

Accredited Standards Committee\*  
NCITS, National Committee for Information Technology Standards

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Project:  
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Reply to: Lawrence J. Lamers

To: Membership of T13  
From: Lawrence J. Lamers, Secretary T13  
Gene Milligan, Chair T13  
Subject: Minutes of T13 Working Group  
June 18-20, 1997 : Irvine, CA

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#### Agenda

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## Minutes of T13 Working Group T13/D97141R0

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### Results of Meeting

#### 1. Opening Remarks

Gene Milligan called the meeting to order at 9:00 a.m., Wednesday June 18, 1997. He thanked Tom Hanan of Western Digital for hosting the meeting.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections.

It was stated that the meeting had been authorized by T13 and would be conducted under the NCITS rules. Ad hoc meetings take no final actions, but prepare recommendations for approval by the T13 technical committee. The voting rules for the meeting are those of the parent committee, T13. For the ad hoc, other than straw votes, the voting rules are: one vote per participating company.

Gene Milligan informed the attendees that, as Chair of T13, he preferred to be a "Non-voting Chair" with another Seagate employee Marc Noblitt functioning as the voting member. He indicated the motivation was to facilitate an attempt to Chair the meetings without bias to a specific faction's position. However, even in this mode he would reserve the right to cast a vote in the event there were no Seagate representatives present.

The minutes of this meeting will be posted to the T13 ftp site and the T13 reflector and will be included in the next T13 committee mailing.

#### 2. Approval of Agenda

The electronically distributed agenda was used as a basis for the meeting with adjustments as reflected in these minutes.

#### 3. Attendance

Attendance at working group meetings does not count toward minimum attendance requirements for T13 membership. Working group meetings are open to any person or company to attend and to express their opinion on the subjects being discussed.

Lawrence	Lamers	Adaptec, Inc.	A1
Ron	Roberts	Apple Computer	A
Ben	Chang	Cirrus Logic Inc.	P
Hale	Landis	Consultant	P
Paul	Raikunen	Digital	P
Tony	Goodfellow	GSI	P
Anthony	Yang	Hitachi America Ltd.	P
Dan	Colegrove	IBM Corp.	P
Darrell	Redford	Iomega Corp.	
Pete	McLean	Maxtor Corp.	P
Mike	Christensen	Phoenix Technologies	A
Greg	Elkins	QLogic Corp.	P
Mark	Evans	Quantum Corp.	P
Paresh	Sheth	SSI	P
Yasuyuki	Suemori	Sanyo Electric Co., Ltd.	A
Gene	Milligan	Seagate Technology	P
Marc	Noblitt	Seagate Technology	A
David	Evans	Symbios Logic	A
Tokuyuki	Totani	Toshiba America Info.	P
Tom	Hanan	Western Digital Corp.	P

#### **4. Document Distribution**

The following documents were distributed:

- T13 Document Register - 1997
- T13/1153D Rev 13 ATA/ATAPI-4 [McLean]
- T13/1226 DT Rev 4 EDD [Stevens]
- D97103R1 Signal Integrity Procedure
- D97119R3 SET MAX calculation rules
- D97121R1 80 Conductor Cable
- D97128r0 Update to Annex C Signal Integrity Issues
- D97138r0 Modification of Annex B
- D97139R0 Clean up of ATA 4

#### **5. Review of Old Action Items**

There were none.

#### **6. ATA/ATAPI-4 - Project 1153D**

##### **6.1 Review of working draft**

Pete McLean stated that rev 13 is available. Pete conducted a review of the flow diagrams and change bars.

Added “.. and may re-enable the interrupts after writing the command register..” in 6.7.

Added minor revision level for rev 13.

Tom Hanan pointed out an issue with DRQ in 9.6 related to behavior of ATAPI devices. Tom Hanan moved and Paul Raikunen seconded that the exception for DEVICE RESET command be added to 9.6. The motion passed unanimously. Tom stated that packet commands need an exception. There was no conclusion on whether the packed command needs an exception since the requirements are as stated for a long while (pre-ATA/ATAPI-4).

In fig 10, replace “..before ATA-4..” with “..may..”. This allows devices to support the obsolete commands (i.e. READ LONG and WRITE LONG).

Service bit conundrum Fig 14, when does the REL bit get cleared? When I/O or C/D are set the REL bit is cleared.

##### **6.2 Set Max [Colegrove] (D97119)**

Dan Colegrove reviewed revision 3. The consensus was that D97119 be incorporated into the draft.

##### **6.3 Annex C changes from Ultra DMA [Evans] (D97128)**

Mark Evans review the proposal. It was noted that due the number of changes folks were requested to review it and email comments to Mark. The impedance value analysis needs to be adjusted from 22 ohms to 33 ohms.

##### **6.4 SRST protocol for overlapped and queued devices [Hanan] (D97137)**

Tom Hanan did not have the revised document available.

##### **6.5 Annex B changes from EDD [Christensen] (D97138)**

Hale Landis pointed out that there are issues related to SET MAX. Should word 3 be restricted to 15 heads for compatibility? Does INITIALIZE DRIVE PARAMETERS change to prohibit more than 63 sectors per track?

Allow CHS addressing for greater than 8 GB devices. Allow more than 63 sectors per track. No change to SET MAX.

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Mike will turn a revision with the extensive editing changes for review at next meeting.

## **6.6 Final Release of DASP [Evans] (D97139)**

Device 1 shall release PDIAG at receipt of first command. The host should issue a command to clear PDIAG before making the 80 conductor cable test.

## **6.7 Clearing INTRQ [Evans] (D97139)**

Partially accepted, Mark will revise for next meeting

## **6.8 Signature and Persistence [Evans] (D97139)**

Accepted for incorporation into the working draft.

## **7. Enhanced BIOS Disk Drive Technical Report - Project 1226DT**

Mike Christensen reviewed rev 4 of the working draft. A number of changes were suggested; Mike plans to revise the working draft. The chair stated that he would conduct a letter ballot when the next revision is available.

## **8. Old Business**

### **8.1 Items from Open Issues List**

#### **8.1.1 Conflict with WP bit and UNC consider make WRITE VERIFY obsolete to eliminate conflict with RMSN.**

The consensus was unanimous to obsolete the WRITE VERIFY command.

#### **8.1.2 Location of DD7 pull down resistor with Ultra DMA**

Unresolved, remains open.

### **8.2 Support for Removable Media [Miller & Mayne] (D97120)**

After discussing changes to the proposal the consensus is to incorporate the proposal into the working draft.

### **8.3 Tailgate [Hanmann] (D97107)**

Pete McLean reported that an editorial session was held. There are no known technical issues. The Tailgate working group is satisfied and is prepared to recommend the draft for letter ballot. Pete indicated that the next Tailgate ad hoc meeting will address a recommendation.

### **8.4 PDIAG in 80 Conductor cable [Evans] (D97121)**

Mark Evans reviewed the changes in rev 1 of the proposal. Add a shall for the pin 20 removal to guarantee that keyed cables will work. The consensus is to incorporate the proposal into the working draft.

### **8.5 44 & 66 MTS [Evans] (D97117r0)**

Removed from the agenda.

### **8.6 PIO Response Tables for Annex E [Landis] (D97134r0)**

Good intentions, but the revision has not been completed.

**9. New Business**

**9.1 Signal Integrity Procedure [Hanan] (D97103)**

Tom Hanan presented a test procedure for signal integrity. He stated that WD is prepared to provide the test fixture as well as the design information to allow other companies to build their own in an effort to promote interoperability. The documentation for the test and trigger board will be provided as part of the proposed procedure.

The sense of the group was to consider this for a technical report. Tom volunteered to draft a project proposal.

**10. Call for Patents**

This is a regular agenda item to identify any potential patent issues with developing standards.

A document is available from ANSI, "Procedures for the Development and Coordination of American National Standards", at no charge. Annex I contains the ANSI patent policy.

The Chair requested that any participant aware of patents or patent disclosures that may be required to comply with any publications resulting from T13 projects provide an early disclosure of such patent and offer to license such patents under reasonable and non-discriminatory conditions in accordance with the ANSI Patent Policy. There was no response to the patent call.

Mark Evans reported that Quantum is still working on their statement concerning Ultra DMA.

**11. Open Issues List Summary**

The following item was added to the list at this meeting:

None.

**12. Review of New Action Items**

None.

**13. Meeting Schedule**

The next plenary meeting of T13 will be July 25, 1997 at the Seagate Technology facility, in San Jose, CA hosted by Seagate Technology.

The next working meeting will be July 23-24, 1997 at the Seagate Technology facility, in San Jose, CA hosted by Seagate Technology.

The subsequent working group meeting will be August 20-22, 1997 at the Raintree Inn Hotel in Longmont, CO hosted by SSI. Attendees are urged to obtain their reservations soon due to back to college activity.

The long term meeting schedule is:

Date	Location	Host	Contact
July 23-25, 1997 *	San Jose, CA	Seagate	Marc Noblitt
August 20-22, 1997	Longmont, CA	SSI/TI	Yogi Schaffner
September 24-26, 1997	Irvine, CA	Phoenix Technologies	Curtis Stevens
October 22-24, 1997*	Wailea, Maui, HI	Quantum	Mark Evans
December 3-5, 1997	Irvine, CA	Western Digital	Tom Hanan
January 21-23, 1998+			Marc Noblitt
February 17-20, 1998*	Ft. Collins	Symbios Logic	Dave Evans
March 25-27, 1998+			Marc Noblitt
April 14-17, 1998 *	Irvine, CA	Western Digital	Tom Hanan
May 20-22, 1998+			Marc Noblitt
June 16-19, 1998*	Boulder, CO	Maxtor	Pete McLean
July 22-24, 1998 +			Marc Noblitt

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August 18-21, 1998*	Boston/Boulder	Maxtor/DEC	McLean/Raikunen
September 23-25, 1998+			Marc Noblitt
October 20-23, 1998*	Wailea, Maui, HI	Quantum	Mark Evans
December 1-4, 1998*	Irvine, CA	Western Digital	Tom Hanan

\* indicates that Friday will be used for the plenary meeting.

+ indicates this meeting is tentative and may be canceled.

**14. Adjournment**

The meeting was adjourned upon completion of all the agenda items.