

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

Doc. No.: T13/09-106r0
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Date: February 25, 2009

Reply to: Mark Overby

To: T13 Membership  
From: Mark Overby  
Subject: T13 Plenary Meeting (Santa Clara, CA) -- February 17-19, 2009

## Agenda

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
4. Approval of the Previous Minutes
5. Review of Previous Action Items
6. Call for Patents
7. Old Business
8. New Business
9. Liaison Reports
10. Review of Action Items
11. Meeting Schedule
12. Adjournment

## Results of Meeting

### 1. Opening Remarks

Dan Colegrove, the T13 Chair, called the meeting to order at 0905 Tuesday, February 17th, 2009. Dan Colegrove thanked NVIDIA for hosting.

As is customary, the people in attendance introduced themselves, and a copy of the attendance list was circulated.

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).

\*Operating under the procedures of The American National Standards Institute.  
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## 2. Approval of Agenda

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 are 1200.00 USD. Alternates are included in the membership fee.

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 Barbara Bennett, ITI Standards Operations, at [bbennett@itic.org](mailto:bbennett@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 21 organizations.

The number of eligible voting members required for establishing a quorum was 7. 11 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
Mark Overby	NVIDIA		Dan Colegrove	Hitachi GST
Rob Strong	Intel		Bill Martin	Emulex
Sumit Puri	Fujitsu		John Goldman	Lexar Media
Patrick Hery	Toshiba		Frank Shu	Microsoft

Table 1: Attendance List

Attendee	Company		Attendee	Company
Tim Enami	NetApp		Joseph Chen	Samsung
David Landsman	SanDisk		Jim Hatfield	Seagate
Jeff Wolford	HP		Steve Livacarri	IBM
Anil Godavarthi	Kionix		Dan Meyer	LSI
George Penokie	LSI		Dale Jurich	Phoenix
Aaron Wilson	STEC		Yishai Kagan	SanDisk
Jim Cooke	Micron		Alessio Gentazzo	Apple
Tom Pratt	Dell		Curtis Stevens	Western Digital
Jonhman Yoon	Samsung			

#### 4. Approval of the minutes from the previous T13 plenary meeting (e08150r0)

Dan Colegrove noted that STEC was not listed as attending, but they were at the meeting. Dan Colegrove moved, Mark Overby seconded, that the minutes be approved as revised. The motion passed with unanimous consent.

#### 5. Review of Previous Action Items

1. Dan Colegrove to change sign-in sheet to comply with public access model [Done]
2. Curtis Stevens to change the website to comply with the notification of the public access model [Carryover - in process]
3. Dan Colegrove to forward new project proposal for amending ACS to INCITS [Done]

#### 6. Call for Patents

The Chair displayed 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.

#### 7. Old Business

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

###### 7.1.1 ISO Status

Dan Colegrove stated that he was continuing to work with the ISO editor to answer the continuing questions on the material.

##### 7.2 HBA-2 Standard Project: 2014-D

Mark Overby stated that the project was pending the next draft of ATA8-AST for further work.

##### 7.3 ATA/ATAPI-8 Projects

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

###### 7.3.1.1 INCITS Status

Dan Colegrove displayed the current status for ATA8-ACS (which is still pending management review at the INCITS board).

#### 7.3.1.2 ISO

Mark Overby moved, Curtis Stevens seconding, we recommend that ISO document numbers for ATA-8 as part 100 be AAM, 200 be ACS, 300 AST, and 400 APT. Curtis Stevens stated that he would work on getting ATA-8 started for ACS-2.

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

##### 7.3.2.1 Review of Draft

No draft review was done in advance of the letter ballot.

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

##### 7.3.3.1 Review of Draft

Curtis Stevens stated that he continuing to work on the next draft of ATA8-AST.

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

##### 7.3.4.1 INCITS Review

Dan Colegrove stated that AAM has been published and this agenda could be removed.

##### 7.3.4.2 ISO Status

Mark Overby and Curtis Stevens agreed to hold this until ACS begins process through ISO.

#### 7.3.5 ATA8 Schedule Review

AAM and ACS have been completed. The proposed schedule for the remaining items is to have APT letter ballot in March, AST letter ballot in June.

### 7.4 ACS-2 Project

**2015-D [Stevens]**

#### 7.4.1 ACS-2 Open Issues List (e07172)

[Stevens]

Curtis Stevens reviewed the open issues list and took feedback from the owners of open issues as to status and what the plan is for ACS-2 for those issues. George Penokie stated that he felt changes to documents should not be made through the open issues list and should be done through proposals to ensure that there is correct tracking.

During discussion of the open issues list, Sumit Puri asked that the issue for security clarification text for SECURITY DISABLE PASSWORD be disposed of (issue #51). Dan Colegrove asked that this be done as a proposal because this is a technical change to the way that the password works with security. Sumit stated that he would bring in a proposal to address this.

#### 7.4.2 SCT Zone Control (e07169)

[Colegrove]

Dan Colegrove stated that this could be moved to consideration for ACS-3.

#### 7.4.3 Device Statistics

##### 7.4.3.1 Additional device statistics - Solid State (e06184)

[Chen]

Joseph Chen reviewed revision 12 of his proposal for solid state statistics.

George Penokie pointed out that the number of defective logical sectors in the solid state media does not have any meaning without full knowledge of the underlying device. John Goldman stated that he thought that the potential misuse of this statistics could be very harmful. Steve Livacarri stated that this statistic does help him with failure analysis. George Penokie moved, Bill Martin seconding, that item (b) be removed from the proposal. It was suggested that the motion be amended to indicate so that a yes vote be clearer on what was being approved; the mover and seconder agreed. The amended motion was as follows: George Penokie moved, Bill Martin seconding, that the plenary recommend to the author that the number of defective logical sectors in the solid state media statistic be carried forward in the proposal. 3 were in favor, 10 opposed, 5 abstained. The recommendation was to remove the statistic.

Discussion then continued on the number of solid state media erase operations. George Penokie raised an objection that this statistic doesn't have any meaning because it requires a full knowledge of the underlying media and technology and cannot be used without that information. There were counter-points made that knowing this number would allow for the calculation of a write amplification and for being able to determine if the device is approaching tolerances or has exceeded them. Others noted that is only possible with the underlying knowledge George mentioned and could not be done in a standardized fashion. George Penokie moved, Bill Martin seconding, that the plenary recommend to the author that the number of solid state media erase operations statistic be carried forward in the proposal. 3 were in favor, 10 opposed, 5 abstained. The recommendation was to remove the statistic.

Mark Overby moved, Jim Hatfield seconding, that the plenary recommend to the author that the percentage of spare blocks remaining statistic be carried forward in the proposal. 8 were in favor, 5 opposed, 5 abstained. The recommendation was to keep the statistic.

Steve Livaccari moved, Jim Hatfield seconding, that the plenary recommend to the author that number of error events on erase statistic be carried forward in the proposal. 4 were in favor, 10 opposed, 5 abstained. The recommendation was to remove the statistic.

Bill Martin moved, Jim Hatfield seconding, that the plenary recommend to the author that number of error events on program be carried forward in the proposal. 3 were in favor, 6 opposed, 7 abstained. The recommendation was to remove the statistic.

Joseph took the feedback and agreed to turn a revision of the proposal for the next meeting.

#### 7.4.3.2 Long/Short Term Endurance (e09101)

[Hatfield]

Jim Hatfield presented a proposal to bring in additional statistics related to endurance to SSD's. George Penokie noted that there is a lot of material that belongs in a models type clause or similar section instead of informative clauses within the normative text.

There was significant debate over what this statistic means and what is useful. John Geldman pointed out that the use cases listed in the proposal seem to be inaccurate to the way an SSD device actually works. Curtis Stevens noted that he has not heard a reason for this statistic for the host side of the environment. Discussion ensued on what this statistic is for.

Mark Overby suggested that a joint teleconference be done between JC64.8 and T13 because of the need to agree on the fundamental use cases for the statistics. Mark moved, Jim seconded, that up to two teleconferences be authorized with JC64.8 members invited as guests. The motion passed with unanimous consent. Jim stated he would work with the chair of JC64.8 to coordinate a meeting schedule.

Dave Landsman suggested that this proposal be deferred until after the teleconferences between JC64.8 and

#### 7.4.3.3 Candidate Sectors Statistics (e09104)

[Livaccari]

Steve Livaccari presented a proposal to bring a statistic that tracks candidates for reallocation. Mark Overby and George Penokie both noted that as worded, the statistic was too vague. Steve made changes and agreed to post a new revision.

#### 7.4.4 Freefall Feature Set Enhancements (e06162)

[Chen]

Joseph Chen asked that this be deferred to ACS-3.

#### 7.4.5 Security Command Update (e07104)

[Chen]

Joseph Chen stated that he still wanted this for ACS-2, but asked that this be deferred to the next meeting.

7.4.6 Extended Security (e07189) [Chen]  
Joseph Chen asked that this be deferred to the next meeting.

7.4.7 Sanitize Command (e07197) [Geldman]  
John Goldman reviewed revision 4 of his proposal to create a new command to securely remove data from a device.

There were several suggestions made to simplify the proposal (including removing the need for the sanitize prepare command). John agreed to revise the proposal during the meeting for further consideration.

7.4.8 Set Features Set Policy (e07121) [Hatfield]  
Jim Hatfield asked that this be deferred to the next meeting for ACS-3.

7.4.9 Change Host Vendor Specific to Scratch Pad (e07159r0) [Stevens]  
Curtis Stevens stated that this could be deferred to ACS-3.

7.4.10 Reporting Non-Volatile Write Cache (e08116) [Livacarri]  
Steve Livacarri presented a proposal to identify a device that has a write cache that is non-volatile. Steve received feedback and agreed to revise the proposal for the next meeting.

7.4.11 Extended Power Conditions (e08120) [Hatfield]  
Jim Hatfield presented revision 6 of the proposal for extended power conditions. Jim noted that there were no change bars in this proposal because most everything in the proposal had changed in order to align with the similar functionality that is being introduced into T10 standards.

Jim received feedback about what should be returned if there are no saved values and was requested to mimic the SCSI behavior in this regard and to add a value indicating if there are valid saved values or not. Jim agreed to look at making this change.

7.4.12 Protocol Identifier for TrustedFlash (e08126) [Landsman]  
Dave Landsman asked that this be deferred to the next meeting for ACS-2.

7.4.13 PUIS Update to Power Management state diagram (e08142) [Hatfield]  
Jim Hatfield presented revision 1 of the proposal to update the power management state diagrams to reflect support for the power-up in standby feature set.

7.4.14 DCO Clarifications (e08140) [Hatfield]  
Jim Hatfield presented revision 1 of his proposal to add some clarifications to DCO about the behavior on error. Jim Hatfield moved, Curtis Stevens seconded, that e08140r1 be incorporated into ACS-2. The motion passed with 12 ayes, 0 nays, and 1 abstention.

7.4.15 Maximum LBA Ranges Supported Proposal (e08146) [Wells]  
Rob Strong presented revision 2 of the proposal to deal with the sorting of logical block addresses when passed to the dataset management command for trim.

During review there was significant discussion on if the number of range entries supported by the device should be allowed to be arbitrary or if that should be aligned to the number of entries that can be in a 512-byte block. Curtis Stevens and Dan Colegrove thought that it did not make sense to allow an arbitrary value. Rob, Dave Landsman, and John Goldman all stated a position that an arbitrary number should be allowed because it does not negatively affect a device that wants to implement that and if a device wants to align to a 512-byte block it can do so. Rob stated that he was not going to change this behavior.

The group also discussed if the ranges should be allowed to overlap and be out of order. The group came to consensus that allowing overlap and non-ordered submission should be allowed.

Other editorial changes were noted and incorporated by Rob.

Rob Strong moved, Frank Shu seconded, that e08146r3 as revised be incorporated in ACS-2. The motion passed with 10 ayes, 4 nays, and 3 abstentions. Curtis Stevens stated that he was opposed because he wanted the LBA's in blocks not ranges.

Later in the meeting it was noted that there may have been an error in the calculations in the proposal. Mark Overby moved, George Penokie seconded, that the motion to incorporate e08146r3 as revised be reconsidered. The motion passed with unanimous consent. The main motion was reconsidered. The main motion failed with 0 ayes, 11 nays, and 5 abstentions.

7.4.16 Reservations for iVDR (e08148) [Hatfield]  
Dan Colegrove noted that this was intended to be removed from the agenda but was not.

7.4.17 Synchronize with SATA 2.6 (e08143) [Hatfield]  
Jim Hatfield presented revision 1 of a proposal to incorporate SATA 2.6 material into ACS-2 for new material that had not been available during ACS. He received feedback and agreed to turn a revision for the next meeting.

7.4.18 Obsolete TCQ [Overby]  
Mark Overby presented revision zero of his proposal to obsolete the TCQ feature set. Jim Hatfield provided feedback on additional locations that needed to be included to remove the feature cleanly. Mark agreed to revise the proposal for the next meeting.

7.4.19 ASC/ASCQ Recommendations for ACS-2 [Overby]  
Mark Overby asked that this be carried over for ACS-2 to the next meeting.

7.4.20 Alternate Unit Exception Methods [Stevens]  
Curtis Stevens asked that this be deferred to the next meeting for ACS-2.

7.4.21 Device Alert Log Pages [Geldman]  
John Geldman discussed his idea further about using configurable pages to generate alerts to the host based on device information. John noted that the needed a mechanism to report this as an unit exception condition. Mark Overby noted that the extended status error reporting mechanism previously approved did have the mechanism he needed. Mark suggested that new ASC/ASCQ values be sent to him and he could incorporate them into his ASC/ASCQ recommendations proposal. John agreed that this would allow him to focus on the mechanism for adding the mechanism for enabling such features.

7.4.22 Identify Data Log (e08156) [Stevens]  
Curtis Stevens presented revision 1 of his proposal to have IDENTIFY DEVICE data in a log page to allow for future expansion. He received feedback about the proposed format and agreed to turn a new revision for the next meeting.

7.4.23 ATAPI Removal (e08157) [Stevens]  
Curtis Stevens asked that this be carried over to the next meeting and ACS-3.

7.4.24 Set Features Revert to Defaults Behavior Setting After Hard Reset or POR (e08158) [Colegrove]  
Dan Colegrove presented revision zero of his proposal to revert to defaults for set features behavior. There was some confusion about if the feature was needed or not. Dan Colegrove took feedback and agreed to prepare a new revision for the next meeting.

## 7.4.25 Obsolete SCT R/W Long (e08153) [Hatfield]

Jim Hatfield presented revision zero of his proposal to obsolete the read and write long component of the SCT feature set. Curtis Stevens moved, Jim Hatfield seconded, that e08153r0 as revised (r1) be incorporated into ACS-2. The motion passed with 13 ayes, 0 nays, and 0 abstentions.

## 7.4.26 Obsolete 28 Bit (e09105) [Overby]

Mark Overby presented revision zero of his proposal to obsolete the 28-bit feature set. Curtis Stevens and Jim Hatfield both noted that they wanted to have a slower transition to removing the commands from the document and suggested just making 48-bit mandatory and obsolete the commands in a future revision. A straw poll was held and 10 were in favor of that approach, 3 were opposed. Mark said he would have to consider this in order to decide how to proceed and would discuss at the next meeting.

**7.5 EDD-3 Erratum**

## 7.5.1 INCITS Status

The erratum has been published and this item can be removed from the agenda.

**7.6 EDD-4 [D2132]**

## 7.6.1 Obsolete item in EDD-4 (e09103) [Hatfield]

Jim Hatfield presented revision zero of his proposal for discussion. He took feedback and agreed to turn another revision for the next meeting.

## 7.6.2 Adding items to EDD-4 (e09102) [Hatfield]

Jim Hatfield reviewed the changes that he is proposing for EDD-4

## 7.6.3 David F Comment on EDD-4 from Reflector [Hatfield]

The committee reviewed the e-mail from the reflector. Curtis noted that he thought these issues were correct, with general consensus from the committee, in EDD-4 and would respond to the reflector with the discussion from the committee.

## 7.6.4 Draft Review [Stevens]

Curtis Stevens lead a draft review of EDD-4 (revision 1). Comments and suggestions on editorial and style information were made and Curtis agreed to consider these for incorporation for the next revision.

**7.7 Amendment for ATA8-ACS**

## 7.7.1 Proposed changes for ATA8-ACS (e08145) [Hatfield]

Jim Hatfield presented his proposal for amending ATA8-ACS. After discussion and revision with the committee, Jim requested the chair to issue a letter ballot to forward the ATA8-ACS amendment for first public review.

**7.8 ATA/ATAPI-6 Amendment [Stevens]**

## 7.8.1 Signatures in ATA/ATAPI-6

Curtis Stevens stated that he still needs to bring in a project proposal to amend ATA-6 to correct an error on how SATA uses the signature in ATA-6.

**7.9 T13 reflector, FTP, and web site setup**

## 7.9.1 INCITS requirement to transition to KAVI

No new information was available about the transition to KAVI.

**8. New Business****8.1 Additional Comments on New DMA Commands [Puri]**

Sumit Puri registered some problems with how the new DMA alternative commands are proposed with the difficulties of the way these new commands are implemented. After discussion, no changes were suggested by the committee and Sumit agreed to consider further.

**8.2 Items from the Reflector**

None were reported.

**9. Liaison Reports****9.1 T10**

[Colegrove]

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

[Overby]

Mark Overby reported that letter ballot comment resolution continues for SAT-2 and SAT-3 is open.

## 9.1.2 Power Management Issues

[Hatfield]

No issues were reported.

**9.2 T11**

[Colegrove]

Dan Colegrove stated that he is no longer attending T11 and could no longer give the T11 report. It was suggested that Bill Martin could fill that role. Bill reported that there was nothing occurring that materially affected T13 standards. Bill Martin was made the new liaison.

**9.3 JEDEC**

Mark Overby stated that he felt that all JEDEC items had been covered in other agenda items.

**9.4 IEEE**

## 9.4.1 IEEE 1667 Authentication Standard for Transient Storage [Landsman]

Dave Landsman stated that 1667 is targeting a middle of the year for final 1.1.

**9.5 Trusted Computing Group**

[Hatfield]

Jim Hatfield noted that many TCG specifications had now been published for storage.

**9.6 SFF**

[Colegrove]

Dan Colegrove reported that there was work ongoing for new form factors for SSD but no impact to T13 standards was seen.

**9.7 IDEMA**

[Colegrove]

## 9.7.1 4K Physical

A meeting for IDEMA is happening following the T13 meeting at another location.

## 9.7.2 HDD &amp; SSD Reliability

No new data was available.

**9.8 CFA**

[Geldman]

John Geldman reported that CFA is looking at extending the parallel interface version of CFA in the near future.

**9.9 Serial ATA**

[Hatfield]

Jim Hatfield reported that SATA 3.0 should be going into member review shortly.

**9.10 SNIA**

## 9.10.1 SSSI

[Colegrove]

Dan Colegrove reported that there are continuing discussions of SSD marketing and device metrics at the SSSI committees.

**10. Review of Action Items**

1. Curtis Stevens to change the website to comply with the notification of the public access model
2. Dan Colegrove to issue letter ballot to reaffirm or withdraw TR-21-1999.
3. Dan Colegrove to talk to Gary Robinson about ISO and T13 standards.
4. Dan Colegrove to issue letter ballot to forward ACS-2 amendment 1 to public review when draft is available.

5. Dan Colegrove to issue letter ballot to forward APT to first public review when draft is available.
6. Jim Hatfield to start process in liaison for SATA 3.0 material for ACS-2.

## 11. Meeting Schedules

### 11.1 Authorization of Ad-Hoc Working Groups

Up to two teleconferences, with JEDEC JC64.8 invited as guests, were authorized for discussion of solid-state statistics.

### 11.2 Next Meeting

Table 2: Next Meeting Information

Date	Location	Host	Contact
Apr. 14 - 16, 2009	Longmont, CO	Seagate	Jim Hatfield

## 12. Adjournment

Mark Overby moved, Dan Colegrove seconding, that the meeting be adjourned at 1201 PT, 19 February 2009. The motion passed with unanimous consent.