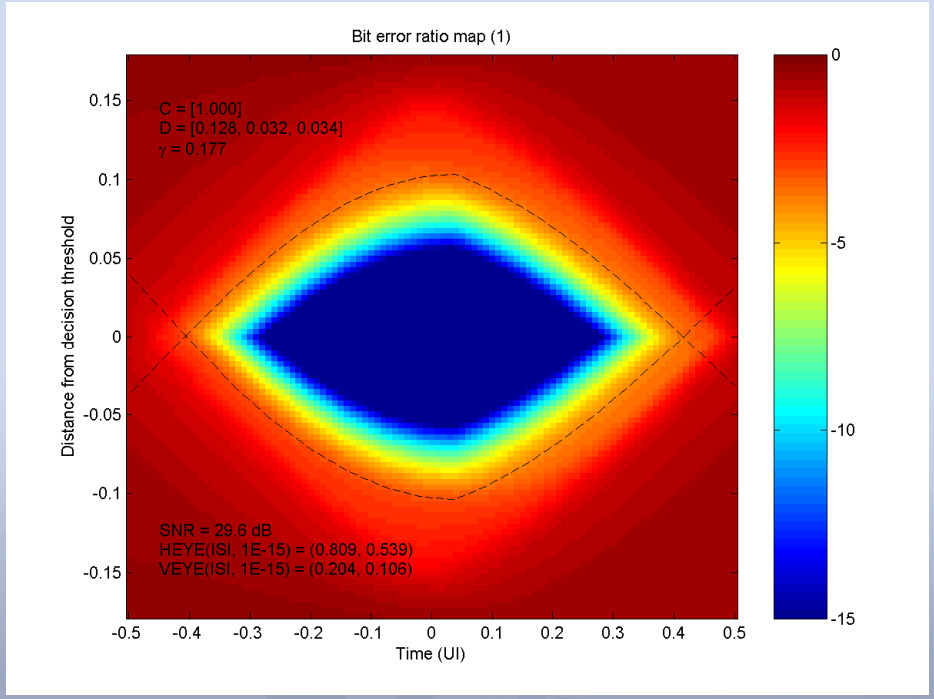




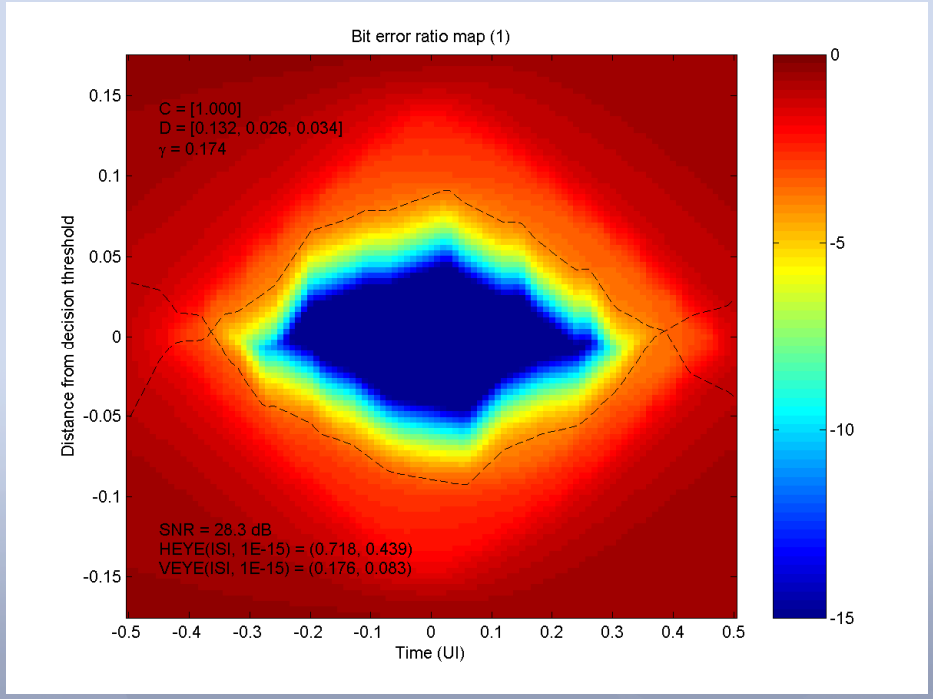
Measurement Comparison to Simulation

- **Results Processing Yr w/ Measured Far-end data**
  - **Not Sure if all assumption hold.**

DFE EYE Baseline Results



DFE EYE processing Lab Far End



Summary

- **Data Collected for DFEEYE evolution & Application to SAS-2**

- **Thoughts / Discussion Points:**

1. **Could we use DFEEYE to calibrate the ISI generator**
   - **Collect Far-end Output Data (w/o jitter)**
   - **Ensure Equalized Eye Closure is <= Expected Closure or SNR.**

2. **Could we use DFEEYE for Tx Compliance?**
   - **Collect Near-end Tx data (w/o jitter)**
   - **Ensure Equalized Eye Closure is > Expected Closure De-rated for Transmitter Waveform Degradation.**