1. Opening Remarks
Meeting started at 9:02 am with self-introductions by the participants.

2. Attendance

Mr. Paul von Stamwitz	AMCC
Mr. Gregory McSorley	Amphenol Interconnect
Mr. Mickey Felton	EMC Corp.
Mr. Ramez Rizk	Emulex
Mr. David Freeman	Finisar Corp.
Mr. Elwood Parsons	Foxconn Electronics
Mr. Mike Fitzpatrick	Fujitsu
Mr. Rob Elliott	Hewlett Packard Co.
Mr. Barry Olawsky	Hewlett Packard Co.
Mr. Dan Colegrove	Hitachi Global Storage Tech.
Mr. George O. Penokie	IBM Corp.
Mr. Harvey Newman	Infineon Technologies
Dr. Mark Seidel	Intel Corp.
Mr. Pak Seto	Intel Corp.
Mr. Joel Silverman	Kawasaki Microelectronics Am
Mr. Dennis Moore	KnowledgeTek, Inc.
Mr. Greg Shogan	LSI
Mr. Michael Jenkins	LSI Corp.
Mr. Tom Palkert	Luxtera
Mr. Mahbubul Bari	Maxim Integrated Products
Mr. Kevin Witt	Maxim Integrated Products
Mr. Tim Symons	PMC-Sierra
Mr. Rick Hernandez	PMC-Sierra
Mr. Alvin Cox	Seagate Technology
Mr. Benoit Mercier	STMicroelectonics
Dr. Donald Grillo	Toshiba
Mr. Doug Loree	Toshiba
Mr. Michael Fogg	Tyco Electronics
Mr. Dan Gorenc	TycoElectronics
Mr. Scott Shuey	TycoElectronics
Mr. Mark Evans	Western Digital
Mr. Larry McMillan	Western Digital

32 People Present

3. Review of documents and proposals

3.1   SAS-2 Zero-Length Test Load Characterization 07-304r3 [Olawsky]
Unanimous approval for inclusion in SAS-2

4. New Business

4.1   SAS-2 Calibration of Jitter Measurement Devices (07-443r1) [Cox]
This proposal is contingent on 07-339. It needs editorial updates prior to acceptance.

4.2   SAS-2 6G Transmitter Device Common Mode Voltage Measurements (07-445r2) [Kramer, Desai]

Reviewed data taken on addition of SAS connector pair to the measurement. Indication is that the measurement method should be switched to broadband and that the limit should be increased to 30 mV rms rather than 20 mV rms.

4.3 6G SAS Common Mode Voltage Data (07-468r0) [Jenkins]
Not reviewed at the face-to-face. Previously discussed on teleconference.

4.4 SAS 6G Equalization Measurement proposal (07-467r0) [Propstra]
After considerable discussion it was determined that the proposed emphasis measurement did not capture the intent of the SAS-2 emphasis measurement. The noise floor on measurement of signals of these amplitudes is relatively insignificant and the emphasis peak value may be missed if a specific delay in UI from a zero crossing is used rather than the peak value of the emphasized waveform. There was no recommendation to consider this proposal for inclusion in SAS-2.

4.5 SAS-2 Comprehensive Stressed Receiver Sensitivity Test (07-380r1) [Witt]
Overview of hardware required for receiver testing.

DFEEYE and SAS-2 Channel Data (07-448r0) [Witt & Bari]
Background information for physical receiver testing.

SAS-2_Transmit_Waveform_Calibration_for_RX_Test [Witt & Bari]
http://www.t10.org/ftp/t10/document.07/07-492r0.pdf
Background information for physical receiver testing.

SAS-2_Crosstalk_Budget_for_RX_Testing [Witt & Bari]
http://www.t10.org/ftp/t10/document.07/07-493r0.pdf
Background information for physical receiver testing.

SAS-2 Receiver Device Physical Testing [Witt & Bari]
http://www.t10.org/ftp/t10/document.07/07-486r1.pdf

Reviewed this proposal twice. It is the proposal that has the text for providing normative 6Gbps receiver testing. Initial pass needs some editorial work and completion of values.

4.6 Proposed Cable Tables for SAS2 6Gbs Phy (07-471r0) [McSorley]
Review led to a discussion of how the cables are specified and issues when the cable takes all of the spec margin. 07-339 will be updated to help the situation so that the TxRx connection concept is clearly defined.

4.7 SAS-2 Interconnect Signal-to-Noise Ratio Study (07-484r0) [Olawsky]
Proposal indicates a relationship between insertion loss and crosstalk translating to an estimated SNR. Maybe leave the cable specifications as they are and add an SNR for the delivered signal? This topic needs additional work.

4.8 SAS-2 6Gbps PHY specification (07-339r6) [Cox]
Made some updates during various discussions but did not perform a review of the proposal.

4.9 SAS-2 Mini SAS 8i connectors and cable assemblies (07-449r0) [Elliott]
Jay Neer to provide graphics for connectors of both stacked and wide internal versions. Also need to review the sideband signal assignments to move this proposal forward. Also includes proposed change to SFF-8485.

4.10 SAS-2 Application of StatEye v5 (07-491r0) [Newman]
Harvey presented additional information regarding the status of StatEye and estimated completion. Simulation results have been verified to a good level. Currently targeting the end of December for useable beta release. Necessary API for measurement equipment tested for all

major instrumentation companies. First integration of v5 into instrumentation to commence mid November.

4.11 QSFP addition to SAS-2 [Palkert]
http://www.t10.org/ftp/t10/document.07/07-498r0.pdf
Quick presentation to show possible new connector design and to check if it could be included in SAS-2. The specification for QSFP is not mature enough to be included in the SAS-2 ballot. Future inclusion was not discussed.

5. Review of Recommendations
Recommendations for inclusion in SAS-2:
SAS-2 Zero-Length Test Load Characterization 07-304r3 [Olawsky]   Unanimous

6. Meeting Schedule

Teleconferences will be held on the following dates:
11/15
12/13
12/20
1/3 (To be decided)
1/10

Toll Free Dial in Number: (877)810-9442
International Access/Caller Paid Dial In Number: (636)651-3190
PARTICIPANT CODE: 3243413

Webex information:
https://seagate.webex.com/seagate
Topic: SAS-2 PHY WG
Date: Thursday
Time: 10:00 am, Central Standard Time
Meeting number: 826 515 680
Meeting password: 6gbpsSAS

7. Adjournment at 6:19 pm