

Accredited Standards Committee*
X3, Information Processing Systems

Doc. No.: X3T9.2/93-072r0

Date: April 23, 1993

Project:

Ref. Doc.:

Reply to: John Lohmeyer

To: Membership of X3T9.2
From: Lawrence J. Lamers, Secretary X3T9.2
John B. Lohmeyer, Chair X3T9.2
Subject: Minutes of X3T9.2 Plenary Meeting #105
St. Petersburg Beach, FL -- April 19-20, 1993

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 - 8.15 SCSI-3 Stream Commands (SSC) [Stephens]
 - 8.16 SCSI-3 Graphics Commands (SGC)

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- 8.17 SCSI-3 Medium Changer Commands (SMC) [Stephens]
- 8.18 Directly-Addressable Device Interface (DADI)
- 8.19 SCSI Common Access Method -2 (CAM-2) (93-015) [Dallas]
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 - 10.11 Review of new documents
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 - 10.13 Authorization of Payment for Contract Editing Work
 - 10.14 New Optical Memory Density Codes (93-20r1) [Williams]
 - 10.15 Revision to description of partition sizes in SCSI-2 (93-070) [Anjargoli]
 - 10.16 Clearing ACA in SCSI-3 Interlocked Protocol (93-065) [Frazier]
 - 10.17 SPC Issues (93-038, -063, -064) [Weber]
 - 10.18 SDP Issue (93-034) [Lohmeyer]

- 11. Review of Action Items

- 12. Meeting Schedule
 - 12.1 Authorization of Working Group Meetings

- 13. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer, the Chair, called the meeting to order at 9:00 a.m., Monday April 19, 1993. He thanked Chuck Brill of AMP for hosting the meeting. John reported that both he and Dal Allan had been reappointed to their positions.

John said that the X3 Secretariat prefers receiving membership changes on the "X3 Subgroup Membership Forms" which were available on the document table. He said that people should use the X3 forms to insure the X3 Secretariat has the latest membership information. The forms should be mailed to the X3 Secretariat with a copy to John Lohmeyer.

As is customary, the people attending introduced themselves. A copy of the attendance list was circulated for attendance and corrections. Copies of the draft agenda and the recent document register were made available to those

attending. Information on X3T9.2 and Mailing Subscription Forms were made available.

2. Approval of Agenda

The draft agenda was approved with the following additions:

- 10.16 Clearing Autocontingent Allegiance (ACA) in Parallel SCSI-3 (93-65) [Frazier]
- 10.17 SPC Issues (93-38, -63, -64) [Weber]
- 10.18 SDP Issue (93-034) [Lohmeyer]

3. Attendance and Membership

The membership requirements were reviewed. X3 rules permit one vote per organization. An individual from a new organization must attend two out of three consecutive plenary meetings. He/she may apply for voting membership the second meeting via a letter to the Chair of X3T9.2. The individual may vote at the second plenary meeting. Working group meetings do not count toward attendance requirements.

With the addition of Sony Corp. and Tandem Computers, the termination of SGS-THOMSON at their request, and the termination of four organizations for nonattendance (see 3.1), the X3T9.2 voting membership is now at 56 organizations down from 59 at the last meeting. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current X3T9.2 membership list.

3.1 Roll Call of Members in Jeopardy

The Chair said he had sent jeopardy letters to 16 people from 8 organizations for lack of meeting attendance (see 93-048r0). The letters said that these organizations had failed to attend two of the last three plenary meetings and that their membership would be terminated unless they attended this meeting. The letters also informed these people of the committee's ability to retain their membership under special circumstances in spite of their failure to attend.

Subsequently, the Chair received a fax from Forrest Crowell requesting that his membership be terminated and the SGS-THOMSON alternate, Neil Mitchell, be changed to Observer status. The Chair also noted that the letter to Shahnad Nadershahi, the only member from Amdahl, had been returned marked "No longer here". The Chair sent an email to Rich Taborek, an X3T9.3 member, to inform him of the situation.

Representatives were present from all of the other organizations except:

Control Data Systems, Inc., Foxconn International, Inc., Nat. Inst. of Stnds. & Tech., and Yamaichi Electronics, Inc. All representatives from these organizations were changed to observer status.

4. Approval of Minutes - February Meeting Austin, TX (93-033r1)

The minutes were approved as written.

5. Document Distribution

John Lohmeyer said that the committee mailing had been sent to CBEMA the week following the working group meetings in Newport Beach. He expressed his personal appreciation to Larry Lamers (and to Larry's family) for the enormous amount of work that Larry expended in putting together the huge mailing on the heels of the working group week.

Because of the large size of the mailing, it was split into two sections, with section two mailed out first. People who had not paid their service and subscription fees were not sent a mailing. People who did not receive a mailing should verify that they paid the fees. Members who have any problems with their mailing subscription should deal directly with Katrina Gray at (202) 626-5741.

Larry Lamers requested that all documents for the next mailing must be sent so as to be received by noon on Thursday, June 10, 1993. Documents received after this date will go into a subsequent mailing.

Larry Lamers reminded the committee of the requirements for document submission to be included in the committee mailing. Since X3T9.2 meets its CBEMA document archiving requirements by including CBEMA on the mailing list, documents included in the mailing must be suitable for microfilming. This means that high-quality, single-sided originals with adequate margins and proper identification must be submitted. Document X3T9.2/92-84 R1 contains the list of requirements for submissions.

As usual, minutes are also available on the SCSI BBS (719-574-0424) and will be distributed to the SCSI Reflector E-mail list. To be added to the SCSI Reflector, send an electronic message to: scsiadm@WichitaKS.NCR.COM.

The current document register is enclosure (3).

6. Liaison Reports and Call for Patents

6.1 ISO [Milligan]

Gene Milligan, the X3T9 International Representative, gave an oral report and later provided an electronic report to X3T9:

ISO Report
4/93

The information for the 1993 SC 25 meetings has been released in the nick of time. SC 25 N 110 dated 3/3/93 provides the venue notice. The meeting will be held in:

Hotel Bel Air
Johan de Wittlaan 30
2517 JR The Hague
The Netherlands
Tel: 31 70 3502021
Fax: 31 70 3512682

The draft agenda for the SC 25/WG 4 meeting was distributed as WG 4 N 622 on 4/1/93. The agenda items cover the scope and breadth of X3T9 activities. The meeting begins at 1440 on Tuesday 15 June and continues through 17 June.

The voting results on SC 25 N 106 Generic Cabling for Customer Premises CD 11801 closed with a 2:11:0:3 vote.

A lengthy comment concerning the pDISP 10608 parts 6 and 14 FDDI from the Netherlands was distributed as WG 4 N 621. In fact this document includes comments from IBM, AT&T, and Digital. By contrast the USA with these same participants has no comments.

A SC 25 TAG meeting is scheduled for 4/27/93. The meeting announcement is not dated. One issue for the meeting is the proposed modifications of the SC 25 programme of work. There do not seem to be any obvious issues relative to X3T9. (This is a

reflection of SC 25 N 103.)

A report of the SC 25 Plenary to JTC 1 dated 3/8/93 has been issued as JTC 1 N 2401. It is mainly an organizational statement for SC 25.

ITTE/93-009 dated 4/1/93 indicates that the SC 25 TAG will formulate a recommended US National Body Policy regarding IEC 847 (1988) : Characteristics of LAN.

The JTC 1 TAG letter ballot on the NP for SCSI CAM closes 5/13/93. The related JTC 1 letter ballot N 2444 closes 7/12/93. We voted with our NP submittal.

The JTC 1 TAG letter ballot on the NP for ATA closes 5/13/93. The related JTC 1 letter ballot N 2443 closes 7/12/93. We voted with our NP submittal.

The DTR 12075 Planning and Installation Guide for Customer Premises Cabling to Support Attachment of ISO 8802-5 Token Ring Stations has been approved as a Type 3 Technical report by a vote of 16:1:1:6 with a number of comments. The results are contained in JTC 1 N 2340 and N 2367.

JTC 1/SC 25 N 88 provides an update of the SC 25 membership. There are currently 16 Principal members and 9 voting Observer members.

6.2 IT8 [Lohmeyer]

John Lohmeyer had nothing new to report.

6.3 Fibre Channel [Allan]

Dal Allan reported. A new draft (FC-PH) is expected within two weeks; this draft is expected to be forwarded in June. A new tactic of using errata documents will be attempted to get the document into a standard without continuous second public reviews.

6.4 Small Form Factor Industry Group [Allan]

Dal Allan reported. There are six SFF specifications in the latest SFF mailing.

6.5 IEEE P1394 [Marazas]

Jerry Marazas was not present. John Lohmeyer mentioned that there had been a P1394 configuration management meeting on April 6th and that a P1394 meeting was scheduled for Wednesday in the same hotel.

6.6 SSA Status [Scheible]

Ken Hallam reported (see 93-073). The SSA-PH project was approved and X3T9.7 was established. The first official meeting will be in July.

SSA-UIG (user industry group) is alive and growing. Work on silicon, testers, and education is being done by member organizaions.

A project proposal for SSA-SCSI is being developed.

6.7 IEEE P1285 Status [Pak]

Dennis Pak was not present, but Scott Smyers provided a written and electronic report when he arrived on Tuesday (see 93-079). John Lohmeyer agreed to post the report to the SCSI Reflector.

John announced that a P1285 co-located meeting will be held Tuesday evening during the next working group week in Santa Fe.

6.8 PCMCIA Report

John Lohmeyer reported that a PCMCIA meeting was scheduled to occur later in the week on the west coast. He expected PCMCIA to take some action on the request that PCMCIA form a working group to address defining a connector for PCMCIA SCSI host adapters.

It was reported that PCMCIA is having difficulty resolving 3.3 volt vs. 5 volt issues with JEIDA. The issue is currently in deadlock. They are mating connector keying issues due to tolerances. A socket services document is still being solidified.

Both 25-pin and 32-pin proposals for PCMCIA SCSI host adapters are being considered.

Norm Harris suggested that the TERMPWR issue within low-power environments should be addressed by X3T9.2 committee. This issue will be added to the May working group agenda.

Dal requested the Chair to write a letter to PCMCIA requesting the meeting schedules of the two groups be coordinated to avoid conflicts.

6.9 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. The last page contains the ANSI patent policy.

John Lohmeyer stated that he had not responded to the December letter received from the attorney for Conner Peripherals. He asked that this action item be dropped.

7. Review of Old Action Items

- 1) Joe Dambach and Dal Allan will request EIA to develop a standard for the four-pin power connector. **This issue is being addressed by the SFF group; Action Item dropped.**
- 2) Larry Lamers will include a document with the recommendations for the power connector in the mailing. **Carry over.**
- 3) John Lohmeyer will take the X3T9.2 patent statement position to X3T9. **Complete.**
- 4) John Lohmeyer and Larry Lamers will contact ANSI for clarification on the patent policy pertaining to the Conner and Maxtor patents. **Dropped.**
- 5) John Lohmeyer will draft a response to the Conner letter on the PrairieTek patents. **Dropped.**
- 6) Larry Lamers will prepare revision 4 of ATA. **Complete.**
- 7) Larry Lamers will prepare revision 11 of SPI. **Complete.**
- 8) Gene Milligan will contact Gerry Houlder regarding 91-149. **Completed**
- 9) Larry Lamers will send revision 4 of ATA to Bob Fink of X3T9. **Dropped.**

- 10) Larry Lamers will send revision 11 of SPI to Bob Fink of X3T9.
Dropped.

8. Working Group and/or Project Status Reports

8.1 Project Status Summary [Lohmeyer]

John Lohmeyer presented the current X3T9.2 project status summary.

8.2 X3T9.2 General Working Group (X3T9.2/93-039r1) [Lamers]

The minutes in the mailing did not include John Lohmeyer's edits. Revision 1 included the edits and was sent to the SCSI reflector.

8.3 SCSI-2 Status [Lamers]

Revision 10h is the last technical milestone of the committee. Revision 10k includes editorial updates, but was not formally reviewed by X3T9.2.

A clarification agreed to in 1990 for Rev 10c regarding the sequential-access READ POSITION command did not get incorporated into SCSI-2. See item 10.15.

SCSI-2 errata: The 10-byte WRITE command is Mandatory for a device type in the annex and Optional in the device type clause list of commands.

8.4 SCSI Common Access Method (CAM) [Dallas]

A group has been working on the re-write of section 10. It is expected to be available for the May working group. A CAM meeting is planned for Tuesday evening, 4/20/93.

8.5 AT Attachment Status (ATA) [Allan]

A forwarding motion is planned. Larry Lamers enumerated several errata in revision 4.

8.6 ATA Extensions [Finch]

See minutes (93-45). A new project proposal for ATA-2 will be considered later during the meeting.

8.7 SCSI-3 Architecture Model (SAM) Status [Monia]

Charles Monia reported. An editors meeting was held on Sunday afternoon. A new revision will be available at the next working group meeting.

8.8 SCSI-3 Parallel Interface (SPI) Status [Lamers]

Larry Lamers reported that revision 12 was in the mailing. A forwarding motion is planned for this meeting.

8.9 SCSI-3 Interlocked Protocol (SIP) Status [Lamers]

A small group held an editing session on SIP April 5-6 in San Jose. More work needs to be done before revision 2 is ready to distribute. Larry Lamers plans to have revision 2 available for the next working group meeting.

8.10 SCSI-3 Generic Packetized Protocol (GPP) Status [Stephens]

Gary Stephens reported. He is doing restructuring work on the document and has GPP running over SPI. He needs the setup phase which is not explicit in SPI anymore.

8.11 SCSI-3 Serial Bus Protocol (SBP) Status [Gardner]

Scott Smyers reported orally on the SBP Working Group meeting in Santa Clara. Ed Gardner had not yet posted the minutes of the meeting.

8.12 SCSI-3 Fiber Channel Protocol (FCP) Status [Snively]

Bob Snively had arranged for Paul Ramsey to give a report on FCP Tuesday afternoon, but Paul (who was rumored to be in a Fibre Channel meeting) could not be found to give the report.

8.13 SCSI-3 Primary Commands (SPC) Status [Weber]

Ralph Weber reported. A proposal on disposing of the copy functions has been prepared. A compendium of ASC/ASCQ codes for SCSI-3 is available. A separate list of ASC/ASCQ codes will be maintained until a draft document is available.

8.14 SCSI-3 Block Commands (SBC) [Lamers]

No activity.

8.15 SCSI-3 Stream Commands (SSC) [Stephens]

No activity.

8.16 SCSI-3 Graphics Commands (SGC)

No activity.

8.17 SCSI-3 Medium Changer Commands (SMC) [Stephens]

No activity.

8.18 Directly-Addressable Device Interface (DADI)

Larry Lamers reported that Ron Roberts is preparing a draft proposal for the May working group.

8.19 SCSI Common Access Method -2 (CAM-2) (93-015) [Dallas]

Bill Dallas reported. See 93-015.

8.20 RAID Study Group (93-029) [Penokie]

George Penokie reported. Revision 3 of the RAID model was in the mailing. A study group meeting is set for this evening.

Dal Allan reported that the RAID Advisory Board has formed two special interest groups. The first, lead by Mike Firzpatrick (Seagate), is developing a RAID-Ready Drive specification and the second, lead by Keith DuLac (NCR), is doing a mode page investigation.

9. Old Business

9.1 Power Pin Compatibility Issue Revisited (90-199,91-023) [Dambach]

The SFF Committee has picked up this issue and it will be reported under the SFF liaison report in the future. A proposal is nearing completion to be submitted to the EIA.

9.2 Format Track LBA Proposal (92-185r1) [Lamers]

This proposal was not discussed at last Disk Drive Working Group meeting. It is on hold until the working group makes a recommendation.

9.3 Serial Protocol Issues: Isochronous Queue Tag (93-071r0) [Penokie]

George Penokie presented a proposal to deal with isochronous commands within the SCSI-3 queuing model. Scott Smyers gave a tutorial on isochronous mechanisms to explain how isochronous functions operate.

It was noted that several items need further work. George agreed to develop a revision 1 to deal with these items.

9.4 READ LONG Correct bit vs. DCR bit in Read/Write Error Recovery mode page (93-077r0) [Milligan]

Gene Milligan presented a proposal to resolve the conflict between the DCR bit and the CORRECT bit.

Gene Milligan moved and Scott Smyers seconded that 93-077r0 be accepted for incorporation into SCSI-3. The motion carried 22:0.

10. New Business

10.1 SPI Forwarding Motion

Bill Spence moved and Larry Lamers seconded that SCSI-3 Parallel Interface revision 12 be forwarded to X3T9 for first public review.

Giles Frazier pointed out that the setup and hold times are the same in SPI for slow as for fast. Slow used to be 55 ns setup, 100 ns hold on transmit and 0 ns setup and 45 ns hold on receive in SCSI-2. He was concerned about interoperation with SCSI-2 devices. No one present was sure about the history of this change, so it was recommended that the document not be changed without further investigation. If the investigation shows that a change is necessary, then an X3T9 comment or a public review comment can be made.

Jeff Stai moved and Skip Jones seconded that the motion be amended to forward SCSI-3 Parallel Interface revision 12 as revised by including the following wording:

"While active-negation drivers may be used on any non-OR-tied signal (see 8.2), their usage is particularly valuable on the ACK, REQ, ACKQ, and REQQ signals, because these signals are vulnerable to double clocking on the true-to-false transition. Additional benefit may be achieved by using active-negation drivers on the DATA BUS and parity signals when operating in fast synchronous data transfer mode by reducing the skews between the first group of signals (ACK, REQ, ACKQ, and REQQ) and the DATA BUS and parity signals."

in place of the paragraph:

"SCSI devices should use active-negation drivers for the ACK, ACKQ, REQ, REQQ, DATA BUS, and parity signals during fast synchronous data transfers."

in 7.1.2.

The amendment passed 34:1:0.

The amended motion is "that SCSI-3 Parallel Interface revision 12 as revised (rev 12a) be forwarded to X3T9 for first public review".

A roll call vote was conducted on the amended motion with the following results:

Organization	Voter	Yes	No	Abstain	Not Present
3M Company	Mr. Robert C. Herron	1			
Adaptec, Inc.	Mr. Norm Harris	1			
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
AMP, Inc.	Mr. Bob Whiteman	1			
Amphenol Interconnect	Mr. Jeff Rosa	1			
Ancot Corp.	Mr. Gary Porter	1			
Apple Computer	Mr. Scott Smyers	1			
AT&T / NCR Corp.	Mr. John Lohmeyer	1			
Berk-Tek, Inc.	Mr. Tom Debiec	1			
BULL S.A.	Mr. Schreck Philippe	1			
Burndy Corp.					1
BusLogic	Mr. Steve Chang	1			
Central Data	Ms. Janet Schank	1			
Ciprico Inc.	Mr. Kurt Witte	1			
Cirrus Logic Inc.	Mr. Dave Weber	1			
CMD Technology	Mr. George Su	1			
Conner Peripherals					1
Data General Corp.					1
Digital Equipment Corp.	Dr. William Ham	1			
Emulex Corp.	Mr. Skip Jones	1			
ENDL Associates	Mr. D. W. Spence	1			
Exabyte Corp.	Mr. Edward Lappin	1			
Fujitsu Microelectronics	Mr. Joel Urban	1			
Furukawa Electric America	Mr. Steve Caron	1			
Future Domain					1
Hewlett Packard Co.	Mr. Jeffrey L. Williams	1			
Hirose Electric U.S.A.					1
Hitachi Micro Systems, Inc.					1
Honda Connector	Mr. David McFadden	1			
IBM Corp.	Mr. George Penokie	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.	Mr. Geoff Barton	1			
JAE	Mr. David H. Shaff	1			
Madison Cable Corp.					1
Maxoptix Corp.					1
Maxtor Corp.	Mr. Lawrence J. Lamers	1			
Methode Electronics, Inc.	Mr. Bob Masterson	1			
Molex Inc.					1
National Semiconductor	Mr. Manish Gupta	1			
NEC Technologies Inc.	Mr. Bruce Anderson	1			
Panasonic Technologies, Inc					1
Quantum Corp.	Mr. James McGrath	1			
Ricoh Corporation	Mr. Satwinder S. Mangat	1			
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.	Mr. Stephen G. Finch	1			
Sony Corp. of America	Mr. Mike Yokoyama	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems, Inc.					1
Tandem Computers	Mr. John Moy	1			
Texas Instruments	Mr. Alan Wetzel	1			
Thomas & Betts	Mr. Harvey Waltersdorf	1			
Toshiba America, Inc.	Mr. James Mang	1			
U.S. Design	Mr. Dennis Mellinger	1			
UNISYS					1
Western Digital	Mr. Jeff Stai	1			
Woven Electronics	Mr. Doug Piper	1			
		44	0	0	12

The motion passed 44-0-0-12.

10.2 ATA Forwarding Motion

Larry Lamers noted several minor corrections that had been identified for the ATA document.

Larry Lamers moved and Skip Jones seconded that AT Attachment revision 4 as corrected (revision 4a) be forwarded to X3T9 for second public review.

A roll call vote was conducted with the following results:

Organization	Voter	Yes	No	Abstain	Not Present
3M Company	Mr. Robert C. Herron	1			
Adaptec, Inc.	Mr. Norm Harris	1			
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
AMP, Inc.	Mr. Bob Whiteman	1			
Amphenol Interconnect	Mr. Jeff Rosa	1			
Ancot Corp.	Mr. Gary Porter	1			
Apple Computer	Mr. Scott Smyers	1			
AT&T / NCR Corp.	Mr. John Lohmeyer	1			
Berk-Tek, Inc.	Mr. Tom Debiec	1			
BULL S.A.	Mr. Schreck Philippe	1			
Burndy Corp.					1
BusLogic	Mr. Steve Chang	1			
Central Data	Ms. Janet Schank	1			
Ciprico Inc.	Mr. Kurt Witte	1			
Cirrus Logic Inc.	Mr. Dave Weber	1			
CMD Technology	Mr. George Su	1			
Conner Peripherals					1
Data General Corp.					1
Digital Equipment Corp.	Mr. Charles Monia	1			
Emulex Corp.	Mr. Skip Jones	1			
ENDL Associates	Mr. D. W. Spence	1			
Exabyte Corp.	Mr. Edward Lappin	1			
Fujitsu Microelectronics	Mr. Joel Urban	1			
Furukawa Electric America	Mr. Steve Caron	1			
Future Domain					1
Hewlett Packard Co.	Mr. Jeffrey L. Williams	1			
Hirose Electric U.S.A.					1
Hitachi Micro Systems, Inc.					1
Honda Connector	Mr. David McFadden	1			
IBM Corp.	Mr. George Penokie	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.	Mr. Geoff Barton	1			
JAE	Mr. David H. Shaff	1			
Madison Cable Corp.					1
Maxoptix Corp.					1
Maxtor Corp.	Mr. Lawrence J. Lamers	1			
Methode Electronics, Inc.	Mr. Bob Masterson	1			
Molex Inc.					1
National Semiconductor	Mr. Manish Gupta	1			
NEC Technologies Inc.	Mr. Bruce Anderson	1			
Panasonic Technologies, Inc					1
Quantum Corp.	Mr. James McGrath	1			
Ricoh Corporation	Mr. Satwinder S. Mangat	1			
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.	Mr. Stephen G. Finch	1			
Sony Corp. of America	Mr. Mike Yokoyama	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems, Inc.					1
Tandem Computers	Mr. John Moy	1			
Texas Instruments	Mr. Alan Wetzel	1			
Thomas & Betts	Mr. Harvey Waltersdorf	1			
Toshiba America, Inc.	Mr. James Mang	1			
U.S. Design	Mr. Dennis Mellinger	1			
UNISYS					1
Western Digital	Mr. Jeff Stai	1			
Woven Electronics	Mr. Doug Piper	1			
		44	0	0	12

The motion passed 44-0-0-12.

10.3 Reaffirmation, revision, or withdrawal of ANSI X3.80-1988, Interfaces Between Flexible Disk Cartridges and Their Host Controllers.

John Lohmeyer stated the three alternatives:

- a) withdraw the standard,
- b) reaffirm the standard,
- c) revise the standard.

Gene offered a fourth alternative. He stated that we should withdraw the ANSI standard but recommend that the ISO equivalent standard be maintained. The bulk of activity in this area is now international (i.e., Japan).

Gene Milligan moved and Jeff Stai seconded that X3T9.2 recommend to X3T9 that ANSI X3.80-1988, "Interface Between Flexible Disk Cartridges and Their Host Controllers", be withdrawn in favor of ISO 9315:1989.

The motion passed 45:0:0:11.

John Lohmeyer, after consulting with the X3T9 Chair, stated that his understanding of the actual effect of the motion is to recommend the simultaneous withdrawal of X3.80-1988 and adoption of ISO 9315:1989 as an ANSI standard. If approved, the standard would be called ANSI/ISO 9315:1989.

10.4 ATA-2 Project Proposal [Finch]

Steve Finch made a presentation on having an ATA-2 project to add features and functions such as higher transfer rates, error detection mechanisms, and command obsolescence. This would be a new document and may delete some existing commands. ATA-2 may evolve to not being fully backward compatible.

Larry Lamers moved and Steve Finch seconded that the project proposal for ATA-2 be forwarded to X3T9 for further processing.

There was considerable discussion over the relationship of the ATA Extensions project and the proposed ATA-2 project. In order to give people more time to think about the issues, Larry and Steve agreed to withdraw the motion.

10.5 Recommended X3T9.2 Procedure on electronic notification (93-019) [Lamers]

John briefly outlined the X3 Secretariat's successes (and failures) in using electronic mail. Lynn Barra has agreed to post X3 Press Releases on the SCSI BBS and she has recently succeeded in logging into the BBS. The X3 experiment on using a separate Compuserve forum called OASIS has been disappointing with about \$10,000 spent and only 13 users. An X3 ad hoc group has agreed to investigate ways to improve OASIS and/or use alternative means.

Larry Lamers reviewed the basis for his proposal and asked the membership to review it for consideration at the July plenary meeting.

10.6 SCSI-3 Queue Full Handling Proposal (92-214r1) [DeKoning]

A revised proposal is being developed, but it is not available yet. Rod is expected at the next working group.

10.7 SCSI-3 Changes for Dual Port Feature (93-041r1) [Houlder]

A new revision is being prepared incorporating the changes requested at the last working group.

Gene Milligan presented revision 2, which incorporates a change recommended by the March working group. Two bits in a mode page control the behavior of the target when a reset condition or BUS DEVICE RESET message are received on a port. This permits the resetting function to be isolated to the one port or to affect both ports.

Gene Milligan moved and Jeff Williams seconded that 93-041r2 be accepted for incorporation in SCSI-3. The motion passed 30:0.

10.8 Number of Blocks Field Size Limitation (93-032r1) [Penokie]

George presented the proposal the working group recommended.

Jeff Williams moved and Ralph Weber seconded that 93-032r1 be incorporated into SCSI-3. The motion passed 28:0.

10.9 When to issue SDTR after WDTR (93-037) [Penokie]

George Penokie presented 93-037 and the committee debated. When an SDTR is in effect is it invalidated by a WDTR? Does sending the WDTR or accepting the WDTR cause an SDTR to be renegotiated?

The committee favored that a reject of WDTR does not change the state of the sync/async negotiated. If WDTR is accepted the device state is async until a sync negotiation is completed.

George will prepare revision 2.

10.10 Scanner Window Descriptor Bytes Proposal (93-036) [Motoyama]

Tetsuro Motoyama introduced the proposal. He stated that the intention is to incorporate this in the SCSI-3 Graphics Commands. A detailed presentation will be made at the July meeting.

10.11 Review of new documents

All new documents were addressed under other agenda items.

10.12 Agendas for the May Working Groups

The following draft agenda was generated for the May X3T9.2 General Working Group meeting in Santa Fe, NM:

Draft Agenda
May 18-19, 1993 X3T9.2 General Working Group

1. Opening Remarks
2. Attendance and Membership
3. Physical Topics {Tuesday am}
 - 3.1 Low-power (3.3 volt) SCSI Physical Layer [Lohmeyer]
 - 3.2 Slow synchronous setup and hold times [Frazier]
 - 3.3 PCMCIA SCSI connector and cable (93-023) [Lohmeyer]
 - 3.4 Comments on SPI R12 Section 10 (93-081) [Stai]
4. General WG Topics {Tuesday am}
 - 4.1 X3T9.2 Procedure on Electronic Notification (93-019) [Lamers]
5. SCSI-3 Architecture Model (SAM) {Tuesday pm}
 - 5.1 Queue Full Handling (92-214r1) [DeKoning]
 - 5.2 Isochronous Queue Tags (93-071) [Penokie]
6. SCSI-3 Command Sets (SPC, SBC, SSC, SGC, and SMC) {Wednesday am}
 - 6.1 SCSI-3 Primary Commands
 - 6.1.1 Dealing with 8-bit tag values in ASC 4Dh when SAM allows for 64-bit tag values 93-064r0 [Weber]
 - 6.1.2 Structure of parameter data to add source and destination identifiers (93-038r1) [Weber]
7. Protocol Topics {Wednesday am-pm}
 - 7.1 SCSI-3 Interlocked Protocol (SIP)
 - 7.1.1 Interoperation issues with SCSI-2 initiators and SCSI-3 targets pertaining to ACA (93-065) [Frazier]
 - 7.1.2 Review of SIP Revision 2 [Lamers]
 - 7.2 SCSI-3 Serial Bus Protocol (SBP)
 - 7.3 SCSI-3 Fiber Channel Protocol (FCP)
 - 7.4 SCSI-3 Generic Packetized Protocol (GPP)
8. Working Group Schedule
9. Adjournment

Agendas for the other scheduled working group meetings will be distributed on the SCSI reflector by the chairs of the working group meetings.

10.13 Authorization of Payment for Contract Editing Work

John read a facsimilie he had received from Jean-Paul Emard, Director of the X3 Secretariat, regarding invoices for editing work authorized by X3T9.2. The current fund balance is \$5,500. He noted that a vote is required approving the expenditures.

Gary Porter moved and Steve Finch seconded that the X3 Secretariat be authorized to pay the invoices submitted for SCSI-2 rev 10k and CAM rev 3 in the amounts of \$3000 and \$650.

The motion passed 26:0:0.

John Lohmeyer accepted an action item to request Jean-Paul Emard to pay the invoices from the editors fund.

10.14 New Optical Memory Density Codes (93-20r1) [Williams]

The proposal would add a density code for the "times two" Magneto-Optical standard with 650 MB per side.

Jeff Williams moved and Jeff Stai seconded that 93-020r1 be incorporated into SCSI-3. The motion passed 28:0:0.

10.15 Revision to description of partition sizes in SCSI-2 (93-070) [Anjargoli]

George Anjargoli (WangDAT) sent a letter pointing out that a clarification to the sequential-access section of SCSI-2 was agreed to as a result of a request for interpretation back in 1990 and was not in the current SCSI-2 document.

John Lohmeyer said that apparently neither clarification in interpretations 90-116r1 or 90-117 were incorporated. Both had been viewed as editorial clarifications with justifications for the interpretation contained in the sequential-access device type model. However, Lynn Barra and Del Shoemaker both agreed that any changes of this nature at this point in the process would require another public review.

No one was in favor of delaying SCSI-2 for these clarifications. John suggested that he send a letter to George explaining the oversight and stating that the committee still believes the interpretations to be correct and will attempt to include the changes into the SCSI-3 Stream Commands document. Gary Stephens accepted an action item to write a Technical Information Bulletin for SCSI-2. John Lohmeyer accepted an action item to respond to George Anjargoli.

10.16 Clearing ACA in SCSI-3 Interlocked Protocol (93-065) [Frazier]

This proposal would establish a special rule in SIP to clear ACA by any untagged command in SIP.

Giles Frazier moved and John Lohmeyer seconded that "A target shall treat the receipt of any untagged command from an I_T_x nexus as an ACA tagged command followed by a CLEAR ACA message for the I_T_x nexus".

During the discussion of the motion, the alternative methods of dealing with the problem were identified: 1) Gile's approach, 2) have the target start out in SCSI-2 mode and use CHANGE DEFINITION to move to SCSI-3 mode, and 3) use a new bit in a mode page.

Other problems not addressed in the proposal included the ACA ACTIVE status.

The motion failed 3:13:0.

The topic was remanded to the working group.

10.17 SPC Issues (93-038, -063, -064) [Weber]

93-063r0 - Third-party commands - disposition of copy function codes.

George Penokie moved and Jeff Williams seconded that 93-063r0 with corrected spelling be accepted for incorporation into SCSI-3. The motion passed 27:1.

93-064r0 - Dealing with 8-bit tag values in ASC 4Dh when SAM allows for 64-bit tag values.

Jeff Williams stated that checking the 64-bit tag value is optional per an agreement reached when the length of that tag value was adopted in SAM. The checking operation is difficult in hardware due to the length and too slow in firmware to be practical. There is an ASC/ASCQ for a failure that does not identify the tag.

The consensus was that this is not a real problem. The working group was assigned to review the options and make a recommendation.

93-038r1 - Structure of parameter data to add source and destination identifiers.

32-bytes of parameter data needs to be added somewhere. Ralph presented three alternatives. A desire to have alignment on 64-bit boundaries was expressed.

George Penokie's 92-184r1 document contains two ASC/ASCQ codes in error. The codes should be changed as follows:

Wrong codes	Correct Codes
38 0D	3B 0D
38 0E	3B 0E

Gerry Houlder's 92-046r1 document should include the M and C devices for the ASC/ASCQ code 65 00.

10.18 SDP Issue (93-034) [Lohmeyer]

Steve Finch moved and Jim McGrath seconded that 93-034 be incorporated into SCSI-3 at the technical editor's discretion as to location so as to ensure that the concept is adequately covered.

The motion failed 7:7:0

John Lohmeyer, fearful that people would misunderstand the results of this motion, requested the following note be included in the minutes:

SCSI-2 already clearly states that the value of the data pointer at I/O process completion does not necessarily reflect the actual transfer length. The committee was divided over adding redundant notes to further clarify the point.

11. Review of Action Items

- 1) John Lohmeyer will send a letter to PCMCIA regarding meeting dates.
- 2) John Lohmeyer will send a letter to the X3 Secretariat on approval of expenditures for editing.
- 3) John Lohmeyer will send a letter to George Anjargoli regarding tape partition reporting.
- 4) Gary Stephens will draft a technical information bulletin on reporting tape partitions.
- 5) John Lohmeyer will post the P1285 Liaison report to the SCSI reflector.

12. Meeting Schedule

The next plenary meeting of X3T9.2 will be July 22-23, 1993 at the Sheraton Tara Wayfarer Inn (603-622-3766) in Bedford, New Hampshire, hosted by Digital Equipment Corp. The room rates are \$85.00, plus tax, single or double. The reservation deadline for these rates is June 28, 1993. The meeting will begin at 1:30 pm on Thursday and at 8:00 am on Friday.

The near-term ad hoc meeting schedule is:

Event	Date	Time	Location/Contact
ATA Working Group	28-APR-93	09:00-16:00	Milpitas, CA
Disk Drive Working Group	17-MAY-93	14:00-17:00	Santa Fe, NM
ATA Working Group	26-MAY-93	09:00-16:00	Milpitas, CA
ATA Working Group	30-JUN-93	09:00-16:00	Milpitas, CA
Disk Drive Working Group	19-JUL-93	13:30-20:00	Bedford, NH
ATA Working Group	28-JUL-93	09:00-16:00	Milpitas, CA
RAID Study Group	17-MAY-93	17:00-20:00	Santa Fe, NM
RAID Study Group	xx-JUN-93		East Coast
RAID Study Group	22-JUL-93	09:00-12:30	Bedford, NH
CAM Working Group	17-MAY-93	09:00-17:00	Santa Fe, NM
CAM Working Group	19-JUL-93	09:00-17:00	Bedford, NH
SBP Working Group	22-APR-93	09:00-17:00	St. Petersburg Beach
SBP Working Group	06-MAY-93	09:00-17:00	Santa Clara, CA
"	07-MAY-93	09:00-17:00	Santa Clara, CA
SBP Working Group	xx-MAY-93	xx:00-xx:00	Santa Fe, NM
SBP Working Group	02-JUN-93	09:00-17:00	Irvine, CA
"	03-JUN-93	09:00-17:00	Irvine, CA
SBP Working Group	24-JUN-93	09:00-17:00	Minneapolis, MN
SBP Working Group	14-JUL-93	09:00-17:00	Colo Spgs, CO
"	15-JUL-93	09:00-17:00	Colo Spgs, CO
SBP Working Group	20-JUL-93	09:00-17:00	Bedford, NH
X3T9.2 Working Group	18-MAY-93	09:00-17:00	Santa Fe, NM
"	19-MAY-93	09:00-17:00	Santa Fe, NM
SAM Editing Session	19-MAY-93	17:00-20:00	Santa Fe, NM
GPP Working Group	18-MAY-93	17:00-20:00	Santa Fe, NM
Protocol Working Group	21-JUL-93	09:00-12:30	Bedford, NH
Command Set Working Group	21-JUL-93	13:30-17:00	Bedford, NH
General Editing Session	18-JUL-93	13:30-17:00	Bedford, NH

Activity	Contact	Telephone/Email
CAM Working Group	Bill Dallas	(603) 881-2508 dallas@wasted.enet.dec.com
Disk Drive Working Group/ATA	Steve Finch	(714) 573-6808 5723283@mcimail.com
GPP Working Group	Gary Stephens	(602) 799-2246 gstephen@tucvm2.vnet.ibm.com
RAID Study Group	George Penokie	(507) 253-5208 gop@rchvmp3.vnet.ibm.com
SAM Working Group	Charles Monia	(508) 841-6757 monia@starch.enet.dec.com
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SPI Contact	Larry Lamers	(408) 432-3889 71540.2756@compuserve.com
SIP Contact	Larry Lamers	(408) 432-3889 71540.2756@compuserve.com

The long-term meeting schedule is:

Date	Location	Type	Host/Comments
May 17-21, 1993	Santa Fe, NM	WG	Los Alamos (Last WG only)
Jul 19-23, 1993	Manchester, NH	Plen	DEC (1st combo WG & Plenary)
Sep 13-17, 1993	Poughkeepsie, NY	Plen	IBM
Nov 8-12, 1993	Colo Spgs, CO	Plen	NCR
Jan 10-14, 1994	San Diego, CA	Plen	Vitro
Mar 14-18, 1994	Newport Beach, CA	Plen	Emulex {tentative}
May 16-20, 1994	Harrisburg, PA	Plen	AMP {tentative}
Jul 18-22, 1994	Colo Spgs, CO	Plen	NCR {tentative}
Sep 12-16, 1994	Manchester, NH	Plen	DEC {tentative}
Nov 7-11, 1994	Irvine, CA	Plen	Western Digital {tentative}

12.1 Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does X3T9.2 (that is, one vote per organization) and the results of a working group are not binding on the parent committee. This later requirement is why we have traditionally only used non-binding straw polls in working group meetings. Any issue where the voting rules would make a difference is automatically deferred to the plenary group.

Jim McGrath moved and Scott Smyers seconded that X3T9.2 authorize the meetings in the list under agenda item 12. The motion passed unanimously.

13. Adjournment

The meeting was adjourned at 4:00 p.m. on Tuesday April 20, 1993.

Meeting Attenders -- Enclosure (1)

Name	S	Organization	Electronic Mail Address
Mr. Robert C. Herron	A	3M Company	
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Mr. Jeff Rosa	P	Amphenol Interconnect	
Mr. Gary Porter	A	Ancot Corp.	
Mr. Scott Smyers	P	Apple Computer	smyers.s@applelink.apple.com
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Meeting Attenders -- Enclosure (1)

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73 people present

Status Key: P - Principal
 A - Alternate
 O - Observer
 L - Liaison
 S,V - Visitor

Minutes of X3T9.2 Plenary Meeting #105 in St. Petersburg Beach, FL 9/2/93-072r0

Apr 21, 1993 - X3T9.2 Membership - Enclosure (2)

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Apr 22, 1993 - X3T9.2 Document Register - Enclosure (3)

X3T9.2/93-001R0 Date: 3/12/93 Author: J. Lohmeyer [3/15/93]
Desc: X3T9.2 Annual Report
Res:

X3T9.2/93-002R0 Date: 1/6/93 Author: G. Penokie [3/15/93]
Desc: Summary of SCSI Disk Array Items submitted to the RAID Study Group
Res:

X3T9.2/93-003R0 Date: 2/13/93 Author: G. Penokie []
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-003R1 Date: 2/13/93 Author: G. Penokie []
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-003R3 Date: 3/21/93 Author: G. Penokie [3/15/93]
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-003R4 Date: 4/15/93 Author: G. Penokie [6/15/93]
Desc: SCSI Disk Array Model
Res:

X3T9.2/93-004R0 Date: 1/11/93 Author: S. Finch [3/15/93]
Desc: ATA Extensions Working Group Minutes (1/11/93)
Res:

X3T9.2/93-005R0 Date: Author: G. Penokie [3/15/93]
Desc: RAID Study Group Minutes (1/11/93)
Res:

X3T9.2/93-006R0 Date: 1/12/93 Author: J. Lohmeyer [3/15/93]
Desc: X3T9.2 General Working Group Minutes (1/12-13/93)
Res:

X3T9.2/93-007R0 Date: 1/11/93 Author: J. McGrath [3/15/93]
Desc: Support of Local Bus in ATA
Res:

X3T9.2/93-008R0 Date: 10/21/92 Author: D. Kummer [3/15/93]
Desc: Local Bus IDE Modes
Res:

X3T9.2/93-009R0 Date: Author: S. Finch []
Desc: ATA Extensions draft document
Res:

X3T9.2/93-010R0 Date: 1/11/93 Author: R. Roberts [3/15/93]
Desc: "What does the Customer Want???" presentation
Res:

X3T9.2/93-011R0 Date: 1/4/93 Author: S. Todd [3/15/93]
Desc: Dual Array Controller issues
Res:

X3T9.2/93-012R0 Date: 1/5/93 Author: G. Houlder [3/15/93]
Desc: Clarification of TTD, CIOP
Res:

X3T9.2/93-013R0 Date: 1/4/93 Author: P. Entzel [3/15/93]
Desc: Request for two SCSI-3 (SSC) Density Codes
Res: Gary Stephens to assign codes

X3T9.2/93-014R0 Date: 1/12/93 Author: G. Marazas [3/15/93]
Desc: Serial Bus Protocol Fundamentals
Res:

X3T9.2/93-015R0 Date: Author: B. Dallas [3/15/93]
Desc: Minutes of CAM-2 Study Group Meeting (1/11/93)
Res:

X3T9.2/93-016R0 Date: 1/21/93 Author: R. Weber [3/15/93]
Desc: Why SCSI-3 needs ABORT (all initiator tasks)
Res:

X3T9.2/93-017R0 Date: 1/21/93 Author: J. Lohmeyer [3/15/93]
Desc: X3T9.2 Meeting Schedule
Res:

X3T9.2/93-018R0 Date: 1/25/93 Author: S. Finch [3/15/93]
Desc: ATA Extensions-Specifications of Electrical Characteristics
Res:

X3T9.2/93-019R0 Date: 2/15/93 Author: L. Lamers [3/15/93]
Desc: X3T9.2 Procedure on Electronic Notification
Res:

X3T9.2/93-020R0 Date: 2/15/93 Author: J. Williams [3/15/93]
Desc: New Optical Memory Density Codes
Res:

X3T9.2/93-020R1 Date: 2/22/93 Author: J. Williams [3/15/93]
Desc: New Optical Memory Density Codes
Res: Accepted for SCSI-3 in 4/93.

X3T9.2/93-021R0 Date: 2/11/93 Author: R. Jesup [3/15/93]
Desc: Response to Public Review Comment on CAM
Res:

X3T9.2/93-022R0 Date: 1/28/93 Author: T. Hanan [3/15/93]
Desc: Minutes of SFF SSWG on Local Bus ATA
Res:

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X3T9.2/93-023R0 Date: 2/8/93 Author: L. Barnes [3/15/93]
 Desc: Report on PCMCIA SCSI
 Res:

X3T9.2/93-024R0 Date: 2/8/93 Author: J. Scheible [3/15/93]
 Desc: SSA Liason Report
 Res:

X3T9.2/93-025R0 Date: 2/10/93 Author: V. Novak [3/15/93]
 Desc: Status of FCP Revision 003
 Res:

X3T9.2/93-026R0 Date: 2/15/93 Author: D. Pak [3/15/93]
 Desc: P1285 Liason Report
 Res:

X3T9.2/93-027R0 Date: 1/28/93 Author: G. Leonhardt [3/15/93]
 Desc: Explanation of No Vote on ATA
 Res:

X3T9.2/93-028R0 Date: 2/12/93 Author: J. Chen [3/15/93]
 Desc: Comment on ATA letter ballot
 Res:

X3T9.2/93-029R0 Date: 2/15/93 Author: Lamers/Penokie []
 Desc: RAID Study Group Minutes - February 1993
 Res:

X3T9.2/93-029R1 Date: 2/25/93 Author: Lamers/Penokie [3/15/93]
 Desc: RAID Study Group Minutes - February 1993
 Res:

X3T9.2/93-030R0 Date: 2/12/93 Author: B. Dallas [3/15/93]
 Desc: SCSI RAID Problems Presented to the Software Developer
 Res:

X3T9.2/93-031R1 Date: 2/16/93 Author: B. Spence [3/15/93]
 Desc: Corrections and Additions in SPI Timing
 Res:

X3T9.2/93-032R0 Date: 2/16/93 Author: G. Penokie []
 Desc: Number of Blocks Field Size Limitation
 Res:

X3T9.2/93-032R1 Date: 3/22/93 Author: G. Penokie [3/15/93]
 Desc: Number of Blocks Field Size Limitation
 Res: Accepted for SCSI-3 in 4/93.

X3T9.2/93-033R0 Date: 2/16/93 Author: Lamers/Lohmeyer [3/15/93]
 Desc: Minutes of X3T9.2 Plenary Meeting #104
 Res:

X3T9.2/93-034R0 Date: 2/17/93 Author: J. Lohmeyer [3/15/93]
 Desc: SDP Message Clarification
 Res:

X3T9.2/93-035R0 Date: 2/21/93 Author: S. Smyers [3/15/93]
 Desc: SBP Working Group Minutes - Feb '93
 Res:

X3T9.2/93-036R0 Date: 2/17/93 Author: T. Motoyama [3/15/93]
 Desc: Scanner Window Descriptor Bytes Proposal
 Res:

X3T9.2/93-037R0 Date: 2/27/93 Author: G. Penokie []
 Desc: When to issue SDTR after WDTR
 Res:

X3T9.2/93-037R1 Date: 3/22/93 Author: G. Penokie [3/15/93]
 Desc: When to issue SDTR after WDTR
 Res:

X3T9.2/93-038R0 Date: 3/20/93 Author: R. Weber [3/15/93]
 Desc: Third-party Commands in SCSI-3 SPC
 Res:

X3T9.2/93-038R1 Date: 4/15/93 Author: R. Weber [6/15/93]
 Desc: Third-party Commands in SCSI-3 SPC
 Res:

X3T9.2/93-039R0 Date: 3/16/93 Author: Lamers/Lohmeyer [3/15/93]
 Desc: March Working Group Minutes
 Res:

X3T9.2/93-039R1 Date: 3/25/93 Author: Lamers/Lohmeyer [5/15/93]
 Desc: March Working Group Minutes
 Res:

X3T9.2/93-040R0 Date: 3/2/93 Author: E. Gardner [3/15/93]
 Desc: Minutes of SBP Working Group March 1-2, 1993
 Res:

X3T9.2/93-041R0 Date: Author: G. Houlder [3/15/93]
 Desc: SCSI-3 Changes for Dual Port Feature
 Res:

X3T9.2/93-041R1 Date: Author: G. Houlder [3/15/93]
 Desc: SCSI-3 Changes for Dual Port Feature
 Res:

X3T9.2/93-041R2 Date: 4/20/93 Author: G. Houlder [6/15/93]
 Desc: SCSI-3 Changes for Dual Port Feature
 Res: Accepted for SCSI-3 in 4/93.

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X3T9.2/93-042R0 Date: 3/17/93 Author: E. Gardner []
 Desc: SBP Command Block CDB Alignment
 Res:

X3T9.2/93-042R1 Date: 3/17/93 Author: E. Gardner [3/15/93]
 Desc: SBP Command Block CDB Alignment
 Res:

X3T9.2/93-043R0 Date: 3/17/93 Author: N. Hayes [3/15/93]
 Desc: SQR L SCSI Queued Reference List
 Res:

X3T9.2/93-044R0 Date: 3/18/93 Author: R. Roberts [3/15/93]
 Desc: Presentation on BASE-1
 Res:

X3T9.2/93-045R0 Date: 3/18/93 Author: S. Finch [3/15/93]
 Desc: Minutes of the Disk Drive Working Group Mtg
 Res:

X3T9.2/93-046R0 Date: 2/24/93 Author: T. Hanan [3/15/93]
 Desc: Minutes of SFF SSWG on Local Bus ATA
 Res:

X3T9.2/93-047R0 Date: 3/19/93 Author: J. Lohmeyer [3/15/93]
 Desc: CAM Minutes
 Res:

X3T9.2/93-048R0 Date: 3/21/93 Author: J. Lohmeyer [3/15/93]
 Desc: Jeopardy Letter for 1993
 Res:

X3T9.2/93-049R0 Date: 3/22/93 Author: L. Lamers [3/15/93]
 Desc: Minutes of the RAID Study Group
 Res:

X3T9.2/93-050R0 Date: 3/22/93 Author: Finch/Allan [3/15/93]
 Desc: Project Proposal for ATA-2
 Res:

X3T9.2/93-051R0 Date: 1/6/93 Author: I. Larsen [3/15/93]
 Desc: Async transfer question & reply
 Res:

X3T9.2/93-052R0 Date: 1/14/93 Author: K. Gingerich [3/15/93]
 Desc: Suggested Changes to Fig 8 in SPI
 Res:

X3T9.2/93-053R0 Date: 1/31/93 Author: J. Cohen [3/15/93]
 Desc: Quotation on SCSI-2 edit
 Res:

X3T9.2/93-054R0 Date: 1/31/93 Author: J. Cohen [3/15/93]
 Desc: Quotation on ATA edit
 Res:

X3T9.2/93-055R0 Date: 1/31/93 Author: J. Cohen [3/15/93]
 Desc: Quotation on CAM edit
 Res:

X3T9.2/93-056R0 Date: 3/12/93 Author: C. Wozniak [3/15/93]
 Desc: Copyright fo Single Connector Attachment Document
 Res:

X3T9.2/93-057R0 Date: 11/9/92 Author: R. Snively [3/15/93]
 Desc: Single Connector Attachment for Small SCSI Disk Drives
 Res:

X3T9.2/93-058R0 Date: 1/28/93 Author: R. Whalen [3/15/93]
 Desc: SIMport Specification
 Res:

X3T9.2/93-059R0 Date: 4/21/93 Author: L. Lamers [6/15/93]
 Desc: ATA Rev 4 Errata
 Res:

X3T9.2/93-060R0 Date: 4/22/93 Author: E. Gardner [6/15/93]
 Desc: Minutes of SBP meeting April 7-8, 1993
 Res:

X3T9.2/93-061R0 Date: 4/22/93 Author: J. Scheible [6/15/93]
 Desc: Project Proposal for Serial Storage Protocol
 Res:

X3T9.2/93-062R0 Date: 3/29/93 Author: S. Washburn [6/15/93]
 Desc: New Code for QIC 555 Tape - mini cartridge
 Res:

X3T9.2/93-063R0 Date: 3/29/93 Author: R. Weber [6/15/93]
 Desc: Disposition of COPY Function Codes in 90-048r7
 Res:

X3T9.2/93-063R1 Date: 4/20/93 Author: R. Weber [6/15/93]
 Desc: Disposition of COPY Function Codes in 90-048r7
 Res: Accepted for SCSI-3 in 4/93

X3T9.2/93-064R0 Date: 3/30/93 Author: R. Weber [6/15/93]
 Desc: Disposition of ASC/ASCQ tag number in X3T9.2/92-141R5
 Res:

X3T9.2/93-065R0 Date: 4/19/93 Author: J. Frazier [6/15/93]
 Desc: Clearing an ACA in SIP
 Res:

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X3T9.2/93-066R0 Date: 4/9/93 Author: R. Weber [6/15/93]
Desc: ASC ASCQ Sense Codes for SCSI-3
Res:

X3T9.2/93-067R0 Date: 3/22/93 Author: Lynn Barra [6/15/93]
Desc: Follow-Up to X3LB 2189
Res: CAM-2 LB results 21-0-1-9; 990D

X3T9.2/93-068R0 Date: 3/22/93 Author: Lynn Barra [6/15/93]
Desc: Follow-up to X3LB 2190
Res:

X3T9.2/93-069R0 Date: 3/22/93 Author: Lynn Barra [6/15/93]
Desc: Follow-up to X3LB 2191
Res:

X3T9.2/93-070R0 Date: 4/13/93 Author: G. Anjargoli [6/15/93]
Desc: Revision to Description of Partition Size in SCSI-2
Res:

X3T9.2/93-071R0 Date: 4/16/93 Author: G. Penokie [6/15/93]
Desc: Isochronous Queue Tagsk
Res:

X3T9.2/93-072R0 Date: 4/21/93 Author: Lamers/Lohmeyer [6/15/93]
Desc: Minutes of X3T9.2 Plenary Meeting #105
Res:

X3T9.2/93-073R0 Date: 4/13/93 Author: J. Scheible [6/15/93]
Desc: SSA Liason Report
Res:

X3T9.2/93-074R0 Date: 4/19/93 Author: J. Lohmeyer [6/15/93]
Desc: Letter to PCMCIA RE Schedules
Res:

X3T9.2/93-075R0 Date: 4/19/93 Author: Penokie/Lamers [6/15/93]
Desc: Minutes of the X3T9.2 RAID study group
Res:

X3T9.2/93-076R0 Date: 4/20/93 Author: J. Williams [6/15/93]
Desc: 64-bit Tag Checking
Res:

X3T9.2/93-077R0 Date: 4/20/93 Author: G. Milligan [6/15/93]
Desc: Conflict between CORRECT and DCR bits
Res:

X3T9.2/93-078R0 Date: 4/20/93 Author: J. Lohmeyer [6/15/93]
Desc: Letter to Authorize Edit Expenditures
Res:

X3T9.2/93-079R0 Date: 4/19/93 Author: D. Pak [6/15/93]
Desc: P1285 Liaison Report for April 1993
Res:

X3T9.2/93-080R0 Date: 4/13/93 Author: R. Snively [6/15/93]
Desc: SCSI-3 FCP Change Report
Res:

X3T9.2/93-081R0 Date: 4/22/93 Author: J. Stai [6/15/93]
Desc: Comments on SPI Rev 12
Res:

X3T9.2/93-082R0 Date: 4/23/93 Author: B. Dallas [6/15/93]
Desc: Minutes of CAM Working Group for April 20, 1993
Res: