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Date: 12 Dec 2001
Reply to: Pete McLean

To: Membership of T13
From: Mark Evans, Secretary of T13, and Pete McLean, Chair of T13
Subject: Minutes of 32nd T13 Working Group and Plenary Meetings at Irvine, CA
December 11 – December 12, 2001

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Results of the Meeting

1 Opening remarks

Pete McLean, the T13 Chair, called the meeting to order at 9:00 A.M. on Tuesday, December 11, 2001. Pete thanked Darrin Bulik of Western Digital for hosting the meeting.

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

The Chair briefly reviewed the meeting rules: T13 is a Technical Committee of NCITS and operates under NCITS 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. In addition, the committee complies with NCITS antitrust guidelines. As a result of this, discussions about unannounced products, prices, volumes, vendor relations, etc., are prohibited. The Chair noted that a set of Policies and Procedures for NCITS are available at the web site at www.ncits.org site under the standing documents category as SD-2. T13 operates under these revised policies and procedures augmented by the T13 procedures at the T13 web site at www.t13.org.

The Chair reported on his attendance at the Annual NCITS Officers Symposium and training. The NCITS Award for Effective Committee Management presented to Gene Milligan in 2000 was renamed the Gene Milligan Effective Committee Management Award and Gene's wife Beatrice attended the Symposium and presented the award to this years recipient.

The two-thirds voting rule has been further clarified. For two-thirds meeting votes, the majority requires more than half of the eligible voting members attending the meeting less abstentions and at least a quorum. The two thirds requires at least two-thirds of the eligible members voting less abstentions. For letter ballots, the majority requires more than half of the eligible voting members of the committee less abstentions since all eligible members receive ballots.

2 Approval of agenda

The agenda as reflected in these minutes was approved unanimously.

3 Membership and attendance

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 as an Advisory Member 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 NCITS. Voting privileges begin upon receipt by the NCITS Secretariat of applicable fees for the membership year.

3.2 Fees

Current NCITS memberships fees for Observer, Principal, or additional Alternate 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.

The Chair reported that he had received notice from NCITS that the fees for CY 2002 would be the same as the fees for CY 2001.

Persons with questions or requests regarding membership fees and/or subscriptions for mailings should contact Monica Vago, Manager, ITI Standards Operations, at 202-626-5739, send a fax to her at 202-638-4922, or contact her by email at mvago@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 membership being terminated.

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

Two voting members were in jeopardy due to lack of attendance: QLogic and Sandisk.

No members were terminated due to lack of attendance.

Intel requested new membership at the meeting. The T13 voting membership during the meeting was 21 organizations (up from 20 at the last meeting).

The number of eligible voting members in attendance for establishing a quorum was 7. 15 members were present at the meeting, thus a quorum was present.

T13 voting membership following the meeting was 21 members.

The following individuals were in attendance:

Phil Gardner	Absolute Software	Mary Morgan	Morgan Link
Ron Roberts	Adaptec	Tony Goodfellow	Pacific Digital
Raymond Liu	Silicon Image	Curtis Stevens	Pacific Digital
Sumit Puri	Fujitsu	Gary Laatsch	Phoenix
Dan Colegrove	IBM	Ron Salmon	Phoenix
Michael Eschmann	Intel	Arie Krantz	Qlogic
Tim Bradshaw	Iomega	Bob Chang	Sandisk
Andre Hedrick	Linux ATA Dev	Tasuku Kasebayashi	Toshiba
Mark Evans	Maxtor	Darrin Bulik	Western Digital
Pete McLean	Maxtor	Larry McMillan	Western Digital
Nita Pan	Microsoft		

4 Approval of the minutes from the previous T13 plenary meeting (e01140r0)

The minutes from the previous meeting, e01140r0, were approved unanimously.

5 Document distribution

The following documents were distributed either via hard copy, soft copy, or both:

Agenda and document directory

Resolution to ATA/ATAPI-6 letter ballot comments (e01143r0) [McLean]

ATA/ATAPI-7 rev 0, volumes 1, 2, and 3

EDD – 2 project 1484-D (d1484r1a) [Stevens]

Comments on the proposal for selective self-test (e01147r0) [Bulik]

Proposal to reserve opcodes for Serial ATA (e01145r0) [McLean]

ATA/ATAPI Host Adapter Standard project 1510D (1510D r0c) [Goodfellow]

6 Review of previous action items

1. The Chair is instructed to issue a letter ballot for forwarding ATA/ATAPI-6 revision 3 to NCITS for further processing. Completed – to be covered in agenda item 7.2.1.
2. Representatives of device manufacturers are speak with their designers regarding Larry Barras' proposal to limit leakage current on INTRQ and be prepared to discuss this at the meeting in December. To be covered in agenda item 7.7.7.

3. Representatives of device manufacturers are to check under what conditions their devices set DF in the Status register to one. To be covered in ATA/ATAPI-6 letter ballot comment resolution, agenda item 7.2.1.
4. Mark Evans is to post information on the technology transfer survey to the T13 reflector. Completed.

7 Old business

7.1 ATA/ATAPI-5 Erratum (ANSI NCITS 340-2000 (erratum)) (e01122r1) [McLean]

The Chair reported that the ATA/ATAPI-5 erratum has been approved by ANSI and published.

7.2 ATA/ATAPI-6 project 1410-D

The Chair reported that the letter ballot to forward ATA/ATAPI-6 passed, 18 yes, 0 no, 0 abstain, 2 eligible members did not vote. Two of the yes votes had comments to be resolved.

7.2.1 ATA/ATAPI-6 Letter ballot resolution (e01143r0) [McLean]

Pete McLean reviewed his recommendations for resolution of letter ballot comments for ATA/ATAPI-6 and other minor issues that have been highlighted.

Curtis Stevens moved and Ron Roberts seconded that the recommendations for resolution of letter ballot comments including input from the meeting be included in the next revision of ATA/ATAPI-6 (revision 3a), and that this revision be forwarded to NCITS for further processing.

A roll call vote was taken. The motion carried 14:0:0:7.

Company	Voter	Yes	No	Abstain	Not present
Absolute Software	Phil Gardner	X			
Adaptec	Ron Roberts	X			
Apple					X
Fujitsu					X
Hitachi					X
IBM	Dan Colegrove	X			
Intel	Michael Eschmann	X			
Iomega	Tim Bradshaw	X			
Linux ATA Development	Andre Hedrick	X			
LSI Logic					X
Maxtor	Mark Evans	X			

Microsoft	Nita Pan	X			
Morgan Link	Mary Morgan	X			
Pacific Digital	Tony Goodfellow	X			
Phoenix	Gary Laatsch	X			
Qlogic					X
Sandisk	Bob Chang	X			
Seagate					X
ST Microelectronics					X
Toshiba	Tasuku Kasebayashi	X			
Western Digital	Darrin Bulik	X			

7.2.2 ATA/ATAPI-6 Schedule Review

The schedule for the project as it is reflected in the following table was reviewed. There were no changes made to the schedule at this meeting.

Schedule Item	Original	Prior	Current
Project proposal	Oct-99	Oct-99	Oct-99
Initial draft	Jun-00	Jun-00	Jun-00
Proposal cut-off	Aug-00	Aug-00	Aug-00
Stabilized draft	Feb-01	Apr-01	Apr-01
Letter ballot	Apr-01	Aug-01	Oct-01
Forward to NCITS	Jun-01	Oct-01	Dec-01

7.3 EDD – 2 project 1484-D [Stevens]

7.3.1 Draft review (d1484r1a) [Stevens]

Curtis Stevens reviewed the change bars in the draft resulting from input at the October meeting. Curtis agreed to make a new revision (rev 2) of the document accepting the change bars and other input from the meeting.

Curtis Stevens moved and Ron Roberts seconded that revision 2 of the document be forwarded to NCITS for further processing. The chair was given the action item to issue a letter ballot for forwarding EDD-2.

7.4 ATA/ATAPI Host Adapter Standard project 1510D [Goodfellow]

7.4.1 Draft review (1510D r0c) [Goodfellow]

Tony Goodfellow reviewed this document which included changes based on input at the October meeting.

During the review several issues were identified including what should be the default values in the Base Address Registers. Tony and Mike Eschmann said that they would take these off-line and try to reach resolutions.

In addition, Mike also took a number for a document (e01149r0) that would describe PCI timing register data from Intel. As this develops, this may be included as an informative annex in the standard document.

Tony agreed to take input from the meeting and construct a new revision of the document.

7.5 ATA/ATAPI-7 project 1532D

7.5.1 Format discussion

Pete McLean, the editor, reviewed the new format that he constructed. Because the resulting volume 1 of the new format was so small, it was agreed that Pete would take the material that had been in volume 1 and place it in both of the other two volumes, reducing this document to two volumes. It was also agreed that the new volume 1 would contain the command descriptions and that the new volume 2 would contain the description of all of the physical and transport elements.

7.5.2 Proposal for command integrity checking (e00160r0) [McLean]

Pete reviewed his proposal for providing checking on values written to the Command Block registers for commands. This proposal was constructed for 48-bit commands only. Tony Goodfellow and others recommended that it would be good to have this type of protection on 28-bit commands, as well. Pete said that he would check to see if a mechanism to do this would be possible and still provide sufficient protection. If protection on 28-bit commands is possible and effective, Pete will bring in a new revision of his proposal including this feature.

7.5.3 Extended cable lengths (e00151r1) [Goodfellow]

Tony is waiting for feedback from HDD vendors that have been supplied with controller and cable systems using extended cable lengths.

Pete McLean stated that there was concern that there is not enough control over how others might construct extended-length cables. Curtis Stevens said that there were already many cables being constructed today that were out of specification, and that it would be better to have specific requirements for longer cables in the standard.

Tony offered to provide samples to others and will bring a revised document into the next meeting to move forward with this work.

7.5.4 Larger physical sector size (e01138r1) [Colegrove]

Dan Colegrove had nothing new to present at this meeting, though he also said that he would distribute material on this topic from IDEMA before the next meeting to help folks better understand the issues and what has been discussed.

Nita Pan reported that the folks at Microsoft felt that the maximum sector size should be 4096 bytes (eight sectors). Dan replied that this was the general feeling of the IDEMA working group, as well.

Mike Eschmann said that he would contact the Intel Architecture Labs to see if he could enlist their help in evaluating the impact of this type of change, particularly in regard to performance.

7.5.5 INTRQ assertion, negation, release, pull-up (e01119r0) [Barras]

This proposal is for a specification for leakage current on the device's driver for INTRQ or, alternately, a 6.2 Kohm pull-down resistor on the signal at hosts that implement level sensing of this signal. Discussion on this topic had been postponed from the previous meeting so that device folks could speak with their designers.

Pete McLean and Mark Evans reported that Maxtor would have no problem with either of these alternatives. Dan Colegrove said that IBM would have no problem with either of these alternatives. Tim Bradshaw reported that Iomega would have no problem with either of these alternatives.

Others said that they would try to have an answer by the February meeting.

7.5.6 FLUSH CACHE command modification proposal (e01126r0) [Noblitt]

Marc Noblitt had presented a proposal at the August meeting to add a DWE (deferred write error) bit in bit 4 of the Status register for the FLUSH CACHE EXTENDED command (as had been defined for use by the streaming commands). He stated that the reason for this bit is so that any write cache error that has occurred since the previous FLUSH CACHE command can be reported to the host.

Several folks said that their devices would hang requiring a reset if a write cache error occurred and that this was the proper response for devices. Marc said that he would go back and check how Seagate's drives function.

As Marc was not present at this meeting, discussion of this item was deferred to the next meeting.

7.5.7 Extensions to device self-test (e01137r0) [Bulik]

Darrin Bulik stated at the October meeting that these extensions were developed to quickly determine if the device had incurred handling damage, particularly during shipment.

Darrin stated at this meeting that he had no update at this time. The group requested that Darrin provide more information about the intent of this proposal and clarify that implementation is device specific.

Darrin said that he would like to use SMART log page 08 for the results of this test in his proposal.

7.5.8 Selective self-test (e01139r0) [McLean]

Pete McLean stated at the last meeting that, as devices increase in capacity, the extended SMART self-test also increases in the time it takes to execute a full-surface scan. This proposal describes a method to decrease the time required for testing by defining a method to allow a utility to specify critical areas to be scanned.

Pete stated at this meeting that he had not constructed an update as he had received no feedback that would require changes to the document that he presented at the October meeting. Pete then briefly reviewed his proposal.

There was discussion that it might be possible to simplify the proposal. Pete said he thought that the capability to test selective areas of the media, the timer function, and the capability to perform a background scan as a secondary step were the most important features of his proposal.

Pete said that he would attempt to discover if it was possible to simplify the proposal to focus on these most important features and report back at the meeting in February.

The group also reviewed e01139r0, Comments on the proposal for a selective self-test by Darrin Bulik. Pete said that he would check on the issues that were not resolved during the discussion at the meeting and include all accepted resolutions in the next revision of his proposal.

7.5.9 Proposal for additions to ATA/ATAPI-7 for Ultra DMA mode 6 (e01135r0) [Evans]

Mark Evans reported at the October meeting that the proposal had been posted on the web site. He had requested that if there were any specific issues with the proposal to communicate the issues to him via email so that they could be resolved before this meeting.

Mark reported that no issues with the proposal had been communicated to him since the last meeting.

Mark Evans moved and Curtis Stevens seconded that this proposal be included in ATA/ATAPI-7.

During the discussion it was identified that this proposal changes two values for Mode 5 (setup and hold times at the recipient), and no justification for this change is provided in the proposal. It was also stated that there may be other issues with the proposal not identified at this meeting.

Mark and Curtis agreed to withdraw their motion to allow time for any issues to be addressed before the February meeting.

Darrin Bulik stated that he would post all issues that WD had identified to the T13 reflector in time for them to be addressed before the February meeting.

7.5.10 Schedule review

The schedule for the project as it is reflected in the following table was reviewed. There were no changes made to the schedule at this meeting.

Schedule Item	Original	Prior	Current
Project proposal	Aug-01	Aug-01	Aug-01
Initial draft	Dec-01	Dec-01	Dec-01
Proposal cut-off	Jun-02	Jun-02	Jun-02
Stabilized draft	Dec-02	Dec-02	Dec-02
Letter ballot	Apr-03	Apr-03	Apr-03
Forward to NCITS	Jun-03	Jun-03	Jun-03

7.6 ATAPI Implementation Specification (e00150r0) [Goodfellow] (formerly Consolidated ATAPI PACKET command set)

Tony Goodfellow had nothing new to report at this meeting but wished to leave this item on the agenda.

7.7 Proposal document format guideline (e01129r0) [Colegrove]

Dan Colegrove is working to construct the next revision of his document and had nothing new to present at this meeting. This format of this will be a proposal document and a proposed new annex.

7.8 Improved error definition (Stevens)

Curtis Stevens said that issues that he had in this regard were resolved by the clarification of the DF bit discussed earlier in the meeting that will be included in the next revision of ATA/ATAPI-6.

7.9 Forced Unit Access [e011140r0] (Pan)

Nita Pan discussed her proposal and received much input from the group. The general feeling was that this could be a very beneficial feature, but that there were issues with her proposed implementation. One issue specifically identified by Pete McLean was that there was no single bit that could be used for all commands. The group generated several additional questions that Nita said she would get answered, including whether this could be implemented with new commands as opposed to a bit in the Features register for current commands. She said that she would include this input in the next revision of her proposal.

7.10 Unsolicited interrupts (Goodfellow)

Tony Goodfellow had nothing new to report at this meeting but wished to leave this on the agenda.

7.11 T13 Reflector, FTP, and Web Site Setup

The general feeling of the group was that the new systems were working well. Dan Colegrove and Ron Salmon reported that there were security, liability, and other issues with providing capability for others to upload files. It was agreed that we would continue with the current system where proposal and other files are sent via email to Pete McLean and/or Dan, and they will post the received documents to the appropriate site.

Dan said that he intended to change the FTP site so that all documents were in a single directory with a file listing the files in the directory and describing their content as the first file in the directory. Dan also said that he would also provide links from the web site to both .pdf and .doc files.

7.12 Open issues list

There are no open issues.

8 New Business

8.1 Comments on the proposal for selective self-test (e01147r0)

This document was discussed under item 7.5.8.

8.2 Reserved opcodes for Serial ATA (e01145r0) [McLean]

Pete McLean said that he had been requested by folks working on SATA to bring this proposal reserving eight op codes for SATA to T13. There was discussion by the group that it would be better (and like methods used previously by T13 for this type of request) if this proposal could be

expanded to describe usage of these opcodes relative to the ATA/ATAPI standards. It was also stated that these definitions do necessarily need be included in a standard.

Pete said that he would ask the SATA group if they were amenable to this, and, if so, would make a new revision of his proposal to reflect this.

8.3 ATA Domain Validation [Hedrick]

Andre stated that he thought it would be good to have a standardized method for validation of the ATA domain. He said that he would construct a proposal to describe this in more detail. This document will be e01148r0.

8.4 Document numbers with no documents [Colegrove]

Dan reported that he had only one document number without a document for CY2001. This is e01142r0, Deferred Write Errors by Larry Barras. Dan said that he would contact Larry to resolve this.

9 Liaison Reports

9.1 T10

The latest T10 liaison report from John Lohmeyer has been posted on the T13 web site as e01144r0.

9.2 SFF

Dan Colegrove reported that there were no new issues with SFF that had impact on this committee.

9.3 IDEMA

Dan Colegrove reported that there were no new issues with IDEMA that had impact on this committee.

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 NCITS web site at ftp://www.ncits.org/help/ansi_sdo.html. Section 1.2.11 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.

Tony Goodfellow responded that Pacific Digital had one or more patents that would be required for implementation of ATA/ATAPI Host Adapter Standard project 1510D. In addition, Tony said that Pacific Digital would comply with the ANSI patent policy in regard to this project.

10.1 Convolve

The Chair reported that NCITS counsel sent a letter to Convolve on February 20, 2001 requesting them to notify NCITS if they believed they had intellectual property claims with regard to ATA/ATAPI-6 and, if so, requesting that Convolve agree to the ANSI patent policy. Convolve has replied to NCITS counsel verbally that 1) A patent has issued covered by the AAM standard, 2) Convolve will allow their technology to be covered by the standard and will follow the ANSI patent policies – reasonable royalties and license, 3) Convolve wants to subpoena the T13 committee.

The NCITS counsel has asked for the compliance with the policy in writing and is negotiating the subpoena issue. Kate McMillan, director of NCITS believes she will be the one to appear.

11 Review of Action Items

1. Pete McLean is to make a new revision of ATA/ATAPI-6 (revision 3a) including resolution to letter ballot and other comments.
2. The Chair is instructed to forward ATA/ATAPI-6, revision 3a, to NCITS for further processing.
3. The Chair is instructed to issue a letter ballot for forwarding EDD – 2 project 1484D, revision 2, to NCITS for further processing.
4. Representatives of device manufacturers who have not yet responded are to speak with their designers regarding Larry Barras' proposal to limit leakage current on INTRQ and be prepared to discuss this at the meeting in February.

12 Meeting Schedule

12.1 Authorization of ad hoc working groups

No ad hoc working groups were authorized.

12.2 Long term meeting schedule

The meeting dates, locations, hosts, and contacts were reviewed through CY2003 (included below). No changes were made at this meeting.

CY 2002 Dates	Location	Host	Contact
February 19-21, 2002	Placerville, CA	Adaptec	Ron Roberts
April 23-25, 2002	Longmont, CO	Seagate	Marc Noblitt
June 25-27, 2002	Irvine, CA	Phoenix	Ron Salmon
August 20-22, 2002	Longmont, CO	Maxtor	Pete McLean
October 22-24, 2002	TBD	Pacific Digital	Tony Goodfellow
December 16-18, 2002	Irvine, CA	Western Digital	Darrin Bulik
CY 2003 Dates			
February 18-20, 2003	Placerville, CA	Adaptec	Ron Roberts
April 22-24, 2003	Longmont, CO	Seagate	Marc Noblitt
June 24-26, 2003	Irvine, CA	Phoenix	Ron Salmon
August 19-21, 2003	Longmont, CO	Maxtor	Pete McLean
October 21-23, 2003	TBD	Pacific Digital	Tony Goodfellow
December 16-18, 2003	Las Vegas	IBM	Dan Colegrove
NOTE – Meetings are scheduled for three days only.			

As noted above the dates of the next plenary meeting of T13 are February 19th through 21st. The meeting will be held in Placerville, CA, hosted by Ron Roberts of Adaptec. A host meeting notice will be sent out on the reflector and will be added to the web site.

13 Adjournment

The meeting adjourned by the Chair, Pete McLean, upon completion of all the agenda items at 5:30 P.M. on Wednesday, December 12th, 2001.

[Enclosure 1 – Membership]

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[Enclosure 2 – Document directory]

Doc#	Description	subdir	Pgs	Date	Mailing	Submittor
D0791R4c	ATA-1 revision 4c	/project	66	5/12/1994	----	lamers
D0948R4c	ATA-2 revision 4c	/project	111	3/18/1996	DM960 2	finch
D1153R18	ATA/ATAPI-4 revision 18	/project	342	8/19/1998	DM980 4	mclean
D1226R7	BIOS Enhanced Disk Drive Specification rev 7	/project	35	10/23/1997	DM970 4	stevens
D1248R5	1394 to AT Attachment - Tailgate revision 5	/project	71	10/28/1997	DM970 4	hanmann
D1321R3	ATA/ATAPI-5 revision 3	/project	399	2/29/2000	EM0001	mclean
D1367R3	Protected Area Run Time Interface rev 3	/project	30	9/30/2000	EM0005	stevens
D1386R5a	EDD	/project	35	9/28/2000	EM0006	stevens
D1407R5	Address Offset Reserved Area Boot rev 5	/project	16	10/24/2000	EM0005	anderson
D1410R1a	ATA/ATAPI-6 revision 1a	/project	477	12/18/2000	EM0006	mclean
D1410R1b	ATA/ATAPI-6 revision 1b	/project	475	3/14/2001	EM0101	mclean
D1410R1c	ATA/ATAPI-6 revision 1c	/project	518	6/4/2001	EM0103	mclean
D1410R1d	ATA/ATAPI-6 revision 1d	/project	530	6/26/2001	EM0103	mclean
D1410R1e	ATA/ATAPI-6 revision 1e	/project	529	6/26/2001	EM0103	mclean
D1410R2	ATA/ATAPI-6 revision2	/project	534	8/2/2001	EM0104	mclean
D1410R2a	ATA/ATAPI-6 revision 2a	/project	521	9/26/2001	EM0105	mclean
D1410R2b	ATA/ATAPI-6 revision 2b	/project	521	10/30/2001	EM0105	mclean
D1410R3	ATA/ATAPI-6 revision 3	/project	521	10/30/2001	EM0105	mclean
D1484R0	EDD-2	/project	35	6/18/2001	EM0104	stevens
D1484R1	EDD-2	/project	35	10/23/2001	EM0105	stevens
D1484R2	EDD-2	/project	35	12/11/2001		stevens
D1510R0a	ATA Host Adapter Standards	/project	60	8/7/2001	EM0104	goodfellow
D1510R0b	ATA Host Adapter Standards	/project	60	8/7/2001	EM0105	goodfellow
D1510R0c	ATA Host Adapter Standards	/project	60	12/7/2001		goodfellow
D1532R0	ATA/ATAPI-7 revision 0	/project	521	11/5/2001	EM0105	mclean
D2008R7b	ATA-3 revision 7b	/project	194	1/27/1997	DM970 1	mclean
D9912810	Proposal for Audio Visual feature set	/technical	29	2/20/2001	EM0102	bulik
D99128R9	Proposal for Audio Visual feature set	/technical	33	2/12/2001	EM0101	bulik
D99135R6	A/V Model And Definitions	/technical	13	7/17/2001	EM0104	colegrove
D99135R7	A/V Model And Definitions	/technical	13	10/10/2001	EM0105	colegrove
E00138R3	Proposal for a general purpose logging feature set	/technical	14	4/10/2001	EM0102	puri
E00138R4	Proposal for a general purpose logging feature set	/technical	15	4/10/2001	EM0103	puri
E00139R1	Proposal for a media maintenance feature set	/technical	3	2/20/2001	EM0101	puri
E00148R3	Copy Protection Feature proposal	/technical	11	1/22/2001	EM0101	anderson
E00151R1	Proposed ATA/ATAPI 80-Conductor Cable Length Extension	/technical	20	6/19/2001	EM0103	doan
E00155R1	ATA/ATAPI host adapter project proposal	/project	3	12/22/2000	----	goodfellow
E00155R2	ATA/ATAPI host adapter project proposal	/project	3	2/21/2001	EM0101	goodfellow
E00157R1	Media Card Pass Through Command Extension Proposal	/technical	7	4/24/2001	EM0102	ohara
E00159R2	Mandatory IDENTIFY DEVICE fields	/technical	14	1/25/2001	----	mclean
E00159R3	Mandatory IDENTIFY DEVICE fields	/technical	14	2/26/2001	EM0101	mclean
E00163R1	Media serial number command proposal	/technical	1	12/22/2000	----	griswold
E00163R2	Media serial number command proposal	/technical	2	2/21/2001	EM0101	griswold
E01001R0	Letter forwarding EDD2 project proposal	/project	2	12/20/2000	EM0101	mclean
E01002R0	NCITS Form1 forwarding 1407DT	/project	3	12/21/2000	EM0101	mclean

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E01003R0	Members and contributors list	/project	1	12/21/2000	EM0101	mclean
E01004R0	Abstract for 1407DT	/project	1	12/21/2000	EM0101	mclean
E01005R0	NCITS Form1 forwarding 1386D	/project	3	12/21/2000	EM0101	mclean
E01006R0	Abstract for 1386D	/project	2	12/21/2000	EM0101	mclean
E01007R0	Members and contributors list for 1386D	/project	1	12/21/2000	EM0101	mclean
E01008R0	Approval of comments on 1386D	/project	1	1/9/2001	EM0101	mclean
E01009R0	Approval of comments on 1407DT	/project	1	1/9/2001	EM0101	mclean
E01010R0	Letter ballot for general functionality proposal	/ballots	1	2/28/2001	EM0101	mclean
E01011R0	Letter forwarding Host Adapter project proposal	/project	1	2/27/2001	----	mclean
E01011R1	Letter forwarding Host Adapter project proposal	/project	1	2/28/2001	EM0101	mclean
E01012R0	Jeopardy letter - Feb	/meetings	1	2/27/2001	EM0101	mclean
E01013R0	Jeopardy report - Feb	/meetings	1	2/27/2001	EM0101	mclean
E01014R0	Results of generic functionality letter ballot	/ballots	2	4/2/2001	EM0102	mclean
e01015r0	Jeopardy Letter - April	/meetings	1	4/27/2001	EM0103	mclean
e01016r0	Attendance Jeopardy Report - April	/meetings	1	4/26/2001	EM0103	mclean
e01016R1	Attendance Jeopardy Report - April	/meetings	1	4/26/2001	EM0103	mclean
e01017r0	T13 2000 Annual Report	/meetings	6	6/1/2001	EM0103	mclean
e01018r0	Jeopardy Letter - June	/meetings	1	6/22/2001	EM0103	mclean
e01019r0	Attendance Jeopardy Report - June	/meetings	1	6/22/2001	EM0103	mclean
E01020R0	ATA/ATAPI-5 Errata Submittal Form	/project	1	6/28/2001	EM0103	mclean
E01021R0	Letter forwarding ATA/ATAPI-5 Errata	/project	2	6/28/2001	EM0103	mclean
E01022r0	Jeopardy Letter - August	/meetings	1	8/27/2001	EM0104	mclean
E01023r0	Attendance Jeopardy Report - August	/meetings	1	8/23/2001	EM0104	mclean
E01024r0	Approval of ATA/ATAPI-7 project	/project	1	8/27/2001	EM0104	mclean
E01100R0	1996-2000 Document Directory	/meetings	11	1/1/2001	EM0101	mclean
E01101R0	Restricting content protection to removable drives	/technical	2	1/8/2001	EM0101	pryor
E01102R0	Proposal to report device manufacturing info	/technical	2	1/9/2001	----	bulik
E01102R1	Proposal to report device manufacturing info	/technical	2	2/10/2001	EM0101	bulik
E01103R0	Email concerning e00148, CPRM	/technical	64	1/9/2001	----	mclean
E01103R1	Email concerning e00148, CPRM	/technical	69	1/15/2001	EM0101	mclean
E01104R0	T10 liaison report	/meetings	1	1/23/2001	EM0101	lohmeyer
E01105R1	Proposal for returning vendor info	/technical	4	2/21/2001	EM0101	landis
E01106R0	Improved description of combined cable detection	/technical	3	2/15/2001	EM0101	pryor
E01107R0	Q & A's on CPRM	/technical	4	2/14/2001	EM0101	anderson
E01108R0	Western Digital ATA-6 DCO concerns	/technical	2	2/15/2001	EM0101	bulik
E01109R0	Alternate content protection proposal	/technical	1	2/21/2001	EM0101	stevens
E01110R0	Defending the public interest	/technical	14	2/18/2001	EM0101	marttila
E01111R0	Proposal for candidate reassigned sector	/technical	7	2/20/2001	EM0101	puri
E01112R0	Proposal to support generic functionality	/technical	3	2/22/2001	----	stevens
E01112R1	Proposal to support generic functionality	/technical	3	2/23/2001	EM0101	stevens
E01113R0	Word 93 mandatory proposal	/technical	2	2/22/2001	EM0101	goodfellow
E01114R0	Minutes of the 2/20-22/2001 plenary meeting	/meetings	15	2/26/2001	EM0101	pryor
E01115R0	T10 liaison report	/meetings	1	3/22/2001	EM0102	lohmeyer
E01116R0	Project proposal for ATA/ATAPI-7	/project	3	3/24/2001	EM0102	mclean
E01116R1	Project proposal for ATA/ATAPI-7	/project	3	5/24/2001	EM0103	mclean
E01117R0	Proposal to obsolete word 126	/technical	2	4/12/2001	EM0102	bradshaw
E01117R1	Proposal to obsolete word 126	/technical	2	5/3/2001	EM0102	bradshaw
E01118R0	Minutes of the 4/24-26/2001 plenary meeting	/meetings	18	4/25/2001	EM0102	evans
E01119R0	INTRQ assertion negation release pull up resistor	/technical	2	8/20/2001	EM0104	baras
E01120R0	SD Card Powerpoint Presentation	/technical	10	4/25/2001	EM0102	ohara
E01121R0	ATA Command Extension Proposal for Media Card Pass Through	/technical	17	4/22/2001	EM0102	ohara
E01122R0	ATA/ATAPI-5 Errata	/project	15	6/4/2001	EM0103	mclean

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E01122R1	ATA/ATAPI-5 Errata	/project	15	6/4/2001	EM0103	mclean
E01123R0	T10 liaison report	/meetings	1	5/24/2001	EM0103	lohmeyer
E01124R0	Minutes of the 6/19-21/2001 plenary meeting	/meetings	23	6/21/2001	EM0103	evans
E01125R0	EDD v3.0 rev 0.9b Incompatibility with RAID Option-ROM	/technical	8	6/18/2001	EM0103	stevens
E01126R0	Flush Cache Change	/technical	3	6/19/2001	EM0104	noblitt
E01127R0	Packet Sending Services (PSS) for SCSI CDB's	/technical	2	6/20/2001	EM0103	stevens
E01128R0	Queuing Enhancements	No Document	0			goodfellow
E01129R0	Proposal Document Format Guideline	/rules	2	7/23/2001	EM0104	colegrove
E01130R0	Minutes of July Meeting.	/meetings	0		EM0104	Evans
E01131R0	T10 liaison report	/meetings	1	7/30/2001	EM0104	lohmeyer
E01132R0	Minutes of the 8/21-23/2001 plenary meeting	/meetings	23	8/23/2001	EM0104	evans
E01133R0	Adaptec Changes to to e01125r0 e01127r0	/technical	8	9/29/2001		roberts
E01134R0	Automatic DMA Presentation	/technical	59	8/27/2001	EM0104	stevens
E01135R0	Ultra DMA Mode 6 Proposal	/technical	11	9/10/2001	EM0105	evans
E01136R0	T10 liaison report	/meetings	1	9/19/2001	EM0105	lohmeyer
E01137R0	Extensions to Device Self Test	/technical	10	9/24/2001	EM0105	Bulik
E01138R0	Large Physical Sector Support Proposal	/technical	5	10/17/2001	EM0105	colegrove
E01139R0	Selective Self Test Proposal	/technical	6	10/23/2001	EM0105	mclean
E01140R0	Minutes of the 10/23-25/2001 plenary meeting	/meetings	0	10/25/2001	EM0105	evans
E01141R0	Forced Unit Access	/technical	5	12/12/2001		pan
E01142R0	Deferred Write Errors	No Document	0			baras
E01143R0	Letter Ballot Comment Resolution for ATA/ATAPI-6	/projects	0			mclean
E01144R0	T10 liaison report	/meetings	1	11/19/2001		lohmeyer
E01145R0	Opcodes Reserved for Serial ATA	/technical	0			mclean
E01146R0	Minutes of the 12/11-13/2001 plenary meeting	/meetings	0	12/14/2001		evans
E01147R0	Response to Selective Self Test e01139r0	/technical	0			bulik
E01148R0	Domain Validation		0			hedrick
EM0101R0	Mailing #1 2001	/mailings	238	3/14/2001	----	mclean
EM0102R0	Mailing #2 2001	/mailings	103	5/16/2001	----	colegrove
EM0103R0	Mailing #3 2001	/mailings	103	7/6/2001	----	colegrove
EM0104R0	Mailing #4 2002	/mailings	103	9/10/2001	----	colegrove
EM0105R0	Mailing #5 2002	/mailings	103	11/30/2001	----	colegrove