

To: T10 Technical Committee
From: Guillaume Fortin (Guillaume_Fortin@pmc-sierra.com)
Date: 15 January 2008
Subject: T10/08-032r4 Proposed modifications to SSC profile definition

Revision History

Revision 4 (15 January 2008)

Related Documents

sas2r13 - Serial Attached SCSI 2 revision 13
08-027r3 – Toward SSC Modulation Specs and Link Budget

Overview

This proposal makes additions to the SSC specifications to improve the definition of the SSC profile.

Suggested Changes

The last two paragraphs of section 5.3.8.1 read:

“SSC-induced high-frequency jitter is included in the deterministic jitter (DJ) and consequently in total jitter (TJ) at the transmitter output. The jitter is measured after the application of a single pole high-pass frequency-weighting function that progressively attenuates jitter at 20 dB/decade below a frequency of $((\text{bit rate}) / 1\ 667)$.

Editor’s Note 21: A more sophisticated attenuation model will be included in SAS-2 to accommodate SSC.”

It is proposed to replace these paragraphs with:

“SSC-induced **high-frequency** jitter is included in the deterministic jitter (DJ) and consequently in total jitter (TJ) at the transmitter device output. The SSC-induced jitter shall be measured using a D30.3 pattern after the application of the jitter transfer function (JTF) ~~that progressively attenuates jitter at 40 dB/decade below a nominal frequency of 2.6 MHz~~. The jitter transfer function shall have a response that varies with transition density. Refer to section 5.3.5.1 for detailed information regarding the JTF.

The slope of the frequency deviation shall not exceed 1200 ppm/μs when computed over any 0.3μs (±0.01 μs) interval of the SSC modulation profile. The slope is computed from the difference equation $f(t)-f(t-0.3\mu\text{s})/0.3\mu\text{s}$ where $f(t)$ is the SSC profile expressed in ppm. A 33kHz triangular SSC modulation profile has a slope of about -310 ppm/μs and meets this requirement. Other patterns may not.

A modulation profile that has a slope of 1200 ppm/μs over 0.3 μs ~~will create~~ a residual jitter of approximately 25 ps (or 0.15 UI at 6 Gb/s) after filtering by the JTF. This corresponds to the total DJ budget of the transmitter device, which does not allow the transmitter device to contribute any other type of deterministic jitter.

Activation or deactivation of SSC on a link that is not DC idle shall be done without violation of the ~~transmit jitter specifications after filtering through the JTF above frequency slope deviation.~~”