T10/05-390r0 SAS-2 Channel Models (3-Connector, Board/Cable/Backplane/Drive)

To: T10 Technical Committee
From: Barry Olawsky, HP (barry.olawsky@hp.com)
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Subject: T10/05-390r0 SAS-2 Channel Models (3-Connector, Board/Cable/Backplane/Drive)

Revision History
Revision 0 (20 October 2005) first revision

Related Documents
05-357r0 - SAS-2 External Cable Electrical Specification (Alvin Cox, Seagate)

Overview
Provide sample channel models to the storage industry. Design configurations are,

1) HP12 consists of a 0.006" wide trace of 6 inches in length, a 1 meter SFF8484 26AWG cable, a 6 inch trace ~0.025" wide on a 0.090" backplane, and the secondary RX port of an SFF8482 connector.
2) HP13 consists of a 0.006" wide trace of 6 inches in length, a 6 inch SFF8484 30AWG cable, a 6 inch trace ~0.025" wide on a 0.090" backplane, and the secondary RX port of an SFF8482 connector.
3) HP14 consists of a 6 inch SFF8484 30AWG cable, a 6 inch trace ~0.025" wide on a 0.090" backplane, and the secondary RX port of an SFF8482 connector.

Measurement Setup
Measurements where performed with an E8362B Agilent VNA and N4419A test set. The frequency range is 50MHz to 20GHz with a 10MHz step size. The format of the data is (magnitude, angle) … but not dB magnitude. Input to output port mapping through the DUT is shown in the following figure.

S21 Plots
S21 plots are provided below to assist in selecting sample channels to evaluate.
T10/05-390r0 SAS-2 Channel Models (3-Connector, Board/Cable/Backplane/Drive)

HP12_Brd_1mCable_Bp_Drive:

![Graph 1](image1)

![Graph 2](image2)
T10/05-390r0 SAS-2 Channel Models (3-Connector, Board/Cable/Backplane/Drive)

HP13_Brd_6inCable_Bp_Drive:

![Graph 1](image1)

![Graph 2](image2)
T10/05-390r0 SAS-2 Channel Models (3-Connector, Board/Cable/Backplane/Drive)

HP14_6inCable_Bp_Drive:

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**S21(HP14)**

![Graph 1](image1.png)

**S21(HP14)**

![Graph 2](image2.png)