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1. Opening Remarks

Dan Colegrove, the T13 Chair, called the meeting to order at 0900 Tuesday, August 23rd, 2005. Dan Colegrove thanked Mark Evans of Maxtor 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. T13 operates under these policies and procedures augmented by the T13 procedures at the T13 web site at www.t13.org.

2. Approval of Agenda

Numerous corrections or modifications were made to the agenda and the agenda was republished with the corrections and additions. Mark Overby moved, Curtis Steven 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 20 organizations.

The number of eligible voting members required for establishing a quorum was 7. 15 Member organizations were present at the start of the meeting, thus a quorum was present.

The following individuals attended:

- Candy Alvarez            CPR Tools
- Tony Alvarez              CPR Tools
- Kenneth Hirata Emulex
- Eric Lanning Finisar
- Dan Colegrove             Hitachi GST
- Martin Hassner            Hitachi GST
- Steve Livacarri           IBM
- Wayne Bellamy HP
- Robert Strong Intel
- Joe Breher Lingua Data
- Tim Thompson LSI
- Mark Evans Maxtor
- Frank Shu Microsoft
- Mark Overby NVIDIA
- Karen Zelenko Phoenix Technologies
- Marc Noblitt Seagate
- Jim Hatfield Seagate
- Aaron Wilson ST Microelectronics
- Yutaka Arakawa Toshiba
- Mladen Luksic Western Digital
- Curtis Steven Western Digital
- Rob Condie Western Digital

4. Approval of the minutes from the previous T13 plenary meeting (e05126r0)

Jim Hatfield noted that Chandra from Phoenix Technologies was present and not Karen Zelenko. Dan Colegrove noted that the motion to approve Mark Overby as the IR for T13 was out of order due to INCITS procedure and that the new procedure would be covered later in the agenda for this meeting. Jim Hatfield, Curtis Stevens seconding, that the minutes be approved as amended. The motion passed with unanimous consent.
5. Document Distribution

The agenda was distributed by hard copy.

6. Review of Previous Action Items

1. Dan Colegrove to add the obsolescence of clause 14.4.8 of ATA/ATAPI-7 to the current errata document. [Complete]
2. Dan Colegrove to forward HBA errata to INCITS. [Complete]
3. Dan Colegrove to post the letter from the chairs of T10, T11, and T13 to the website about INCITS membership policy. [Complete]
4. Jim Hatfield to write an informative annex on the use of the security freeze lock and why it is important for ATA-8 ACS. [Carryover]
5. Mark Overby to begin process with CE-ATA to establish a liaison with T13. [Complete]
6. Marc Noblitt to begin process with MMCA about establishing a liaison with T13. [Marc not available to do so. Curtis agreed to try]
7. Dan Colegrove will query CFA if it uses subcommand codes for SET FEATURES. [Carryover]
8. Dan Colegrove to check with INCITS about the anti-trust implications for the SATA-IO proposal. [Work ongoing - Continue to Carryover]
9. Mark Evans 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 project. [Carryover]
10. John Masiewicz to create an item for the ATA-7 errata to incorporate the BIST retransmission clarification. [Carryover]
11. Dan Colegrove to check with INCITS legal about legal agreement possibilities with SATA-IO. [Work ongoing. Covered during SATA-IO discussion]

7. Old Business

7.1 ATA/ATAPI-7: 1532D

7.1.1 INCITS Status
INCITS has published the document as an official standard.

7.1.2 ATA/ATAPI-7 Errata: e05108r3 [Colegrove]
Dan Colegrove reviewed the current list of ATA/ATAPI-7 errata. No changes were made to the errata list and the list is being left open for errata that were mentioned during this meeting.

7.2 EDD-3: 1572D

7.2.1 INCITS Status [Stevens]
Curtis Steven stated that SCT has been published as INCITS TR-38-2005.

7.3 HBA Standard: D1510

7.3.1 Errata to HBA Standard (e05114r0) [Overby]
Dan Colegrove stated that INCITS was concerned that this was a technical change not an error. Dan clarified to INCITS that the bit was always supposed to be read only and was marked read-write in error. Dan will monitor the current status with INCITS.
7.4 ATA/ATAPI-8 Projects

7.4.1 ATA-8 Schedule Review

Dan Colegrove reviewed the current schedule for the various ATA-8 projects. No changes were made.

<table>
<thead>
<tr>
<th>Project</th>
<th>Proposal Cut Off</th>
<th>Stabilization</th>
<th>Letter Ballot</th>
<th>Forward to INCITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel</td>
<td>February 2005</td>
<td>June 2005</td>
<td>August 2005</td>
<td>April 2006</td>
</tr>
</tbody>
</table>

7.4.2 AT Attachment 8 - Architecture Model (ATA8-AAM)

7.4.2.1 Architecture Model and Diagram [Evans]

Mark Evans conducted line by line review of revision 0b of the AAM document. Mark agreed to publish the changes in revision 1 of the project.

7.4.3 AT Attachment 8 - Command Set (ATA8-ACS)

7.4.3.1 Download Microcode Enhancements (e04132r0) [Livaccari]

Steve Livaccari reviewed his proposal. Curtis Stevens and Dan Colegrove both noted that for the segmented download they want more limitations on how the segmented download works. They both noted that they wanted to see the download come in sequential chunks. Curtis additionally noted that he does not want to see offsets. Mark Overby pointed out that with those rules on the chunked download it is impossible to do a translation of SCSI WRITE BUFFER mode 07h and this makes it a problem. Mark Evans noted that it would be good to have specifics on what to do on reset and intervening commands. Steve Livacarri proposed a straw poll on if the restrictions on sequential access should be added or if the flexibility in offsets and chunk size should be allowed. 5 people voted for the restrictions and 5 people voted for the flexibility option.

On Wednesday Steve presented revision 1 of his proposal. A lengthy discussion ensued about if statements needed to be in this proposal regarding command completion, verification of the firmware, and resets. Steve updated the document to indicate that the firmware shall be verified and applied. Rob Strong pointed out that the restriction on the host to not send a command during this sequence was still in place. Mark Overby asked that the behavior be the same as queuing where receiving a non-queued command causes the queue to be aborted. Steve agreed to make that change. Dan and Curtis both requested that buffer offset checking not be required. A compromise was reached in that the device “may” abort the command if the offsets overlap or are not contiguous.

Steve Livacarri moved, Greg Elkins seconded, that e05132r1 be incorporated into ATA8-ACS. Curtis Stevens called the question. The motion to call the question passed with 13 ayes, 1 nay, and 0 abstentions. The main motion passed with 7 ayes, 4 nays, and 4 abstentions. Jim Hatfield and Rob Strong stated he voted no because much new comment was added and wanted more time to review. Mark Overby voted no because of the restriction in sequence sending that prevents mode 07h (SCSI) from being emulated.

7.4.3.2 Reserving OpCode and ID Data for NV Cache (e05151r0) [Shu]

Frank Shu presented e05151r0. This proposal requests a reservation of specific op-codes and for IDENTIFY data for their proposal for NV cache. Frank noted that because he believed that the NV cache proposal would not be completed in time for ATA-8 he would like to see op codes and identify device bits set aside for the NV cache. Curtis Stevens stated that he had concerns that the opcodes would be reserved for an activity going on with a few proprietary implementations and companies. Frank countered that he was concerned that the opposition to this seemed to be putting a roadblock to Microsoft doing the right thing. Jim Hatfield and Dan Cole-
grove stated that he appreciated the fact that Microsoft is trying to do the right thing. Mark Overby suggested that we add them and if no one is going to adopt the technology or if the technology was rejected then it could be removed before final or as part of letter ballot comments. Jim noted that he was concerned over the reservation of 4 features codes, since these are in short supply.

Curtis stated that he work with Frank to get the necessary resources in ATA-8 so that Frank could modify the proposal.

Frank asked that we defer the proposal to later during the plenary week so that he can modify the proposal to request what is needed based on the feedback for voting.

Discussion of the proposal resumed on Wednesday as Frank presented a revised version of his proposal (revision 1). Curtis Stevens noted that the proposal should just reserve the opcodes and the details of each opcode should be in the separate NV cache proposal (e05106). Curtis provided Frank with significant feedback on how to modify the proposal to only reserve the resources needed instead of bringing in pieces of the technical implementation. Frank made such changes while presenting the proposal.

Frank Shu moved, Curtis Stevens seconded, that e05151r1 be approved for inclusion into ATA8-ACS. The motion passed with 14 ayes, 1 nay, and 0 abstentions. Rob Strong stated the reason for his no vote was that he felt that NV cache proposal was not at a level of maturity that was ready for inclusion into ATA-8.

7.4.3.3 NV Ram Buffer Control (e05106r2) [Obr]
Frank Shu requested that this be deferred to the next meeting.

7.4.3.4 Add SCT to ATA8 Proposal (e05109r2) [Stevens]
Curtis Stevens presented revision 2 of his proposal to integrate SCT into ATA-8. Curtis changed the proposal to show how SCT would be broken up to incorporate into ATA-8. Curtis also reviewed the BIST proposal that he has incorporated into this proposal as part of incorporating all of SCT into ATA-8. Curtis requested that the membership review the document and he intended to bring it to a proposal vote at the next plenary meeting.

7.4.3.5 SCT BIST Proposal [Stevens] (e04148r0) [Stevens]
Curtis Stevens stated that he was making this proposal as part of his “Add SCT to ATA-8 proposal” (e05109r0) and this item could be removed from future agendas.

7.4.3.6 Long Physical Sector Alignment (e05119r0) [Barras]
Larry Barras was not present, so this agenda item was deferred to the next meeting.

7.4.3.7 Long Physical Sector Informative Annex [Colegrove]
Curtis Stevens made an announcement about bigsector.org. This is a website that has been setup by companies involved in the move to larger physical sectors to provide information about the technology as well as drives and hosts that are moving this way. Curtis also reviewed his document e05122r3, also on the bigsector.org website, that provides an overview of the impacts of the large physical sector implementations. Dan Colegrove asked what should be put into an annex to describe large physical sectors. Curtis stated that the information could be made into an annex, however, he could not drive such an effort; but would be willing to work with someone to turn this information into an annex. Curtis suggested that he could provide the overview and implementation information and start such a proposal. Dan assigned a document number (e05158) to Curtis to provide a skeleton annex. He stated a target of December for inclusion into ATA-8 with one or two conference calls during the intervening time.

Curtis began working on the skeleton with input from attendees during the discussion of this agenda item. Attendees provided feedback to Curtis for the initial draft of the document.
Dan Colegrove stated that he believed that ATA8 should specify a specific offset. However, Marc Noblitt, Mark Evans, and Curtis Stevens all stated that they believed this was not possible, especially at this time because it is unclear what that alignment is needed for the market.

Martin Hassner reviewed the history of the large sector size and the reasoning behind moving from a 512-byte physical sector to a larger physical sector.

7.4.3.8 SMART Error Log Sequences (e05141r1) [Chen]
Joseph Chen was not present, so this agenda item was deferred to the next meeting.

7.4.3.9 Self Throttling (e05136r0) [Livaccari]
Steve Livaccari reviewed his proposal to have a method in the drive to throttle I/O at the drive level to improve reliability at the cost of performance. The general concept is that if the drive detected a condition that the frequency of I/O is reducing reliability, it would slow the completion of I/O in order to maintain the reliability. A lengthy discussion ensued about the need for this and for alternate mechanisms in order to determine temperature and host intervention. Frank Shu pointed out that alternative methods require host intervention. Curtis Stevens replied that hosts are the best ones to know the environment and be able to control the I/O rate, temperature, fans, and other such devices.

Steve agreed to turn a revision of the proposal to incorporate feedback from this meeting and bring the proposal to the next meeting.

7.4.3.10 Write Uncorrectable (e02126r5) [Livaccari]
Steve Livaccari presented the current revision of the proposal that included changes to make it more reflect the ATA-8 style. Steve also noted that he included commands to include large LBA drives. A discussion was continued on the need for READ RAW and the effect that permuted ECC would have on this ability to read the ECC that goes with the logical block. Steve agreed to remove READ RAW from proposal and to split that into a second proposal. Mark Evans noted that the command description should be cleaned up to just specify the behavior that is desired without specifying an implementation. Jim Hatfield noted some missing language to clarify the behavior of the features register. Steve agreed to make those changes.

Steve Livacarri moved, Greg Elkins seconded, that e02126r5, as modified, be approved for inclusion into ATA-8 and for Curtis Stevens assign the TBD opcodes. Mark Evans moved, Mark Overby seconded, that the motion be deferred to Wednesday so that the changes could be seen in the document. The motion passed with unanimous consent.

On Wednesday, discussion of the motion resumed. Steve displayed the changes that he had made in the document based on the feedback from the Tuesday discussion. The motion passed with 12 ayes, 0 nays, and 2 abstentions.

7.4.3.10.1 Read Raw (e05157r0) [Livaccari]
Steve Livacarri presented his proposal, created from removing READ RAW from e02126r5. The proposal allows for a host to read the contents of a sector without applying any ECC error. Mark Evans, Marc Noblitt, and Curtis Stevens all stated that they believed that this was not possible with their drives. Marc also stated that he had concerns about exposing the raw error rate for the drives. Steve requested that drive vendors go back and check if this could be supported or what level of raw data could be returned. Curtis suggested that the data bytes could be returned after correction even if they were known to still be bad. Steve will post e05157r1 for review for the next meeting.

7.4.3.11 Trusted Computing Commands (e05139r2) [Hatfield]
Jim Hatfield presented the latest revision of the trusted computing proposal for the commands that the trusted computing group was requesting. The task file contents are defined by this group and the data stream is defined by the trusted computing working group. Jim noted that this proposal has a sibling for T10 to incorporate similar commands into SPC. Jim reviewed the changes from the previous document and why changes
were made. He also stated that this will not be the final revision. Jim stated that he would take these comments back for discussion as well with the T10 proposal at the next T10 plenary. Curtis Stevens stated that he would like to see this ready for integration by October 2005. Jim thought that would be possible.

7.4.3.12 Proactive Reporting and Correcting (e05142r1) [Shu]
Frank Shu presented the latest revision of Microsoft position about the need for further and more detailed error reporting. Microsoft’s position is that the drive should report actions that the host can take to correct conditions that are affecting drive reliability. There was significant discussion from the attendees about what exactly could be reported and what the host could do. In addition, some attendees queried about how, considering the latencies involved in the bus could timely information be reported. As well, devices are not permitted to initiate uncommanded operations in ATA environments. Frank agreed to review the feedback and continue working on his proposal.

7.4.3.13 ATA Feature Summary (e05144r0) [Chen]
Joseph Chen was not present so this item was deferred to the next meeting.

7.4.3.14 DF Bit Recovery (e05127r1) [Stevens]
Curtis Stevens presented the latest revision of the DF bit proposal. Curtis noted that the changes were to clean up language to add clarity. Curtis Stevens moved, Mark Overby seconded, that e05127r2 be incorporated into ATA-8. Steve Livacarri requested some clarifying language that indicates that the device, once reset, can accept some commands without asserting the DF bit. Curtis added such language and amended the motion to reflect r2 be integrated instead of r1. The motion passed with 14 ayes, 0 nays, and 0 abstentions.

7.4.3.15 Read Write Log Ext DMA (e05129r0) [Stevens]
Curtis Stevens presented a proposal to add the capability to be able to read and write logs using DMA protocols instead of PIO. Curtis Stevens moved, Tim Thompson seconded, that e05129r0 be incorporated into ATA-8. Jim Hatfield requested a minor change to call the command DMA EXT instead of EXT DMA. Curtis agreed to make that change and amended to motion to incorporate e05129r1 instead of e05129r0. The motion passed with 14 ayes, 1 nay, and 0 abstentions. Jim Hatfield noted he voted no because he did not believe this was needed.

7.4.3.16 Report Transport Standard (e05132r0) [Stevens]
Curtis Stevens reviewed his proposal for having a mechanism to report the transport standard in the ATA-8. Dan Colegrove noted that because of the uncertainty around the ATA-8 serial transport document, it is unclear if this mechanism is needed at this point because the necessary commands may appear in ATA-8 instead of referencing a separate document. Curtis responded that this mechanism is analogous to reporting compliance to a specific ATA revision that we have in preceding ATA standards. Jim Hatfield provided a list of serial ATA transport specifications from SATA-IO that would be useful to assign values to. Curtis updated the table to include those specifications and assigned values to them. Curtis Stevens moved, Greg Elkins seconded, that e05132r1 be incorporated into ATA-8. The motion passed with 13 ayes, 0 nays, and 1 abstention.

7.4.3.17 Media Serial Number Endianness (e05140r0) [Hatfield]
Jim Hatfield reviewed e05140r0 and asked for feedback. Dan Colegrove stated that he had not checked with CFA yet on their preference for media number endienn type. Dan agreed to take an action item to check with CFA to make sure there was no issue. Jim Hatfield moved, Mark Overby seconded, that e05140r0 be incorporated into ATA8-ACS. The motion passed with 13 ayes, 0 nays, and 0 abstentions.

7.4.3.18 SATA Device BIST Control (e05149r0) [Chen] (* New Business)
As Joseph Chen was not present, this item was deferred to the next meeting.

7.4.3.19 ACS Editor Questions
7.4.3.19.1 Write Read Verify Incorporation (e04129r6) [Stevens]
Curtis Stevens reported that this has been integrated with no further questions.
7.4.3.19.2 HPA State Diagram Descriptions (e03124r5) [Stevens]
Curtis Stevens reported that there exists a problem where if the 28-bit SET MAX ADDRESS is used on a
drive that uses a 48-bit command set it is not clear how you clear that HPA since setting SET MAX
ADDRESS to all F's would still be a legal size for an HPA. Curtis proposed adding language that would
reflect that if SET MAX ADDRESS is used with an address that equals SET NATIVE MAX ADDRESS, then it
would clear the HPA. Karen Zelenko asked if the drive should reject 28-bit SET MAX ADDRESS if it supports
the 48-bit versions. Discussion ensued and the general consensus was that it was premature to make such a
restriction. Curtis added text to include text on how to clear 28-bit HPA into section 7.50.2.2 of ATA8-ACS.

Karen Zelenko requested that the group review the HPA state diagrams (e03124r5) with the new transition
text. Curtis requested that we do this offline and be ready at the next meeting to consider for incorporation.
Dan Colegrove stated that comments must be ready by the next meeting.

7.4.3.19.3 Logical Sector Alignment (e05120r4) [Stevens]
Curtis Stevens reported that this has been integrated and there are no questions.

7.4.3.19.4 SATA ICRC Reporting (e05133r0) [Stevens]
Curtis Stevens reported that this has been integrated and there are no questions.

7.4.3.19.5 DCO Interaction with SMART [Stevens]
Will be covered during draft review.

7.4.3.19.6 Extend Supported and Enabled Bits (e05130r0) [Stevens]
Curtis Stevens reported that this has been integrated and there are no questions.

7.4.3.19.7 Identify Device Requirements [Stevens]
Curtis Stevens reported that this has been integrated and there are no questions.

7.4.3.20 Draft Review [Stevens]
Curtis Stevens conducted a change bar review of the command set document and received input from the
attendees and agreed to publish a new revision with the input and changes.

7.4.4 AT Attachment-8 - Parallel Transport (ATA8-APT)
7.4.4.1 Review of Draft
Mark Overby conducted a change bar review of the parallel document and received input from the attendees.
Mark agreed to post revision 1 of the document with the changes that were accepted during this meeting. Mark
stated that he would post revision 1a with change bars for further changes, and 1b with the change bars off.

7.4.5 AT Attachment-8 - Serial Transport (ATA8-AST)
7.4.5.1 Review of Draft
Due to the ongoing discussions with SATA-IO and the uncertainty about the need for the ATA8-AST project,
this item was deferred to the next meeting.

7.5 Method to Disable Data Transfer after Error Detection TR (e05104r2) [Livaccari]
7.5.1 Status
Steve Livacarri stated that revision 2 of the technical report should be final. Steve reviewed the draft with the group
and requested the chair to issue a letter ballot to approve the draft for further processing. Dan agreed to issue the
letter ballot.

7.6 HBA-2 Project Proposal [Overby]
Mark Overby moved, Mark Evans seconding, that e05115r1 be approved as a new project proposal and be for-
warded to INCITS as such. The motion passed with 14 ayes, 0 nays, and 0 abstentions.
7.7  A/V Technical Report project [Colegrove]
Dan Colegrove asked that this be deferred to the next meeting.

7.8  T13 reflector, FTP, and web site setup
There were no issues to report.

7.9  INCITS Membership and Meeting Attendance Policy
Dan Colegrove posted the letter that the T committee chairs sent to INCITS about the membership policy and INCITS has not taken action yet.

7.10  International Standards Participation by T13
Dan Colegrove agreed to research the correct procedure for requesting an IR and the committee could take action at the next meeting.

8.  New Business
8.1  Items from the Reflector

8.1.1  Stream Questions [Stevens]
Curtis Stevens reviewed questions he had sent to the reflector before the meeting. Curtis queried about if there were 8 streams or 16 streams as there was confusion on configuring streams if there was 1 bit for each direction or 1 bit for each stream period. Dan Colegrove stated that he believed that there were just 8 streams period. Dan and Curtis agreed that the language about the read / write bit in CONFIGURE STREAM needed clarification. Dan stated his preference for clarification is to state clearly that there is a total of 8 streams and that the read/write bit is advisory and a hint to the device about the expected direction of the stream. Greg Elkins stated that he would like to see this as a proposal and Mark Overby concurred. Dan Colegrove agreed to bring the proposal forward.

Curtis stated that some drives error when the CCTO occurs and other drives do not, if the flush bit is set. Mark Evans stated that the flush explanation in the standard says that the flush operation shall not complete until all data has been flushed (regardless of the CCTL). Dan stated that he believes that the CCTL should take priority over the flush operation. Mark believed that there was a conflict between the shall statements. A further discussion ensued as attempts were made to fix the language that over setting error outputs, when to report the error, and the effect of other bits (e.g. WC) on this flush operation. Mark Evans agreed to bring a proposal for ATA-8 to correct the behavior (e05154).

Curtis stated that the spec is stating behavior for read continuous and read stream PIO that is not being implemented. Curtis states that his belief that the SE bit is not used in PIO. Curtis stated that he would like to obsolete the SE bit for PIO and would bring a proposal to do so (e05159).

Word 87, bit 4 is supposed to be set to 1 if a configure stream has been executed. Curtis stated that he believes that this is supposed to be an indicator that the drive is in streaming mode and no statement exists about how that bit gets cleared. Dan believes that this bit exists to indicate to other applications that some application is doing streaming and was unsure if it was necessary to go back and clear the bit if there are no streams outstanding. Dan agreed to add some clarifying language.

Curtis asked if the delayed LBA log required for streaming. Dan stated that he believed that the delayed LBA log was intended to be part of the streaming feature set. Dan agreed to research the issue with his engineers and possibly propose some changes.

Curtis also noted that if an ICRC error occurs, continuous reads or writes will not work because the drives will stop transmitting data.

8.1.2  Read Look Ahead [Chen]
The group revisited the issue discussed at the last meeting about if the read ahead disable affects the entire read cache. Curtis Stevens stated the he believed that the wording should be changed. Curtis Stevens moved, Mark
Evans, that the description of the read look ahead disable include words to indicate that the entire read cache may be disabled. The motion passed with unanimous consent.

8.1.3 Count Register [Shastry]
Curtis Stevens acknowledged that there was an error in the READ * EXT commands where 0 in count register indicates 64k sectors to be transferred, not 256. Curtis had already addressed this problem in the draft he was working on.

8.1.4 PIO “DRQ Data Block” Definition [Krebs]
Mark Overby agreed to review this discussion and respond to the reflector.

8.1.5 LBA parameter in FIS [Shastry]
The committee discussed this and felt that ATA-7 was clear that the D->H FIS contains the standard return values from a command (PIO exceptions noted).

8.1.6 Questions on text for SECURITY ERASE UNIT [Overby]
The committee resolved the question that before SECURITY ERASE UNIT is sent, a password must be set. Mark Overby agreed to bring a proposal (e05162) to clarify this language.

8.1.7 READ LOG EXT [Stevens / Overby]
Curtis Stevens and Mark Overby both identified a problem where ATAPI devices are allowed to implement READ LOG, but not WRITE LOG in ATA-7. There was discussion on why ATAPI devices were prohibited, originally, from implementing the GPL feature set. There was acknowledgement that ATA-7 was unclear. Mark and Curtis both reported that SATA ATAPI devices wanted this ability. The consensus was that this should be fixed in ATA-8. Mark Overby agreed to bring a proposal to allow for this behavior (e05161).

8.1.8 FLUSH CACHE EXT and FLUSH CACHE behavior [Overby]
Mark Overby discussed the issue that it was unclear what the behavior of FLUSH CACHE and FLUSH CACHE EXT if the write cache was disabled. There was consensus that the command shall complete without error if write cache is disabled (write cache being disabled is not a valid reason to abort the command). Mark agreed to bring a proposal to ATA-8 to clarify this (e05160).

8.1.9 Security supported / enabled question [Stevens]
Curtis Stevens stated that he believed that the text was unclear about when the identify bits should get set for security being enabled versus security being disabled. Mladen suggested that the name of the bit in IDENTIFY DEVICE be changed to say that a password as set. Curtis Stevens suggested that the text for the description could be modified to make that clear. Mark Overby agreed to add this to his proposal to clarify when SECURITY ERASE UNIT can be sent.

9. International Representative Reports
Mark Overby reported that Gary Robinson stated that the work item for ATA-7 had been approved by ISO committee SC25 and that work was beginning on ATA-7 volume 1.

10. Liaison Reports
10.1 T10 [Colegrove]
10.1.1 T10 Liaison Report [Lohmeyer]
Dan Colegrove presented the liaison report from T10 and SAS 1.1 is currently in comment resolution. And SAS 2 is just beginning.

10.1.2 SCSI to ATA Translation (SAT) Working Group Report [Sheffield]
The current revision of the draft is revision 5 that will remain that way until the July meeting and is targeting a September letter ballot.
10.1.2.1 Working group meeting before T13 plenary co-located.
SAT was requesting time for both the October and December meetings.

10.2 T11 [Colegrove]
Dan Colegrove stated there were no activities that he was aware of impacting this committee.

10.3 Trusted Computing Group [Hatfield]
Jim Hatfield stated that he believed the information was covered during the discussion of the proposal.

10.4 SFF [Colegrove]
Dan Colegrove stated that SFF is working on 30mm x 40mm form factor and 54mm x 71mm form factors specifica-
tions (SFF-813x and SFF-814x).

10.5 IDEMA [Colegrove]
Dan Colegrove reported that IDEMA CE group is continuing to meet and focusing on reliability specifications.

10.6 MMCA [Colegrove]
No liaison report was available. Curtis Stevens stated he might be able to provide a report at the next meeting.

10.7 CFA [Hatfield]
Dan Colegrove stated no meeting has been held since the last T13 meeting and there was nothing to report. Jim
Hatfield reported that the A/V team has not met recently as well, but there has been a change in the lead of the A/
V group.

10.8 Serial ATA IO [Dees]
10.8.1 Liaison Report
Brian Dees was not present, so no liaison report was provided.

10.8.2 Copyright Clearance for ATA8 Project
Dan Colegrove and Marc Noblitt reviewed the current draft of a license agreement between SATA-IO and INCITS
to license command set material. Dan created a document to collect feedback from the attendees about the license
agreement. Dan stated that he would format that feedback, post the document, and send the feedback to SATA-IO.

Feedback from the attendees was to have a definitive time for review to be completed by SATA-IO so that the letter
ballot, public review, and publishing process could proceed without worry of encumbrance. Additional questions
arose around the derivative works clause and further clarification was requested. A definition of the normative and
informative material was requested.

There was also a discussion about having a rule instead of a license agreement. Marc stated that the board of
SATA-IO felt that to be insufficient.

Dan published the draft license as document number e05152r0 and will publish the committees questions and con-
cerns in document e05153r0 and send to SATA-IO.

10.9 CE-ATA [Overby]
Mark Overby reported that a proposal would be discussed at the CE-ATA digital working group to incorporate the
signature for CE-ATA into ATA-8. Mark expected that proposal to be ready for the October meeting.

11. 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. Section 1.2.11 of that document contains the ANSI patent policy. Amy Marasco
manages patent issues for ANSI and can be contacted at amarasco@ansi.org or 212-642-4954.
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.

12. Review of Action Items

1. Jim Hatfield to write an informative annex on the use of the security freeze lock and why it is important for ATA-8 ACS. (carryover)
2. Curtis Stevens to inquire with MMCA about establishing a liaison with T13.
3. Dan Colegrove will query CFA on if SET FEATURES subcommand codes are used.
4. Dan Colegrove to check with INCITS about the anti-trust implications for the SATA-IO proposal.
5. Mark Evans 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 project.
6. John Masiewicz to create an item for the ATA-7 errata to incorporate the BIST retransmission clarification.
7. Dan Colegrove to check with CFA if they have a preference for the removable media serial number endien type.
8. Dan Colegrove to issue a letter ballot for the Method to Disable Data Transfer After Error technical report for forwarding to INCITS for further processing.
9. Dan Colegrove to ask INCITS legal about the need for a copyright release to incorporate material from ATA-7 into HBA-2 that was part of SATA material.
10. Dan Colegrove to forward e05115r0 to INCITS as a new project.

13. Meeting Schedule
13.1 Meeting Length
The meeting length continues to be 3.5 days due to the extra material. Dan Colegrove noted that for October, Tuesday will run from 0900 to 1800, Wednesday from 0800 to 1700, Thursday from 0900 to 1700, and Friday from 0900 to 1200.

13.2 Authorization of Ad-Hoc Working Groups
The committee voted to approve up to two teleconference calls for the purposes of discussing the NV cache proposal by Nathan Obr or Frank Shu. Dan Colegrove moved, Mark Overby seconded, that two teleconferences be authorized to discuss the NV Cache proposal. The motion passed with unanimous consent.
13.3 Long-Term Meeting Schedule

Table 2: 2005 Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Host</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 18-21, 2005</td>
<td>Las Vegas, NV</td>
<td>Fujitsu</td>
<td>Sumit Puri</td>
</tr>
<tr>
<td>December 13-16, 2005</td>
<td>Las Vegas, NV</td>
<td>Hitachi GST</td>
<td>Dan Colegrove</td>
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Table 3: 2006 Dates

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<th>Location</th>
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<tbody>
<tr>
<td>February 21-24, 2006</td>
<td>Orange County, CA</td>
<td>Western Digital</td>
<td>Curtis Stevens</td>
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<tr>
<td>April 18-21, 2006</td>
<td>Cupertino, CA</td>
<td>Apple</td>
<td>Larry Barras</td>
</tr>
<tr>
<td>June 20-23, 2006</td>
<td>Seattle, WA</td>
<td>NVIDIA</td>
<td>Mark Overby</td>
</tr>
<tr>
<td>August 22-25, 2006</td>
<td>Boulder, CO</td>
<td>Maxtor</td>
<td>Mark Evans</td>
</tr>
<tr>
<td>October 24 - 27, 2006</td>
<td>Las Vegas, NV</td>
<td>Fujitsu</td>
<td>Sumit Puri</td>
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<tr>
<td>December 12-15, 2006</td>
<td>Las Vegas, NV</td>
<td>Hitachi Global</td>
<td>Dan Colegrove</td>
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Table 4: 2007 Dates

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<tr>
<td>December 11-14, 2007</td>
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14. Adjournment

The meeting was adjourned at 1200, Friday August 26, 2005.