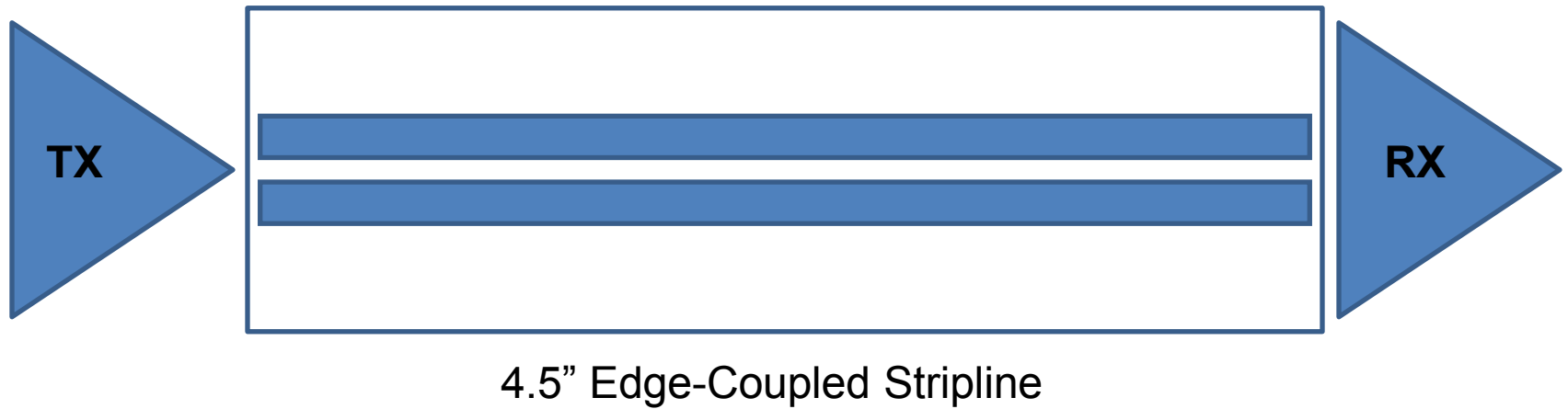


VSR Compliance Board Specification Range

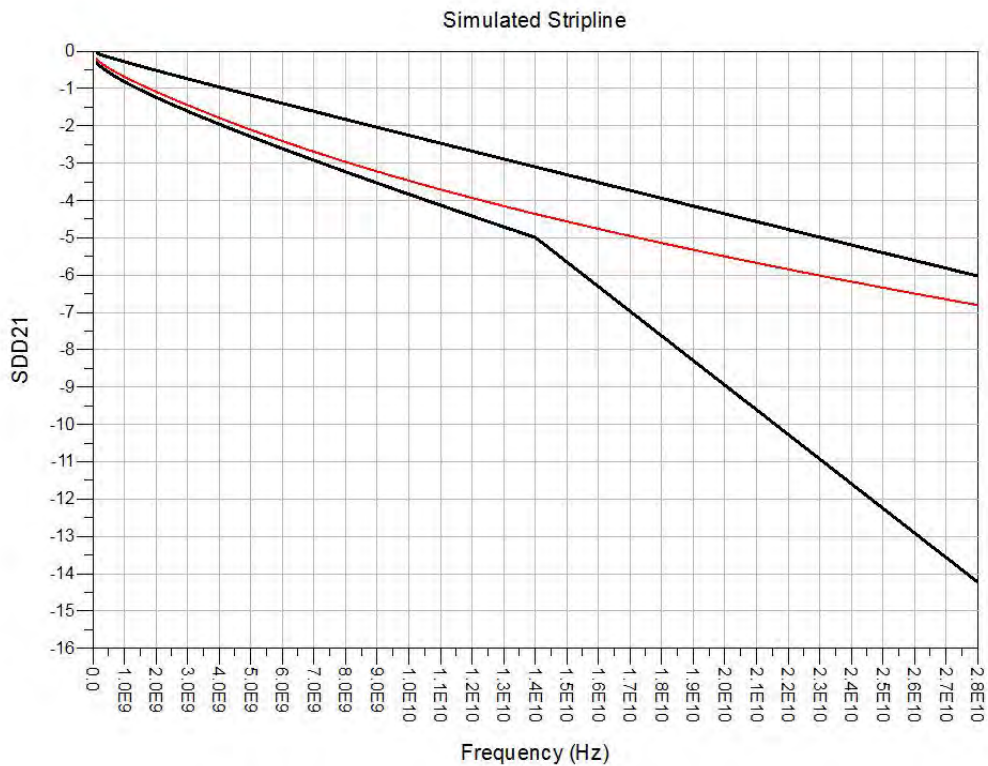
Mike Dudek Qlogic
Barrett Bartell Qlogic

Presented to IEEE 802 November Plenary Session

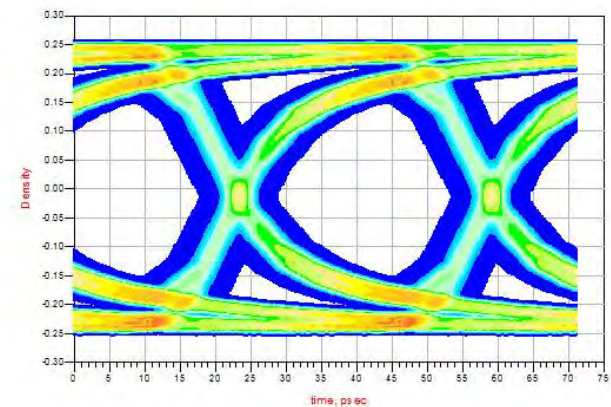
- **Determine the appropriate frequency range of the VSR compliance board specifications.**
- **Is there a channel impairment that occurs only in the frequencies above 21GHz that affects performance?**
- **An open circuited stub is placed on the transmission line to create a notch at 22.5GHz. Its performance is compared to a transmission line only channel.**
- **Simulations use a good low jitter transmitter and a CTLE as specified in OIF-VSR. The optimum CTLE setting was 1dB in all simulations.**
- **This presentation is in support of comment #319 against 802.3bj draft 1.2**



Baseline Channel Performance



EH = 231mV EW = 28ps



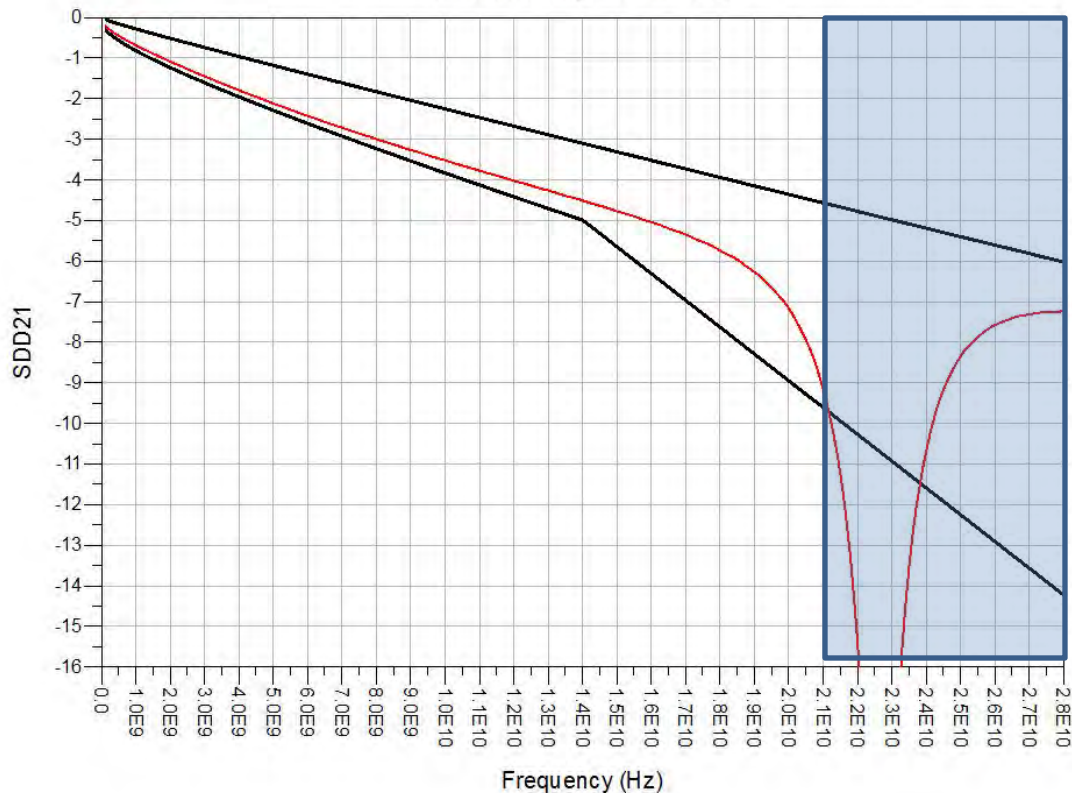
Channel with Frequency Notch at 22.5 GHz



4.5" Edge-Coupled Stripline
with open-circuited stubs.

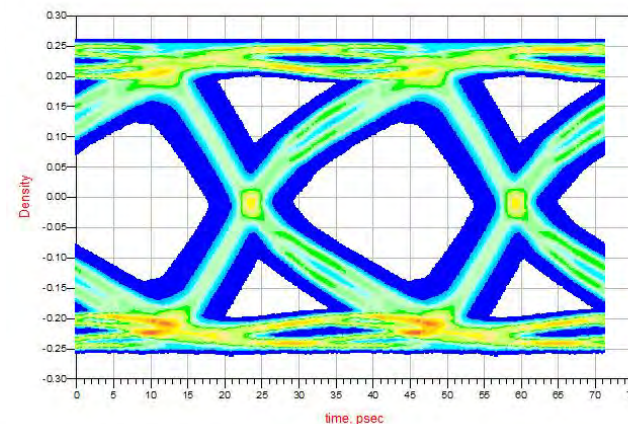
22.5 GHz Notch Performance

Simulated Stripline with Stub



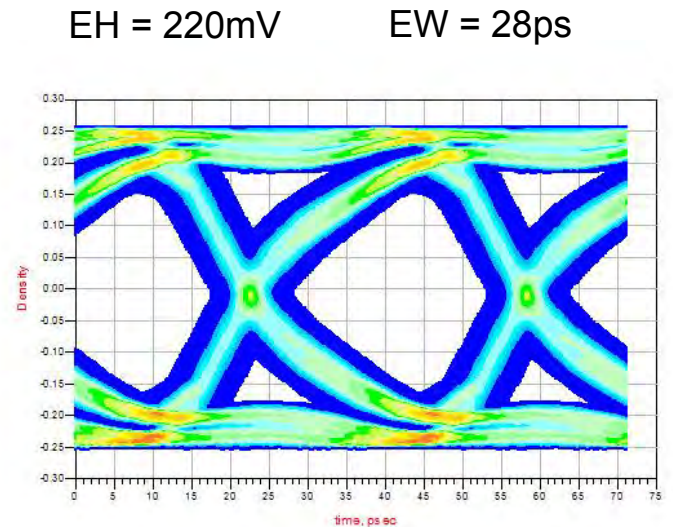
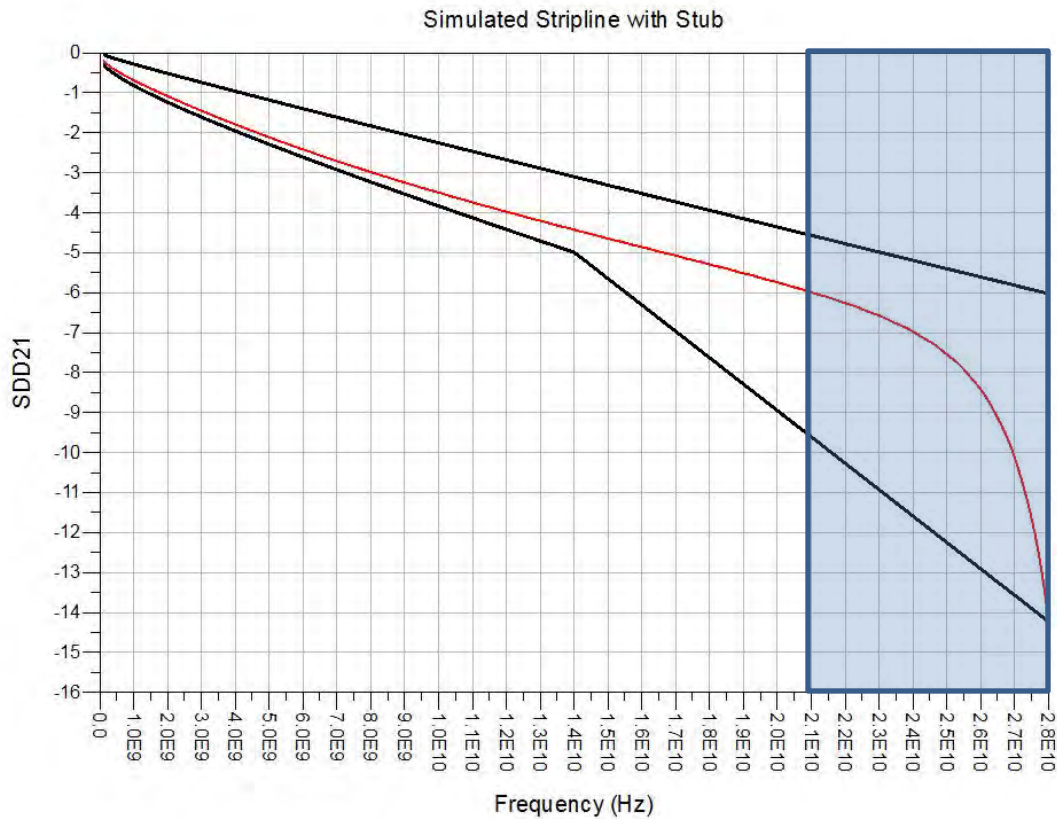
EH = 208mV

EW = 28ps

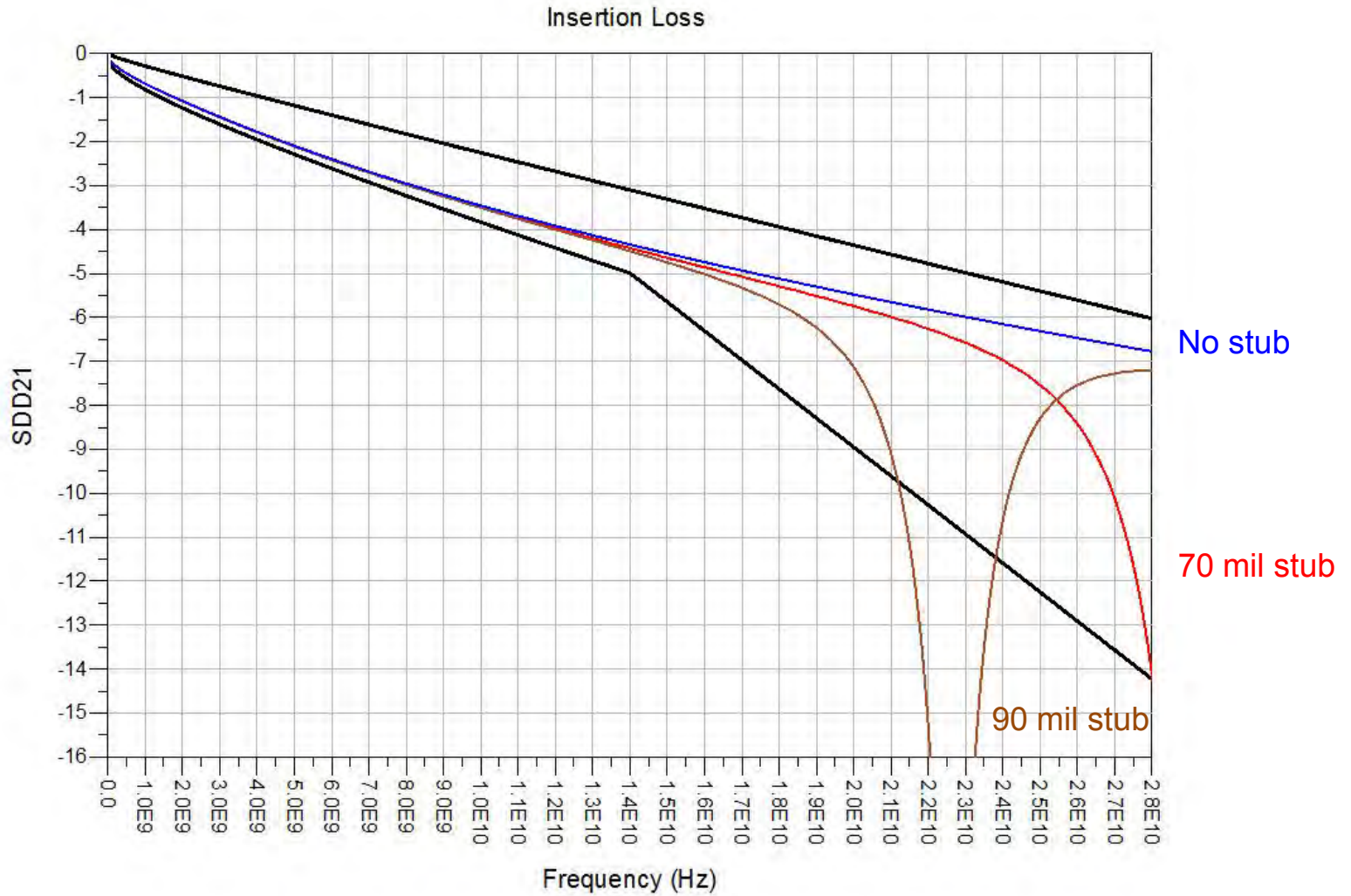


Insertion Loss passes the spec at 21GHz, but causes eye height to deteriorate by 10%.

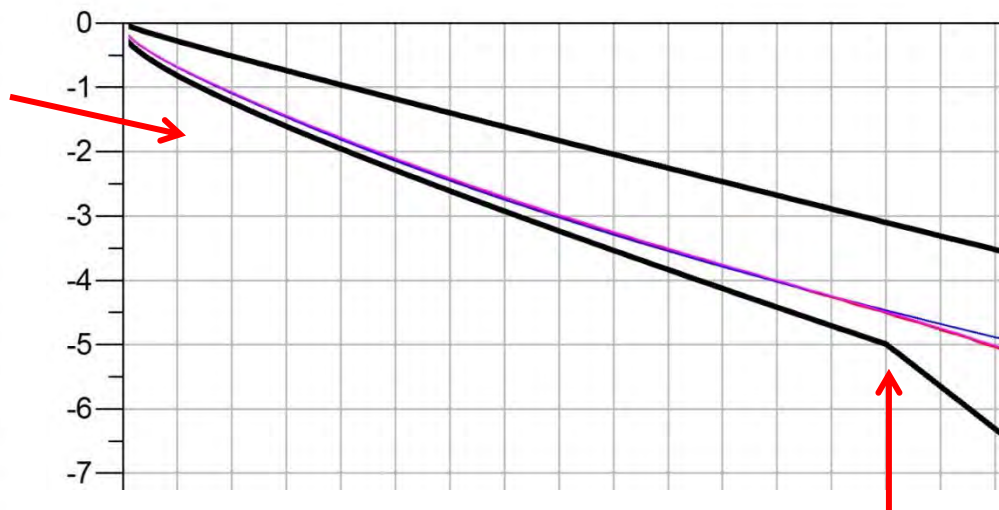
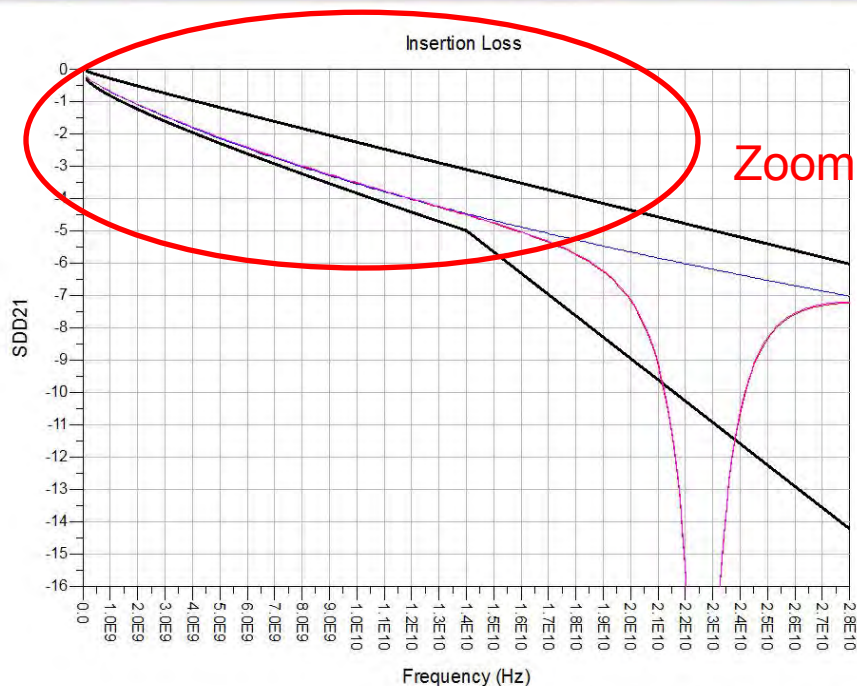
28 GHz Notch Performance



Insertion Loss Comparison



No-Stub Df adjusted* to match loss of 22 GHz stub at 14GHz

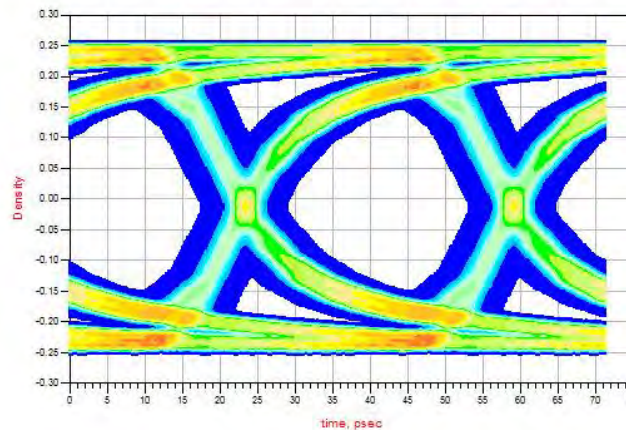


EH = 224 mV

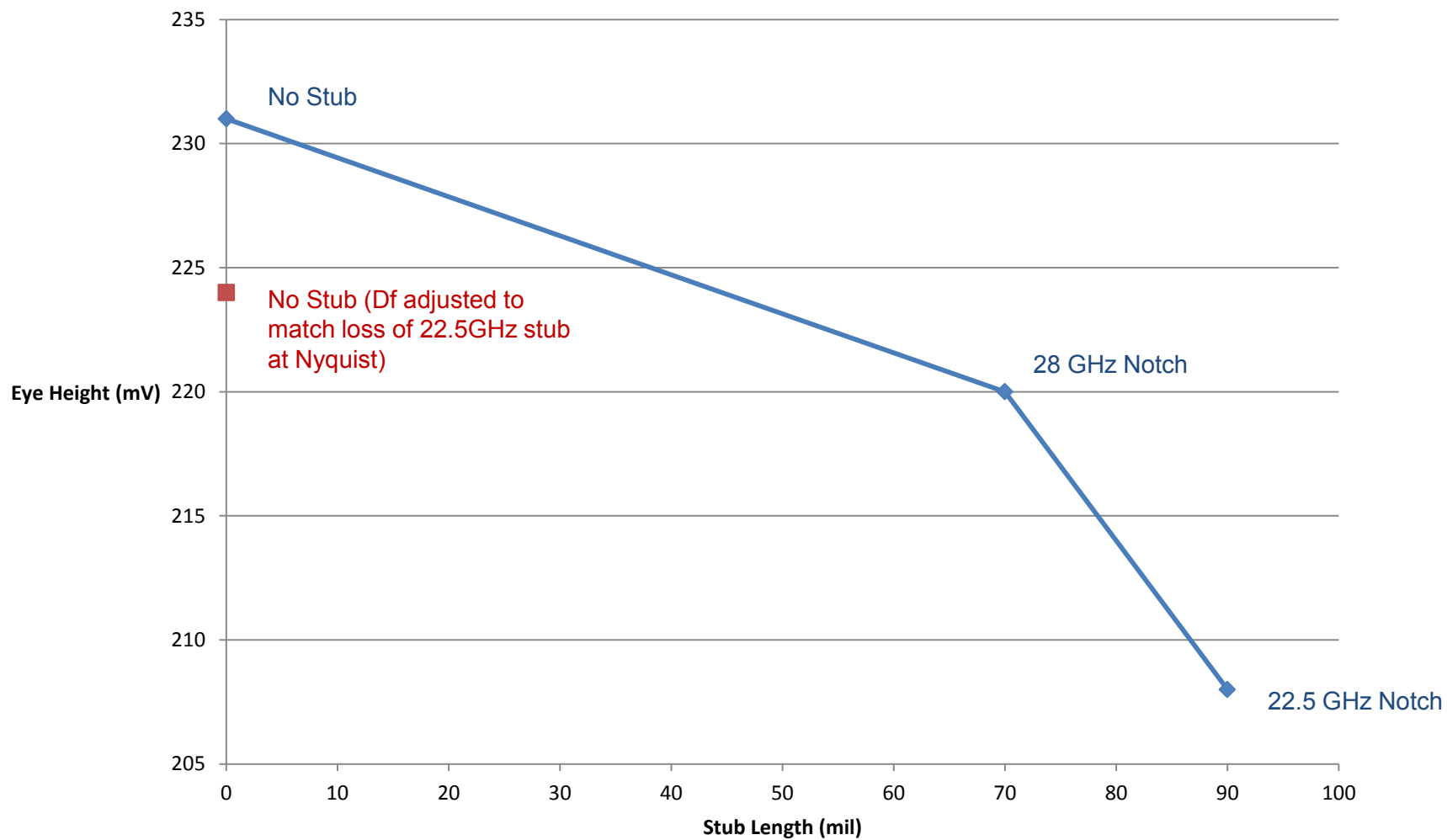
EW = 28ps

14 GHz

*Df changed from 0.002 to 0.0025

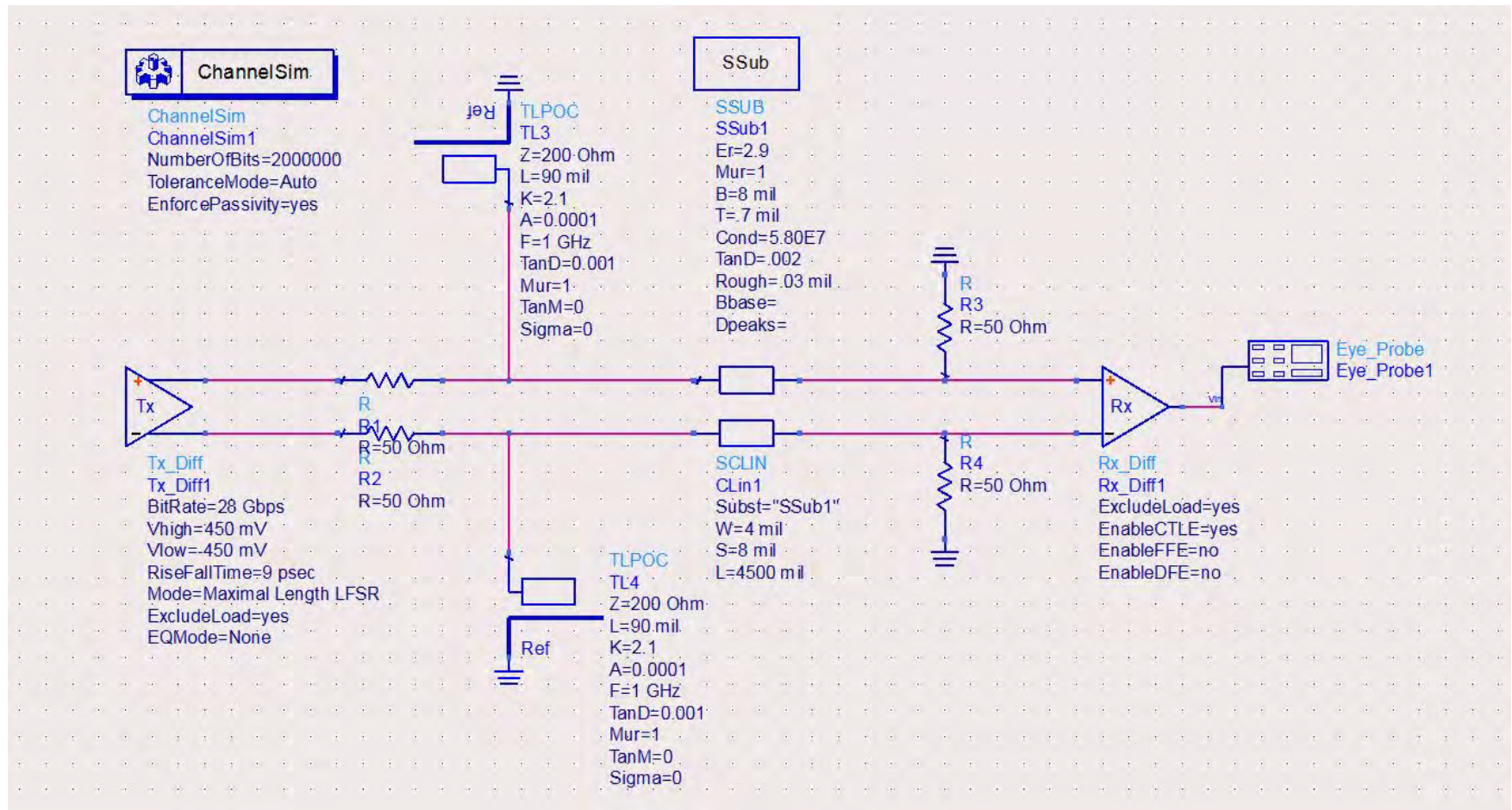


Eye Height vs Stub Length

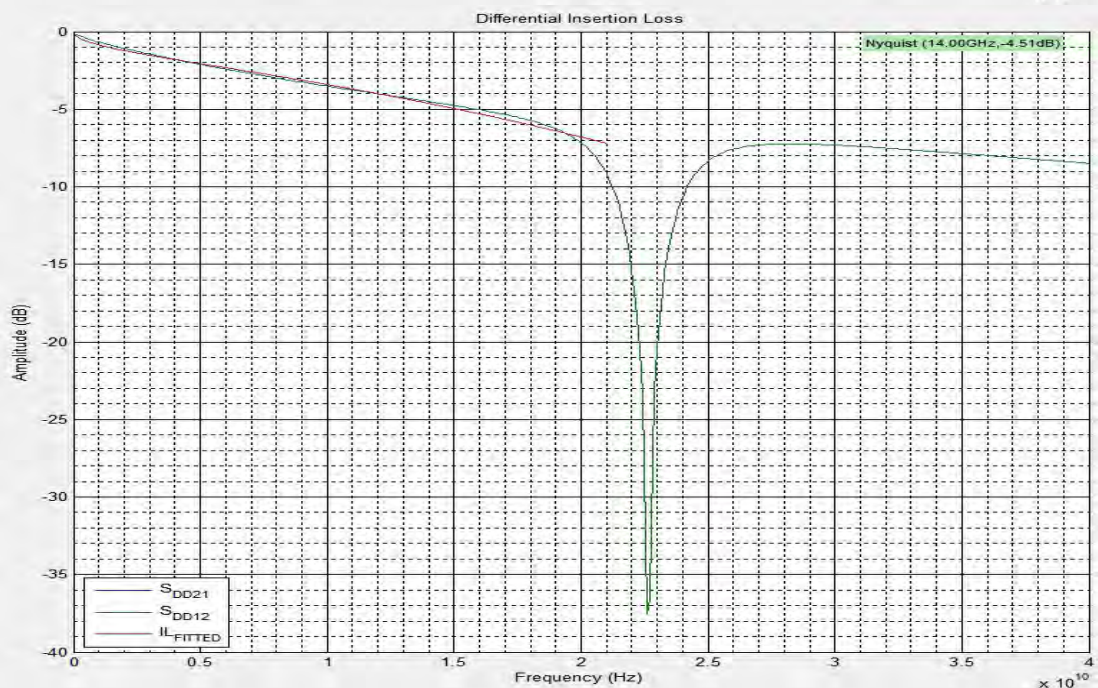
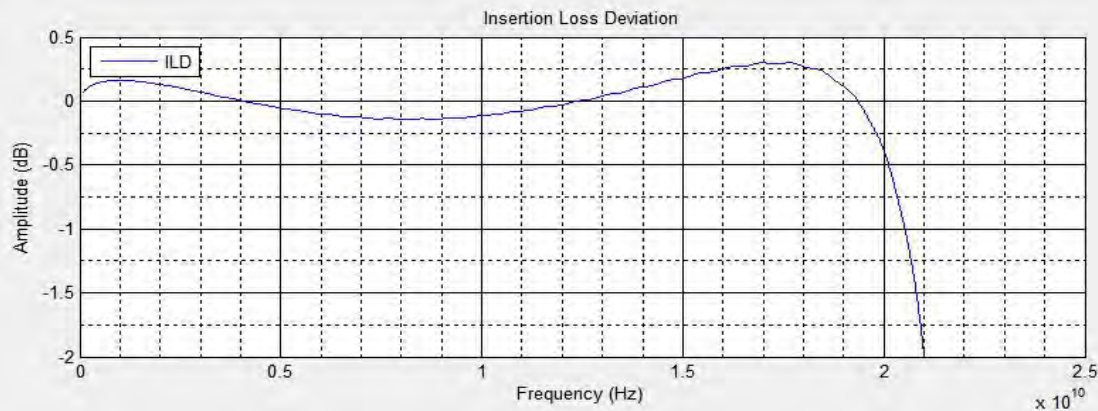


- Specification range for the compliance boards should extend to the data rate.

Backup



ILD of 22 GHz Notch Data – 0.094 dB



ILD Coeff

a0

0.000

a1

4.429

a2

0.000

a4

5.952

ILD RMS

0.094