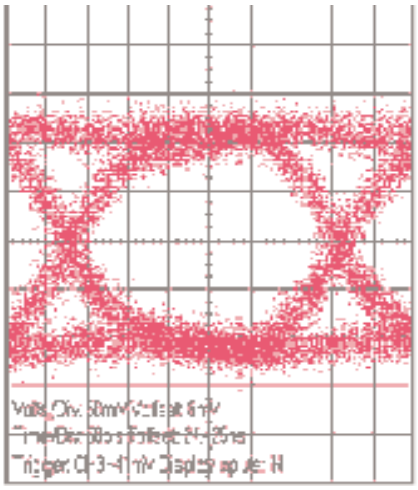
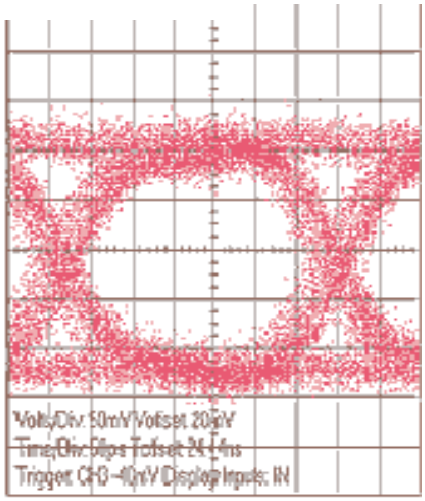
Compliance Specifications from 1.0a to 1.1

From these eye diagrams, can you tell which device is good?

A



B



Most people choose "A"

In the above samples, the rise edge and fall edge distortion on "B" is bigger than "A", therefore "A" seems like the logical choice. We need to understand, however, that the Eye Diagram is dependent on sample size. According to the PCI Express™ 1.1 specification, you need 10^{-12} (14σ) reliability or 10^{12} sample size for interoperability.

Eye Diagrams can not cover everything

Typical eye diagram sample size is only 10^{-4} (3σ), so it should be considered low level reliability. As you continue to measure jitter, you will realize that the eye opening will actually become closed. This phenomenon is indicated in the formula:

TJ = DJ+nRJ (n : reliability σ)

TJ or Jitter pk-pk is composed of DJ and RJ and reliability

Does the PCI Express compliance specification define Interoperability?

The PCI Express1.0a compliance specification did not define interoperability, but rev 1.1 has been changed to include the Interoperability specification.

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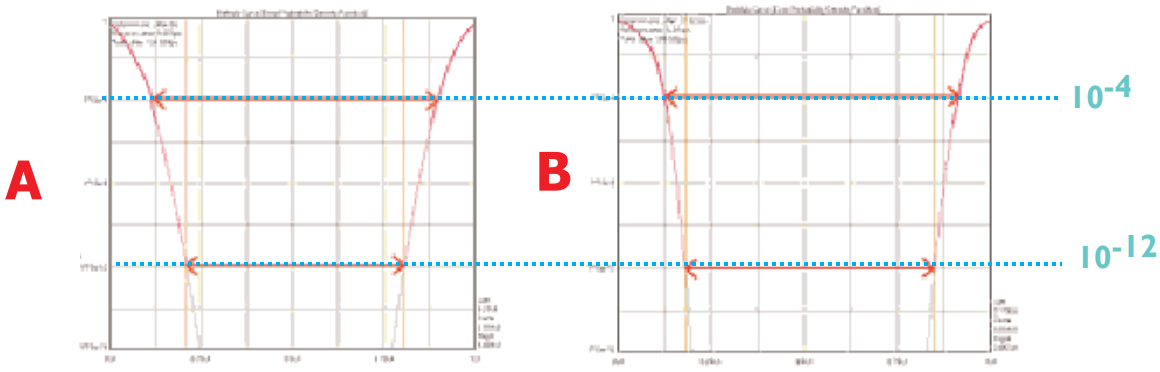
7610 Executive Drive · Eden Prairie, MN 55344 · 952.831.0030 · Fax: 952.831.4474 · www.wavecrest.com

Wavecrest San Jose
408.436.9000

Wavecrest K.K
81.3.5960.5770

PCI Express™ Compliance

High Level Device Testing at 10^{-12}



In the above bathtub plots taken from a BERT, plot "B" shows a better margin than plot "A" at 10^{-12}

Accurate Testing on WAVECREST Signal Integrity Analysis Solutions

WAVECREST's patented jitter separation algorithm, Tailfit™ provides very fast and accurate jitter values including Bathtub plots.

SIA-4000 Signal Integrity Analyzer

Test Times Meet Production Requirements

Sample PCI Express Test Times		
Measurement	**Lab**	**Production**
PCI Express 2.5G	1.5s	<100ms
Tr/Tf & Amplitude	1.2s	<90ms
Clock Stats	0.5s	<9ms

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Wavecrest San Jose
408.436.9000
Wavecrest K.K
81.3.5960.5770