T10/05-251r0 SAS-1.1 Mini SAS Crosstalk Requirements

To: T10 Technical Committee
From: Barry Olawsky, HP (barry.olawsky@hp.com)
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Subject: T10/05-251r0 SAS-1.1 Mini SAS Crosstalk Requirements

Revision History
Revision 0 (14 July 2005) first revision

Related Documents
sas1r09d - Serial Attached SCSI 1.1 revision
05-084 – SAS-1.1 Compact Connectors (Internal and External) – Jay Neer

Overview
Propose crosstalk requirements for Mini SAS 4i and 4x mated cable assemblies.

Suggested Changes

Add to the "definitions" section the following two terms.

near-end crosstalk: Crosstalk that is propagated in a disturbed channel in the direction opposite to the direction of propagation of a signal in the disturbing channel. *Note:* The terminals of the disturbed channel, at which the near-end crosstalk is present, and the energized terminal of the disturbing channel, are usually near each other.

far-end crosstalk: Crosstalk that is propagated in a disturbed channel in the same direction as the propagation of a signal in the disturbing channel. *Note:* The terminals of the disturbed channel, at which the far-end crosstalk is present, and the energized terminals of the disturbing channel, are usually remote from each other.

Change table 37 from three rows to one. In the remaining row, replace the existing text in the "requirement" column with the following text.

Total maximum near-end crosstalk for each receive pair

Under the columns titled "1,5Gbps" and "3,0Gbps" change the "TBD" text to "-26".

Replace the footnote "b" text with the following text.

Determine all valid aggressor/victim near-end crosstalk transfer modes. Over the complete frequency range of this test, determine the sum of the crosstalk transfer ratios, measured in the frequency domain, of all crosstalk transfer modes. To remove unwanted bias due to test fixturing noise, magnitudes less than -50 dB (e.g., -60 dB) at all frequencies may be ignored. The following equation details the summation process of the four valid near-end crosstalk sources.

$$\text{Total NEXT(f)} = 10 * \log \left(\sum\nolimits^{i=1..4} 10^{NEXT(f)_i/10} \right)$$

Note that all NEXT values expressed in dB format in a passive transfer network shall have negative dB magnitude.

Change table 40 from six rows to one. In the remaining row, replace the existing text in the "requirement" column with the following text.

Total maximum near-end crosstalk for each receive pair

Remove the column headers titled "Frequency domain measurement range 10 MHz to 2,250 MHz:" and "Frequency domain measurement range 2,250 MHz to 4,500 MHz:".

Under the columns titled "1,5Gbps" and "3,0Gbps" change the "TBD" text to "-26".

Replace the footnote "b" text with the following text.

Determine all valid aggressor/victim near-end crosstalk transfer modes. Over the complete frequency range of this test, determine the sum of the crosstalk transfer ratios, measured in the frequency domain, of all crosstalk transfer modes. To remove unwanted bias due to test fixturing noise, magnitudes less than -50 dB (e.g., -60 dB) at all frequencies may be ignored. The following equation details the summation process of the four valid near-end crosstalk sources.

$$\text{Total NEXT}(f) = 10 * \log \left(\sum\nolimits^{i=1..4} 10^{\text{NEXT}(f)_i/10} \right)$$

Note that all NEXT values expressed in dB format in a passive transfer network shall have negative dB magnitude.

Add note "d" stating,

The range for this frequency domain measurement is 10 MHz to 4,500MHz.