

Accredited Standards Committee\*

**InterNational Committee for Information Technology Standards (INCITS)**

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Date: November 6, 2006

Reply to: Mark Overby

To: T13 Membership  
From: Mark Overby  
Subject: T13 Plenary Meeting (Sunnyvale, CA) -- October 24-26, 2006

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
  - 3.1 Membership / Fees
  - 3.2 Fees
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4. Approval of the Previous Minutes
5. Document Distribution
6. Review of Previous Action Items
7. Old Business
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  - 7.2 HBA Amendment - 1
  - 7.3 HBA-2 Standard
  - 7.4 ATA/ATAPI-8 Projects
  - 7.5 ACS-2 Project Proposal
  - 7.6 EDD Erratum
  - 7.7 T13 reflector, FTP, and web site
  - 7.8 INCITS Membership and Website Policy
  - 7.9 International Participation by T13
8. New Business
  - 8.1 INCITS 2/3 Voting Rule Change
  - 8.2 Items from the reflector
9. Liaison Reports
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  - 9.3 IEEE
  - 9.4 Trusted Computing Group
  - 9.5 SFF Committee
  - 9.6 IDEMA
  - 9.7 MMCA
  - 9.8 CFA
  - 9.9 SATA-IO
  - 10.9 CE-ATA
10. Call for Patents
11. Review of Action Items
12. Meeting Schedule
  - 12.1 Meeting Length
  - 12.2 Authorization of Ad-Hoc Working Groups

\*Operating under the procedures of The American National Standards Institute.

**INCITS Secretariat, Information Technology Industry Council (ITI)**

1250 Eye Street NW, Suite 200, Washington, DC 20005-3922

Email: [incits@itic.org](mailto:incits@itic.org) Telephone: 202-737-8888 FAX: 202-638-4922

12.3 Long Term Meeting Schedule

13. Adjournment

## Results of Meeting

### 1. Opening Remarks

Dan Colegrove, the T13 Chair, called the meeting to order at 0910 Tuesday, October 24th, 2006. Dan Colegrove thanked Sumit Puri from Fujitsu who hosted this meeting.

As is customary, the people in attendance introduced themselves, and a copy of the attendance list was circulated. Copies of the agenda were made available to those in attendance.

The Chair briefly reviewed the meeting rules: T13 is a Technical Committee of INCITS and operates under INCITS rules. Anyone with interest in the work of the committee is free to attend and take part in discussions. However, motions and votes are limited to member organizations, one vote per member organization.

The Chair also noted that T13 operates under the INCITS antitrust guidelines. There should never be discussion of the following topics at any INCITS or an INCITS subgroup meeting:

“Any company's prices or pricing policies;

“Specific R&D, sales and marketing plans;

“Any company's confidential product, product development or production strategies;

“Whether certain suppliers or customers will be served;

“Prices paid to input sources; or

“Complaints about individual firms or other actions that might tend to hinder a competitor in any market.

Policies and Procedures and antitrust guidelines for INCITS are available at the web site at [www.incits.org](http://www.incits.org). T13 operates under these policies and procedures augmented by the T13 procedures at the T13 web site at [www.t13.org](http://www.t13.org).

### 2. Approval of Agenda

Joseph Chen requested that an agenda item be added to discuss tracking which features revert after a reset. Mark Overby moved, Dan Colegrove seconded, that the agenda be approved as revised. The motion passed by unanimous consent.

### 3. Attendance and Membership

The Chair reviewed the rules for membership and attendance:

#### 3.1 Membership

An individual from an organization new to T13 must attend at least one T13 plenary meeting before requesting voting membership. After that meeting, the representative may request membership from the T13 chair stating expertise and material interest in the scope of the committee and pay the required fees to INCITS. The time when membership becomes effective has just changed. Membership now becomes effective at the start of the next meeting the organization attends assuming the organization attends one of the next two meetings.

#### 3.2 Fees

Current INCITS memberships fees for Principal or additional Alternates are 800.00 USD. The First Alternate is free with a Principal membership.

Mailings of committee documents are available to any interested party after each plenary meeting. The cost for mailings for one year is 300.00 USD for mailing in the USA and 400.00 USD for mailing to a location outside of the USA.

Persons with questions or requests regarding membership fees and/or subscriptions for mailings should contact Parthenia Purnell, ITI Standards Operations, at ppurnell@itic.org.

### 3.3 Attendance

In addition to payment of fees, there are also minimum attendance and participation requirements to maintain voting membership status on T13. A representative from a member organization must attend two of every three plenary meetings and vote on at least every other letter ballot. If a member organization fails to have a representative in attendance at two of the last three T13 plenary meetings or vote on every other letter ballot, they are warned that failing to attend the next T13 meeting or to vote on the next letter ballot will result in their voting membership being terminated.

Attendance at a working group meeting does not affect voting membership status in T13.

The T13 voting membership during the meeting was 23 organizations.

The number of eligible voting members required for establishing a quorum was 8. 17 Member organizations were present at the start of the meeting, thus a quorum was present.

The following individuals attended:

Table 1: Attendance List

Attendee	Company		Attendee	Company
Larry Barras	Apple Computer		Karen Zelenko	Phoenix
Jim Hatfield	Seagate		Mark Overby	NVIDIA
Tom McGoldrick	Toshiba		Joseph Chen	Samsung
Sumit Puri	Fujitsu		Eric Lanning	Finisar
Dan Colegrove	Hitachi GST		Peter Dinh	Marvell
Wayne Bellamy	HP		Curtis Stevens	Western Digital
Steve Livaccari	IBM		Ken Foust	Kionix
Frank Shu	Microsoft		Martin Furjhelm	Lexar Media
Rob Strong	Intel		Tony Alvarez	CPR Tools
John Goldman	Lexar Media		Bill Martin	Emulex
Wally Bretzer	CPR Tools		Aaron Wilson	ST Microelectronics

## 4. Approval of the minutes from the previous T13 plenary meeting (e06157r0)

Dan Colegrove moved, Curtis Stevens seconding, that the minutes be approved. The motion passed with unanimous consent.

## 5. Document Distribution

No documents were distributed by hard copy.

## 6. Review of Previous Action Items

1. Jim Hatfield will research if a separate letter is needed from Maxtor for a Quantum patent related to UDMA that was released for ATA-5 and subsequent projects {Carry over}
2. Dan Colegrove to create a project proposal for an ATA-7 amendment.
3. Dan Colegrove to pursue recovering CFA reserved fields. {Done - on agenda}
4. Dan Colegrove to ask INCITS about what the committee should do if a patent does not have licensing terms disclosed when a standard goes into letter ballot (for an optional feature). {INCITS said that these issues should be handled at the executive board level}
5. Frank Shu to provide output data structure for pinned cache set data command {Carryover}.

## 7. Old Business

### 7.1 ATA/ATAPI-7: 1532D

#### 7.1.1 ISO Status

Mark Overby stated that the ISO editor had provided some minor edits that were acceptable and work was continuing to progress.

#### 7.1.2 ATA/ATAPI-7 Amendment [Overby]

##### 7.1.2.1 INCITS Status

Dan Colegrove displayed a project proposal for an amendment, that was discussed at the last meeting as being needed. Dan Colegrove moved, Curtis Stevens seconding, that e06018r0 be approved as a new project for ATA-7 amendment 1. The motion passed with 11 ayes, 0 nays, 0 abstentions, and 10 not present.

### 7.2 HBA Amendment 1

Curtis Stevens moved, Mark Overby seconding, that e06160r0 be approved as a new project for an amendment to the HBA standard. The motion passed with 18 ayes, 0 nays, and 0 abstentions.

### 7.3 HBA-2 Standard Project: D2014

Mark Overby reported that there was nothing new to report at this time.

### 7.4 ATA/ATAPI-8 Projects

#### 7.4.1 AT Attachment 8 - Architecture Model (ATA8-AAM)

##### 7.4.1.1 Project Status

There were no new updates to report.

#### 7.4.2 AT Attachment 8 - Command Set (ATA8-ACS)

##### 7.4.2.1 Freefall Feature Set Features (e06144r4) [Chen]

Joseph Chen stated that he merged the Toshiba proposal and his proposal together as was requested at the last meeting. Joseph requested that Curtis Stevens, as editor of ACS, assign codes for the SET FEATURES needed for the proposal.

A significant discussion ensued about the simulation feature in the proposal. Wayne Bellamy stated that he felt that this feature should be mandatory in order to be able to test the system environment when this drive is put into that environment. Jim Hatfield and Sumit Puri stated that they felt it should be optional. Further discussion was held about if the simulation feature was complete or not. As part of that discussion three straw polls were held.

Should there be an event length timer be part of the simulation feature. 10 people were in favor, 3 were opposed. The second question was if the feature should be optional, 5 were in favor, 7 were opposed. A third question was should the simulation feature be present. 11 were in favor, 5 were opposed.

During discussion of the IDENTIFY DEVICE bits, discussion revolved around what the bit for indicating that the feature is not yet available is used for. There was a lack of consensus about what the usefulness of this bit is - there was not clarity about what you do with the information that the sensor is not yet functional. Joseph and Tom agreed that it would be appropriate to move this to the device statistics area if that proposal were to be approved.

Joseph Chen moved, Curtis Stevens seconding, that e06144r5, revision 4 as revised, be incorporated into ATA8-ACS.

Curtis stated that he felt that he could not support the motion at this time because the simulation was a requirement and felt that the information was not yet complete. Joseph Chen requested a straw poll on if the simulation be mandatory, optional, or removed completely. 7 were in favor of being required, 6 were in favor of being optional, 7 were in favor of removal.

Curtis Stevens moved, Mark Overby seconding, that the motion be postponed to the next meeting. The motion passed with 13 ayes, 4 nays, and 0 abstentions. The motion will be resumed for debate at the next meeting.

Curtis Stevens moved, Jim Hatfield seconding, that e06144r5, r4 as revised with the removal of the simulation feature, be incorporated into ATA8-ACS. Mark Overby raised a point of order that he felt that this motion was out of order because the question of the proposal had been postponed to the next meeting. Curtis withdrew his motion.

#### *7.4.2.2 G-Sensor Feature Set (e06154r0) [Wright]*

Tom McGoldrick stated that Toshiba was withdrawing their proposal in favor of the merged Samsung proposal (e06144r4) from Joseph Chen.

#### *7.4.2.3 Additional SCT Temperature Statistics (e06152r2) [Hatfield]*

Jim Hatfield reviewed revision 2 of his proposal with suggested changes from the previous meeting.

Discussion was held about the lifetime average. Curtis Stevens noted that after a fairly small number of samples, the proposed formula would be come statistically insignificant. The math was worked out amongst the members and there was general consensus that this was correct. In further discussion Steve Livaccari noted that what was useful was a trace of general long term trends and behaviors, for example the last two months. There was discussion from several parties that indicated the last two months may not tell them what they need to know because they are looking for lifetime behavior of temperature. Jim stated he would remove the running average in favor of the committee developing that feature after more study.

Jim Hatfield moved, Curtis Stevens seconding, that e06152r3, r2 as revised, be approved for inclusion into ATA8-ACS. The motion passed with 15 ayes, 0 nays, and 3 abstentions.

#### *7.4.2.4 ATA Security Clarification [Hatfield]*

Jim Hatfield reviewed revision 7 of his proposal to clarify the security feature set. Jim noted that at the last meeting his laptop died with the version of the document that he was editing. He attempted to recreate comments, but anyone with comments should ensure that the revision is correct.

Curtis Stevens raised the issue of what happens with these clarifications where it makes it impossible to pass ATA-7 compliance if you claim ATA-8 compliance. Discussion on this topic resulted in no conclusions.

Jim stated that he would create an updated visio diagram with the state machines for security. Mark Overby suggested that the vote take place after the visio diagram is incorporated into the proposal.

Jim Hatfield moved, Curtis Stevens seconding, that e05179r8, r7 as revised, be incorporated into ATA8-ACS. There were 14 ayes, 3 nays, and 1 abstention. The no votes stated that they voted no because the diagram should be integrated into the proposal before approved for incorporation.

#### *7.4.2.5 Proactive Reporting and Correcting (e05142r1) [Shu]*

Frank Shu asked that this item be deferred to the next meeting.

#### *7.4.2.6 SATA Material for ACS (e06150r2) [Stevens]*

Curtis Stevens reviewed revision 2 of the proposal for integration of the SATA-IO material into ATA-8.

During review of the READ FPDMA COMMAND it was noted that there is no definition of media or cache and the FUA section talks about behaviors to cache and media. Debate was held about what is media, what is cache, and where non-volatile cache. There was significant discussion about what should happen when an FUA occurs to non-volatile cache. Dan Colegrove, Wayne Bellamy, Mark Overby, and Curtis Stevens all noted that if the FUA does not cause data to go to the medium that there exposes a problem where they could be a error when the data moves from the non-volatile cache to the medium. Jim Hatfield stated that he felt that the flash was actually part of the medium when data is in the non-volatile cache. Wayne and Mark pointed out that SCSI has dealt with this problem in that FUA forces a flush to the medium and if an application client wanted to access non-volatile cache, it can use a separate FUA\_NV bit. Further discussion debated a drive that has no rotating medium and there was general agreement that the non-volatile memory in there is medium and if you have separate flash for a cache, then the same argument as a traditional device applies.

Curtis Stevens moved, Jim Hatfield seconding, that 2 conference calls be authorized for discussing e06150. Curtis stated that he would add the FUA discussion as an agenda item for conference calls. Bill Martin noted that peoples positions seem rather firm and wondered if people were really going to change positions. Dan Colegrove stated that these conference calls should be focused on doing NCQ integration and that the NV cache should be the subject of separate conference calls. Curtis amended to motion to authorize 6 conference calls. The motion passed with unanimous consent.

John Gledman moved, Mark Overby seconding, that a face-to-face meeting be authorized for an ad-hoc working group meeting for discussion of e06150. The motion passed with unanimous consent.

Normal outputs were then reviewed for the commands and there was some disagreement on how the wording should appear for an SDB FIS that the device uses to indicate that tags have been completed. Curtis added language that indicates that a transport specific bitmask it used and will put additional language into the feature set description to describe the behavior and reference the appropriate document for further details about FIS types and other such elements.

Curtis Stevens stated that he will post a new revision of this document for review at the next meeting.

#### *7.4.2.7 ATA-8 ACS Open Issues (e06122r6) [Stevens]*

Curtis Stevens reviewed the latest revision of the open issues list. Wayne Bellamy noted that the open issues list posted currently does not match what Curtis was displaying. Curtis stated that he would upload the latest version after the meeting.

Significant discussion was held about if mode 3 segmented download microcode was mandatory or optional as the current standard is silent on the issue and there is confusion about this issue. Jim Hatfield moved, Curtis Stevens seconding, that the word optional be added to the description of Mode 3 for DOWNLOAD MICRO-CODE. The motion passed with 14 ayes, 2 nays, and 3 abstentions. Steven Livacarrri stated that he voted no because he thought that making optional does not address the issue of mode 7. Joseph Chen stated he voted no because it adds no value to make it optional.

Joseph Chen moved, Steve Livacarri seconding, to remove the words “save the” from the description of mode 7. The motion passed with 8 ayes, 2 nays, and 9 abstentions. Steve Livacarri, voting in the affirmative, moved and Sumit Puri seconding for reconsideration of the main motion. The motion passed with unanimous consent. Joseph amended the motion to state “download and save” for both mode 3 and mode 7. The motion passed with unanimous consent. The new wording was documented in issue 152 in the ATA8-ACS issues list.

#### *7.4.2.8 ATA Feature Summary [Chen]*

Joseph Chen asked that this be deferred to the next review.

#### *7.4.2.9 HPA State Machine Diagram [Chen]*

Joseph Chen reviewed the latest revision of his proposal and the outstanding items that were provided as feedback.

#### *7.4.2.10 1k/4k Physical Sector Informative Annex [Colegrove]*

Dan Colegrove reported no new updates to this item. Curtis Stevens reported that he would make information from his white paper available to include in the annex if needed. Frank Shu stated that there appears to not be enough information about 1k and 4k sector sizes for implementation and there is confusion about terms and the various combinations of drive models.

#### *7.4.2.11 NOP Clarifications (e06126r1) [Bellamy]*

The NOP clarifications were reviewed and the updated document provided to Wayne for review with the intent to approve at the next meeting.

#### *7.4.2.12 SET FEATURES reversion on reset [Chen]*

Joseph Chen stated that he has a concern about the subcommand codes CCh and 66h. He stated that he felt that it was unclear what features this applied to. There was consensus that it is intended to apply to all features. Joseph stated that if that were the case then language needs to be added to indicate that it applies to all features. Joseph stated that he would work on a proposal to bring to the December meeting.

#### *7.4.2.13 Draft Review [Stevens]*

Curtis Stevens reviewed and issue with WRITE UNCORRECTABLE that he also sent to the reflector. In discussion, there was not consensus on what not logging to the standardized error logs. Some felt that a SMART background test should stop and report the error, others felt differently Curtis Stevens said he would move this issue into the open issues list for further discussion at the December meeting. Curtis also requested that people review this for the next meetings.

Dan Colegrove moved, Curtis Stevens seconding, that a two day ad-hoc face-to-face meeting be authorized for a page turn review of ATA8-ACS. The motion passed with unanimous consent.

### 7.4.3 AT Attachment-8 - Parallel Transport (ATA8-APT)

#### *7.4.3.1 Review of Draft*

No draft review was held

### 7.4.4 AT Attachment-8 - Serial Transport (ATA8-AST)

#### *7.4.4.1 Review of Draft*

No draft review was held

## **7.5 ACS-2 Project D2015 [Stevens]**

### 7.5.1 INCITS Status

Dan Colegrove stated he has not received the new project number following our approval. However, INCITS website indicates that the project is 2015-D

### 7.5.2 Device Statistics (e06102r1) [Hatfield]

Jim Hatfield reviewed revision 1 of the device statistics proposal. Curtis Stevens requested that this material be considered for ACS instead of ACS-2.

There was significant debate over the meaning of some of the statistics and if they were valid information or not. It was agreed to pare down the proposal to just what was easily agreed to and then add other statistics as part of further development. Jim agreed to make that change and removed all statistics except for the number of power-on resets.

Joseph Chen suggested, Mark Overby concurring, that the fields be self-describing as if they are valid or not as zero may not correctly indicate that a field is valid but is unlikely to change. This would indicate that the field is not valid. Bill Martin concurred with that position. Jim agreed to add a control byte to each field and make the fields multiples of 8-bytes to better align with natural processor memory instruction sizing.

Curtis Stevens moved, Wayne Bellamy seconding, that e06102r2, r1 as revised, be approved for incorporation into ATA8-ACS. The motion passed with 16 ayes, 1 nay, and 1 abstention. Mark Overby stated that he voted no because he felt that the fixed size structures were too limiting and that there was no way to dynamically size the attributes as needed for future use.

## 7.6 EDD Erratum

### 7.6.1 INCITS Status

Dan Colegrove to verify status of EDD Erratum with INCITS.

## 7.7 T13 reflector, FTP, and web site setup

Curtis Stevens displayed the new website draft and reviewed the behavior of various items including mailing list sign up and the information being requested.

## 7.8 INCITS Membership and Meeting Attendance Policy

Dan Colegrove stated that no decision has been reached about the membership policy changes that have been previously discussed. Dan stated that INCITS was reviewing their funding model and decide on the impact of those changes to the technical side of the equation. No decisions have been reached. The chairs of T10, T13, and T11 all are continuing to encourage INCITS to maintain the existing policy.

## 8. New Business

### 8.1 Write Protect Bit (e06158r0) [Hatfield]

Jim Hatfield reviewed his proposal to restore the write protect bit that was removed as part of the removable media feature set. Mark Overby raised a concern that restoring this with a different definition could break existing software. Jim requested that the discussion continue at the December meeting.

### 8.2 Reservations for SATA (e06154r0) [Luksic]

Curtis Stevens presented requests from SATA-IO for further reservations for values in SCT. Mark Overby stated that he felt that the amount of resources that were being requested were unreasonable in size. Jim Hatfield and Dan Colegrove felt that the percentage of resources being requested was low. Curtis also stated that some of the resources being requested could be pared down and some were lowered during editing. Jim Hatfield moved, Curtis Stevens seconding, that e06154r1, r0 as revised, be accepted into ACS. The motion passed with 11 ayes, 2 nays, and 0 abstentions. The no votes stated that they voted no because the resource range was too large.

Dan Colegrove moved, seconded, that the ACS editor be authorized to select a bit in IDENTIFY DEVICE for reserved for SATA in the action code section for SCT. The motion passed with 8 ayes, 2 nays, and 2 abstentions. Jim Hatfield stated he voted no because there is no comprehensive way of reporting SCT action code support or capabilities.

### 8.3 Items from the Reflector

Jim Hatfield stated that there were no items to be covered.

## 9. Liaison Reports

### 9.1 T10 [Colegrove]

#### 9.1.1 SCSI to ATA Translation (SAT) Working Group Report

Mark Overby reported that SAT is now in public review and was forwarded to INCITS. SAT-2 proposals will be reviewed at the next meeting. Topics for SAT-2 include ATAPI, persistent log pages, TCG, security, and other items. SAT will not be meeting with T13 in December and will inform the committee at December if SAT wants to meet with T13 in February.

### 9.2 T11 [Colegrove]

#### 9.2.1 FC-SATA Status [Martin]

Bill Martin reported that FC-SATA had final technical input at the last meeting and that the December meeting will forward it to letter ballot. It is expected to take two meeting cycles to complete letter ballot comment resolution.

### 9.3 IEEE

Dan Colegrove stated that he would post the list of IEEE projects for potential liaison and had no other information to report.

### 9.4 Trusted Computing Group [Hatfield]

Jim Hatfield reported that TCG is working on documenting interactions between TCG operations and T13 operations.

### 9.5 SFF [Colegrove]

Dan Colegrove reported no information to report that affects T13.

### 9.6 IDEMA [Colegrove]

Dan Colegrove reported that 1k and 4k media format work is continuing.

### 9.7 CFA

John Goldman reported that some of the compact flash reserved words could be reclaimed and others were in use. Dan Colegrove displayed the request to CF (e06019r0) and it was reviewed during the meeting.

### 9.8 Serial ATA IO [Dees]

Reservations for SATA-IO were covered in a separate proposal.

### 9.9 CE-ATA [Overby]

Mark Overby stated there was no activity in CE-ATA that affects T13. He also stated as activity appears to be winding down that this could be removed from the agenda for future meetings.

## 10. Call for Patents

The Chair explained the patent policy. A document is available from ANSI, "Procedures for the Development and Coordination of American National Standards", at no charge. This document is also on the INCITS web site at [www.incits.org/help/ansi\\_sdo.html](http://www.incits.org/help/ansi_sdo.html). Section 1.2.11 of that document contains the ANSI patent policy.

The Chair then called for patents and/or patent applications that may be necessary to comply with the requirements in T13 standards, draft standards, technical reports, or draft technical reports.

There was no response to the call for patents.

## 11. Review of Action Items

1. Jim Hatfield will research if a separate letter is needed from Maxtor for a Quantum patent related to UDMA that was released for ATA-5 and subsequent projects
2. Frank Shu to provide output data structure for pinned cache set data command
3. Dan Colegrove to forward project proposal for HBA amendment to INCITS for further processing
4. Dan Colegrove to post the list of IEEE projects for potential liaison
5. Dan Colegrove to find out the status of the DDT technical report
6. Dan Colegrove to find out the status of the EDD erratum

## 12. Approved Proposals

ATA8-ACS:

e06102r2 - Device Statistics

e06150r3 - Additional SCT Temperature Statistics

## 13. Meeting Schedules

### 13.1 Meeting Length

The December meeting will remain at 3 days (Dec. 12 - 14, 2006).

### 13.2 Authorization of Ad-Hoc Working Groups

Up to six conference calls and one face-to-face meeting was authorized for discussion of integration of SATA-IO material. A two day face-to-face meeting was authorized for a page turning review of ATA8-ACS.

**13.3 Long-Term Meeting Schedule**

Table 2: 2006 Dates

Date	Location	Host	Contact
December 12-14, 2006	Las Vegas, NV	Hitachi Global	Dan Colegrove

Table 3: 2007 Dates

Date	Location	Host	Contact
February 20-23, 2007	Orange County, CA	Western Digital	Curtis Stevens
April 24-27, 2007	Longmont, CO	ST Microelectronics	Aaron Wilson
June 19-22, 2007	TBD	NVIDIA	Mark Overby
August 21-24, 2007	Longmont, CO	Seagate	Jim Hatfield
October 23-26, 2007	Fort Myers, FL	CPR Tools	Tony Alvarez
December 11-14, 2007	Las Vegas, NV	Hitachi Global	Dan Colegrove

**14. Adjournment**

Mark Overby moved, Dan Colegrove seconding, that the meeting be adjourned at 1700 Thursday, 26 October 2006. The motion passed with unanimous consent.