05-029r1~~0~~ SAS-1.1 transmitter and receiver transients subsection January 6, 2005

To: T10 Technical Committee
From: Alvin Cox, Seagate (Alvin.cox@seagate.com)
Date: January 18~~6~~, 2005
Subject: 05-029r0 SAS-1.1 transmitter and receiver transients subsection

Revision history

Revision 0 (January 6, 2005) First revision
Revision 1 (January 18, 2005) Edit sentence referring to system power supply ramp rate.

Related documents

sas1r07 - Serial Attached SCSI 1.1 revision 7
04-375r0 - SAS 1.1, Phy hot plug and transients on SAS and SAS/SATA environments

Overview

SAS 1.1 revision 7 Table 28 (General interface characteristics) note d makes reference to mode transitions with respect to transient requirements but does not define mode transition. The proposed change defines mode transition so the specified parameter can be measured. Due to the amount of test used to define mode transition, it was suggested that a new subsection be created and referenced in Table 28. All references in this proposal are based on SAS 1.1 revision 7.

Proposed changes

Change note d of Table 28 from:

The maximum transmitter and receiver transients are measured at nodes VP and VN on the test loads shown in figure 63 (for the transmitter device) and figure 64 (for the receiver device) during all power state and mode transitions. Test conditions shall include the system power supply ramping at the fastest possible rate for both power on and power off conditions.

To:

See 5.3.x for test circuit and conditions.

Move Figures 63 (Transmitter transient test circuit) and 64 (Receiver transient test circuit) to 5.3.x.

Add section 5.3.x

5.3.x Transmitter and receiver transients

Transients may occur at transmitter devices or receiver devices as a result of changes in supply power conditions or mode transitions.

A mode transition is an event that may result in a measurable transient due to the response of the transmitter device or receiver device. The following conditions constitute a mode transition: enable / disable of driver circuitry, enable / disable of receiver common mode circuitry, hot plug event, adjustment of driver amplitude, enable / disable of pre-emphasis / de-emphasis, adjustment of terminator impedance.

The maximum transmitter and receiver transients are measured at nodes VP and VN with respect to GROUND on the test loads shown in figure 63 (for the transmitter device) and figure 64 (for the

receiver device) during all power state and mode transitions. Test conditions shall include ~~the system~~ power supply ~~ramping at the fastest possible rate for both~~ power on and power off conditions, voltage sequencing, and mode transitions.

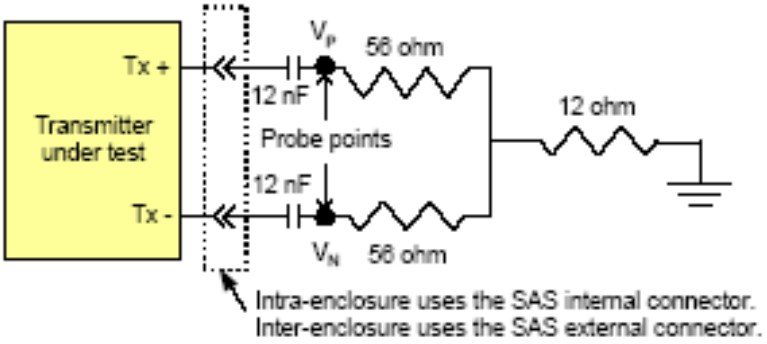

Figure 63 — Transmitter transient test circuit

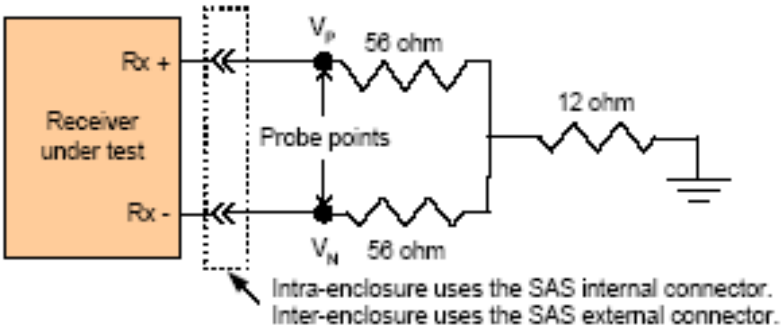

Figure 64 — Receiver transient test circuit