XAUI Amplitudes
Clause 47 results

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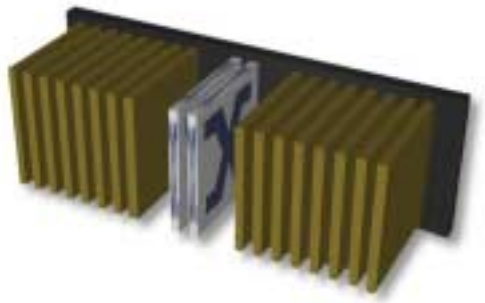
Objectives

- XAUI and SUPI need to accommodate technology developments
- Focus on objective, not on implementation
  - 50cm of FR4 with one connector
  - Permitted by clause
- Permit improvements in objective through some technique
  - 100cm of FR4 with 2 connectors required by many applications
  - How to codify



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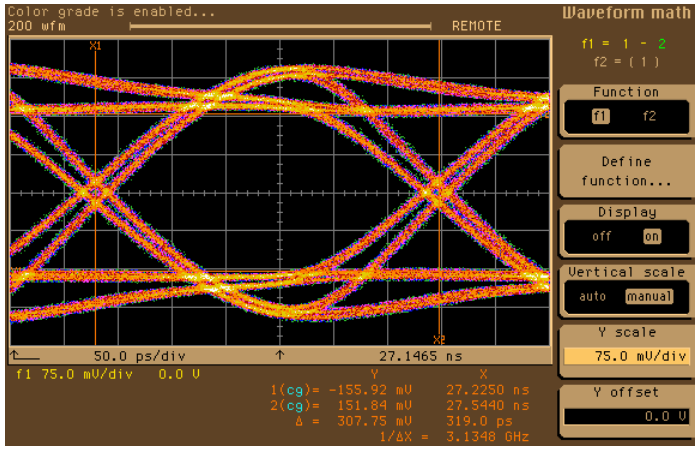
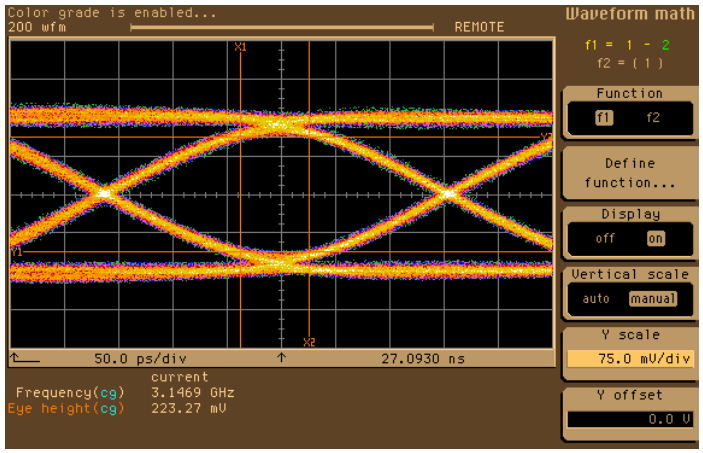
Comments to Clause 47

- Demonstration of nominal 50cm FR4 channel with 200mV at Rx. 2^10-1 PRBS.
- One channel measured; 8 channels switching uncorrelated PRBS at same frequency



Near end with only 300mv swing w/2” FR4



Far end at 20” of FR4 with 200mV of signal

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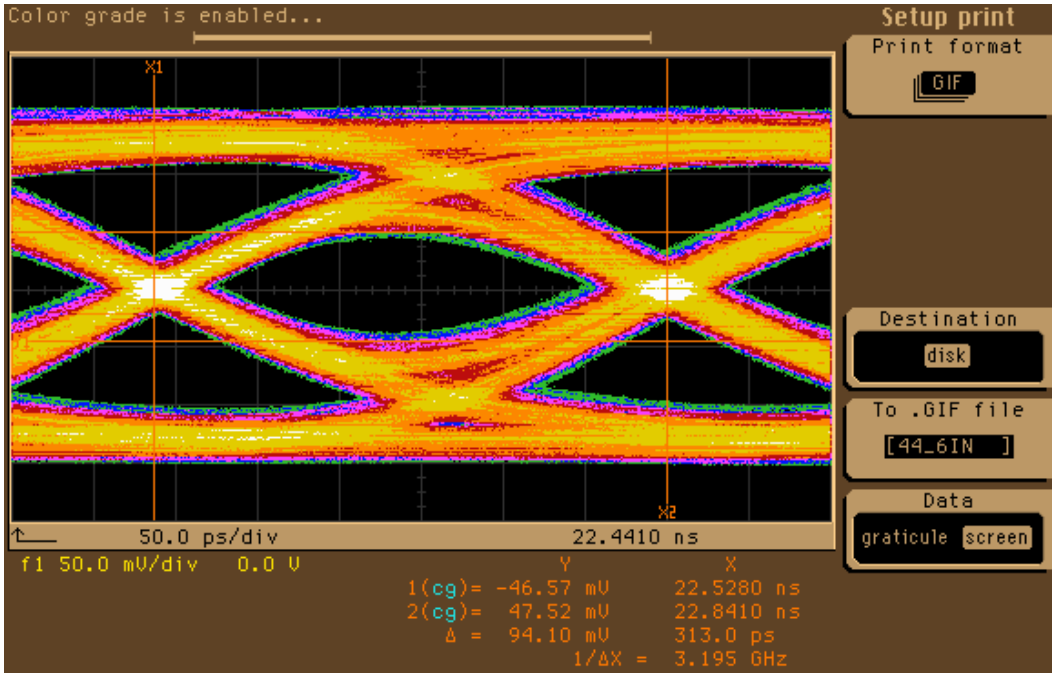
Extend objective in some manner

- Should we codify the 100cm / 2 connector application now or in the future?
- 44” FR4 / 2 VHDM-HD



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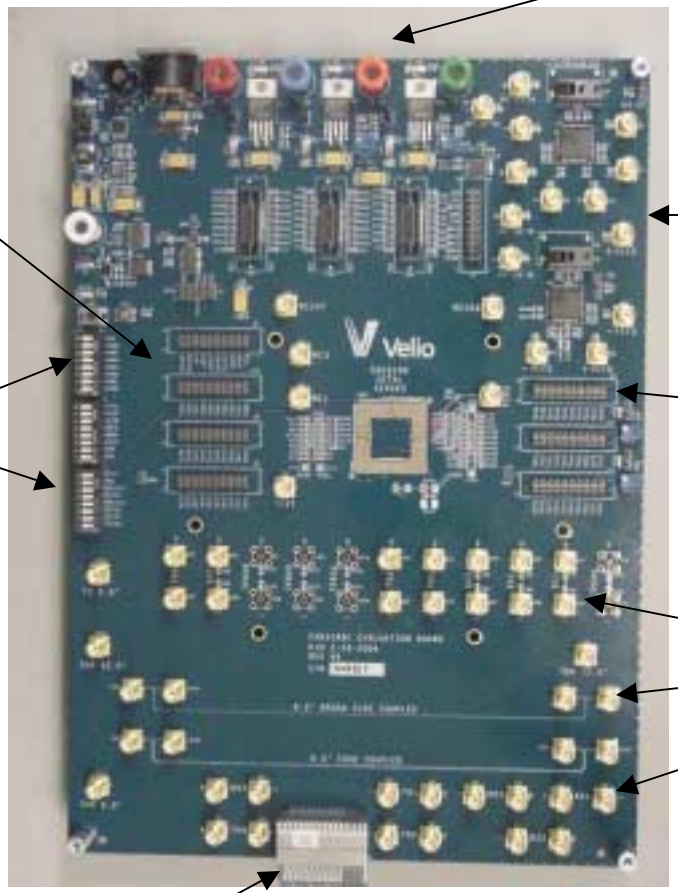
VC1003 Eval Board



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Stack up in Backplane Emulator

Ref
Gnd
6mil
0.5oz
14mil
0.5oz
6mil
Ref

Broadside are 8mil wide
Edge coupled are 7mil with 15mil spacing

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Lab Procedure

VC1003 Eval Board #010106 with SERDES 2.0 part #TF07

Images taken with HP54750A Oscilloscope

The 2.2-inch images are taken from the TX1 differential output ports of the SERDES. The exact path for each differential signal is as follows:

1. 2.2 inches of FR4
2. SMA connector (TX1+, TX1-)
3. 1-meter high quality oscilloscope cable
4. 10nF AC coupling capacitor
5. Into the oscilloscope (50-ohms to GND)

The 44.6-inch path is taken from the TX7 output of the backplane card. The differential signals travel through the following path:

1. 7.3 inches of FR4
2. VHDM-HSD connector
3. 36.0 inches of FR4, trace 7 of the loop-back backplane card
4. VHDM-HSD connector
5. 1.3 inches of FR4
6. SMA connector
7. 1-meter high quality oscilloscope cable
8. 10nF AC coupling capacitor
9. Into the oscilloscope (50-ohms to GND)

VC1003 Eval Board: 156.25MHz Epson crystal oscillator, DDR mode, 10-bit mode, TSTI mode.

CONCLUSION:

- Create two numbers for the receive end:
  - 200 mV for backward compatibility
  - 100 mV for forward looking, low power applications

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