SAS-2 Channel StatEye Results

07–253r1
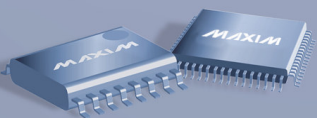
Kevin Witt

6-19-07
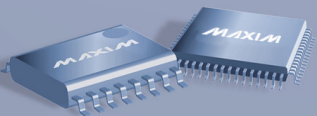
SAS-2 Channel StatEye Results

- **Look at Reference Tx, Rx and Channels**

- **StatEye Setup**
  - **6Gbps**
  - **2dB De-Emphasis (0.9-0.10), Non-Optimized**
  - **R/C Filters for Package Tx/Rx Model (r=45, c=800fF)**
  - **#<0,1,2,3,4,5> DFE Taps, CDR Disabled**
  - **Jitter: DJ = 0.18UI, RJ = .18/(2*7.94) UI (these seem high)**
- **Target Equalized Eye**
  - **150mV Vertical**
  - **0.3UI Horizontal (this is ½ of OIF-CEI-6G-LR's, Why?)**
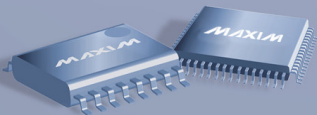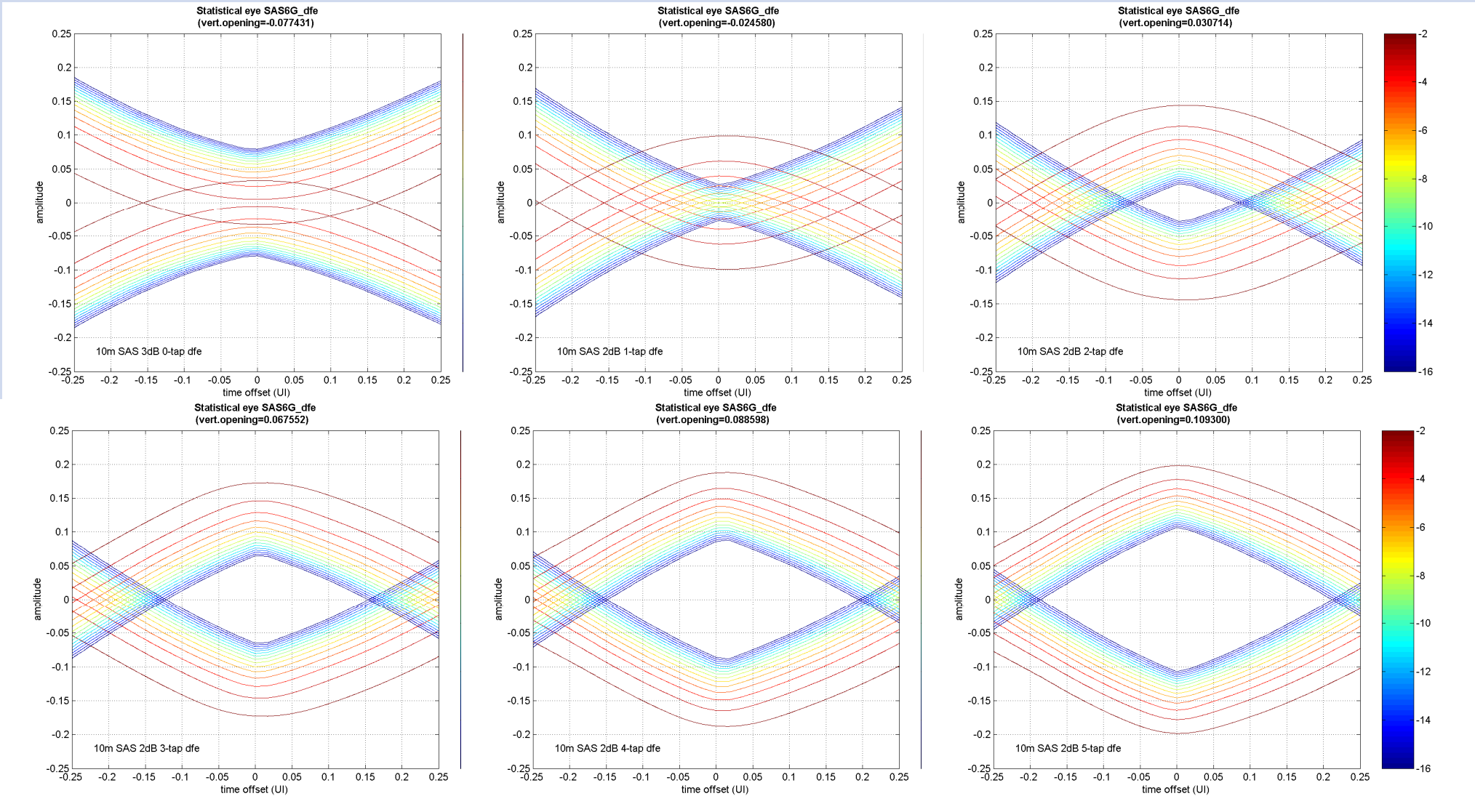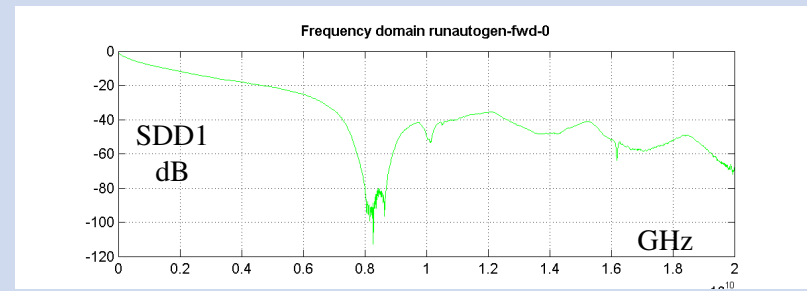
SAS-2 Channel StatEye Results

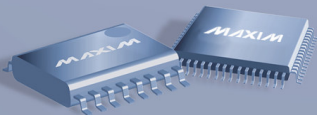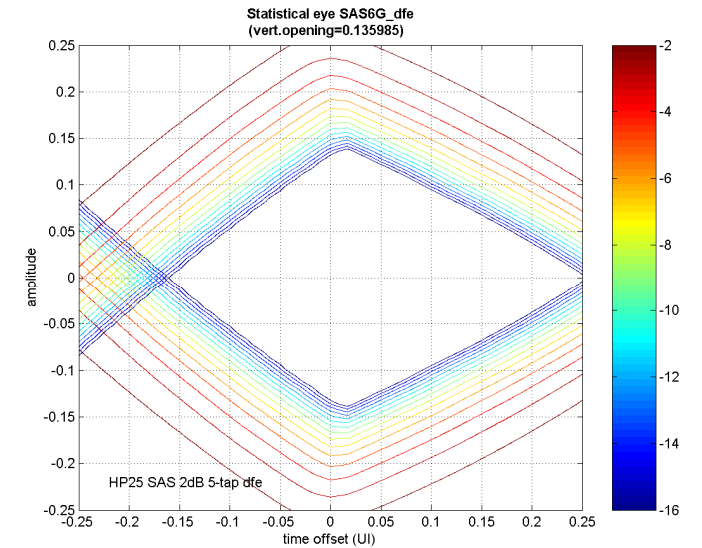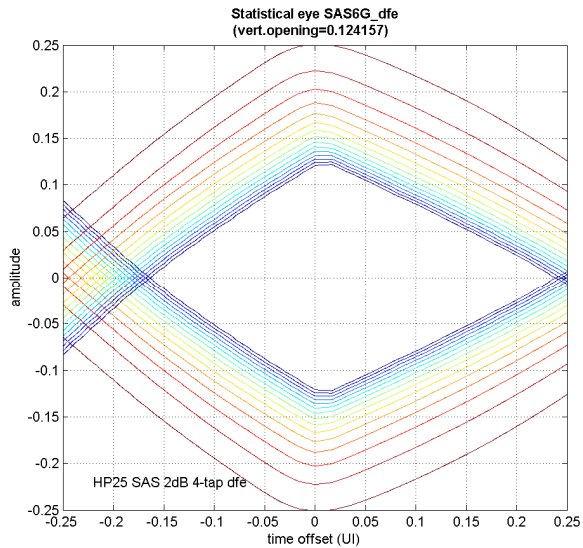- **Baseline, 5-Tap DFE, 10m MiniSAS**
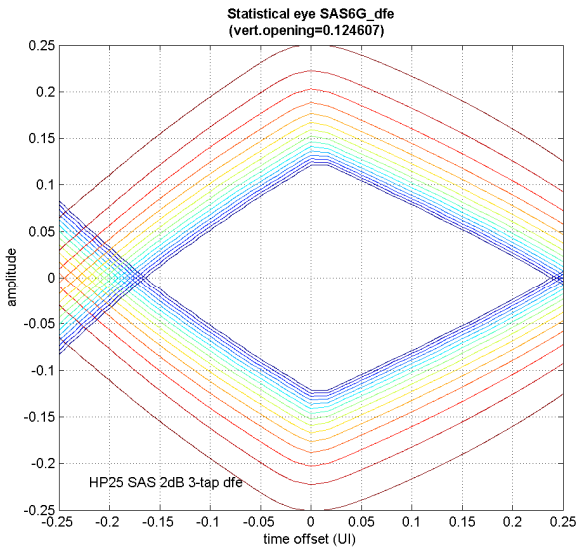 - **Repeat of Harvey's Result**

Statistical eye SAS6G_dfe
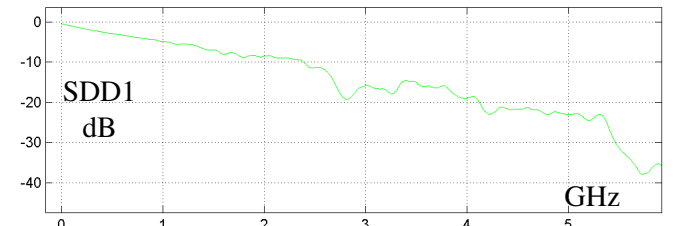(vert.opening=0.101900)

10m SAS 0dB 5-tap dfe
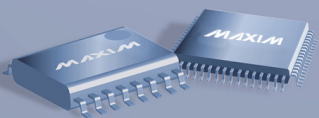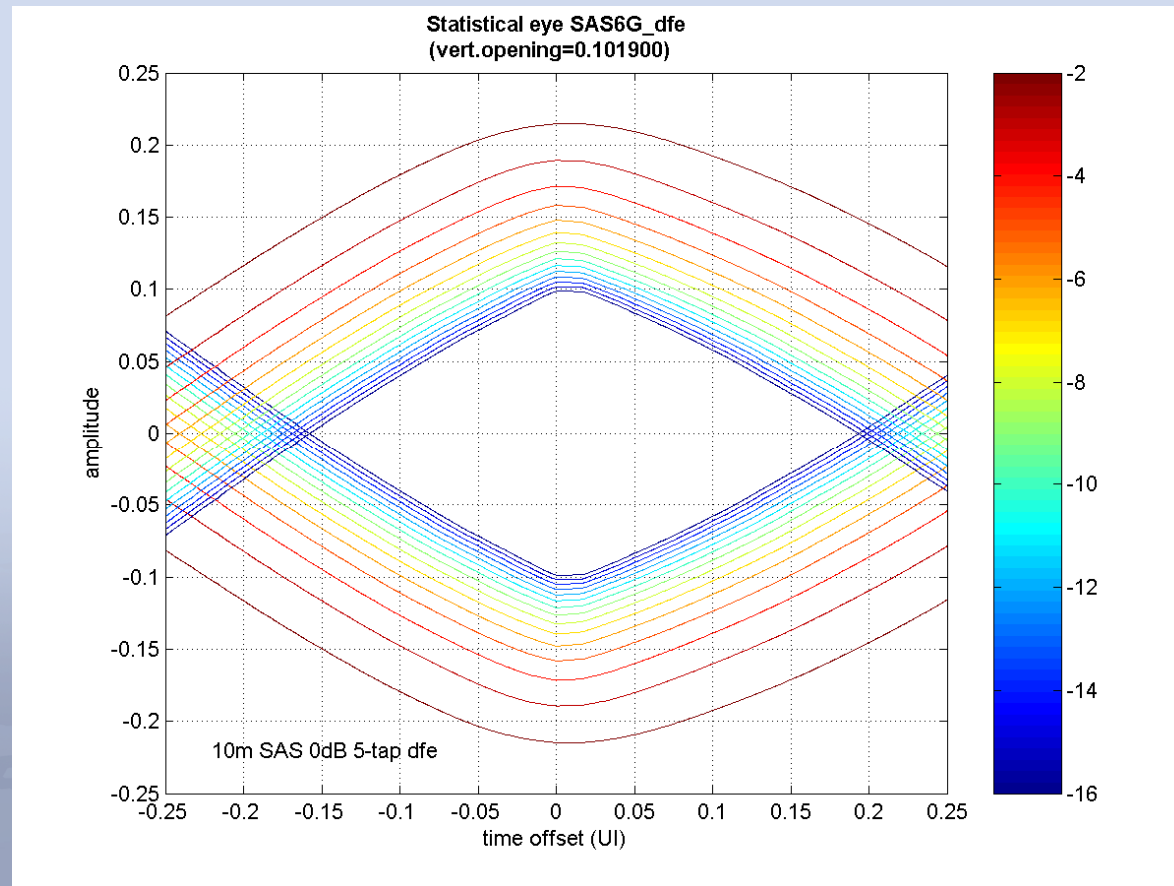
10m MiniSAS

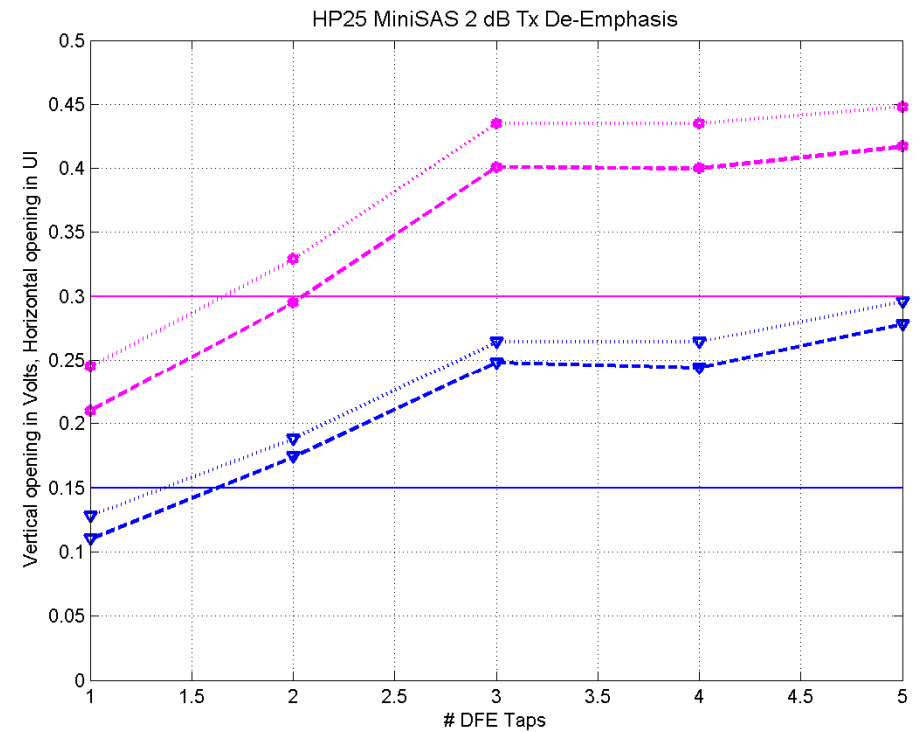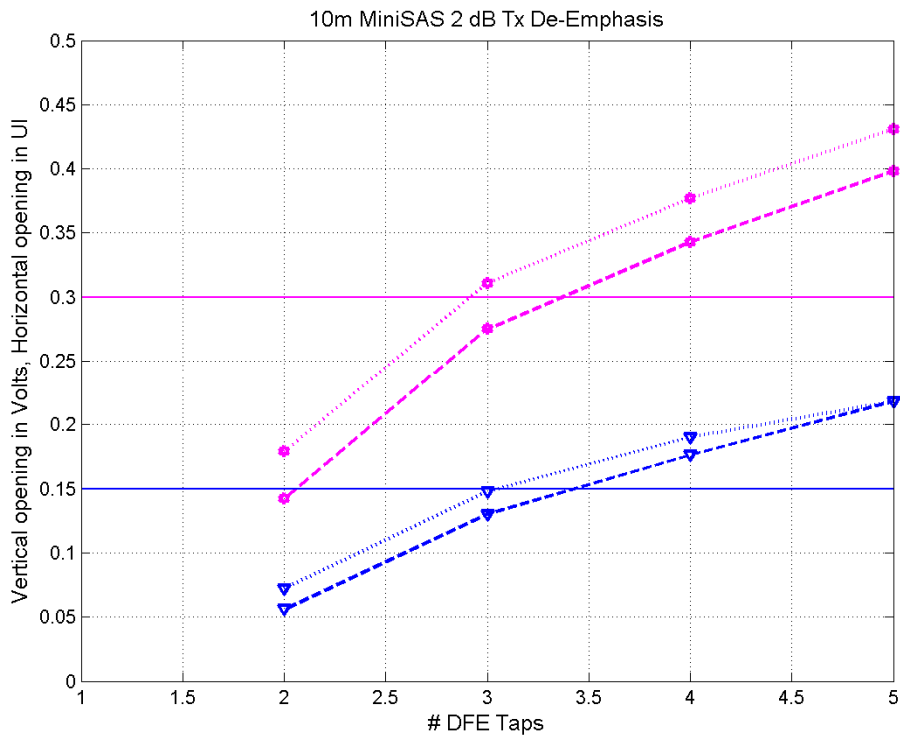- **1 MHz step size S-Parameter file**
- **2dB De-Emphasis**

HP25

- **10 MHz step size S-Parameter file**
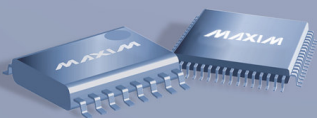- **2dB De-Emphasis**
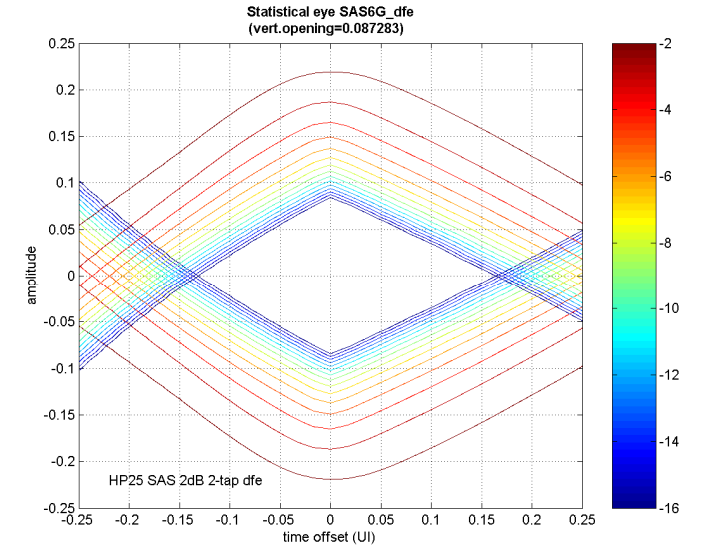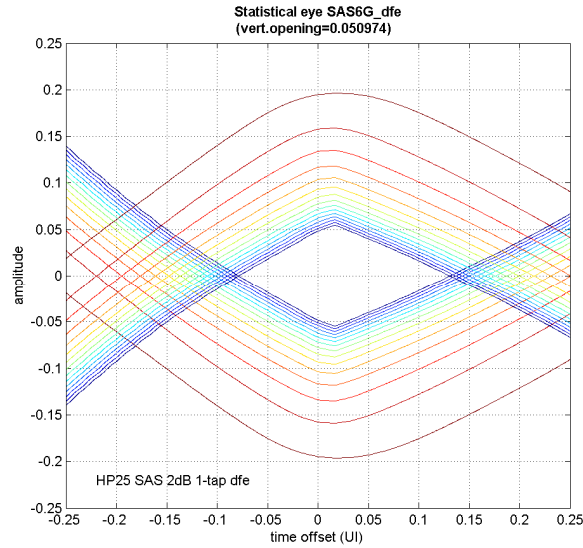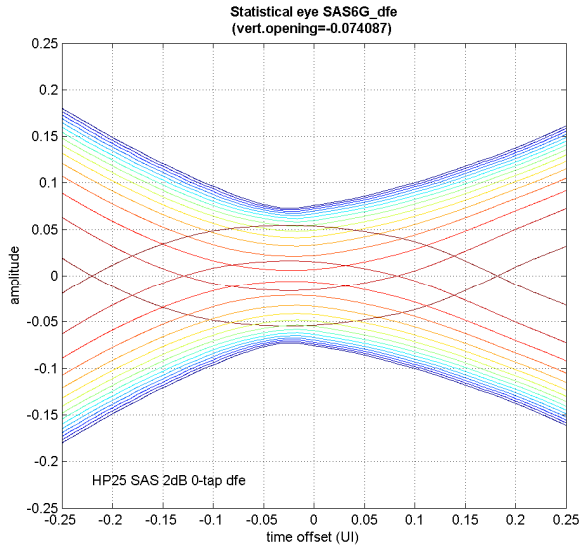
Eye Opening vs # taps DFE

- **Increasing # DFE taps increases Vertical and Horizontal Eye Opening**
- **3 DFE taps looks Marginal for 10m MiniSAS and Near Optimal for HP25**

On the edge, what we want!

Point of diminishing Returns

Summary

- **Vertical and Horizontal Eye opening increase linearly with increasing the number of DFE taps.**

- **Need to determine proper scaling for 800mV launch and jitter number.**

- **The reference Tx/channel/Rx with 3 taps DFE is on the edge of the equalized eye opening limit (just were we want it).**

- **3 taps DFE Continues to look like the correct # taps for the reference receiver.**
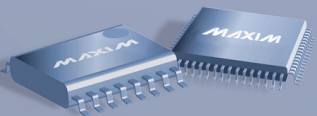
½ m MiniSAS

- **10 MHz step size S-Parameter file**
- **0dB De-Emphasis**
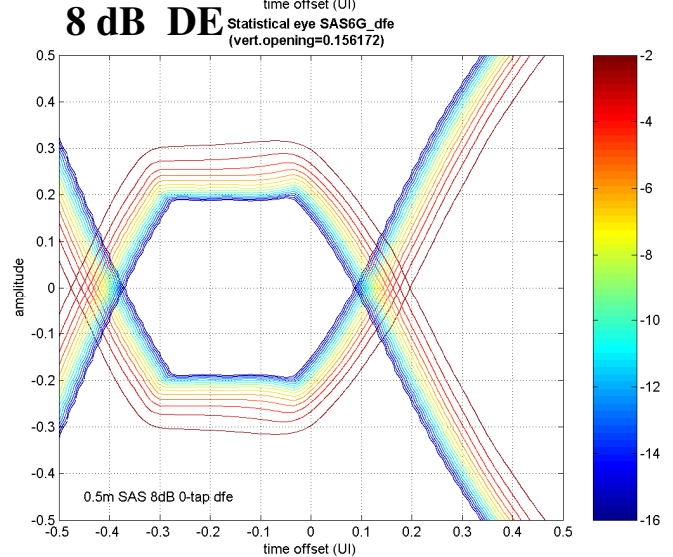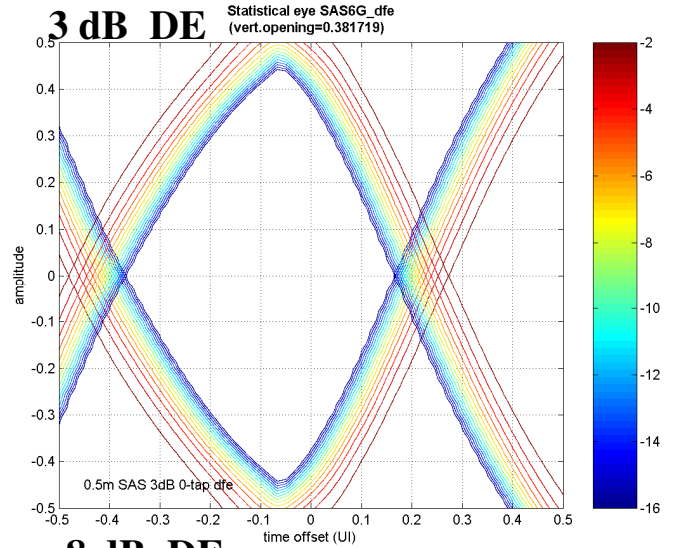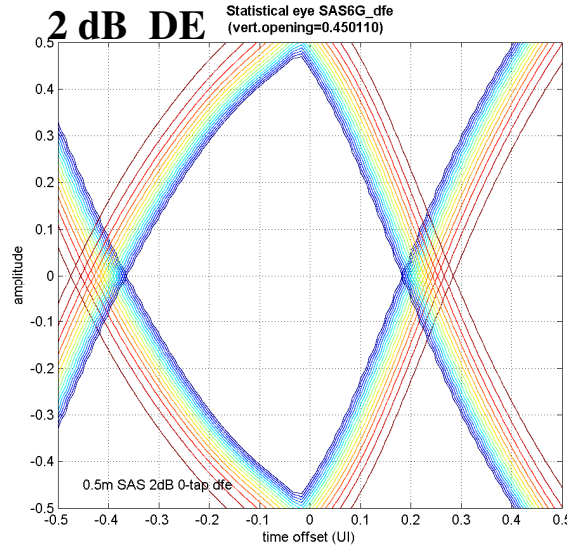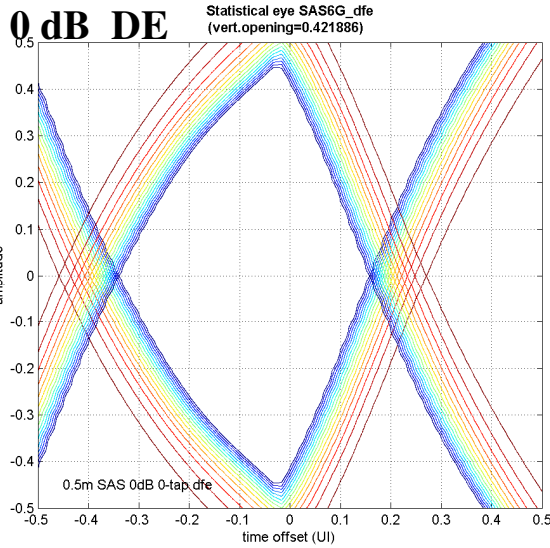
**I'm not sure how to back out
the Tx launch with a short channel.**