

Accredited Standards Committee\*  
**X3, Information Processing Systems**

**Doc. No.:** X3T10/94-192r0

**Date:** September 20, 1994

**Project:**

**Ref. Doc.:**

**Reply to:** John Lohmeyer

To: Membership of X3T10

From: Ralph Weber, Secretary X3T10  
John Lohmeyer, Chair X3T10

Subject: Minutes of X3T10 Plenary Meeting #5  
Houston, TX -- September 15, 1994

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**Agenda**

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  - 8.16 SCSI-3 Graphics Commands (SGC) Status {Project 998-D} [open]
  - 8.17 SCSI-3 Medium Changer Commands (SMC) Status {Project 999-D} [Oetting]
  - 8.18 Directly-Addressable Device Interface (DADI) Status {Project 964-D} [open]

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**X3 Secretariat, Computer and Business Equipment Manufacturers Association (CBEMA)**

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- 8.19 SCSI Common Access Method -2 (CAM-2) Status {Project 990-D} [Dallas]
  - 8.20 SCSI-3 Controller Commands (SCC) Status {Project 1047-D} [Penokie]
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  - 12.2 SFF Industry Group [Allan]
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  - 12.4 IT8 [Lohmeyer]
  - 12.5 IEEE P1285 Status [Pak]
  - 12.6 PCMCIA Report [McLean]
  - 12.7 AIIM C21 [Podio]
13. Review of Action Items
14. Meeting Schedule
- 14.1 Authorization of Working Group Meetings
15. Adjournment

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## Results of Meeting

### 1. Opening Remarks

John Lohmeyer, the X3T10 Chair, called the meeting to order at 1:00 p.m., Thursday September 15, 1994. He thanked Bill Galloway of Compaq Computer for arranging and hosting the meeting.

John said that X3 Subgroup Membership forms and the X3T10 Mailing Subscription form 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. These forms should be mailed directly to the X3 Secretariat.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated. Copies of the draft agenda and general information on X3T10 were made available to those attending.

## **2. Approval of Agenda**

The draft agenda was approved with the following changes:

Deletion of CAM forwarding for second public review. Addition of the following new business items; ECMA [Cummings], Reserve & Release [Weber], MEDIA FORMAT command [Cummings], other working group recommendations [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 X3T10. The individual may vote at the second plenary meeting. Working group meetings do not count toward attendance requirements.

Organizations must also pay the X3 Service Fee (\$300) to maintain membership. This year, the International Program fee (\$300) will be billed separately directly from ANSI.

The Chair said he had sent letters to 29 people from 15 organizations informing them that their membership was in jeopardy due to non-attendance (see 94-009r2) and that their membership would be terminated if they did not attend this meeting. Rancho Technology requested that their membership be converted to observer status. All organizations were represented except: Distributed Processing Tech., Pacific Electro Data Inc., Ricoh Corporation, and U.S. Design. Principal members from these organizations were changed to observers and the alternates were terminated.

The following organizations joined X3T10 at the meeting: Burr-Brown Corp. and Syquest Technology, Inc.

The X3T10 membership is now at 58 organizations down from 61 organizations last time. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current X3T10 membership list.

## **4. Approval of Minutes - July Meeting Bedford, NH (X3T10/94-150r1)**

The minutes were approved as written.

## **5. Document Distribution**

Members who have any problems with their mailing subscription should deal directly with Katrina Gray or Dan Arnold 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, September 29, 1994. 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 X3T10 meets its document archiving requirements by including the X3 Secretariat 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 ATA and SCSI Reflectors. To be added to the ATA Reflector, send an email to majordomo@dt.wdc.com with the line 'subscribe ata your-email-address' in the message body. To subscribe to the SCSI Reflector, send an electronic message to: scsi-request@WichitaKS.NCR.COM.

The current document register is enclosure (3).

## 6. 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.

## 7. Review of Old Action Items

- 10) John Lohmeyer will contact Lynn Barra regarding the LOG SENSE TIB (X3T9.2/90-165) which is on hold. **Complete.**
- 21) George Penokie will prepare a revision of the LOG SENSE TIB. **Complete.**
- 22) Larry Lamers will contact X3 to learn the style requirements for a technical report (for use by Gary Stephens, GPP editor). **Complete.**
- 23) John Lohmeyer will forward the revised GPP project proposal 94-099r0 and negative letter ballot comments to X3 for further processing. **Complete.**
- 24) Gene Milligan will draft proposed procedures for periodic/timely publication of documents until a standard becomes dormant. **Complete.**
- 25) John Lohmeyer will generate letter ballots for the ATA-3 and ATAPI project proposals (94-019r4 and 94-022r4, respectively). **Complete (by Larry).**

## 8. Subgroup and/or Project Status Reports

### 8.1 Project Status Summary [Lohmeyer]

John Lohmeyer said that the current X3T10 project status summary was included on the backs of the meeting agendas. John noted that the Fast-20 project was approved.

John reported on two correspondences that he has received that might affect X3 and/or X3T10. The first concerns IEEE project 1149.5/D0.9.9 called standard module test and maintenance (MTM). The second correspondence came from OMC and concerned two futurebus projects. There was no interest in forming formal liaisons.

### 8.2 X3T10.1 Task Group Report

John Scheible reported that X3T10.1 is forwarding a project proposal for a technical report to X3T10. The technical report is a mapping of SCSI-2 commands to SSA. Ed Gardner reported that the motion to forward was approved 19:0:0:38. Larry Lamers took an action item to process the X3T10.1 project proposal via an X3T10 letter ballot.

### **8.3 SCSI-2 Status {Project 375-M} [Lamers]**

Published! At last! Call ANSI at 212-642-4900 to order your copy. The price is \$125 (\$100 for ANSI member companies).

### **8.4 SCSI Common Access Method (CAM) {Project 792-D} [Dallas]**

Bill Dallas noted that additional comments had been received concerning the host target mode clauses. Bill described his plans to prepare a revised draft of CAM in time for the next mailing. Bill said that he will be asking for a forwarding to second public review at the November plenary meeting.

### **8.5 AT Attachment (ATA) Status {Project 791-D} [Lamers]**

Larry Lamers moved that we approve payment of the \$350 invoice for editing the ANSI editor's comments to the ATA document. Bob Masterson seconded the motion. The motion was passed 41:0:0:17.

### **8.6 ATA Extensions (ATA-2) Status {Project 948-D} [Finch]**

Since the last plenary meeting, the ATA Working Group has met twice. On August 31 and September 1, the working group performed a technical review on ATA-2, and completed its review of the document through Section 6. This represents the first 37 pages of a total of 105 pages, so there is much work yet to be done.

A number of rather significant changes were made in the sections reviewed, and register definitions in particular. Steve Finch recommended that anyone who is interested in the ATA interface to take the time to review at least through section 6.

This morning, September 15, the ATA Working Group met and addressed the following issues:

Submittal of ATA-1 for ISO standardization: the working group did not see a need for the submission of ATA for ISO processing at this time.

Resolution of comments on the ATA-3 and ATAPI project proposals: the working group made no changes to the project proposals based upon the comments received. The working group did create proposed responses to each of the no votes.

A proposal for multi-threading on ATA/ATAPI was presented by Western Digital. A copy will be in the next mailing.

The ATA-2 document is currently at revision 2g (X3T10/948Dr2g). Hard copies were available at this morning's meeting. Some copies were left over and were available at the X3T10 meeting. A copy will be in the next mailing.

The next ATA Working Group Meeting is scheduled for September 27, 9:30 a.m. to 5:00 p.m. and September 28, 9:00 a.m. to 4:00 p.m. The meeting will be hosted by Quantum at the Crown Sterling Suites in Milpitas, CA.

Other scheduled ATA Working Group Meetings: Thursday and Friday, October 20, 21 in Milpitas; Thursday, November 10, 9:00 a.m. - 12:00 n.

The September and October meetings will concentrate on completing the ATA-2 document review. The November meeting will discuss ATA-3 and ATAPI related issues.

**8.7 SCSI-3 Architecture Model (SAM) Status {Project 994-D} [Monia]**

Charles Monia reported that the working group reviewed the proposed responses to comments from the SAM letter ballot. The document is 94-173r1. The working group discussed two other proposals that have been brought to the Plenary for action today.

**8.8 SCSI-3 Parallel Interface (SPI) Status {Project 855-D} [Lamers]**

Larry Lamers reported that several minor editorial changes are required to SPI. Larry moved that X3T10 authorize spending up to \$2,200 on editor services for SCSI-3 documents in Frame. Charles Monia seconded the motion. The motion passed 41:0:0:17.

**8.9 SCSI-3 Interlocked Protocol (SIP) Status {Project 856-D} [Penman]**

Bob Masterson moved for approval of \$300 to pay the invoice for editorial work on SIP. Gary Stephens seconded the motion. The motion passed 43:0:0:15.

**8.10 SCSI-3 Generic Packetized Protocol (GPP) Status {Project 991-D} [Stephens]**

Gary Stephens announced that the TIB form of GPP was in the mailing. John reported that the changed project proposal has been sent to X3. Roger Cummings reported that OMC probably is considering the matter at their meeting this week.

Gary Stephens moved that revision 8 of GPP be accepted by X3T10 as the current working draft. Charles Monia seconded the motion. Gene Milligan asked whether prior letter ballot comments have been addressed. Larry Lamers reported that a comments resolution document was registered in February. The motion passed unanimously.

Gene Milligan asked John Lohmeyer to process a letter ballot for GPP as soon as the project is approved. John did not accept the action item as the X3 letter ballot is likely to close just prior to the November X3T10 meeting.

**8.11 SCSI-3 Serial Bus Protocol (SBP) Status {Project 992-D} [Marazas]**

Scott Smyers reported that all public review comments have been incorporated. Revision 13 is in the mailing. Scott and Gerry believe that revision 13 is ready to send to first public review.

**8.12 SCSI-3 Fiber Channel Protocol (FCP) Status {Project 993-D} [Snively]**

Bob Snively reported that issues have been raised that intend to simplify target handling of recovery abort operations. The changes are substantial and technical in nature. Bob noted a proposal on the agenda from Gene Milligan that will keep the current FCP document and start an FCP-2 project, in which the new technical material will appear. Gene's specific proposal is wording of a note to be placed in the current FCP document (see item 9.2).

**8.13 SCSI-3 Primary Commands (SPC) Status {Project 995-D} [Weber]**

Ralph noted that the Reserve/Release commands, PORT STATUS command, log page 8, and download microcode changes need to be included in the SPC. Ralph said that revision 3 will incorporate these changes and will be distributed in the next mailing. Baring unforeseen complications, Ralph hoped that revision 3 will be ready for a forwarding letter ballot for first public review.

Ralph described changes in the attached medium loader usage requested by Erich Oetting. The

changes make the attached loader model useful for stackers, an important variant of attached medium loaders. As a result of the changes, the complexity of READ ELEMENT STATUS response data increased beyond the level that Ralph found acceptable. So, Ralph and Erich will work to move most of the medium changer model and command specifics out of the SPC and into the SMC.

Ralph Weber moved that SPC revision 2 be accepted as the X3T10 working draft for project 995-D. Paul Johansson seconded the motion. The motion passed unanimously.

#### **8.14 SCSI-3 Block Commands (SBC) Status {Project 996-D} [Tewell]**

Rick Tewell reported that he plans on distributing revision 0 the SBC in the next mailing.

#### **8.15 SCSI-3 Stream Commands (SSC) Status {Project 997-D} [Lappin]**

Ted reported that there will be a study group for stream commands at the November meetings. A revision of the SSC was in the last mailing.

Ted moved that revision 1 of the SSC be accepted as a committee working draft for project 997-D. Erich Oetting seconded the motion. The motion was passed unanimously.

#### **8.16 SCSI-3 Graphics Commands (SGC) Status {Project 998-D} [open]**

There is no editor for this project, however Rick Tewell has found a hot lead.

#### **8.17 SCSI-3 Medium Changer Commands (SMC) Status {Project 999-D} [Oetting]**

Erich reported that revision 2 of the SMC was distributed at this meeting. It also will be in the next mailing. Because of the changes in the SPC mentioned above, Erich will move the attached medium changer information from the SPC to the SMC.

Erich Oetting moved that SMC revision 2 be accepted as the X3T10 working draft for project 999-D. Ted Lappin seconded the motion. The motion passed unanimously.

#### **8.18 Directly-Addressable Device Interface (DADI) Status {Project 964-D} [open]**

Larry Lamers told the committee that he will move to terminate this project at the November meeting unless an editor is named.

#### **8.19 SCSI Common Access Method -2 (CAM-2) Status {Project 990-D} [Dallas]**

This project is still on hold, waiting for CAM to forward to second public review.

#### **8.20 SCSI-3 Controller Commands (SCC) Status {Project 1047-D} [Penokie]**

George Penokie reported that there have been two meetings since the last Plenary. Most of the work being done at this point is editorial. The most significant change was changing "disk" to "storage." Revision 2 was distributed at this meeting. George reported on a tutorial he gave earlier this week. George reported on the few changes between revisions 2 and 3 of the SCC. Revision 3 of the SCC is almost ready for forwarding.

George announced that the SCC meeting in October is being canceled. The next SCC working group meeting will be in November.

George Penokie moved that SCC revision 3 be accepted as the X3T10 working draft for project 1047-D. Charles Monia seconded the motion. The motion passed unanimously.

### **8.21 Multimedia Command Set (MMC) Status {Project 1048-D} [Harris]**

Norm Harris reported that revision 1.0 of the MMC was in the last mailing. It adds about twenty commands, mostly suggestions from the ATAPI effort. Norm described the working group meeting held earlier this week. Norm reported satisfaction with the comments that he is receiving. Norm said that an issues list will be circulated on the SCSI Reflector.

Norm announced that revision 2 of the MMC will be distributed in the next mailing. Norm requested that anyone with comments contact him by September 26th. Tom Hanan suggested that the ATAPI reflector be polled for comments on MMC commands. Norm agreed to do that.

### **8.22 SCSI-3 Fast-20 Parallel Interface (Fast-20) {Project 1071-D} [Lamers]**

John Lohmeyer announced that the Fast-20 project is approved and that the project number is 1071-D. Larry Lamers reported that the task at hand is preparing a working draft for the next mailing. Larry said that he intends to have a Fast-20 document ready for the next mailing, but that he is not certain that it can be done.

### **8.23 XOR Commands Study Group [Houlder]**

Gerry Houlder provided written minutes for the XOR commands study group meeting held on Monday, September 12, 1994. Gerry's minutes for the September 12 meeting can be found in document 94-199r0.

## **9. Old Business**

### **9.1 Technical Information Bulletins**

George Penokie reported on two comments made by Gene Milligan against the Log Sense TIB. An editorial comment noted that the RECL bit must be set to solicit unit attention. A technical change eliminated repeated reporting of a counter overflow conditions. George moved that the revised Log Sense TIB processed via a letter ballot for forwarding to public review. Gene Milligan seconded the motion. The motion passed unanimously.

Ted Lappin reported that no comments have been received on the Sequential Access TIB since it was distributed in the last mailing. Ted recommended that John Lohmeyer process the Sequential Access TIB in a letter ballot for forwarding to public review. John took an action item to conduct the letter ballot on the Sequential Access TIB.

### **9.2 Resolution of SAM Letter Ballot Comments**

Charles cited 94-173r1, a document that lists SAM comments and resolutions. Charles explained that the working group had reviewed the comments and resolution. With two exceptions, 94-173r1 correctly represents the resolution SAM comments. The two exceptions were handled as amendments to 94-173r1.

Charles discussed an amendment to the comments and responses in 94-173r1. The amendment covers the identification tasks that are aborted out of a task set. Charles moved that the amended text be approved. Peter Johansson seconded the motion. The motion passed unanimously.



Bob Snively next reported on a discussion of another amendment to the SAM responses in 94-173r1. Bob presented a new document that covers the amendment, 94-189r0. George Penokie moved that 94-189r0 be approved as amended for inclusion as a letter ballot comment resolution for SAM. Jim McGrath seconded the motion.

Ralph Weber noted that the proposed bit usage in the Standard INQUIRY Data conflicts with existing bit definitions. Bob agreed to leave definition of the actual Standard INQUIRY Data bit position to the SPC editor.

Jim McGrath asked that SCSI-2 and SCSI-3 behaviors be identical in specific portions of the 94-189r0 proposal. Jim McGrath moved to amend 94-189r0 to change a SCSI-3 usage of ACA to the SCSI-2 CA. Gary Stephens seconded the motion. The motion to amend 94-189r0 failed 5:19:0:23.

The motion to accept 94-189r0 was approved 23:3:0:21.

Charles reported that a previous change failed to reflect the intent of the committee. The wording changed in SAM clause 6.1 was changed to read:

"Validation of CDB parameters is a logical unit option."

Charles proposed that the wording be corrected to reflect the committee's intent as follows:

"The checking of reserved fields in a CDB is a logical unit option."

Ron Roberts moved that this change be accepted. Larry Lamers seconded the motion. The motion passed unanimously.

Gary Stephens moved that:

- the responses to letter ballot comments be accepted, and
- the several substantive comments made since the letter ballot be accepted.

Larry Lamers seconded the motion.

Bob Snively moved that Gary Stephens' motion be amended to include instructing Charles to remove the dual port information added in revision 15 without prohibiting dual porting. Jim McGrath seconded the motion to amend. The motion to amend passed 22:4:0:31.

The motion, as amended, required that:

- the responses to letter ballot comments be accepted,
- the several substantive comments made since the letter ballot be accepted, and
- Charles be instructed to remove the dual port information added in revision 15 without prohibiting dual porting.

The amended motion passed with a roll call vote as follows:

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.					1
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Lawrence J. Lamers	1			
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
Amphenol Interconnect	Mr. Michael Wingard	1			
Ancot Corp.	Mr. Gary Porter	1			
Apple Computer					1
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic	Mr. Steven Ramberg	1			
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.					1
Circuit Assembly Corp.					1
Cirrus Logic Inc.	Mr. Joe Chen	1			
Compaq Computer Corp.	Mr. Bill Galloway	1			
Congruent Software, Inc.	Mr. Peter Johansson	1			
Conner Peripherals	Mr. Timothy Feldman	1			
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Mr. Charles Monia	1			
ENDL	Mr. Kenneth J. Hallam	1			
Exabyte Corp.	Mr. Edward Lappin	1			
Foxconn					1
FSI Consulting Services	Mr. Gary R. Stephens	1			
Fujitsu Computer Products, Am					1
Future Domain Corp.	Mr. Mark Woithe		1		
Harbor Electronics					1
Hewlett Packard Co.	Mr. Jeffrey L. Williams	1			
Hitachi Micro Systems, Inc.					1
Honda Connectors					1
IBM Corp.	Mr. George Penokie		1		
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.	Mr. Gary Brandvold	1			
Linfinit Micro	Mr. Dean Wallace	1			
Madison Cable Corp.					1
Maxoptix Corp.					1
Maxtor Corp.	Mr. Ron Roberts	1			
Methode Electronics, Inc.					1
Molex Inc.	Mr. Joe Dambach	1			
NEC Technologies Inc.					1
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.					1
Panasonic Technologies, Inc	Mr. Stephen F. Heil	1			
QLogic Corp.	Mr. Skip Jones		1		
Quantum Corp.	Mr. James McGrath		1		
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.					1
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Robert N. Snively	1			
SyQuest Technology Corp.	Mr. Patrick Mercer	1			
Tandem Computers	Mr. Pete Tobias	1			
Thomas & Betts	Mr. Harvey Waltersdorf	1			
UNISYS Corporation	Mr. Peter Dougherty	1			
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation	Mr. Tak Asami	1			
Woven Electronics	Mr. Doug Piper	1			
Zadian Technologies					1
Totals:		37	4	0	17 = 58

The following statements were offered by those voting no: Jim McGrath voted no based on the ACA handling discussed earlier in this meeting. Jim McGrath also found the resolution of the mandatory vs. optional letter ballot comment was unacceptable. George Penokie said that his no vote was based on 1) a standing policy for not forwarding documents that he has not read and 2) the removal of the dual

port seemed inappropriate.

As a result of the motion, Charles Monia took an action item to create a SAM revision 16 based on the accepted changes and John Lohmeyer took an action item to forward SAM to X3 for further processing (first public review). Larry congratulated Charles on reaching this milestone.

### **9.3 Resolution of FCP Letter Ballot Comments**

Bob Snively stated that all letter ballot comments have been resolved in FCP revision 9. Bob proceeded to describe a non-letter ballot comment regarding cleanup during abort functions that affect multiple tasks. Bob noted that the latter comment is not fully resolved at this time. Bob called on Gene Milligan to present a unanimous recommendation of the working group.

Gene noted that his proposal is analogous to actions taken relative to the P-cable during work on SCSI-2. Gene moved that editor be instructed to add the following statement to clause 7.1.2.2 of the FCP:

Note: X3T10 plans to consider recommendations from industry groups and other contributors resulting from early implementations and evaluation of FCP (e.g. a definition of the Abort Task Set, Clear Task Set, and Target Reset functions, in FCP, which may eliminated associated recovery abort functions generated by the target) in a future version of FCP.

Bob Snively seconded the motion. The motion passed 37:0:0:20.

Bob Snively moved that the substantive changes made after the letter ballot be accepted and that the revised FCP be forwarded to X3 for first public review. Larry Lamers seconded the motion. The motion passed on a roll call vote:

Minutes of X3T10 Plenary Meeting #5 in Houston, TX

X3T10/94-192r0

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.					1
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Norm Harris	1			
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
Amphenol Interconnect	Mr. Michael Wingard	1			
Ancot Corp.	Mr. Gary Porter	1			
Apple Computer					1
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic	Mr. Steven Ramberg	1			
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.					1
Circuit Assembly Corp.					1
Cirrus Logic Inc.	Mr. Joe Chen	1			
Compaq Computer Corp.	Mr. Bill Galloway	1			
Congruent Software, Inc.	Mr. Peter Johansson	1			
Conner Peripherals	Mr. Timothy Feldman	1			
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Mr. Charles Monia	1			
ENDL	Mr. Kenneth J. Hallam	1			
Exabyte Corp.	Mr. Edward Lappin	1			
FSI Consulting Services	Mr. Gary R. Stephens	1			
Foxconn					1
Fujitsu Computer Products, Am					1
Future Domain Corp.	Mr. Mark Woithe	1			
Harbor Electronics					1
Hewlett Packard Co.	Mr. Jeffrey L. Williams	1			
Hitachi Micro Systems, Inc.					1
Honda Connectors					1
IBM Corp.	Mr. Giles Frazier	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.	Mr. Gary Brandvold	1			
Linfinity Micro	Mr. Dean Wallace	1			
Madison Cable Corp.					1
Maxoptix Corp.					1
Maxtor Corp.	Mr. Ron Roberts	1			
Methode Electronics, Inc.					1
Molex Inc.	Mr. Joe Dambach	1			
NEC Technologies Inc.					1
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.	Mr. Mike Hetzel	1			
Panasonic Technologies, Inc	Mr. Stephen F. Heil	1			
QLogic Corp.	Mr. Skip Jones	1			
Quantum Corp.	Mr. James McGrath	1			
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.					1
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Robert N. Snively	1			
SyQuest Technology Corp.	Mr. Patrick Mercer	1			
Tandem Computers	Mr. Pete Tobias	1			
Thomas & Betts	Mr. Harvey Waltersdorf	1			
UNISYS Corporation	Mr. Peter Dougherty	1			
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation	Mr. Tak Asami	1			
Woven Electronics	Mr. Doug Piper	1			
Zadian Technologies	Mr. Duncan Penman	1			
Totals:		43	0	0	15 = 58

#### **9.4 Resolution of SBP Letter Ballot Comments**

Scott Smyers described an editorial change clarifying the limits on how TAP can be rejected. Scott then moved that SBP revision 18 as editorially amended by Giles Frazier be accepted as the resolution of the letter ballot comments and that the substantive changes made after the letter ballot be accepted so that SBP can be forwarded for public review. Charles Monia seconded the motion. The motion passed on a role call vote:

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.					1
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Norm Harris	1			
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker	1			
Amphenol Interconnect	Mr. Michael Wingard	1			
Ancot Corp.	Mr. Gary Porter	1			
Apple Computer					1
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic	Mr. Steven Ramberg	1			
CMD Technology	Mr. Edward Haske	1			
Ciprico Inc.					1
Circuit Assembly Corp.					1
Cirrus Logic Inc.	Mr. Joe Chen	1			
Compaq Computer Corp.	Mr. Bill Galloway	1			
Congruent Software, Inc.	Mr. Peter Johansson	1			
Conner Peripherals	Mr. Timothy Feldman	1			
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Mr. Charles Monia	1			
ENDL	Mr. Kenneth J. Hallam	1			
Exabyte Corp.	Mr. Edward Lappin	1			
FSI Consulting Services	Mr. Gary R. Stephens	1			
Foxconn					1
Fujitsu Computer Products, Am					1
Future Domain Corp.	Mr. Mark Woithe	1			
Harbor Electronics					1
Hewlett Packard Co.	Mr. Jeffrey L. Williams	1			
Hitachi Micro Systems, Inc.					1
Honda Connectors					1
IBM Corp.	Mr. Giles Frazier	1			
Interphase Corp.	Mr. David Lawson	1			
Iomega Corp.	Mr. Gary Brandvold	1			
Linfinity Micro	Mr. Dean Wallace	1			
Madison Cable Corp.					1
Maxoptix Corp.					1
Maxtor Corp.	Mr. Ron Roberts	1			
Methode Electronics, Inc.					1
Molex Inc.	Mr. Joe Dambach	1			
NEC Technologies Inc.					1
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.	Mr. Mike Hetzel	1			
Panasonic Technologies, Inc	Mr. Stephen F. Heil	1			
QLogic Corp.	Mr. Skip Jones	1			
Quantum Corp.	Mr. James McGrath	1			
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.					1
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Robert N. Snively	1			
SyQuest Technology Corp.	Mr. Patrick Mercer	1			
Tandem Computers	Mr. Pete Tobias	1			
Thomas & Betts	Mr. Harvey Waltersdorf	1			
UNISYS Corporation	Mr. Peter Dougherty	1			
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation	Mr. Tak Asami	1			
Woven Electronics	Mr. Doug Piper	1			
Zadian Technologies	Mr. Duncan Penman	1			
	Totals:	43	0	0	15 = 58

## **9.5 X3T10 Procedures [Lamers]**

Larry had not found time to draft the proposed procedures.

## **9.6 Annual Publication of Documents [Milligan]**

Gene Milligan distributed a document describing his proposal for annual publication of X3T10 documents. Gene presented the highlights of the proposal. The proposal has three parts; a background, a policy statement, and proposed procedures to implement the policy. By way of background, Gene noted that timely delivery of standards is critical to this industry. Gene described how X3T10 can deliver standards in a timely manner without violating X3 procedures.

Gene requested a X3T10 letter ballot for the proposed procedures. John agreed to conduct the letter ballot.

## **10. New Business**

### **10.1 Resolution of ATA-3 Letter Ballot Comments (94-165)**

John Lohmeyer reported that the ATA-3 Project Proposal (X3T10/94-019 r4) passed: 51:0:0:9.

The Yes ballot from Peter Brown of Oak Technology included the following comment:

"I think that the initial proposal offered a better partition and would be more useful to people attempting to build products adhering to the specifications. I further think that the reason that the proposal was changed was an attempt to orphan ATAPI. I object to this tactic."

The following organizations failed to return their ballots:

AMD, CMD, Compaq, Fujitsu, Harbor Electronics, Hitachi, Linfinity Micro, Qlogic, and Quantum.

Larry Lamers reported that the ATA working group decided not to address that comment. John Lohmeyer took an action item to forward the ATA-3 project proposal to X3 for further processing.

### **10.2 Resolution of ATAPI Letter Ballot Comments (94-166)**

John Lohmeyer reported that the ATAPI Project Proposal (X3T10/94-022 r4) passed: 48:3:0:9. X3T10 is obligated to attempt to resolve the negatives.

The No ballots from Scott Smyers of Apple, Peter Brown of Oak Technology, and Bob Snively of Sun Microsystems included the following comments:

Apple:

The use of ATAPI is primarily intended to be a "low-cost" interface for CD-ROM and tape devices. I don't understand the concept behind "overlapped commands using a multi-threaded protocol." This scope will have a direct impact on the development time, the availability, and the cost of ATAPI devices.

We would like to maintain ATAPI as a "low-cost", relatively simple interface. We would request to remove item b) of the Recommended Scope from the project proposal, dated July 21, 1994.

Oak Technology:

I voted NO on the ATAPI proposal. I will change my NO vote to a yes if either the scope statement explicitly states that ATAPI may be used for hard disk drives or if 2.2.d is deleted.

Although 2.2.d is ambiguous it could be easily argued that "other than traditional ATA devices" excludes ATAPI HDD's. Section 4.1 and 4.2 points-out the possibility of "nonstandard evolution or revolution" in the case that HDD is specifically excluded from the spec. The scope of the document should accept the inevitability of ATAPI HDD's.

Sun Microsystems:

I regret that I must vote no on the project proposal for the ATA Packet Interface as the proposal is presently worded. By making the changes described in the following paragraphs, my vote would be changed to a yes vote.

1) Section 2.2

The last sentence of the clause now reads:

"The application for the proposed standard does not require compliance with the SCSI-3 Architectural Model (SAM)."

It is very important that the ATAPI definition provide a software interface that is compatible with standard SCSI devices and drivers. At the same time, it is clear that ATAPI implementations integrate a large number of the functional interfaces defined by SAM. For this reason, the referenced sentence should be rewritten to read:

"The proposed standard shall define services and functions compliant with those visible to the application client defined by the SCSI-3 Architectural Model (SAM). An ATAPI device may internally implement those services in a manner that does not comply with the SAM."

The following organizations failed to return their ballots:

AMD, CMD, Compaq, Fujitsu, Harbor Electronics, Hitachi, Linfinity Micro, Qlogic, and Quantum.

Larry Lamers reported that the ATA working group drafted responses to each of the no votes. During initial discussion of the draft responses, Doug Hagerman questioned the concept of ATAPI being widely used as a protocol for hard disk drives. Based on that claim, Doug asked that ATAPI and the various SCSI standards be made more compatible (not divergent). Gene Milligan said that he does not believe that ATAPI will not be widely used for hard disk drives.

The gist of the argument seemed based on different perceptions of ATAPI goals. Some of those present wanted very close alignment between ATAPI and SCSI. Others desired a clear separation of ATAPI and SCSI.

Larry Lamers moved that the ATA working group proposed responses to the three no votes be approved by X3T10. Joe Chen seconded the motion. Ed Gardner moved to divide the question. Jim McGrath seconded the motion to divide. The motion to divide the question passed 12:7:0:38. This resulted in three motions, one for each response. Each motion (to accept letter ballot responses) requires a 2/3rds vote to pass.

Larry Lamers placed the response to the Sun response up as the first portion of the divided question to be voted upon:



The ATAPI project proposal does not claim to be an SCSI-3 implementation and, therefore, it is not required to be compliant with SAM.

It should be noted that as much commonality as practical will be maintained between ATAPI and SCSI command structures. However, there are inherent differences between ATA and SCSI which have to be considered.

This was sufficient to re-ignite the "What is ATAPI?" debate. The divided motion to approve the Sun response failed 23:9:0:26 (by a show of hands), because a majority of the X3T10 membership did not support the response. Steve Finch and Gene Milligan requested a roll call vote. The Chair allowed this request even though it is somewhat irregular to change the voting method after the vote is taken. The results of the roll call vote were:

Organization	Name	Yes	No	Abs	NP
3M Company	Mr. Rick Heidick	1			
AMP, Inc.					1
AT&T/ NCR Microelectronics	Mr. John Lohmeyer	1			
Adaptec, Inc.	Mr. Norm Harris		1		
Advanced Micro Devices					1
Amdahl Corp.	Mr. Neil T. Wanamaker		1		
Amphenol Interconnect	Mr. Michael Wingard	1			
Ancot Corp.					1
Apple Computer					1
Burr-Brown Corp.	Mr. Jason Albanus	1			
BusLogic	Mr. Steven Ramberg	1			
CMD Technology					1
Ciprico Inc.					1
Circuit Assembly Corp.					1
Cirrus Logic Inc.	Mr. Joe Chen	1			
Compaq Computer Corp.	Mr. Bill Galloway		1		
Congruent Software, Inc.	Mr. Peter Johansson		1		
Conner Peripherals	Mr. Timothy Feldman		1		
Dallas Semiconductor	Mr. Louis Grantham	1			
Digital Equipment Corp.	Mr. Edward A. Gardner		1		
ENDL	Mr. I. Dal Allan	1			
Exabyte Corp.	Mr. Edward Lappin	1			
FSI Consulting Services	Mr. Gary R. Stephens		1		
Foxconn					1
Fujitsu Computer Products, Am					1
Future Domain Corp.	Mr. Mark Woithe	1			
Harbor Electronics					1
Hewlett Packard Co.	Mr. Jeffrey L. Williams		1		
Hitachi Micro Systems, Inc.					1
Honda Connectors					1
IBM Corp.	Mr. George Penokie		1		
Interphase Corp.	Mr. David Lawson		1		
Iomega Corp.	Mr. Gary Brandvold	1			
Linfinity Micro	Mr. Dean Wallace	1			
Madison Cable Corp.					1
Maxoptix Corp.					1
Maxtor Corp.	Mr. Ron Roberts		1		
Methode Electronics, Inc.					1
Molex Inc.					1
NEC Technologies Inc.					1
National Semiconductor	Mr. Robbie Shergill	1			
Oak Technology, Inc.	Mr. Mike Hetzel	1			
Panasonic Technologies, Inc	Mr. Stephen F. Heil	1			
QLogic Corp.	Mr. Skip Jones		1		
Quantum Corp.					1
Seagate Technology	Mr. Gene Milligan	1			
Silicon Systems, Inc.	Mr. Stephen G. Finch	1			
Sony Corp. of America	Mr. Scott Smyers	1			
Storage Technology Corp.	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	Mr. Robert N. Snively		1		
SyQuest Technology Corp.	Mr. Patrick Mercer	1			
Tandem Computers	Mr. Pete Tobias	1			
Thomas & Betts					1
UNISYS Corporation					1
Unitrode Integrated Circuits	Mr. Paul D. Aloisi	1			
Western Digital Corporation					1
Woven Electronics	Mr. Doug Piper		1		
Zadian Technologies	Mr. Duncan Penman	1			
	Totals:	23	14	0	21 = 58

The motion still failed (now lacking both 2/3rds and a majority of the membership) and the response was sent back to the working group for further consideration.

John Lohmeyer placed the Apple response up as the second portion of the divided question. The

motion to approve the Apple response passed 36:0:0:22.

The approved response was:

"We share your goal of maintaining ATAPI as a 'low-cost' relatively simple interface. However, there has been a need expressed to investigate enhancements to provide overlapped command capability. We invite your participation in the investigation to help us achieve our mutual goal."

The Oak Technology response was the last part of the divided question to be considered. Gene Milligan moved to amend the motion to replace the proposed response with the following:

"X3T10 has considered your comment and elected to endorse again the statement in section 2.2d."

Steve Finch seconded the motion to amend. The motion to amend passed 35:2:0:20.

The amended motion to approve the response passed 31:3:0:23.

### **10.3 ECMA [Cummings]**

Roger Cummings presented an overview of the ECMA and how it might be applied to X3T10 and X3T11 documents. The committee discussed the advantages and disadvantages of working with ECMA in the European standards making process. Some concerns were voiced regarding applying the ECMA standards process to X3T10 activities. No resolutions were requested or taken.

Roger asked for support from the ECMA member companies by December 1994. Roger said that he will continue pursuing this process as a private individual.

### **10.4 Reserve & Release in SPC (94-106r2) [Weber]**

Ralph Weber presented several editorial revisions to 94-106r2. Ralph presented a proposed change that would have the WRITE BUFFER blocked by extent reservations. Ralph, Jim McGrath, and Gary Stephens discussed how WRITE BUFFER can affect extent reservations by downloading microcode for the SCSI device. After that discussion, the committee accepted Ralph's recommendation that extent reservations always block the WRITE BUFFER command.

Ralph moved that 94-106r2 as revised be approved for inclusion in the SPC. Jim McGrath seconded the motion. The motion passed unanimously.

### **10.5 FORMAT MEDIUM Command for SSC (94-146r3) [Cummings]**

Jeff Williams moved that 94-146r3 be accepted for inclusion in the SSC. George Penokie seconded the motion. The motion passed unanimously.

### **10.6 Working Group Recommendation on SDTR**

Gene Milligan moved that X3T10 endorse the recommendation of the working group to change SIP so that a SDTR message transfer period factor value of 12 would mean a 50 nanosecond transfer period. Skip Jones seconded the motion. The motion passed 25:4:0:28.

## 11. ISO [Milligan]

Gene Milligan, the acting X3T10 International Representative, gave an oral report and provided the following electronic report:

ISO Report  
September 1994

In response to repeated complaints from several of the IEC component committees and in accordance with decisions of the SC 25 meeting, the IR has sent letters to the Secretariat of two of the IEC committees. The letters indicate that we have no desire to develop component standards but have practical problems that have resulted in the documentation they have complained about. For cases where a component standard does not seem to be available, we will provide a definition of requirements, including date the standard is needed, and request that the standard be generated. For cases where the component standard is available we will simply call it out. However there are no convenient tools to identify the existence of the standard. Consequently the IR requested that the IEC provide us the names and address information for expert contact points for each of a fairly long list of components.

Relative to the incomplete transfer of the ESDI camera ready copy to the ITTF, the IR sent a letter to Michelle Maas of ANSI pointing out the problem and asking for the promised transmittal. The manager of publications will be back Monday 19 September 1994. Ms. Maas will address the issue at that time.

## 12. Liaison Reports

### 12.1 X3T11 Liaison Report [Cummings]

Roger Cummings reported on X3T11 activities:

- o 91 people attended the August X3T11 Plenary
- o Three member organizations were added, and two lost (one to a merger), bringing the membership of X3T11 to 52
- o FC-PH Revision 4.3 & FC-FP Revision 2.2 in X3 Letter Ballots closing in September
- o FC-SB Revision 3.3 forwarded for 1PR
- o Discussion on appropriateness of checksums in HIPPI-ATM
- o Work on FC-AL continues in earnest, much progress made in Ad Hocs on 8/16 (& 9/8) next revision will be in X3T11 mailing
- o First draft of FC-EP distributed (will eventually include 2 & 4 gigabaud optical variants, twinax variants, hunt groups, striping, unacknowledged multicast, fractional bandwidth allocation, 256 level priority, etc.)
- o Line-by line review of FC-SW draft

- o Detailed scope defined for FC-ATM project
- o Active group on Avionics Environment formulating a Project Proposal

## **12.2 SFF Industry Group [Allan]**

Berg has agreed to sponsor the 1.x" form factors through EIA. Working groups on the form factor and connector dimensions under Jay Neer have met and are expected to provide documentation at the next meeting.

A review of the SCA connector resulted in some updates, including the usage for DIFFSENS as discussed at the X3T10 plenary meeting in July.

An ATAPI SSWG was held on 8/31, at which all the outstanding issues but one were settled. The holdout appeared to be resolved over email by a position expressed by Microsoft.

Bill Ham presented the taxonomy of Very High Density Cabled Interconnects, and it is presently at letter ballot.

## **12.3 IEEE P1394 [Marazas]**

Larry Lamers reported that the P1394 ballot is delayed. IEEE will issue only two ballots per month and part of the file set required to make the ballot was omitted. The ballot is expected sometime in October.

## **12.4 IT8 [Lohmeyer]**

No report.

## **12.5 IEEE P1285 Status [Pak]**

Dennis Pak provided a fax and promised an electronic report to be included in the mailing (see 94-\_\_\_). John reviewed the fax for the benefit of the committee. Upcoming meetings are October 13 at Apple and November 3 at Quantum.

John reported that he received minutes from Martin regarding the July joint meeting and that these should be posted shortly to the 1285 reflector.

## **12.6 PCMCIA Report [McLean]**

Pete McLean gave a verbal report of the most recent PCMCIA meeting. Meetings were planned for the following week in Boston.

## **12.7 AIIM C21 [Podio]**

John Lohmeyer reported that he traded voice mails with Fernando. George Penokie sent Fernando a request via email. There were no further actions reported.

## **13. Review of Action Items**

- 26) Larry Lamers will issue a letter ballot on the SSA SCSI-2 Protocol Technical Report X3T10/94-196r0.
- 27) John Lohmeyer will authorize Jean Paul to pay the editing invoice from Sandy.
- 28) John Lohmeyer will authorize Jean Paul to pay the editing invoice from Kelly.
- 29) Larry Lamers will create a first working draft of the Fast-20 dpANS.
- 30) Larry Lamers will revise the SPI based on comments received to date.
- 31) Larry Lamers will issue a letter ballot on forwarding SCC revision 3 to public review.
- 32) George Penokie will revise the Log Sense TIB based on comments from Gene Milligan.
- 33) Larry Lamers will issue a letter ballot on forwarding the Log Sense TIB (as revised) to public review.
- 34) Larry Lamers will issue a letter ballot on forwarding the Sequential Access TIB to public review.
- 35) Charles Monia will revise SAM as instructed producing SAM revision 16.
- 36) John Lohmeyer will forward SAM revision 16 to X3 for further processing toward first public review.
- 37) Bob Snively will revised FCP based on the approved proposal from Gene Milligan, producing FCP revision 10.
- 38) John Lohmeyer will forward FCP revision 10 to X3 for further processing toward first public review.
- 39) Ron Roberts will revise SBP based on comments from Giles Frazier, producing SBP revision 19.
- 40) John Lohmeyer will forward SBP revision 19 to X3 for further processing toward first public review.
- 41) Larry Lamers will issue a letter ballot for approval of Gene Milligan's procedures proposal.
- 42) John Lohmeyer will forward the ATA-3 project proposal to X3 for further processing.

#### **14. Meeting Schedule**

The next plenary meeting of X3T10 will be November 10-11, 1994, in Palm Springs, CA, at the Hyatt Regency Suites Hotel (619-322-9000), hosted by Western Digital. The meeting will begin at 1:00 pm on Thursday and at 8:30 am on Friday (if necessary).

The meeting list for the next plenary week is:

November '94 Meeting Map

Sunday 11/6	9	10	11	12	1	2	3	4	5	6	7	8		
	+=====+													
													SSA electrical I/F   (25)	
	+=====+													
Monday 11/7	9	10	11	12	1	2	3	4	5	6	7	8		
	+=====+													
													SCSI CAM Working Group   (25)	
	+-----+													
													SSA-PH working group   SSA UIG   (30)	
	+-----+													
													XOR commands SG   MMC WG   (20)	
	+=====+													
Tuesday 11/8	9	10	11	12	1	2	3	4	5	6	7	8		
	+=====+													
													X3T10.1   (40)	
	+-----+													
													(SPI2) SCSI-3 WG   (40)	
	+-----+													
													SCC & RAB Mtg   (40)	
	+=====+													
Wednesday 11/9	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+=====+													
														SCSI-3 WG (Procedures)   (45)
	+-----+													
														SFF Form Factor WG   (10)
	+-----+													
Thursday 11/10	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+=====+													
														ATA/ATAPI WG   X3T10 Plenary   (40/80)
	+-----+													
														SSC/SMC WG   (10)
	+=====+													
Friday 11/11	8	9	10	11	12									
	+-----+													
														SFF   (80)
	+-----+													

Meetings marked with == are X3T10-authorized meetings.  
 Meetings marked with -- are authorized by other groups and may change without notice.

Meeting Map Abbreviation Key:

ATA: AT Attachment (a.k.a. IDE)  
 CAM: Common Access Method  
 El: Electrical  
 Fast-20: Synchronous Data Transfer at 20 Megatransfers/second  
 I/F: Interface  
 LB: Letter Ballot  
 MMC: SCSI-3 Multimedia Commands (CD-ROM)  
 P1394: IEEE Project on High Performance Serial Bus (not an X3 activity)  
 Plenary: Full Committee Meeting  
 RAB: RAID Advisory Board (not an X3 activity)  
 RAID: Redundant Array of Independent Devices  
 SCC: SCSI-3 Controller Commands (RAID)  
 SFF: Small Form Factor Industry Group (not an X3 activity)  
 SG: Study Group  
 SPI2: Second Generation SCSI-3 Parallel Interface  
 SSA: Serial Storage Interface  
 SSP: Serial Storage Protocol (Protocol for SSA)  
 UIG: User Interest Group (not an X3 activity)  
 WG: Working Group (same as Ad Hoc Group)  
 X3T10: Lower Level Interfaces Technical Committee (was X3T9.2)  
 X3T10.1: SSA Task Group of X3T10 (was X3T9.7)  
 XOR: Exclusive OR

Several other X3T10 events are also planned:

Event	Day/Date	Time	Location/contact
ATA Working Group	Tue 9/27	9:30a-5p	Milpitas/McGrath
ATA Working Group	Wed 9/28	9a - 4p	Milpitas/McGrath
ATA Working Group	Thu 10/20		Milpitas
ATA Working Group	Fri 10/21		Milpitas

For more information about X3T10 activities, please contact the following people:



Activity	Contact	Telephone/Email
ATA-2	Steve Finch	(714) 573-6808 5723283@mcimail.com
CAM	Bill Dallas	(603) 881-2508 dallas@wasted.enet.dec.com
SAM	Charles Monia	(508) 841-6757 monia@starch.enet.dec.com
ATA, SPI, SCSI-2, Fast-20	Larry Lamers	(408) 432-4776 lamers@aol.com
SIP	Duncan Penman	(408) 894-0800 x35 penman@netcom.com
SSA-PH	Edward Gardner	(719) 548-2247 gardner@acm.com
SSP	John Scheible	(512) 823-8208 Scheible@vnet.ibm.com
FCP	Robert Snively	(415) 336-5332 Bob.Snively@eng.sun.com
GPP	Gary Stephens	(602) 321-1725 6363897@mcimail.com
SBP	Ron Roberts	(408) 432-4322 rkroberts@aol.com
SPC	Ralph Weber	(603) 881-1497 weber@star.enet.dec.com
SBC	Thomas Tewell	(415) 459-7978 thomas.tewell@seqadvtech.com
SSC	Edward Lappin	(303) 447-7718 tedl@exabyte.com
SMC	Erich Oetting	(303) 673-2178 Erich_Oetting@Stortek.com
MMC	Norm Harris	(408) 945-8600 x2230 nharris@adaptec.com
SCC	George Penokie	(507) 253-5208 gop@rchvmp3.vnet.ibm.com
Other Activities	John Lohmeyer	(719) 573-3362 john.lohmeyer@ftcollinsco.ncr.com

The long-term X3T10 meeting week schedule is:

Date	Location	Host/Comments
Nov 7-11, 1994	Palm Springs, CA	Western Digital
Jan 9-13, 1995	Lake Tahoe, NV	SSI
Mar 5-10, 1995	Newport Beach, CA	QLogic
May 7-12, 1995	Harrisburg, PA	AMP
Jul 9-14, 1995	Colorado Springs, CO	NCR Microelectronics
Sep 10-15, 1995	Manchester, NH	Digital
Nov 5-10, 1995	Southern CA	Western Digital
Jan 8-12, 1996		
Mar 11-15, 1996		
May 6-10, 1996		
Jul 15-19, 1996		
Sep 9-13, 1996		
Nov 4- 8, 1996		

#### 14.1 Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does X3T10 (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.

Skip Jones moved and Jim McGrath seconded that X3T10 authorize the X3T10-related meetings and events in the list above. The motion passed unanimously.

**15. Adjournment**

The meeting was adjourned at 8:29 p.m. on Thursday September 15, 1994.

## Meeting Attenders -- Enclosure (1)

Name	S	Organization	Electronic Mail Address
Mr. Rick Heidick	A	3M Company	
Mr. Norm Harris	P	Adaptec, Inc.	nharris@eng.adaptec.com
Mr. Richard Kalish	A	Adaptec, Inc.	rkalish@aol.com
Mr. Lawrence J. Lamers	A#	Adaptec, Inc.	ljlammers@aol.com
Mr. David Wang	P	Advanced Micro Devices	david.wang@amd.com
Mr. Neil T. Wanamaker	P	Amdahl Corp.	ntw20@eng.amdahl.com
Mr. Edward Fong	O	Amdahl Corp.	esf10@amail.amdahl.com
Mr. Charles Brill	P	AMP, Inc.	cebrill@amp.com
Mr. Michael Wingard	A	Amphenol Interconnect	
Mr. Ken Scherzinger	V	Amphenol Spectra Strip	
Mr. Gary Porter	A	Ancot Corp.	garyp@ancot.com
Mr. Dave Thayer	V	Areal Technology	
Mr. John Lohmeyer	P	AT&T/ NCR Microelectronics	john.lohmeyer@ftcollinsco.ncr.com
Mr. Jason Albanus	P	Burr-Brown Corp.	Albanus_Jason@bbrown.com
Mr. Joe Stoupa	A	Burr-Brown Corp.	Stoupa_Joe@bbrown.com
Mr. Steven Ramberg	A	BusLogic	stever@buslogic.com
Mr. Ian Morrell	P	Circuit Assembly Corp.	crctassmbl@aol.com
Mr. Joe Chen	P	Cirrus Logic Inc.	chen@cirrus.com
Mr. Nicos Syrimis	A	Cirrus Logic Inc.	nicos@cirrus.com
Mr. Edward Haske	P	CMD Technology	
Mr. Bill Galloway	P	Compaq Computer Corp.	billg@bangate.compaq.com
Mr. Peter Johansson	P	Congruent Software, Inc.	pjohansson@aol.com
Mr. Timothy Feldman	A	Conner Peripherals	Tim.Feldman@conner.com
Mr. Louis Grantham	P	Dallas Semiconductor	grantham@dalsemi.com
Mr. Charles Monia	P	Digital Equipment Corp.	monia@starch.enet.dec.com
Mr. William Dallas	A#	Digital Equipment Corp.	dallas@wasted.enet.dec.com
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## Minutes of X3T10 Plenary Meeting #5 in Houston, TX

X3T10/94-192r0

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Minutes of X3T10 Plenary Meeting #5 in Houston, TX

X3T10/94-192r0

Sep 20, 1994 - X3T10 Document Register - Enclosure (3)

X3T10/94-001R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Annual Report for X3T10  
 Res:

X3T10/94-002R0 Date: 1/25/94 Author: J. Lohmeyer [2/15/94]  
 Desc: X3T10 Project Status Summary  
 Res:

X3T10/94-002R1 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: X3T10 Project Status Summary  
 Res:

X3T10/94-002R2 Date: 6/1/94 Author: J. Lohmeyer [6/15/94]  
 Desc: X3T10 Project Status Summary  
 Res:

X3T10/94-002R3 Date: 8/2/94 Author: J. Lohmeyer [8/15/94]  
 Desc: X3T10 Project Status Summary  
 Res:

X3T10/94-003R0 Date: 1/24/94 Author: J. Lohmeyer [2/15/94]  
 Desc: Draft Agenda for X3T10 Meeting - Mar '94  
 Res:

X3T10/94-004R0 Date: 1/1/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Draft Agenda for X3T10 Meeting - May '94  
 Res:

X3T10/94-005R0 Date: 6/1/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Draft Agenda for X3T10 Meeting - July '94  
 Res:

X3T10/94-006R0 Date: 8/2/94 Author: J. Lohmeyer [8/15/94]  
 Desc: Draft Agenda for X3T10 Meeting - September '94  
 Res:

X3T10/94-007R0 Date: Author: J. Lohmeyer []  
 Desc: Draft Agenda for X3T10 Meeting - November '94  
 Res:

X3T10/94-008R0 Date: Author: J. Lohmeyer []  
 Desc: Draft Agenda for X3T10 Meeting - January '95  
 Res:

X3T10/94-009R0 Date: 5/25/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Jeopardy Letter - Attendance  
 Res:

X3T10/94-009R1 Date: 5/25/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Jeopardy Letter - Letter Ballots  
 Res:

X3T10/94-009R2 Date: 8/2/94 Author: J. Lohmeyer [8/15/94]  
 Desc: Jeopardy Letter - Letter Ballots  
 Res:

X3T10/94-010R0 Date: 12/7/93 Author: G. Penokie [2/15/94]  
 Desc: Minutes of Raid Study Group -12/93  
 Res:

X3T10/94-011R0 Date: 1/11/94 Author: G. Penokie [2/15/94]  
 Desc: Minutes of Raid Study Group - 1/94  
 Res:

X3T10/94-012R0 Date: 1/21/93 Author: Lamers/Finch [2/15/94]  
 Desc: Minutes of ATA Working Group - Jan '94  
 Res:

X3T10/94-013R0 Date: 1/21/94 Author: Lamers/Lohmeyer [2/15/94]  
 Desc: Minutes of General Working Group - Jan '94  
 Res:

X3T10/94-013R1 Date: 1/28/94 Author: Lamers/Lohmeyer []  
 Desc: Minutes of General Working Group - Jan '94  
 Res:

X3T10/94-014R0 Date: 11/22/94 Author: R. Snively [2/15/94]  
 Desc: Response to Comments for FCP  
 Res:

X3T10/94-015R0 Date: 1/12/94 Author: R. Weber [2/15/94]  
 Desc: Minutes of CAM Working Group -1/'94  
 Res:

X3T10/94-016R0 Date: 1/21/94 Author: Lamers/Lohmeyer []  
 Desc: Minutes of X3T10 Meeting #1 - Jan '94  
 Res:

X3T10/94-016R1 Date: 1/25/94 Author: Lamers/Lohmeyer [2/15/94]  
 Desc: Minutes of X3T10 Meeting #1 - Jan '94  
 Res:

X3T10/94-016R2 Date: 1/30/94 Author: Lamers/Lohmeyer []  
 Desc: Minutes of X3T10 Meeting #1 - Jan '94  
 Res:

X3T10/94-017R0 Date: 1/13/94 Author: J. Scheible [2/15/94]  
 Desc: Minutes of X3T10.1 Meeting #1 - Jan '94  
 Res:

X3T10/94-018R0 Date: Author: R. Weber [2/15/94]  
 Desc: Processor Commands for SPC  
 Res:

X3T10/94-019R0 Date: 1/14/94 Author: S. Finch [2/15/94]  
 Desc: Project Proposal ATA3-PH Standard  
 Res:

X3T10/94-019R1 Date: 2/11/94 Author: S. Finch []  
 Desc: Project Proposal ATA3-PH Standard  
 Res:

X3T10/94-019R2 Date: 3/30/94 Author: S. Finch [4/15/94]  
 Desc: Project Proposal ATA3-PH Standard  
 Res:

X3T10/94-019R4 Date: 7/21/94 Author: L. Lamers [8/15/94]  
 Desc: Project Proposal ATA - 3 Standard  
 Res:

X3T10/94-020R0 Date: 1/14/94 Author: S. Finch [2/15/94]  
 Desc: Project Proposal for ATA3-XPT Standard  
 Res:

X3T10/94-020R1 Date: 2/11/94 Author: S. Finch []  
 Desc: Project Proposal for ATA3-XPT Standard  
 Res:

X3T10/94-020R2 Date: 3/30/94 Author: S. Finch [4/15/94]  
 Desc: Project Proposal for ATA3-XPT Standard  
 Res:

X3T10/94-021R0 Date: 1/14/94 Author: S. Finch [2/15/94]  
 Desc: Project Proposal for ATA3-PI Standard  
 Res:

X3T10/94-021R1 Date: 2/11/94 Author: S. Finch []  
 Desc: Project Proposal for ATA3-PI Standard  
 Res:

X3T10/94-021R2 Date: 3/30/94 Author: S. Finch [4/15/94]  
 Desc: Project Proposal for ATA3-PI Standard  
 Res:

X3T10/94-022R0 Date: Author: S. Finch [2/15/94]  
 Desc: Project Proposal for ATA3-BC Standard  
 Res:

X3T10/94-022R1 Date: 2/11/94 Author: S. Finch []  
 Desc: Project Proposal for ATA3-BC Standard  
 Res:

X3T10/94-022R1 Date: 3/30/94 Author: S. Finch [4/15/94]  
 Desc: Project Proposal for ATA3-BC Standard  
 Res:

X3T10/94-022R4 Date: 7/21/94 Author: L. Lamers [8/15/94]  
 Desc: Project Proposal for ATAPI Standard  
 Res:

X3T10/94-023R0 Date: 1/12/94 Author: B. Ham [2/15/94]  
 Desc: Ultra-SCSI Update 1  
 Res:

X3T10/94-024R0 Date: 1/5/94 Author: D. Hagerman [2/15/94]  
 Desc: Error Handling for SCSI Controllers  
 Res:

X3T10/94-025R0 Date: 1/5/94 Author: D. Hagerman [2/15/94]  
 Desc: Additional Device Models  
 Res:

X3T10/94-026R0 Date: 1/5/94 Author: D. Hagerman [2/15/94]  
 Desc: Comments on SDA States  
 Res:

X3T10/94-027R0 Date: 12/6/93 Author: R. Kalish [2/15/94]  
 Desc: Proposal for Data CRC across the Cable  
 Res:

X3T10/94-027R2 Date: 1/20/94 Author: R. Kalish [4/15/94]  
 Desc: Proposal for Data CRC across the Cable  
 Res:

X3T10/94-028R0 Date: Author: C. Monia [2/15/94]  
 Desc: Summary of Proposed Responses to Comments on SAM, revision 12  
 Res:

X3T10/94-029R0 Date: Author: C. Monia [2/15/94]  
 Desc: Summary of Proposed SAM responses for Working Group Discussion  
 Res:

X3T10/94-030R0 Date: Author: C. Monia [2/15/94]  
 Desc: Key Issues from Review of SAM, Revision 12  
 Res:

X3T10/94-031R0 Date: Author: G. Penokie [2/15/94]  
 Desc: SCSI Logical Unit Addressing  
 Res:

X3T10/94-031R1 Date: 2/8/94 Author: G. Penokie []  
 Desc: SCSI Logical Unit Addressing  
 Res:

X3T10/94-031R2 Date: 3/1/94 Author: G. Penokie [4/15/94]  
 Desc: SCSI Logical Unit Addressing  
 Res:

X3T10/94-032R0 Date: Author: G. Houlder [2/15/94]  
 Desc: Message Handling

Res:

X3T10/94-033R0           Date:    Author: R. Snively [2/15/94]  
 Desc: Fibre Channel Icon Proposal  
 Res:

X3T10/94-034R0           Date:    Author: OMC [2/15/94]  
 Desc: Presentation on X3 Procedures  
 Res:

X3T10/94-035R0           Date:    Author: D. Hagerman [2/15/94]  
 Desc: Project Proposal for SCSI-3 Controller Commands Standard  
 Res:

X3T10/94-035R1           Date: 2/4/94 Author: D. Hagerman [4/15/94]  
 Desc: Project Proposal for SCSI-3 Controller Commands Standard  
 Res:

X3T10/94-036R0           Date:    Author: Lohmeyer/Harris [2/15/94]  
 Desc: Project Proposal for Multi-Media Command Set Standard  
 Res:

X3T10/94-036R1           Date: 2/4/94 Author: Lohmeyer/Harris [4/15/94]  
 Desc: Project Proposal for Multi-Media Command Set Standard  
 Res:

X3T10/94-037R0           Date: 1/14/94 Author: D. Pak [2/15/94]  
 Desc: Liaison Report from P1285 - 1/94  
 Res:

X3T10/94-038R0           Date: 1/20/94 Author: P. Aloisi [2/15/94]  
 Desc: Proposed changes to SPI  
 Res:

X3T10/94-038R2           Date: 5/1/94 Author: P. Aloisi [6/15/94]  
 Desc: SCSI-3 SPI Issues  
 Res:

X3T10/94-038R4           Date: 7/1/94 Author: P. Aloisi []  
 Desc: SCSI-3 SPI Issues  
 Res:

X3T10/94-038R5           Date: 7/21/94 Author: P. Aloisi [8/15/94]  
 Desc: SCSI-3 SPI Issues  
 Res:

X3T10/94-039R0           Date: 1/13/94 Author: D. Arnold [2/15/94]  
 Desc: Call for Volunteers - X3T10  
 Res:

X3T10/94-040R0           Date: 12/10/93 Author: G. Penokie [2/15/94]  
 Desc: SCSI Disk Array Model  
 Res:

X3T10/94-040R1           Date: 2/8/94 Author: G. Penokie []  
 Desc: SCSI Disk Array Model  
 Res:

X3T10/94-040R2           Date: 3/5/94 Author: G. Penokie []  
 Desc: SCSI Disk Array Model  
 Res:

X3T10/94-040R3           Date: 3/17/94 Author: G. Penokie [4/15/94]  
 Desc: SCSI Disk Array Model  
 Res:

X3T10/94-040R4           Date: 5/6/94 Author: G. Penokie []  
 Desc: SCSI Disk Array Model  
 Res:

X3T10/94-040R5           Date: 5/22/94 Author: G. Penokie [6/15/94]  
 Desc: SCSI Disk Array Model  
 Res:

X3T10/94-041R0           Date: 12/12/93 Author: G. Penokie [2/15/94]  
 Desc: SDA States and Types  
 Res:

X3T10/94-041R1           Date: 2/8/94 Author: G. Penokie []  
 Desc: SDA States and Types  
 Res:

X3T10/94-041R2           Date: 3/5/94 Author: G. Penokie []  
 Desc: SDA States and Types  
 Res:

X3T10/94-041R3           Date: 3/16/94 Author: G. Penokie [4/15/94]  
 Desc: SDA States and Types  
 Res:

X3T10/94-041R4           Date: 5/6/94 Author: G. Penokie []  
 Desc: SDA States and Types  
 Res:

X3T10/94-041R5           Date: 5/22/94 Author: G. Penokie [6/15/94]  
 Desc: SDA States and Types  
 Res:

X3T10/94-042R0           Date: 1/21/94 Author: G. Penokie [2/15/94]  
 Desc: SDA Commands & Mode Pages  
 Res:

X3T10/94-042R1           Date: 3/5/94 Author: G. Penokie []  
 Desc: SDA Commands & Mode Pages  
 Res:

Minutes of X3T10 Plenary Meeting #5 in Houston, TX

X3T10/94-192r0

X3T10/94-042R1 Date: 2/8/94 Author: G. Penokie []  
Desc: SDA Commands & Mode Pages  
Res:

X3T10/94-042R2 Date: 3/1/94 Author: G. Penokie []  
Desc: SDA Commands & Mode Pages  
Res:

X3T10/94-042R3 Date: 3/16/94 Author: G. Penokie [4/15/94]  
Desc: SDA Commands & Mode Pages  
Res:

X3T10/94-042R5 Date: 5/22/94 Author: G. Penokie [6/15/94]  
Desc: SDA Commands & Mode Pages  
Res:

X3T10/94-043R0 Date: 1/24/94 Author: C. Monia [2/15/94]  
Desc: Results of 1/11/94 SAM WG Review  
Res:

X3T10/94-044R0 Date: 1/24/94 Author: J. Lohmeyer [2/15/94]  
Desc: Letter Ballot on FCP  
Res:

X3T10/94-045R0 Date: 1/28/94 Author: T. Hanan []  
Desc: 16.6 MB/Sec Timing  
Res:

X3T10/94-045R1 Date: 1/28/94 Author: T. Hanan []  
Desc: 16.6 MB/Sec Timing  
Res:

X3T10/94-045R2 Date: 1/28/94 Author: T. Hanan []  
Desc: 16.6 MB/Sec Timing  
Res:

X3T10/94-045R2 Date: 3/16/94 Author: T. Hanan []  
Desc: 16.6 MB/Sec Timing  
Res:

X3T10/94-045R3 Date: 3/31/94 Author: T. Hanan [4/15/94]  
Desc: 16.6 MB/Sec Timing  
Res:

X3T10/94-046R0 Date: Author: H. Landis [4/15/94]  
Desc: Master/Slave Issues  
Res:

X3T10/94-047R0 Date: 1/28/94 Author: R. Shergill [4/15/94]  
Desc: Minutes of ATA Working Group - 1/28/94  
Res:

X3T10/94-048R0 Date: Author: T. Hanan []  
Desc: Data Integrity Proposal  
Res: never supplied by tom

X3T10/94-049R0 Date: 2/7/94 Author: J. Lohmeyer [4/15/94]  
Desc: Public review comment on SPI re adding SCAM as normative annex  
Res:

X3T10/94-050R0 Date: 2/4/94 Author: W. Rinehuls [4/15/94]  
Desc: ltr Rinehuls to Lohmeyer re IEEE P1244.5 PINS  
Res:

X3T10/94-051R0 Date: 1/1/94 Author: J. Masiewicz []  
Desc: Comments/Recommendations on ATA-2 working draft  
Res:

X3T10/94-051R1 Date: 1/1/94 Author: J. Masiewicz [4/15/94]  
Desc: Comments/Recommendations on ATA-2 working draft  
Res:

X3T10/94-052R0 Date: 2/12/94 Author: T. Hanan []  
Desc: Proposed Change to Mode 4 T0 definition and diagrams  
Res: never received

X3T10/94-053R0 Date: 2/23/94 Author: R. Kalish []  
Desc: RESET on the Bus - ATA  
Res:

X3T10/94-053R1 Date: 3/31/94 Author: R. Kalish [4/15/94]  
Desc: RESET on the Bus - ATA  
Res:

X3T10/94-054R0 Date: 2/22/94 Author: T. Hanan [4/15/94]  
Desc: New Timing Modes  
Res:

X3T10/94-055R0 Date: 2/25/94 Author: Shergill/Finch [4/15/94]  
Desc: Minutes of ATA WG 23FEB94  
Res:

X3T10/94-056R0 Date: 2/25/94 Author: T. Hanan []  
Desc: DRQ Timing on Last Data Transfer  
Res: never received

X3T10/94-057R0 Date: 3/14/94 Author: N. Harris [4/15/94]  
Desc: Proposal for the working draft on Multit-Media Commands  
Res:

X3T10/94-058R0 Date: 2/25/94 Author: J. Masiewicz [4/15/94]  
Desc: Word 51,52, 64, 66 Revisions for comments  
Res:

X3T10/94-059R0 Date: 2/25/94 Author: G. Penokie [4/15/94]  
Desc: Minutes of RAID Study Group - 2/14/94

Res:

X3T10/94-060R0           Date: 3/2/94   Author: Ham/Lohmeyer   []  
 Desc: Project Proposal for Fast-20 SCSI-3 Parallel Interface Standard  
 Res:

X3T10/94-060R1           Date: 3/31/94   Author: Ham/Lohmeyer   [4/15/94]  
 Desc: Project Proposal for Fast-20 SCSI-3 Parallel Interface Standard  
 Res:

X3T10/94-060R2           Date: 5/27/94   Author: Ham/Lohmeyer   [6/15/94]  
 Desc: Project Proposal for Fast-20 SCSI-3 Parallel Interface Standard  
 Res:

X3T10/94-061R0           Date: 3/13/94   Author: Lamers/Lohmeyer/Ham   []  
 Desc: Fast-20 SCSI Proposal  
 Res:

X3T10/94-061R1           Date: 3/25/94   Author: Lamers/Lohmeyer/Ham   []  
 Desc: Fast-20 SCSI Proposal  
 Res:

X3T10/94-061R2           Date: 4/1/94    Author: Lamers/Lohmeyer/Ham   [4/15/94]  
 Desc: Fast-20 SCSI Proposal  
 Res:

X3T10/94-061R5           Date: 6/8/94    Author: Lamers/Lohmeyer/Ham   [6/15/94]  
 Desc: Fast-20 SCSI Proposal  
 Res:

X3T10/94-062R0           Date: 3/10/94   Author: G. Penokie    [4/15/94]  
 Desc: Minutes of RAID Study Group - 3/14/94  
 Res:

X3T10/94-063R5           Date: 3/10/94   Author: H. Landis    [4/15/94]  
 Desc: DMA Command Description Cleanup  
 Res:

X3T10/94-064R1           Date: 3/10/94   Author: H. Landis    [4/15/94]  
 Desc: Power Managment Description Cleanup  
 Res:

X3T10/94-065R0           Date: 3/10/94   Author: H. Landis    [4/15/94]  
 Desc: Master/Slave Handshaking  
 Res:

X3T10/94-066R0           Date: 3/15/94   Author: Lamers/Finch   [4/15/94]  
 Desc: Minutes of ATA WG - March 14, 1994  
 Res:

X3T10/94-067R0           Date: 2/2/94    Author: G. Houlder    [4/15/94]  
 Desc: Data Recovery on Deferred Errors  
 Res:

X3T10/94-067R1           Date: 4/18/94   Author: G. Houlder    [6/15/94]  
 Desc: Data Recovery on Deferred Errors  
 Res:

X3T10/94-068R0           Date: 3/16/94   Author: B. Ham        [4/15/94]  
 Desc: Ultra SCSI progress report  
 Res:

X3T10/94-069R0           Date: 3/11/94   Author: R. Snively    [4/15/94]  
 Desc: Proposal for WRITE BUFFER command  
 Res:

X3T10/94-070R0           Date: 3/21/94   Author: Lamers/Lohmeyer   [4/15/94]  
 Desc: Minutes of the X3T10 General Working Group - March 16, 1994  
 Res:

X3T10/94-071R0           Date: 5/13/94   Author: R. Gannon    [6/15/94]  
 Desc: SCSI Cable Variations for SFF Consideration  
 Res:

X3T10/94-072R0           Date: 3/21/94   Author: S. Finch      [4/15/94]  
 Desc: Minor errors in SPI  
 Res:

X3T10/94-073R0           Date: 3/21/94   Author: B. Dallas     [8/15/94]  
 Desc: Minutes of CAM Working Group- 3/94  
 Res:

X3T10/94-074R0           Date: 3/24/94   Author: Weber/Lohmeyer   [4/15/94]  
 Desc: Minutes of X3T10 Plenary Meeting #2  
 Res:

X3T10/94-075R0           Date: 3/21/94   Author: E. Gardner    [4/15/94]  
 Desc: Presentation on ATM  
 Res:

X3T10/94-076R0           Date: 3/21/94   Author: D. Pak        [4/15/94]  
 Desc: Liaison Report from P1285 - 3/95  
 Res:

X3T10/94-077R0           Date: 3/21/94   Author: L. Barnes     [4/15/94]  
 Desc: Liaison Report from PCMCIA - 3/95  
 Res:

X3T10/94-078R0           Date: 3/21/94   Author: R. Cummings   [4/15/94]  
 Desc: Liaison Report from X3T11-3/95  
 Res:

X3T10/94-079R0           Date: 3/21/94   Author: J. McGrath    []  
 Desc: Comments on INQUIRY command  
 Res:

X3T10/94-079R1 Date: 3/21/94 Author: J. McGrath [4/15/94]  
 Desc: Comments on INQUIRY command  
 Res:

X3T10/94-080R0 Date: 3/21/94 Author: J. McGrath []  
 Desc: Comments on Download Microcode  
 Res:

X3T10/94-080R1 Date: 3/21/94 Author: J. McGrath [4/15/94]  
 Desc: Comments on Download Microcode  
 Res:

X3T10/94-081R0 Date: 3/21/94 Author: J. McGrath [4/15/94]  
 Desc: Comments on optional/mandatory features  
 Res:

X3T10/94-082R0 Date: 3/21/94 Author: S. Smith [4/15/94]  
 Desc: Quotation on SPI ANSI editing  
 Res:

X3T10/94-083R0 Date: 3/21/94 Author: W. Burr [4/15/94]  
 Desc: Liaison report from AIIM - 3/94  
 Res:

X3T10/94-084R0 Date: 3/21/94 Author: F. Podia [4/15/94]  
 Desc: Media Error Reporting and Monitoring...  
 Res:

X3T10/94-085R0 Date: 3/21/94 Author: G. Marazas [4/15/94]  
 Desc: Letter Ballot comment resolution for SBP  
 Res:

X3T10/94-086R0 Date: 3/23/94 Author: J. Scheible []  
 Desc: Minutes of SSP Study Group - 3/94  
 Res: never received

X3T10/94-087R0 Date: 3/30/94 Author: P. McLean [4/15/94]  
 Desc: Secure Mode Command  
 Res:

X3T10/94-088R0 Date: 3/30/94 Author: R. Shergill [6/15/94]  
 Desc: Minutes of SPI-2 Working Group - 3/2/94  
 Res:

X3T10/94-089R0 Date: 3/30/94 Author: H. Landis [6/15/94]  
 Desc: Handling High Capacity Drives  
 Res:

X3T10/94-090R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for SAM Forwarding  
 Res:

X3T10/94-091R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for SBP Forwarding  
 Res:

X3T10/94-092R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for ATA-3 PH Project Proposal  
 Res:

X3T10/94-093R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for ATA-3 XPT Project Proposal  
 Res:

X3T10/94-094R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for ATA-3 PI Project Proposal  
 Res:

X3T10/94-095R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for ATA-3 BC Project Proposal  
 Res:

X3T10/94-096R0 Date: 3/31/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Letter Ballot for Fast-20 Project Proposal  
 Res:

X3T10/94-097R0 Date: 3/29/94 Author: J. Lohmeyer [4/15/94]  
 Desc: Project Proposal for Serial Storage Protocol (SSP) Standard  
 Res:

X3T10/94-098R0 Date: 3/31/94 Author: B. Ham [4/15/94]  
 Desc: Ultra-SCSI Report to 3/31/94 WG  
 Res:

X3T10/94-099R0 Date: 3/31/94 Author: G. Milligan [4/15/94]  
 Desc: Project Proposal for GPP Technical Report  
 Res:

X3T10/94-099R1 Date: 3/31/94 Author: G. Milligan [8/15/94]  
 Desc: Project Proposal for GPP Technical Report  
 Res:

X3T10/94-100R0 Date: 4/22/94 Author: G. Penokie [6/15/94]  
 Desc: Minutes of RAID Study Group - 4/94  
 Res:

X3T10/94-101R0 Date: 3/30/94 Author: R. Shergill [6/15/94]  
 Desc: Minutes of ATA Working Group - 3/30/94  
 Res:

X3T10/94-102R0 Date: 3/30/94 Author: R. Shergill [6/15/94]  
 Desc: Minutes of ATA Working Group - 4/30/94  
 Res:

X3T10/94-103R0 Date: 5/9/94 Author: V. Novak [6/15/94]  
 Desc: Proposed Annex for Ultra Fast SCSI Node Capacitance

Res:

X3T10/94-103R1           Date: 6/1/94   Author: V. Novak [6/15/94]  
 Desc: Proposed Implementor's Note for FAST-20 Node Capacitance  
 Res:

X3T10/94-103R2           Date: 6/23/94   Author: V. Novak [8/15/94]  
 Desc: Proposed Implementor's Note for FAST-20 Node Capacitance  
 Res:

X3T10/94-104R0           Date: 5/17/94   Author: K. Cummings []  
 Desc: Downloading Microcode using WRITE BUFFER  
 Res:

X3T10/94-104R1           Date: 5/31/94   Author: K. Cummings [6/15/94]  
 Desc: Downloading Microcode using WRITE BUFFER  
 Res:

X3T10/94-104R3           Date: 5/31/94   Author: K. Cummings []  
 Desc: Downloading Microcode using WRITE BUFFER  
 Res:

X3T10/94-104R4           Date: 5/31/94   Author: K. Cummings [8/15/94]  
 Desc: Downloading Microcode using WRITE BUFFER  
 Res:

X3T10/94-105R0           Date: 5/13/94   Author: R. Weber [6/15/94]  
 Desc: KeyIssues in SPC  
 Res:

X3T10/94-106R0           Date:            Author: R. Weber [6/15/94]  
 Desc: RESERVE & RELEASE issues in SPC  
 Res:

X3T10/94-106R1           Date: 7/9/94    Author: R. Weber []  
 Desc: RESERVE & RELEASE in SPC  
 Res:

X3T10/94-106R2           Date: 7/9/94    Author: R. Weber [8/15/94]  
 Desc: RESERVE & RELEASE in SPC  
 Res:

X3T10/94-107R0           Date:            Author: Weber/Lohmeyer [6/15/94]  
 Desc: Minutes of SCSI General Working Group - May 19, 1994  
 Res:

X3T10/94-108R0           Date:            Author: G. Penokie [6/15/94]  
 Desc: Minutes of RAID Study Group - 5/94  
 Res:

X3T10/94-109R0           Date: 5/12/94   Author: R. Snively [6/15/94]  
 Desc: Response to Comments on FCP Letter Ballot  
 Res:

X3T10/94-110R0           Date: 5/12/94   Author: Motoyama/Weber [6/15/94]  
 Desc: Scanner Window Descriptor Bytes Proposal  
 Res:

X3T10/94-110R1           Date: 6/22/94   Author: Motoyama/Weber [8/15/94]  
 Desc: Scanner Window Descriptor Bytes Proposal  
 Res:

X3T10/94-111R0           Date: 5/2/94    Author: G. Houlder [6/15/94]  
 Desc: RAID 5 Support on SCSI Disk Drives  
 Res:

X3T10/94-111R2           Date: 7/13/94   Author: G. Houlder [8/15/94]  
 Desc: RAID 5 Support on SCSI Disk Drives  
 Res:

X3T10/94-112R0           Date: 5/13/94   Author: C. Monia [6/15/94]  
 Desc: Proposed Responses to LB comments on SAM rev 13  
 Res:

X3T10/94-113R0           Date: 5/18/94   Author: F. Podio [6/15/94]  
 Desc: AIIM C21 Liason Report  
 Res:

X3T10/94-114R0           Date: 5/19/94   Author: Lamers/Finch [6/15/94]  
 Desc: Minutes of ATA WG - May 19,1994  
 Res:

X3T10/94-115R0           Date: 5/17/94   Author: J. Geldman [6/15/94]  
 Desc: Comments on ATA Revision 2c  
 Res:

X3T10/94-116R0           Date: 5/5/94    Author: B. Ham [6/15/94]  
 Desc: Fast 360 SCSI Single Ended  
 Res:

X3T10/94-117R0           Date: 5/19/94   Author: J. Lohmeyer [6/15/94]  
 Desc: SBP Forwarding Letter Ballot Comments  
 Res:

X3T10/94-118R0           Date: 5/19/94   Author: J. Lohmeyer [6/15/94]  
 Desc: SAM Forwarding Letter Ballot Comments  
 Res:

X3T10/94-119R0           Date: 5/19/94   Author: J. Lohmeyer [6/15/94]  
 Desc: FAST-20 Project Proposal Letter Ballot Comments  
 Res:

X3T10/94-120R0           Date: 5/19/94   Author: J. Lohmeyer [6/15/94]  
 Desc: ATA-3 Project Proposals Letter Ballot Comments  
 Res:



Minutes of X3T10 Plenary Meeting #5 in Houston, TX

X3T10/94-192r0

X3T10/94-121R0 Date: 5/13/94 Author: D. Allan [6/15/94]  
 Desc: ISO Standards  
 Res:

X3T10/94-122R0 Date: 5/8/94 Author: S. Smith [6/15/94]  
 Desc: Invoice for SPI  
 Res:

X3T10/94-123R0 Date: 5/22/94 Author: Weber/Lohmeyer [6/15/94]  
 Desc: Minutes of X3T10 Meeting #3 - 5/94  
 Res:

X3T10/94-124R0 Date: 5/23/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Letter Ballot on GPP Project Proposal for Technical Report  
 Res:

X3T10/94-125R0 Date: 4/13/94 Author: D. Bensimon [6/15/94]  
 Desc: Security Command Patent Policy Letter from IBM  
 Res:

X3T10/94-126R0 Date: 5/13/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Acceptance of Public Review Comment #1 on SPI  
 Res:

X3T10/94-127R0 Date: 3/28/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Reaffirmation of ESDI  
 Res:

X3T10/94-128R0 Date: 5/25/94 Author: T. Lappin [6/15/94]  
 Desc: Enhanced READ BUFFER Command for Tape  
 Res:

X3T10/94-129R0 Date: 6/1/94 Author: C. Monia [6/15/94]  
 Desc: Comment Resolution on SAM  
 Res:

X3T10/94-130R0 Date: 6/1/94 Author: J. Lohmeyer [6/15/94]  
 Desc: Proposal for for Control Mechanism for Reserved Handling  
 Res:

X3T10/94-131R0 Date: 6/2/94 Author: Lamers/Lohmeyer [6/15/94]  
 Desc: Minutes of FAST-20 Study Group - 6/2/94  
 Res:

X3T10/94-132R0 Date: 5/24/94 Author: D. Allan [6/15/94]  
 Desc: Letter to ECMA on processing standards  
 Res:

X3T10/94-133R0 Date: 6/7/94 Author: Lamers/Lohmeyer [6/15/94]  
 Desc: SCAM Annex Proposal  
 Res:

X3T10/94-134R0 Date: 5/18/94 Author: M. Greene [6/15/94]  
 Desc: P1394 Permission to reproduce for T10 Mailing  
 Res:

X3T10/94-135R0 Date: 6/8/94 Author: J. Marazas [6/15/94]  
 Desc: SBP Letter Ballot Comment Resolution  
 Res:

X3T10/94-136R0 Date: 5/17/94 Author: B. Dallas [6/15/94]  
 Desc: Minutes of CAM Working Group- 5/94  
 Res:

X3T10/94-137R0 Date: 5/28/94 Author: E. Lappin [6/15/94]  
 Desc: READ POSITION Command for SSC  
 Res:

X3T10/94-138R0 Date: 6/21/94 Author: Lamers/Penokie [8/15/94]  
 Desc: Minutes of the X3T10 SCC Working Group - 6/21/94  
 Res:

X3T10/94-139R0 Date: 6/21/94 Author: R. Shergill [8/15/94]  
 Desc: Minutes of ATA Working Group - 6/1/94  
 Res:

X3T10/94-140R0 Date: 6/29/94 Author: W. Dallas [8/15/94]  
 Desc: Public Review Comments on CAM  
 Res:

X3T10/94-141R0 Date: 6/29/94 Author: R. Shergill [8/15/94]  
 Desc: Minutes of ATA Working Group - 7/29/94  
 Res:

X3T10/94-142R0 Date: 7/13/94 Author: B. Galloway []  
 Desc: Data Transfer Rate Negotiation  
 Res:

X3T10/94-142R1 Date: 7/21/94 Author: B. Galloway [8/15/94]  
 Desc: Data Transfer Rate Negotiation  
 Res:

X3T10/94-143R0 Date: 7/15/94 Author: N. Mori [8/15/94]  
 Desc: Japanese Comments on CD 9316-1 (SCSI-2)  
 Res:

X3T10/94-144R0 Date: 7/15/94 Author: ISO [8/15/94]  
 Desc: Reference to patent rights  
 Res:

X3T10/94-145R0 Date: 7/20/94 Author: G. Penokie [8/15/94]  
 Desc: Minutes of SCC Working Group - 7/19/94  
 Res:

X3T10/94-146R0 Date: 7/7/94 Author: K. Cummings []  
 Desc: Proposal for FORMAT MEDIUM command for Sequential Access Devices

Res:

X3T10/94-146R1 Date: 7/20/94 Author: K. Cummings [8/15/94]  
 Desc: Proposal for FORMAT MEDIUM command for Sequential Access Devices  
 Res:

X3T10/94-147R0 Date: 7/7/94 Author: K. Cummings []  
 Desc: Request for New Density Codes for Sequential Access Medium  
 Res:

X3T10/94-147R1 Date: 7/7/94 Author: K. Cummings [8/15/94]  
 Desc: Request for New Density Codes for Sequential Access Medium  
 Res:

X3T10/94-148R0 Date: 7/7/94 Author: K. Cummings []  
 Desc: Request for New ASC/ASCQ Code  
 Res:

X3T10/94-148R1 Date: 7/20/94 Author: K. Cummings [8/15/94]  
 Desc: Request for New ASC/ASCQ Code  
 Res:

X3T10/94-149R0 Date: 7/20/94 Author: Weber/Lohmeyer [8/15/94]  
 Desc: Minutes of SCSI Working Group - 7/20/94  
 Res:

X3T10/94-150R0 Date: 7/22/94 Author: Weber/Lohmeyer [8/15/94]  
 Desc: Minutes of X3T10 Meeting #3 - July, '94  
 Res:

X3T10/94-151R0 Date: 7/20/94 Author: B. Ham [8/15/94]  
 Desc: FAST-20 Device Capacitance Values  
 Res:

X3T10/94-152R0 Date: 7/20/94 Author: T. Lappin [8/15/94]  
 Desc: Partition Mode Pages for Tape  
 Res:

X3T10/94-153R0 Date: 7/21/94 Author: Lamers/Finch [8/15/94]  
 Desc: Minutes of ATA Working Group - July 21, 1994  
 Res:

X3T10/94-154R0 Date: Author: R. Heineman [8/15/94]  
 Desc: Power Modes  
 Res:

X3T10/94-155R0 Date: 7/15/94 Author: D. Pak [8/15/94]  
 Desc: Liaison Report P1285  
 Res:

X3T10/94-156R0 Date: 7/21/94 Author: J. Chen [8/15/94]  
 Desc: Comments on ATA-2d  
 Res:

X3T10/94-157R0 Date: 7/13/94 Author: S. Smith [8/15/94]  
 Desc: Quotation on ATA ANSI editing  
 Res:

X3T10/94-158R0 Date: 7/13/94 Author: K. Shrock [8/15/94]  
 Desc: Quotation on SIP conversion to Framemaker  
 Res:

X3T10/94-159R0 Date: 7/20/94 Author: B. Dallas [8/15/94]  
 Desc: Minutes of CAM Working Group - 7/94  
 Res:

X3T10/94-160R0 Date: 4/5/94 Author: R. Whiteman [8/15/94]  
 Desc: Device & Cable 0.8 mm Champ Connectors  
 Res:

X3T10/94-161R0 Date: 7/15/94 Author: S. Smyers [8/15/94]  
 Desc: Proposed Changes to SBP Isochronous Data Handling  
 Res:

X3T10/94-162R0 Date: 7/20/94 Author: B. Ham [8/15/94]  
 Desc: FAST-XX SCSI new project proposals  
 Res:

X3T10/94-163R0 Date: 7/21/94 Author: B. Ham [8/15/94]  
 Desc: Fast-20 Test Data 3m 25 pF 4 devices  
 Res:

X3T10/94-164R0 Date: 7/22/94 Author: P. Aloisi [8/15/94]  
 Desc: 3.3 volt SCSI Issues  
 Res:

X3T10/94-165R0 Date: 7/26/94 Author: L. Lamers [8/15/94]  
 Desc: Letter Ballot for ATA-3 Project Proposal  
 Res:

X3T10/94-166R0 Date: 7/26/94 Author: L. Lamers [8/15/94]  
 Desc: Letter Ballot for ATAPI Project Proposal  
 Res:

X3T10/94-167R0 Date: 7/26/94 Author: J. Lohmeyer [8/15/94]  
 Desc: GPP letter ballot comments  
 Res:

X3T10/94-168R0 Date: 8/5/94 Author: G. Penokie [8/15/94]  
 Desc: TIB Procedures for Logging Operations in SCSI-2  
 Res:

X3T10/94-169R0 Date: 8/2/94 Author: G. Stephens [8/15/94]  
 Desc: TIB Sequential Access Partition Management  
 Res:

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X3T10/94-192r0

X3T10/94-170R0 Date: 8/16/94 Author: Penokie/Lamers [10/15/94]  
Desc: Minutes of X3T10 SCC Working Group Meeting -August 16, 1994  
Res:

X3T10/94-171R0 Date: 8/21/94 Author: C. Monia [10/15/94]  
Desc: Proposal for SCSI-3 Status Priority Definition  
Res:

X3T10/94-172R0 Date: 8/21/94 Author: C. Monia [10/15/94]  
Desc: Definition of Mandatory and Optional Features in SAM  
Res:

X3T10/94-173R0 Date: 8/21/94 Author: C. Monia [10/15/94]  
Desc: Summary of SAM, Revision 15 Changes  
Res:

X3T10/94-174R0 Date: 8/25/94 Author: S. Smith [10/15/94]  
Desc: Invoice on ATA ANSI editing  
Res:

X3T10/94-175R0 Date: 8/31/94 Author: H. Landis [10/15/94]  
Desc: Comments on ATA revision 2f  
Res:

X3T10/94-176R0 Date: 9/3/94 Author: R. Weber [10/15/94]  
Desc: Proposed Change for PORT STATUS Command Operation Code  
Res:

X3T10/94-177R0 Date: 9/6/94 Author: C. Monia [10/16/94]  
Desc: INQUIRY Change to Indicate Supported ACA Recovery Methods  
Res:

X3T10/94-178R0 Date: 9/6/94 Author: R. Weber [10/16/94]  
Desc: Proposal for Test Support Command  
Res:

X3T10/94-179R0 Date: 9/7/94 Author: J. Scheible [10/15/94]  
Desc: Protecting against out of order writes to the media  
Res:

X3T10/94-180R0 Date: 9/8/94 Author: G. Penokie [10/15/94]  
Desc: Tutorial on SCSI-3 Storage Arrays  
Res:

X3T10/94-181R0 Date: 9/12/94 Author: Y. Variz [10/15/94]  
Desc: Proposal for new SDTR message  
Res:

X3T10/94-182R0 Date: 9/12/94 Author: R. Shergill [10/15/94]  
Desc: Minutes of the ATA Working Group - 8/31-9/1/94  
Res:

X3T10/94-183R0 Date: 9/12/94 Author: Lamers/Penokie [10/15/94]  
Desc: Minutes of SCC Working Group - 9/94  
Res:

X3T10/94-184R0 Date: 9/12/94 Author: G. Houlder [10/15/94]  
Desc: System recovery on 3rd party commands  
Res:

X3T10/94-185R0 Date: 9/12/94 Author: N. Harris [10/15/94]  
Desc: Fast 20 Synchronous Negotiation Period Values  
Res:

X3T10/94-186R0 Date: 9/12/94 Author: C. Monia [10/15/94]  
Desc: Dual Port and ACA  
Res:

X3T10/94-187R0 Date: 9/12/94 Author: Lamers/Lohmeyer [10/15/94]  
Desc: Minutes of the SCSI WG Mtg - 9/94  
Res:

X3T10/94-188R0 Date: 9/13/94 Author: R. Weber [10/15/94]  
Desc: Enhancements to INQUIRY Command  
Res:

X3T10/94-189R0 Date: 9/13/94 Author: R. Snively [10/15/94]  
Desc: ACA/CA resolution  
Res:

X3T10/94-190R0 Date: 9/14/94 Author: G. Penokie [10/15/94]  
Desc: Exception Handling Selection Mode Page  
Res:

X3T10/94-191R0 Date: 9/14/94 Author: Lamers/Finch [10/15/94]  
Desc: Minutes of the ATA Working Group - 9/15/94  
Res:

X3T10/94-192R0 Date: 9/14/94 Author: Weber/Lohmeyer [10/15/94]  
Desc: Minutes of the X3T10 Plenary Meeting #5  
Res:

X3T10/94-193R0 Date: 9/14/94 Author: J. Lohmeyer [10/15/94]  
Desc: Letter Ballot results on the ATA-3 and ATAPI Project Proposals  
Res:

X3T10/94-194R0 Date: 9/14/94 Author: T. Hanan [10/15/94]  
Desc: ATA/ATAPI - Multi Threading  
Res:

X3T10/94-195R0 Date: 9/14/94 Author: J. McGrath [10/15/94]  
Desc: Comments on WD Command Queuing Proposal  
Res:

X3T10/94-196R0 Date: 7/19/94 Author: S. Finch [10/15/94]  
Desc: Project Proposal for Technical Report on SSA SCSI-2 Protocol

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X3T10/94-192r0

Res:

X3T10/94-197R0           Date: 9/14/94   Author: B. Dallas   [10/15/94]  
Desc: Minutes of CAM WG - 9/13/94

Res:

X3T10/94-198R0           Date: 9/2/94    Author: G. Milligan [10/15/94]  
Desc: X3T10 standards development policy & procedure

Res:

X3T10/94-199R0           Date: 9/15/94   Author: R. Weber   [10/15/94]  
Desc: Minutes of the XOR WG - 9/12/94

Res:

X3T10/94-200R0           Date: 9/16/94   Author: Kelley Shrock [10/15/94]  
Desc: Invoice

Res: