

To: Membership of X3T9.2  
 From: Lawrence J. Lamers/John B. Lohmeyer  
 Date: June 26, 1992  
 Subject: Minutes of X3T9.2 Plenary Meeting #100

X3T9.2/92-144R0

**Agenda -- X3T9.2 Meeting #100  
 Bloomington, MN -- June 22-23, 1992**

1. Opening Remarks
2. Approval of Agenda
3. Attendance and Membership
  - 3.1 Roll Call of Members in Jeopardy
4. Approval of Minutes - April Meeting St. Petersburg Beach, FL (92-095 R2)
5. Document Distribution
6. Liaison Reports and Call for Patents
  - 6.1 ISO [Milligan]
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  - 6.3 Fibre Channel [Allan]
  - 6.4 Small Form Factor Industry Group [Allan]
  - 6.5 IEEE P1394 [Smyers]
  - 6.6 IEEE P1285 Status
  - 6.7 Call for Patents
7. Review of Old Action Items
8. Working Group and/or Project Status Reports
  - 8.1 AT Attachment Status (ATA)
  - 8.2 Directly-Addressable Device Interface (DADI)
  - 8.3 SCSI Common Access Method (CAM)
  - 8.4 SCSI General Working Group (X3T9.2/92-126)
  - 8.5 SCSI-2 Status
  - 8.6 SCSI-3 Parallel Interface (SPI) Status [Spence/Lamers]
  - 8.7 SCSI-3 Interlocked Protocol (SIP) Status [Lamers]
  - 8.8 SCSI-3 Packetized Protocol (SPP) Status [Stephens]
  - 8.9 SCSI-3 Command Set (SCS) Status [Lamers, Stephens, Monia]
  - 8.10 ATA Extensions
9. Old Business
  - 9.1 Enhancement of Sequential Access for Medium Changers (92-6) [Jones]
  - 9.2 Discussion of Alternate P Cable Connector(s) for SCSI-3 {Monday 3:30}
  - 9.3 Proposal to Support Media Interchange (92-56) [Wilhelm]
  - 9.4 PR Comments on BSR X3.221-199x, ATA (AT Attachment)
  - 9.5 SCSI-3 Queuing Issues (91-98R8) [Penokie]
  - 9.6 Change INQUIRY Command (92-85) [Penokie]
10. New Business
  - 10.1 Forwarding Motions on revised/new SCSI-3 Project Proposals
  - 10.2 Active Negotiation Minimum Current Level (92-100 item 2.1.1)
  - 10.3 Voting on Alternate P Cable Connector(s) for SCSI-3 {Tuesday 9:00a}
  - 10.4 Review of new documents
  - 10.5 Agenda for the July X3T9.2 General Working Group
  - 10.6 Conformance Testing
11. Review of Action Items
12. Meeting Schedule
  - 12.1 Working Group Schedule
  - 12.2 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 June 22, 1992. He thanked Jim Hamstra of StanaTek for hosting the meeting. John noted out that this meeting is the 100th meeting of X3T9.2.

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 addition:

10.6 Conformance Testing

### 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.

Tandem Computers Incorporated requested reinstatement as a member. Pete Tobias is the principal. DDK Electronics (Canada), Inc. applied for principal membership. Bill Anderson is the principal and Ted Okada is the alternate. Bustek Corporation applied for principal membership. Clifford Strang is the principal and Litko Chan is the alternate.

With the addition of 3 organizations at the meeting and 1 termination for nonattendance (see 3.1), the X3T9.2 voting membership is now at 62 organizations up from 60 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 18 people from 5 organizations: Data General, Hitachi, Maxoptix, National Semiconductor, and UNISYS. Three of these five organizations had also been in jeopardy at the last meeting.

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.

Representatives were present from all organizations in jeopardy except:

Data General. This organization was changed to observer status.

#### 4. Approval of Minutes - April Meeting St. Petersburg Beach, FL (92-095 R2)

The minutes were approved as written.

#### 5. Document Distribution

John Lohmeyer said that the committee mailing had gone out just before the last set of working group meetings and that the X3 Secretariat had processed it expeditiously so that the members would receive it more than two weeks prior to the meeting. 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 be sent to him by noon on Thursday, July 9, 1992. Documents received after this date will not be in the mailing.

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:

In addition to the Convener, Dr., Professor Popovic from the University of Bremen, and the Secretary Dr. Kovacs of DIN, the meeting was attended by Denmark, Germany, Italy, Japan, Netherlands, and the USA met in Milan for the Working Group 4 meeting. The meeting unanimously approved the following resolutions which were subsequently approved by SC 25:

Resolution 4-1: SC 25 requests its secretariat to take the necessary steps to issue a CD ballot for each of the following projects upon receipt of the proposed CD document:

25.13.12.03	11518-3	HIPPI-LE
25.13.12.06	11518-6	HIPPI-SC

The CD processing will be terminated if the NP ballots fail. (NP applications have been submitted to the JTCl secretariat.)

Resolution 4-2: SC 25 requests its secretariat to take the necessary steps to issue a CD ballot for each of the following projects upon receipt of the proposed CD document:

25.13.01.08	9314-6	FDDI-SMT
25.13.01.11	9314-8	FDDI-MAC-2
25.13.01.12	9314-7	FDDI-PHY-2
25.13.10.14	9318-6	IPI-EPHY

Resolution 4-3: SC 25 requests its secretariat to take the necessary steps to issue a DIS ballot for each of the following projects upon receipt of the revision incorporating resolution of the CD ballot comments:

25.13.01.06	9314-4	FDDI-SMF-PMD
25.13.01.08	9314-6	FDDI-SMT
25.13.01.11	9314-8	FDDI-MAC-2
25.13.01.12	9314-7	FDDI-PHY-2
25.13.10.14	9318-6	IPI-EPHY
25.13.12.01	11518-1	HIPPI-PH
25.13.12.03	11518-3	HIPPI-LE
25.13.12.06	11518-6	HIPPI-SC

Resolution 4-4: SC 25 appoints the secretary of WG 4 as the contact person for JTC1-SGFS with respect to review of pdISPs based upon FDDI.

Resolution 4-5: SC 25 appoints Mr Gene Milligan as the contact person for SC 6/WG 3 on matters concerning the transceivers (revision of ISO 8482 and new high bandwidth version of ISO 8482) for IPI and SCSI.

Relative to Resolution 4-5 the IR has requested that X3T9.3 provide an updated summary of IPI differential transceiver requirements for him to relay to SC 6/WG 3. The update should account for the concept of higher data rates with short cables.

WG 4 deferred action changing the document numbers to account for the changes in the SCSI-3 architecture. The action was deferred to allow delegates to confer with their national committees to determine preferences. The IR is requesting an indication of preference from X3T9.2.

Twenty seven action items were taken care of. The action items after the meeting for the USA are:

1-1-10	Provide NWI proposal for FDDI-LCF-PMD
2-1-11	Provide NWI proposals for FDDI-FFOL
3-1-12	Provide NWI proposals for FDDI-TP-PMD
4-1-15	Complete IS for 9317 SCTD
5-1-18	Resolve 9318-5 IPI-2 Tape Letter Ballot comments
6-1-22	Provide NWI proposal for IPI-2 Enhanced Disc
7-2-4	Provide FDDI MAC-2 CD document
8-2-6	Resolve CD 9314-4 FDDI SMF-PMD LB comments
9-2-8	Provide IS 9314-5 FDDI HRC and editor report
10-2-9	Provide 9314-FDDI SMT Working Draft for CD LB
11-2-11	Provide X3 FDDI LCF-PMD Project Proposal
12-2-13	Provide IS 9324 SMD
13-2-14	Provide 9324 SMD editor report
14-2-16	Provide 9317 SCTD editor report
15-2-18	Provide IS 9318-1 IPI-PHY
16-2-19	Provide IS 9318-1 IPI-PHY editor report
17-2-20	Provide IS 9318-5 IPI-2 Tape
18-2-21	Provide 9318-5 IPI-2 Tape editor report
19-2-22	Provide 9318-6 IPI Enhanced PHY
20-2-24	Provide disposition of 10222 ESDI DIS LB comments
21-2-33	Provide X3 SCSI CAM Project Proposal
22-3-1	Have ANSI correct their SCSI-2 DIS letter
23-3-2	Fax FDDI SMT X3T9 results to EWOS Chairman
24-3-3	Report SCSI-3, X3T9 IS family numbering preference

Action items 15-2-18 and 19-2-22 on the two versions of IPI PHY are still open mainly due to some confusion between X3T9 and the document editor on what the X3T9.3 recommendation is.

Working Group 3 added an Annex C to the proposed Generic Cabling Standard. We objected to the inclusion of this annex because it specifies requirements for transmitters and receivers. Our position was

that these requirements should be specified by the functional standards such as IS 8482.

In addition the Annex includes EMI requirements which we opposed on the basis that the EMI requirements are an implementation issue or a regulatory issue outside the scope of SC 25. However SC 25 passed a resolution to authorize a CD letter ballot with the annex included.

Working Group 3 also voted to adopt the fiber optic "SC" connector for their standards activity.

In addition to the WG 4 resolutions SC 25 passed 20 other resolutions. One of these forwarded N76 Token Ring Planning and Installation Guide to JTC 1 for processing as a Technical Report Type 3. Another formed a study group chaired by France to recommend whether the subject "Command Control and Communications of Commercial Buildings" is relevant to the scope of SC 25.

Another resolution accepted the Netherlands as the host of 1993 meeting during the week of 14 June. It also resolved to hold the meetings on a 12 month cycle (Week of 13 June 1994).

## **6.2 IT8 [Lohmeyer]**

John Lohmeyer had nothing new to report.

## **6.3 Fibre Channel [Allan]**

Dal Allan reported. The comments received from the X3T9 letter ballot have been addressed. A special mailing was made to members so that a forwarding motion could be taken at the X3T9.3 plenary. The ISO editing still needs to be completed.

There is increasing interest in the IP (internet protocol). There has also been an increase in the focus on SCSI and IPI protocols.

## **6.4 Small Form Factor Industry Group [Allan]**

Dal Allan reported. A group of disk drive manufacturers have agreed to a specification for 2.5-inch form factor 12.5mm high mounting holes and connector location. The specification was brought into the SFF meeting to be legitimized. However there were questions regarding breadth of industry participation since both IBM and HP members indicated that they had not received invitations.

This incident sparked a discussion on the constitution of the SFF committee and how it should be formulated. There was a considerable weight of opinion that suggested a need for an ongoing industry group that would allow discussion of disk drive vendors problems in an open forum. The industry group needs to act in a timely fashion and reach a majority agreement regarding development and implementation issues with requiring a total consensus. There is also a need for an industry spokesperson to deal with situations that arise which affect several drive vendors, but for which an individual company cannot address. This topic will be more fully explored at the next SFF meeting.

## 6.5 IEEE P1394 [Smyers]

Scott Smyers reported. A P1394 meeting was planned for Wednesday, June 24, 1992 in the same hotel. At the last P1394 meeting the major topic was the 8B/10B encoding proposed by IBM.

A P1394 reflector now exists. One can join by sending an e-mail message to Bob.Snively@eng.sun.com. Subscriptions to the P1394 mailing can be obtained by contacting Rose King at 202-371-0101. The estimated cost is \$50 per calendar year.

## 6.6 IEEE P1285 Status

John Lohmeyer reported that he had received a copy of a letter from SPARC to NESCOM requesting a few changes to the P1285 PAR to remove conflicts with the X3T9 charter. Later in the meeting, Del Shoemaker reported that NESCOM had not taken any action on the letter pending the results of a "grass roots" meeting between X3T9.2 members and P1285 members.

A grass roots meeting was tentatively arranged for July 13 at 1:00 pm. Jim McGrath of Quantum volunteered to host this meeting, however Martin Freeman preferred to arrange another meeting site. Martin will inform John of the meeting arrangements. Several X3T9.2 members stated their intention to attend the grass roots meeting including: Jim McGrath, Larry Lamers, and Scott Smyers. Other people wishing to attend are welcome and should contact John Lohmeyer for meeting details.

## 6.7 Call for Patents

This is a regular agenda item to identify any potential patent issues with developing standards. Patents that may be related to various X3T9.2 projects are a PrairieTek patent on form factors, and a Maxtor patent on spindle synchronization.

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.

Dal reported that the PrairieTek patent has been acquired by Conner Peripherals. The power management portion of that patent is the part in question.

## 7. Review of Old Action Items

1. John Lohmeyer will forward the response letters to the X3 negatives on the ATA Extensions Project Proposal to X3T9. **Complete.**
2. Dal Allan will prepare CAM rev 3.0. **Complete.**
3. John Lohmeyer will forward CAM 3.0 to X3T9. **Complete.**
4. John Lohmeyer will draft a letter to MSC on P1285. **Complete.**
5. John Lohmeyer will send a letter to Martin Freeman regarding the "grass roots" meeting. **Complete.**
6. Larry Lamers will include 92-007R1 in SPI as an informative annex. **Carry Over.**

## **8. Working Group and/or Project Status Reports**

### **8.1 AT Attachment Status (ATA)**

See agenda item 9.4.

### **8.2 Directly-Addressable Device Interface (DADI)**

The Scott Smyers' document on Serial Bus Protocol was more aimed at DADI. Therefore the editorship has changed, DADI is now the title of Scott's document and Serial Bus Protocol will now be edited by Ed Gardner.

Del Shoemaker reported that DADI has been passed by SPARC and is at X3 for letter ballot that closes 7/15/92.

### **8.3 SCSI Common Access Method (CAM)**

CAM is on the June X3T9 agenda for forwarding. An oversight resulted in the CAM revision 3.0 document being omitted from the May X3T9.2 mailing. It will be including in the July mailing.

John Gallant expressed a desire for 5-6 new error codes for adapter cards. He also wanted to update the include file and add the user agent data structures in the annex. However, he did not want to delay the approval process. The changes may have to wait until the next version of CAM.

John Gallant suggested that work begin on defining a CAM-2 project. There have been discussions, but support for this has not yet solidified. An agenda item has been added for the general working group to develop a draft project proposal.

### **8.4 SCSI General Working Group (X3T9.2/92-126)**

Dal Allan reported. Dal had met with Kevin Jones since the last plenary while on a trip to Europe. Gary Stephens has a copy of requested changes to medium changers and will incorporate them in a draft document.

Bob Snively had sent an e-mail to John Lohmeyer questioning the working group minutes report on the comment regarding blind mating testing. The minutes had not reported that the blind mating shell was not used during the test.

### **8.5 SCSI-2 Status**

SCSI-2 is in public review, which ends July 6, 1992. No comments have been received to date.

The ISO standard numbers for SCSI-3 were discussed at the SC 25 WG 4 meeting. A recommendation was requested. The question is whether or not to request a new number for SCSI-3 or use part designators with the SCSI-1/SCSI-2 number (9316.1, 9316.2, 9316.3 ...).

Larry Lamers moved and George Penokie seconded that X3T9.2 recommend X3T9 request a new number for the SCSI-3 series of standards.  
The motion carried 24-0-0-2.



**8.6 SCSI-3 Parallel Interface (SPI) Status (92-127) [Spence/Lamers]**

Bill Spence reported on the previous SPI meeting. Revision 4 of SPI was in the mailing. Revision 5 is on the SCSI BBS. Work is ongoing for the annexes. Bill called attention to 4.2 and 5.5 in the meeting minutes (see 92-127).

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

The project editor reported no work has occurred on the document. Further work is waiting a more stable SAM document.

**8.8 SCSI-3 Packetized Protocol (SPP) Status [Stephens]**

A name change to the SCSI-3 Packetized Protocol project is proposed in the current package of project proposals. The new name would be Generic Packetized Protocol (GPP).

**8.9 SCSI-3 Command Set (SCS) Status [Lamers, Stephens, Monia]**

It is anticipated that this project will be subdivided into multiple projects. The new project proposals should be available at the August plenary meeting.

**8.10 ATA Extensions**

X3T9 unanimously accepted the draft response letters to the Apple, IBM, and Wang X3 LB negatives at their last meeting. No project number has been assigned yet, but one should be assigned soon.

**9. Old Business****9.1 Enhancement of Sequential Access for Medium Changers (92-6) [Jones]**

See 8.4

**9.2 Discussion of Alternate P Cable Connector(s) for SCSI-3 {Monday 3:30}**

Scott Roland of Thomas & Betts discussed concerns with the existing unshielded internal connectors. He requested a special working group be established to investigate these concerns.

Some of these concerns were that the internal cables have male pins that could short to a enclosure or frame, no ejector or retention mechanism exists, daisy chain mass termination is questionable, blind mating is questionable, and there is no strain relief.

Jim McGrath moved and Jeff Williams seconded that the internal non-shielded connector proposal be accepted for SCSI-3.

The motion failed 38 to 1.

Bill Ham presented his latest table of connector properties (92-093R1). The source of the data is from vendors and suppliers.

Three presentation were made on the connector issue: Tony Newsom of IBM; Max Bassler of Molex; and Bob Herron of 3M.

**9.3 Proposal to Support Media Interchange (92-56) [Wilhelm]**

Norm Harris requested withdrawal of this agenda item.

**9.4 PR Comments on BSR X3.221-199x, ATA (AT Attachment)**

John Lohmeyer reported. So far, he had received three registered public review comments on ATA from:

1. Roland Whatcott of Novell (92-81)
2. Saied Zangenehpour of Zenith (92-132) and
3. Shishir Shah of Western Digital (92-74).

John had also received an unregistered copy of a public review comment from Intel (92-110). The public review period closes July 6, 1992.

Del Shoemaker reported that X3T9 has not submitted ATA for an ISO New Work Item (NWI) due to IBM and Apple negatives. Dal Allan pointed out that these negatives were on the ATA Extensions project proposal and not on AT Attachment. He also said that there is strong interest in Europe for using ATA devices.

Dal Allan moved and Gene Milligan seconded that X3T9.2 recommends X3T9 request an ISO New Work Item on ATA. The motion carried 24 to 0.

**9.5 SCSI-3 Queuing Issues (91-98R8) [Penokie]**

George Penokie presented revision nine of his SCSI-3 queuing document. The concept of a set of I/O processes that comprise the queue was put forward. The basis of the set could be per target, per initiator, per logical unit, or per I\_T\_L nexus.

There was significant discussion about which basis was going to in SCSI-3. Many participants favored selecting a single basis with most favoring the per I\_T\_L set.

The queuing rules would apply to the selected set, however there was no discussion about the rules.

Gene Milligan moved and Jim McGrath seconded that a single ordering boundary model be used for SCSI-3.

Scott Smyers offered a friendly amendment that one basis is adopted for the development of SCSI-3 queuing. Gene did not accept the amendment.

The motion passed 23 to 4.

Gene Milligan moved and Scott Smyers seconded that the SCSI-3 Queuing editor use the second model (boundary condition per logical unit) for the queuing document.

After lengthy discussion, Scott Smyers called the question. There was no opposition.

The motion passed 19 to 5.

**9.6 Change INQUIRY Command (92-85) [Penokie]**

George Penokie gave an overview of his proposed CHANGE INQUIRY command. This had been previously discussed at the general working group during May.

Gene Milligan moved and Jim McGrath seconded that CHANGE INQUIRY command be accepted for inclusion in SCSI-3. The motion failed 8 to 18.

There were several folks who stated that they would find a mode page with this functionality acceptable, but not a separate command.

**10. New Business****10.1 Forwarding Motions on revised/new SCSI-3 Project Proposals**

John Lohmeyer had included a form in the committee mailing so that members who expected to be absent could submit written votes on the forwarding of several project proposals. Written votes are indicated with an (W). Roll call votes were conducted on each of the motions.

John Lohmeyer moved and Larry Lamers seconded that the Project Proposal for SCSI-3 Generic Packetized Protocol (GPP) [X3T9.2/92-101] as revised be forwarded to X3T9 for further processing.

The motion passed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company	1				Honda Connector	1			
AMP, Inc.	1				IBM Corp.	1			
NCR Corp.	1				Interphase Corp.	1			
Adaptec, Inc.	1				Iomega Corp.				1
Advanced Micro Devices				1	JAE	1			
Amphenol Interconnect	1				Madison Cable Corp.				1
Ancot Corp.	1				Maxoptix Corp.	1			
Apple Computer	1				Maxtor Corp.	1			
Archive Corp.				1	Methode Electronics (W)	1			
Berk-Tek, Inc.				1	Micropolis Corp.	1			
Zenith Data Systems				1	Molex Inc.	1			
Burndy Corp.				1	NEC Technologies Inc.	1			
BusTek	1				NEK Cable, Inc.				1
CMD Technology	1				Nat. Inst. of Stnds. & (W)	1			
Ciprico Inc.	1				National Semiconductor	1			
Cirrus Logic Inc.	1				Panasonic Technologies, I	1			
Connector Ind. Consult (W)	1				Quantum Corp.	1			
Conner Peripherals	1				Ricoh Corporation	1			
Control Data Corp.	1				SGS-Thomson Microelectron	1			
DDK Electronics, Inc.				1	Milligan (Seagate)	1			
Digital Equipment Corp.	1				Sony Corp. of America				1
ENDL Associates (W)	1				Storage Technology Corp(W)	1			
Emulex Corp.				1	Sun Microsystems, Inc.	1			
Exabyte Corp.	1				Tandem	1			
Foxconn International, In	1				Texas Instruments	1			
Fujitsu Computer Products	1				The JPM Company				1
Furukawa Electric Amer (W)	1				Thomas & Betts	1			
Future Domain				1	UNISYS	1			
Hewlett Packard Co.	1				Western Digital	1			
Hirose Electric U.S.A. (W)	1				Woven Electronics	1			
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc	1			
					Totals:	48	0	0	14

John Lohmeyer moved and Larry Lamers seconded that the Project Proposal for SCSI-3 Serial Bus Protocol (SBP) [X3T9.2/92-102] as revised be forwarded to X3T9 for further processing.

The motion passed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company	1				Honda Connector	1			
AMP, Inc.	1				IBM Corp.	1			
NCR Corp.	1				Interphase Corp.	1			
Adaptec, Inc.	1				Iomega Corp.				1
Advanced Micro Devices				1	JAE				1
Amphenol Interconnect	1				Madison Cable Corp.				1
Ancot Corp.	1				Maxoptix Corp.	1			
Apple Computer	1				Maxtor Corp.	1			
Archive Corp.				1	Methode Electronics (W)	1			
Berk-Tek, Inc.				1	Micropolis Corp.	1			
Zenith Data Systems				1	Molex Inc.	1			
Burndy Corp.				1	NEC Technologies Inc.	1			
BusTek	1				NEK Cable, Inc.				1
CMD Technology	1				Nat. Inst. of Stnds. & (W)	1			
Ciprico Inc.	1				National Semiconductor	1			
Cirrus Logic Inc.	1				Panasonic Technologies, I	1			
Connector Ind. Consult (W)	1				Quantum Corp.	1			
Conner Peripherals	1				Ricoh Corporation	1			
Control Data Corp.	1				SGS-Thomson Microelectron	1			
DDK Electronics, Inc.				1	Milligan (Seagate)	1			
Digital Equipment Corp.	1				Sony Corp. of America				1
ENDL Associates	1				Storage Technology Corp(W)	1			
Emulex Corp.				1	Sun Microsystems, Inc.	1			
Exabyte Corp.	1				Tandem	1			
Foxconn International, In	1				Texas Instruments	1			
Fujitsu Computer Products	1				The JPM Company				1
Furukawa Electric Amer (W)	1				Thomas & Betts				1
Future Domain				1	UNISYS	1			
Hewlett Packard Co.	1				Western Digital	1			
Hirose Electric U.S.A. (W)	1				Woven Electronics	1			
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc	1			
					Totals:	46	0	0	16

John Lohmeyer moved and Larry Lamers seconded that the Project Proposal for SCSI-3 Fiber Channel Protocol (FCP) [X3T9.2/92-103] as revised be forwarded to X3T9 for further processing.

The motion passed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company	1				Honda Connector				1
AMP, Inc.	1				IBM Corp.	1			
NCR Corp.	1				Interphase Corp.	1			
Adaptec, Inc.	1				Iomega Corp.				1
Advanced Micro Devices				1	JAE				1
Amphenol Interconnect	1				Madison Cable Corp.				1
Ancot Corp.	1				Maxoptix Corp.	1			
Apple Computer	1				Maxtor Corp.	1			
Archive Corp.				1	Methode Electronics, (W)	1			
Berk-Tek, Inc.				1	Micropolis Corp.	1			
Zenith Data Systems				1	Molex Inc.	1			
Burndy Corp.				1	NEC Technologies Inc.	1			
BusTek	1				NEK Cable, Inc.				1
CMD Technology	1				Nat. Inst. of Stnds. & (W)	1			
Ciprico Inc.	1				National Semiconductor	1			
Cirrus Logic Inc.	1				Panasonic Technologies, I	1			
Connector Ind. Consult (W)	1				Quantum Corp.	1			
Conner Peripherals		1			Ricoh Corporation	1			
Control Data Corp.				1	SGS-Thomson Microelectron	1			
DDK Electronics, Inc.				1	Milligan (Seagate)	1			
Digital Equipment Corp.	1				Sony Corp. of America				1
ENDL Associates	1				Storage Technology Corp(W)	1			
Emulex Corp.				1	Sun Microsystems, Inc.	1			
Exabyte Corp.	1				Tandem	1			
Foxconn International, In	1				Texas Instruments	1			
Fujitsu Computer Products	1				The JPM Company				1
Furukawa Electric Amer (W)	1				Thomas & Betts				1
Future Domain				1	UNISYS	1			
Hewlett Packard Co.	1				Western Digital	1			
Hirose Electric U.S.A. (W)	1				Woven Electronics	1			
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc	1			
					Totals:	43	1	0	18

Steve Cornaby (Conner Peripherals) stated that the reason for his "no" vote was that he felt Fibre Channel is an inappropriate interface for SCSI.

John Lohmeyer moved and Larry Lamers seconded that the Project Proposal for SCSI-3 Architecture Model (SAM) [X3T9.2/92-104] as revised be forwarded to X3T9 for further processing.

The motion passed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company	1				Honda Connector				1
AMP, Inc.	1				IBM Corp.	1			
NCR Corp.	1				Interphase Corp.	1			
Adaptec, Inc.	1				Iomega Corp.				1
Advanced Micro Devices				1	JAE	1			
Amphenol Interconnect	1				Madison Cable Corp.				1
Ancot Corp.	1				Maxoptix Corp.	1			
Apple Computer	1				Maxtor Corp.	1			
Archive Corp.				1	Methode Electronics, (W)	1			
Berk-Tek, Inc.				1	Micropolis Corp.	1			
Zenith Data Systems				1	Molex Inc.	1			
Burndy Corp.				1	NEC Technologies Inc.	1			
BusTek	1				NEK Cable, Inc.				1
CMD Technology	1				Nat. Inst. of Stnds. & (W)	1			
Ciprico Inc.	1				National Semiconductor	1			
Cirrus Logic Inc.	1				Panasonic Technologies, I	1			
Connector Ind. Consult (W)	1				Quantum Corp.	1			
Conner Peripherals	1				Ricoh Corporation	1			
Control Data Corp.				1	SGS-Thomson Microelectron	1			
DDK Electronics, Inc.				1	Milligan (Seagate)	1			
Digital Equipment Corp.	1				Sony Corp. of America				1
ENDL Associates	1				Storage Technology Corp(W)	1			
Emulex Corp.				1	Sun Microsystems, Inc.	1			
Exabyte Corp.	1				Tandem	1			
Foxconn International, In	1				Texas Instruments	1			
Fujitsu Computer Products	1				The JPM Company				1
Furukawa Electric Amer (W)	1				Thomas & Betts	1			
Future Domain				1	UNISYS	1			
Hewlett Packard Co.	1				Western Digital	1			
Hirose Electric U.S.A. (W)	1				Woven Electronics	1			
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc	1			
					Totals:	46	0	0	16

The chairman noted that while he believed that Leonard Dore of The JPM Company had submitted a fax vote of "yes" on the project proposals, the vote had been misplaced. Since it would not affect the outcome of any of the motions, he had treated the votes as "not present".

**10.2 Active Negation Minimum Current Level (92-100 item 2.1.1)**

The SPI working group did not have a consensus on what the minimum current level for active negation should be and referred this to the plenary for a vote. The plenary folks believed a specification is needed to avoid problems with marketing claims related to active negation. However the specification in SPI may not be appropriate or the best way to set the requirement. Some folks requested that a test circuit be considered. Many of the silicon folks were not present, and so the plenary did not feel expert enough to decide and the issue is remanded back to the SPI working group to look at alternative ways to specify the minimum current level.

**10.3 Voting on Alternate P Cable Connector(s) for SCSI-3****{Tuesday 9:00a}**

John Lohmeyer had included a form in the committee mailing so that members who expected to be absent could submit written votes on the P Cable connector proposals. Written votes are indicated with an (W). Roll call votes were taken on each of these motions.

John Lohmeyer moved and Larry Lamers seconded that the Burndy-type ribbon connector be added to the SCSI-3 Parallel Interface document as an alternative shielded connector (shielded only).

The motion failed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company		1			IBM Corp.	1			
AMP, Inc.				1	Interphase Corp.		1		
NCR Corp.		1			Iomega Corp.				1
Adaptec, Inc.		1			JAE	1			
Advanced Micro Devices				1	Madison Cable Corp.				1
Amphenol Interconnect	1				Maxoptix Corp.		1		
Ancot Corp.		1			Maxtor Corp.		1		
Apple Computer	1				Methode Electronics, Inc.	1			
Archive Corp.				1	Micropolis Corp.				1
Berk-Tek, Inc.				1	Molex Inc.	1			
Zenith Data Systems				1	NEC Technologies Inc.		1		
Burndy Corp.	1				NEK Cable, Inc.	1			
CMD Technology		1			Nat. Inst. of Stnds. & Te				1
Ciprico Inc.		1			National Semiconductor				1
Cirrus Logic Inc.				1	Panasonic Technologies, I		1		
Connector Ind. Consulting	1				Quantum Corp.				1
Conner Peripherals				1	Ricoh Corporation				1
Control Data Corp.		1			SGS-Thomson Microelectron		1		
DDK Electronics, Inc.		1			Milligan (Seagate)		1		
Digital Equipment Corp.		1			Sony Corp. of America				1
ENDL				1	Storage Technology Corp(W)		1		
Emulex Corp.				1	Sun Microsystems, Inc.		1		
Exabyte Corp.		1			Tandem		1		
Foxconn International, In	1				Texas Instruments		1		
Fujitsu Computer Products		1			The JPM Company (W)	1			
Furukawa Electric Amer (W)	1				Thomas & Betts	1			
Future Domain				1	UNISYS	1			
Hewlett Packard Co.		1			Western Digital		1		
Hirose Electric U.S.A.		1			Woven Electronics		1		
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc		1		
Honda Connector		1							
					Totals:	14	28	0	19



John Lohmeyer moved and Larry Lamers seconded that the 3M-type shielded ribbon connector be added to the SCSI-3 Parallel Interface document as an alternate high-density connector (shielded only).

The motion failed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company	1				IBM Corp.		1		
AMP, Inc.		1			Interphase Corp.		1		
NCR Corp.		1			Iomega Corp.				1
Adaptec, Inc.	1				JAE	1			
Advanced Micro Devices				1	Madison Cable Corp.				1
Amphenol Interconnect		1			Maxoptix Corp.		1		
Ancot Corp.	1				Maxtor Corp.		1		
Apple Computer		1			Methode Electronics, Inc.	1			
Archive Corp.				1	Micropolis Corp.				1
Berk-Tek, Inc.				1	Molex Inc.		1		
Zenith Data Systems				1	NEC Technologies Inc.	1			
Burndy Corp.		1			NEK Cable, Inc.				1
CMD Technology	1				Nat. Inst. of Stnds. & Te				1
Ciprico Inc.		1			National Semiconductor				1
Cirrus Logic Inc.				1	Panasonic Technologies, I	1			
Connector Ind. Consulting		1			Quantum Corp.				1
Conner Peripherals				1	Ricoh Corporation	1			
Control Data Corp.		1			SGS-Thomson Microelectron		1		
DDK Electronics, Inc.	1				Milligan (Seagate)		1		
Digital Equipment Corp.		1			Sony Corp. of America				1
ENDL				1	Storage Technology Corp(W)		1		
Emulex Corp.				1	Sun Microsystems, Inc.		1		
Exabyte Corp.	1				Tandem		1		
Foxconn International, In	1				Texas Instruments		1		
Fujitsu Computer Products		1			The JPM Company (W)		1		
Furukawa Electric Amer (W)	1				Thomas & Betts	1			
Future Domain				1	UNISYS		1		
Hewlett Packard Co.		1			Western Digital		1		
Hirose Electric U.S.A.	1				Woven Electronics		1		
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc	1			
Honda Connector		1							
					Totals:	16	27	0	18

John Lohmeyer moved and Larry Lamers seconded that the 3M-type unshielded ribbon connector be added to the SCSI-3 Parallel Interface document as an alternate high-density connector (unshielded only).

The motion failed with the following results:

Organization	Yes	No	Abs	NP	Organization	Yes	No	Abs	NP
3M Company	1				IBM Corp.		1		
AMP, Inc.		1			Interphase Corp.		1		
NCR Corp.		1			Iomega Corp.				1
Adaptec, Inc.		1			JAE	1			
Advanced Micro Devices				1	Madison Cable Corp.				1
Amphenol Interconnect		1			Maxoptix Corp.		1		
Ancot Corp.	1				Maxtor Corp.		1		
Apple Computer		1			Methode Electronics, Inc.		1		
Archive Corp.				1	Micropolis Corp.	1			
Berk-Tek, Inc.					Molex Inc.		1		
Zenith Data Systems				1	NEC Technologies Inc.	1			
Burndy Corp.			1		NEK Cable, Inc.				1
CMD Technology	1				Nat. Inst. of Stnds. & Te				1
Ciprico Inc.		1			National Semiconductor				1
Cirrus Logic Inc.				1	Panasonic Technologies, I		1		
Connector Ind. Consulting		1			Quantum Corp.				1
Conner Peripherals				1	Ricoh Corporation	1			
Control Data Corp.		1			SGS-Thomson Microelectron		1		
DDK Electronics, Inc.	1				Milligan (Seagate)		1		
Digital Equipment Corp.		1			Sony Corp. of America				1
ENDL				1	Storage Technology Corp(W)		1		
Emulex Corp.				1	Sun Microsystems, Inc.		1		
Exabyte Corp.	1				Tandem		1		
Foxconn International, In	1				Texas Instruments		1		
Fujitsu Computer Products		1			The JPM Company (W)		1		
Furukawa Electric Amer (W)	1				Thomas & Betts		1		
Future Domain				1	UNISYS		1		
Hewlett Packard Co.		1			Western Digital		1		
Hirose Electric U.S.A.	1				Woven Electronics		1		
Hitachi Micro Systems, In				1	Yamaichi Electronics, Inc	1			
Honda Connector		1							
					Totals:	13	31	0	17

If any of the above motions passes, shall the current corresponding (shielded, unshielded, or both) high-density connector(s) be removed from the SCSI-3 Parallel Interface document?

This motion was not made since all the previous motions failed.

#### 10.4 Review of new documents

##### P Cable Connector Dimension and Tolerance Study (92-129) [Whiteman]

Bob Whiteman presented a set of changes that evolved from the prior working group meetings. He stated that the changes did not affect any of the current vendors high-density connector products.

Bob Whiteman moved and Gene Milligan seconded that 92-129 be incorporated into SCSI-3 Parallel Interface.

The motion passed: 21 to 0.

##### Synchronization Status and Errors (92-130) [Robison]

Remanded to September working group (Kyle does not plan to attend the July working group meeting.)

Proposal to add a disconnect unconditionally after command phase (92-133) [Smyers]

This proposal would add a bit to the disconnect-reconnect mode page to force a disconnect at the end of command phase. Remanded to the July working group.

Response to 92-111 (ASC/ASCQ for data compression) (92-134) [Williams]

Jeff Williams proposed moving the ASC to align with the other compression error codes and add an additional error code. Remanded to the July working group.

Hot Plugging Requirements for SPI (92-137) [Ham]

Bill Ham introduced the hot plugging requirements. It specifies several requirements to allow hot plugging of SCSI devices. Remanded to the SPI working group.

Single SCSI Cable for all forms of SCSI (92-138R1) [Ham]

Bill Ham introduced the one cable for all SCSI topic. He is proposing wording changes to accomplish this. Remanded to the SPI working group.

Blind-pluggable connector (92-139) [Cornaby]

Steve Cornaby presented a unified connector that incorporates the configuration jumpers, power pins, and 68-conductor interface. This connector has been developed by AMP. There are several reasons for this type of connector, including RAIDS and removable drives. The issue was remanded to the working group for further study.

## 10.5 Agenda for the July X3T9.2 General Working Group

The following draft agenda was generated for the July X3T9.2 General Working Group meeting in Rochester, MN:

1. Draft ATA Public Review responses [Allan]
2. ATA Extensions - DMA Timing [Emulex]
3. Revised SCSI-3 command set project proposals (92-106,107,108,109) [Lohmeyer/Lamers]
4. Draft CAM-2 project proposal [Gallant/Allan]
5. ASCQ's for Data Compression (92-134) [Williams]
6. Proposal to add a disconnect unconditionally after command phase (92-133) [Smyers]
7. Blind pluggable connector (92-139) [Cornaby]
8. SCSI-3 I/O Process Queuing (91-98R9) [Penokie]
9. SCSI-2 TIB on I/O Process Queuing [Gallant]
10. Synchronization Status and Errors (92-130) [Robison]
11. Enhancement of Sequential Access for Medium Changers (92-006) [Jones]
12. Capacitance on SCSI Signal Wires (92-143) [McGrath]
13. SCSI-3 Architecture Model (92-079) [Monia]
14. Serial Bus Protocol (92-135) [Gardner]
15. Directly Addressable Device Interface [Smyers]
16. Fiber Channel Protocol (91-122) [Snively]
17. Generic Packetized Protocol (91-013) [Stephens]

Items 1 and 2 are scheduled for Monday. Items 3 through 12 are scheduled for Tuesday. Items 13 through 17 are scheduled for Wednesday. The items are in order of priority establish at the plenary meeting.

## 10.6 Conformance Testing

John Lohmeyer presented a foil showing the proposed wording for a section on conformance testing to be included in the X3/SD-9. X3T9 has requested input from the task groups and it will prepare a consolidated response.

## 11. Review of Action Items

1. John Lohmeyer will request X3T9 to request an ISO NP for ATA.
2. John Lohmeyer will submit four project proposals (SBP, GPP, FCP, SAM) to X3T9.
3. Larry Lamers will incorporate 92-129 and 92-007 into SPI.
4. Dal Allan will draft responses to ATA public review comments.
5. John Lohmeyer will arrange a grass roots meeting with the IEEE MSC P1285 group.
6. John Lohmeyer will investigate alternative scheduling for the June 1993 Plenary meeting.

## 12. Meeting Schedule

The next meeting of X3T9.2 will be August 17-18, 1992 at the Hyatt Regency Bellevue (206-462-1234) in Bellevue, Washington hosted by BOEING Computer Services. The room rates are \$97.00 (single) plus 13.6% tax. The reservation deadline for these rates is July 27, 1992.

The plenary meeting schedule is:

Date	Location	Host
August 17-18, 1992	Seattle	Boeing
October 12-13, 1992	Ft. Lauderdale, FL	Boeing
December 7-8, 1992	San Diego, CA	Vitro
February 15-16, 1993	Austin, TX	Motorola
April 19-20, 1993	St. Petersburg Beach, FL	AMP
June 21-22, 1993	Minneapolis, MN	Stanatek
[Locations and hosts below here are tentative]		
August 16-17, 1993	Colorado Springs, CO	NCR
October 11-12, 1993	Ft. Lauderdale, FL	Boeing
December 6-7, 1993	San Diego, CA	Vitro
[Tentative Dates:]		
February 14-18, 1994		
April 18-22, 1994		
June 20-24, 1994		
August 15-19, 1994		
October 17-21, 1994		
December 5-9, 1994		

### 12.1 Working Group Schedule

The General Working Group meeting schedule is:

Date	Location	Host
Jul 20-24, 1992	Rochester, MN	IBM
Sep 21-25, 1992	Toronto, Canada	Canstar
Nov 9-13, 1992	Sunnyvale, CA	Amdahl
Jan 11-15, 1993	Sunnyvale, CA	Tandem
Mar 15-19, 1993	Orange County, CA	Emulex
May 17-21, 1993	Sante Fe, NM	Los Alamos
Jul 19-23, 1993	Boston, MA	DEC
Sep 13-17, 1993	Poughkeepsie, NY	IBM
Nov 8-12, 1993	Colo Spgs, CO	NCR

The schedule for the July working group week is (X3T9.2 related meetings are shown with an asterisk):

Day	Meeting	Times
Monday	Small Form Factor	9:00a - 1:00p
	X3T9.2 General Working Group	2:00p - 8:00p (*)
Tuesday	IPI-3	9:00a - 5:00p
	X3T9.2 General Working Group	9:00a - 1:00p (*)
	SPI Working Group	2:00p - 8:00p (*)
	FC Fabric (FC-FG, FC-XS)	9:00a - 5:00p
	SSA	5:00p - 9:00p
Wednesday	IPI-3	9:00a - 5:00p
	X3T9.2 General Working Group	9:00a - 8:00p (*)
	FC-PH (FC-4's for IP, FP, SB, IPI, SCSI)	9:00a - 5:00p
Thursday	Loop Fabric (FC-LT)	5:00p - 8:00p
	SCSI Editors	9:00a - 5:00p (*)
	FC-PH	9:00a - 5:00p
Friday	FC-0	9:00a - 5:00p
	FC-PH General	8:30a - 2:00p
	FC-0	8:30a - 2:00p

## 12.2 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.

John Lohmeyer moved and Larry Lamers seconded that X3T9.2 authorize the meetings listed with an asterisk in agenda item 12.1.

The motion passed unanimously.

## 13. Adjournment

The meeting was adjourned at 4:00 p.m. on Tuesday June 23, 1992.

## Meeting Attendees -- Enclosure (1)

Name	Status	Organization
Mr. Alan R. Olsen	P	3M Company
Mr. Robert C. Herron	A	3M Company
Mr. Richard Evans	O	3M Company
Mr. James Fiala	S	3M Company
Mr. Ken Wolfswinkel	S	3M Company
Mr. Norm Harris	P	Adaptec, Inc.
Mr. Charles Brill	P	AMP, Inc.
Mr. Bob Whiteman	A	AMP, Inc.
Mr. Jeff Rosa	P	Amphenol Interconnect
Mr. Michael Wingard	A	Amphenol Interconnect
Mr. Jan V. Dedek	P	Ancot Corp.
Mr. Scott Smyers	P	Apple Computer
Mr. Tom Debiec	P	Berk-Tek, Inc.
Mr. Edward Hrvatin	P	Burndy Corp.
Mr. Philip Burdo	O	Burndy Corp.
Mr. Litko Chan	A	BusTek
Mr. Rich Mizia	O	C&M Corp.
Mr. John Guennewig	V	Cherry Electrical
Mr. Kurt Witte	P	Ciprico Inc.
Mr. Raymond Gilson	A	Ciprico Inc.
Mr. James Woo	V	Cirrus Logic Inc.
Mr. Edward Haske	P	CMD Technology
Mr. Michael Lazar	P	Connector Ind. Consulting Gr
Mr. Stephen R. Cornaby	P	Conner Peripherals
Mr. Ed Cady	V	Contex
Mr. Wayne Sanderson	P	Control Data Corp.
Mr. Michael Smith	S	Dallas Semiconductor
Mr. Bill Anderson	P	DDK Electronics, Inc.
Mr. Charles Monia	P	Digital Equipment Corp.
Mr. Edward A. Gardner	A	Digital Equipment Corp.
Mr. John A. Gallant	A	Digital Equipment Corp.
Dr. William Ham	A	Digital Equipment Corp.
Mr. Del Shoemaker	L	Digital Equipment Corp.
Mr. Skip Jones	A	Emulex Corp.
Mr. I. Dal Allan	P	ENDL
Mr. D. W. Spence	A	ENDL Associates
Mr. Edward Lappin	P	Exabyte Corp.
Mr. Stan Sharp	P	Foxconn International, Inc.
Mr. Nick Ladas	A	Foxconn International, Inc.
Mr. Bob Thornton	O	Fujitsu Components of Amer.
Mr. Robert Liu	P	Fujitsu Computer Products, Am
Mr. Steve Caron	P	Furukawa Electric America
Mr. Jeffrey L. Williams	P	Hewlett Packard Co.
Mr. Russell Smith	A	Hewlett Packard Co.
Mr. Kurt Chan	A	Hewlett Packard Co.
Mr. Pete Bramhall	O	Hewlett Packard Co.
Mr. Denis Chaves	T	Hewlett Packard Co.
Mr. Oscar Kornblum	P	Hirose Electric U.S.A.
Dr. Sam Karunanithi	P	Hitachi Micro Systems, Inc.
Mr. David McFadden	P	Honda Connector
Mr. George Penokie	P	IBM Corp.
Mr. Gary R. Stephens	A	IBM Corp.
Mr. John Disbrow	O	IBM Corp.
Mr. Jim Kopec	O	IBM Corp.
Mr. Giles Frazier	S	IBM Corp.
Mr. Thomas H. Newsom	S	IBM Corp.
Mr. Jay H. Neer	S	IBM Corp.
Mr. David Lawson	P	Interphase Corp.
Mr. David H. Shaff	P	JAE

## Meeting Attendees -- Enclosure (1)

Name	Status	Organization
Mr. Dwayne Edling	V	Laser Magnetic Storage Intl
Mr. Chuck Grant	A	Madison Cable Corp.
Mr. David Thayer	A	Maxoptix Corp.
Mr. Lawrence J. Lamers	P	Maxtor Corp.
Mr. Bob Masterson	P	Method Electronics, Inc.
Mr. Raymond C. Yule	P	Micropolis Corp.
Mr. Joe Dambach	P	Molex Inc.
Mr. Jim McGrath	A	Molex Inc.
Mr. Max Bassler	O	Molex Inc.
Mr. John Lopata	O	Molex Inc.
Mr. William E. Burr	P	Nat. Inst. of Stnds. & Tech.
Mr. Robbie Shergill	P	National Semiconductor
Mr. John Lohmeyer	P	NCR Corp.
Mr. Bruce Anderson	P	NEC Technologies Inc.
Mr. Bruce DeBree	P	NEK Cable, Inc.
Mr. Stephen F. Heil	P	Panasonic Technologies, Inc
Mr. Dick Fosler	V	Paramax Systems
Mr. James McGrath	P	Quantum Corp.
Mr. Satwinder S. Mangat	A	Ricoh Corporation
Mr. Gene Milligan	A	Seagate Technology
Mr. Gerald Houlder	A	Seagate Technology
Mr. Forrest Crowell	P	SGS-Thomson Microelectronics
Mr. Mike Holt	O	Silicon Systems
Mr. Daniel E. Moczarny	O	Silicon Systems, Inc.
Mr. David Hatch	V	Stewart Connector Systems
Mr. Roger Cummings	A	Storage Technology Corp.
Mr. Vit Novak	A	Sun Microsystems, Inc.
Mr. Pete Tobias	P	Tandem
Mr. Ricardo Dominguez	P	Texas Instruments
Mr. Richard Mourn	O	Texas Instruments
Mr. Harvey Waltersdorf	P	Thomas & Betts
Mr. Scott Roland	A	Thomas & Betts
Mr. Peter Dougherty	P	UNISYS
Mr. Jeff Stai	P	Western Digital
Mr. Doug Piper	P	Woven Electronics
Mr. Steve Drake	P	Yamaichi Electronics, Inc.

95 People Present

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

Jun 26, 1992 - X3T9.2 Membership - Enclosure (2)

Mr. Alan R. Olsen (P) 3M Company Bldg. 236-GN-06 3M Center St. Paul, MN 55016 Phone: (612) 736-4821 FAX: (612) 737-2801	Mr. Robert C. Herron (A) 3M Company Bldg. 141-3S-03 P.O. Box 2963 Austin, TX 78769-2963 Phone: (512) 984-6807 FAX: (512) 984-3002	Mr. Wayne Roen (A) 3M Company 3M Center Bldg. 223-5N-01 St. Paul, MN 55144-1000 Phone: (612) 736-3149 FAX: (612) 736-1246	Mr. Richard Evans (O) 3M Company 6801 River Place Blvd. Austin, TX 78726-9000 Phone: (512) 984-6662 FAX: (512) 984-2184
Mr. Jim Havener (O) 3M Company Bldg A130-3N-25 P.O. Box 2963 Austin, TX 78769-2963 Phone: (512) 984-3583 FAX: (512) 984-6972	Mr. Norm Harris (P) Adaptec, Inc. 691 S. Milpitas Blvd. Milpitas, CA 95035 Phone: (408) 945-8600 x2230 FAX: (408) 262-2533	Mr. Thomas Newman (A) Adaptec, Inc. 691 S. Milpitas Blvd. Milpitas, CA 95035 Phone: (408) 945-8600 FAX: (408) 262-2533	Mr. Al Wilhelm (A) Adaptec, Inc. 691 S. Milpitas Blvd. Milpitas, CA 95035 Phone: (408) 945-2525 FAX: (408) 262-2533
Mr. Sudhir Bhatnager (P) Advanced Micro Devices Box 3453 MS 59 Sunnyvale, CA 94088 Phone: (408) 235-4426 FAX: (408) 749-2825	Mr. Percy R. Aria (A) Advanced Micro Devices 901 Thompson Place PO Box 3453 Sunnyvale, CA 94088 Phone: (408) 235-8022 FAX: (408) 235-8430	Mr. Sassan Teymouri (A) Advanced Micro Devices 901 Thompson Place M/S 4 Sunnyvale, CA 94088 Phone: (408) 235-8616 FAX: (408) 235-7076	Mr. Jim Kubinec (O) Advanced Micro Devices Box 3453 MS 70 Sunnyvale, CA 94088 Phone: (408) 749-2602 FAX: (408) 749-2825
Mr. Yun-Che Wang (O) Advanced Micro Devices 901 Thompson Pl. Box 3453 MS 70 Sunnyvale, CA 94088 Phone: (408) 987-2478 FAX:	Ms. Peggy Wu (O) Advanced Micro Devices Box 3453 MS 925 Sunnyvale, CA 94086 Phone: (408) 235-8363 FAX: (408) 235-8430	Mr. George Tharakan (O) Advanced Vision Research 2201 Qume Dr. San Jose, CA 95131 Phone: (408) 434-1115 FAX: (408) 434-0968	Mr. Steven P. Ego (O) Aeronics Inc. 12741 Research Blvd #500 Austin, TX 78759 Phone: (512) 258-2303 FAX: (512) 258-4392
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Jun 26, 1992 - X3T9.2 Document Register - Enclosure (3)

X3T9.2/92-1                   Date:                   Author: J. Lohmeyer [1/21/92]  
Desc: X3T9.2 1991 Annual Report  
Res:

X3T9.2/92-2                   Date: 12/10/91 Author: SC 25/WG 4 Secretariat [1/21/92]  
Desc: Standardization Activities in ISO/IEC JTC 1/SC 25/WG 4  
Res:

X3T9.2/92-3                   Date: 12/10/91 Author: SC 25/WG 4 Secretariat [1/21/92]  
Desc: Draft Report of 2nd Mtg of WG 4 held in Bremen, Germany 9/30-10/2 1991  
Res:

X3T9.2/92-4                   Date: 1/10/92 Author: B. Spence [1/21/92]  
Desc: Cable Impedance Revisited  
Res:

X3T9.2/92-5                   Date: 1/15/92 Author: Lamers/Lohmeyer [1/21/92]  
Desc: Houston Working Group Minutes  
Res:

X3T9.2/92-6                   Date:                   Author: K. Jones [1/21/92]  
Desc: Enhancement of Sequential Access Command Set for Medium Changers  
Res:

X3T9.2/92-7 Rev 1             Date: 2/13/92 Author: V. Novak [3/24/92]  
Desc: Proposed SCSI Identifier Symbols  
Res: Accepted for SCSI-3 SPI at 2/92 plenary meeting

X3T9.2/92-8                   Date: 1/11/92 Author: W. Burr [1/21/92]  
Desc: An Introduction to X3T9 and I/O Interface Standards  
Res:

X3T9.2/92-9                   Date: 1/7/92 Author: L. Lamers [1/21/92]  
Desc: ltr to Mr. Mori responding to his questions in 91-170  
Res:

X3T9.2/92-10                  Date: 1/13/92 Author: T. Hanan [1/21/92]  
Desc: PCMCIA IDE Host Interface Implementation Guide  
Res:

X3T9.2/92-11                  Date: 1/13/92 Author: C. Runowicz [1/21/92]  
Desc: DMA data transfer method as outlined in AT Attachment  
Res:

X3T9.2/92-12                  Date: 1/14/92 Author: J. Williams [1/21/92]  
Desc: CA Clearing Commands  
Res:

X3T9.2/92-13                  Date: 1/14/92 Author: J. Williams [1/21/92]  
Desc: Conflicting Statement on CA and Queue Suspension  
Res:

X3T9.2/92-14                  Date: 1/10/92 Author: E. Gardner [1/21/92]  
Desc: Previewing Linked Commands in SCSI-3  
Res:

X3T9.2/92-15                  Date: 1/10/92 Author: E. Gardner [1/21/92]  
Desc: The Meaning of Linked Commands in SCSI-3  
Res:

X3T9.2/92-16                  Date: 1/13/92 Author: C. Mosley [1/21/92]  
Desc: SCSI-3 Connector Presentation  
Res:

X3T9.2/92-17                  Date: 1/14/92 Author: F. Samela [1/21/92]  
Desc: Signal Line Increased Current Kicker  
Res:

X3T9.2/92-18                  Date: 1/16/92 Author: L. Lamers [1/21/92]  
Desc: DADI Working Group Minutes 1/13/92  
Res:

X3T9.2/92-19 Rev 1            Date: 1/24/92 Author: Penokie/Lamers [1/21/92]  
Desc: SCSI-3 Queuing Working Group Minutes 1/13/92  
Res:

X3T9.2/92-20                  Date: 1/14/92 Author: B. Spence [1/21/92]  
Desc: SPI Working Group Minutes for January 1992  
Res:

X3T9.2/92-21                  Date:                   Author: J. Lohmeyer [1/21/92]  
Desc: SPP Working Group Minutes 1/15/92  
Res:

X3T9.2/92-22                  Date: 1/17/92 Author: Penokie/ Mosley [1/21/92]  
Desc: SPI Connector Contact Working Group Minutes 1/15/92  
Res:

X3T9.2/92-23                  Date: 1/1/92 Author: M. Mitoma [1/21/92]  
Desc: Serial Storage Architecture  
Res:

X3T9.2/92-24                  Date: 1/15/92 Author: I. Judd [1/21/92]  
Desc: A Serial Link for Storage Subsystems (presentation)  
Res:

X3T9.2/92-25                  Date: 11/15/91 Author: I. Judd [1/21/92]  
Desc: A Serial Link for Storage Subsystems (paper)  
Res:

X3T9.2/92-26                  Date: 12/12/91 Author: C. Butterworth [1/21/92]  
Desc: Serial Storage Architecture SSA-0 (Transport Layer) Ver 1.0  
Res:

X3T9.2/92-27 Date: 12/12/91 Author: C. Butterworth [1/21/92]  
Desc: Serial Storage Architecture SSA-1 (Disk Order Level) Ver 1.0  
Res:

X3T9.2/92-28 Date: 1/14/92 Author: M. Jordan [1/21/92]  
Desc: Fast Single Ended SCSI Terminator Concept -- Active Negation Emulator  
Res:

X3T9.2/92-29 Date: 1/18/92 Author: Dal Allan [1/21/92]  
Desc: Translation of IPI-3 Command Queueing to SCSI Language  
Res:

X3T9.2/92-30 Date: 1/31/92 Author: L. Lamers [3/24/92]  
Desc: SPP Architectural Meeting January 27-28, 1992  
Res: n.a.

X3T9.2/92-31 Date: 2/5/92 Author: Smyers, Neer, & Newsom [3/24/92]  
Desc: Alternate P-Cable Connector for SCSI-3  
Res: On General WG Agenda 3/16/92 17:00

X3T9.2/92-32 Date: 2/11/92 Author: K. Chan [3/24/92]  
Desc: Fast SCSI Timing Problems and Solutions  
Res: Assigned to SPI WG

X3T9.2/92-33 Date: 2/7/92 Author: S. Smyers [3/24/92]  
Desc: Proposed Requirements for SCSI-3 devices which use P1394 Physical I/F  
Res: To be included in Annex of SBP document

X3T9.2/92-34 Date: 2/14/92 Author: J. McGrath [3/23/92]  
Desc: DMA Meeting at HP-PCG on 1/24/92  
Res: On ATA Extensions agenda for 3/16/92 14:00

X3T9.2/92-35 Rev 2 Date: 4/28/92 Author: G. Penokie [5/14/92]  
Desc: SCSI-3 Alt 1 Connector Requirements  
Res: Accepted for SCSI-3 Parallel Interface

X3T9.2/92-36 Date: 2/18/92 Author: B. Spence [3/24/92]  
Desc: Termination of Reserved Lines  
Res:

X3T9.2/92-37 Date: 2/18/92 Author: B. Ham [3/24/92]  
Desc: Specifications for SPI Transceivers  
Res:

X3T9.2/92-38 Date: 2/13/92 Author: F. Opreescu [3/24/92]  
Desc: Proposal for Glitch Immunity Specification  
Res:

X3T9.2/92-39 Date: 2/12/92 Author: A. Crick [3/24/92]  
Desc: Microsoft concerns with the CAM XPT/SIM document  
Res:

X3T9.2/92-40 Date: 2/21/92 Author: Lamers/Lohmeyer [3/24/92]  
Desc: X3T9.2 Meeting #98 Minutes -- February 17, 1991  
Res: n.a.

X3T9.2/92-41 Date: 2/22/92 Author: Lamers/Penokie [3/24/92]  
Desc: Austin Queuing Working Group Minutes  
Res: n.a.

X3T9.2/92-42 Date: 12/30/91 Author: R. Gibson [3/24/92]  
Desc: International Participation Fee  
Res:

X3T9.2/92-43 Date: 2/18/92 Author: Spence/Lamers [3/24/92]  
Desc: SPI Working Group Minutes for February 1992  
Res: n.a.

X3T9.2/92-44 Date: Author: J. Tecco [3/24/92]  
Desc: May 1992 Working Group Announcement  
Res:

X3T9.2/92-45 Rev 1 Date: 4/27/92 Author: C. Monia [5/14/92]  
Desc: Introduction to Packetized SCSI  
Res:

X3T9.2/92-46 Rev 1 Date: 3/20/92 Author: G. Houlder [3/24/92]  
Desc: Request for new Additional Sense Codes  
Res: On Apr '92 WG agenda

X3T9.2/92-47 Date: 3/12/92 Author: E. Gardner [3/24/92]  
Desc: Request for Sequential-Access Density Codes  
Res:

X3T9.2/92-48 Date: 3/12/92 Author: J. McGrath [3/24/92]  
Desc: Molex Pin Chamfer Proposal  
Res:

X3T9.2/92-49 Date: 3/16/92 Author: C. Mosley [3/24/92]  
Desc: SCSI-3 Connector  
Res:

X3T9.2/92-50 Date: 3/17/92 Author: B. Spence [3/24/92]  
Desc: 8-bit Drives Within a 16-bit SCSI System  
Res:

X3T9.2/92-51 Date: 3/16/92 Author: T. Newsom [3/24/92]  
Desc: Presentation on Alternative Ribbon Connector for SCSI-3  
Res:

X3T9.2/92-52 Date: 9/4/90 Author: T. Newsom [3/24/92]  
Desc: IBM Procurement Specification on Mini Ribbon D Shell Connector  
Res:



X3T9.2/92-53 Date: 2/18/91 Author: T. Newsom [3/24/92]  
Desc: Burndy Specification on Microshield (tm) Receptacle  
Res:

X3T9.2/92-54 Date: Author: T. Newsom [3/24/92]  
Desc: AMP Specification on Receptacle Assembly, 60 Position, Champ .050  
Res:

X3T9.2/92-55 Date: 1/31/90 Author: T. Newsom [3/24/92]  
Desc: Molex Specification on Mini Ribbon Shell Shielded Connector  
Res:

X3T9.2/92-56 Date: 3/12/92 Author: A. Wilhelm [3/24/92]  
Desc: Proposal to modify Device Type 0 to support Media Interchange  
Res:

X3T9.2/92-57 Date: 3/16/92 Author: T. Debiec [3/24/92]  
Desc: Proposal for SCSI Cable Performance Specification  
Res:

X3T9.2/92-58 Date: 3/13/92 Author: C. Ghest [3/24/92]  
Desc: Statement re US patent of Glitch remover circuit  
Res:

X3T9.2/92-59 Date: 2/17/92 Author: B. Ham [3/24/92]  
Desc: Electrical Impacts of SCSI Hot Plugging  
Res:

X3T9.2/92-60 Date: 3/18/92 Author: J. Lohmeyer [3/24/92]  
Desc: ltr re PCMCIA/ATA Proposal, dated February 24, 1992  
Res:

X3T9.2/92-61 Date: 3/16/92 Author: T. Asami [3/24/92]  
Desc: SCSI ACK Net with Wired-OR Driver  
Res: Presented at 3/92 SPI WG Meeting

X3T9.2/92-62 Date: 3/17/92 Author: K. Chan [3/24/92]  
Desc: Differential Fast Synchronous Timing  
Res: Presented at 3/92 SPI WG Meeting

X3T9.2/92-63 Rev 1 Date: 5/15/92 Author: J. Blagaila [7/15/92]  
Desc: Integral Peripherals 68 Pin IDE Pinout  
Res:

X3T9.2/92-64 Date: 12/18/91 Author: Hanan & Abrahamsson [3/24/92]  
Desc: PCMCIA IDE Drive Auto Select Proposal  
Res:

X3T9.2/92-65 Rev 1 Date: 5/15/92 Author: S. Shah [7/15/92]  
Desc: Support for Greater than 528MB ATA Drive  
Res:

X3T9.2/92-66 Date: 1/28/92 Author: [3/24/92]  
Desc: IBM 9333 SCSI Mapping  
Res:

X3T9.2/92-67 Date: 1/29/92 Author: J. Best [3/24/92]  
Desc: SSA-PH Appendix Daisy Chain  
Res:

X3T9.2/92-68 Date: 3/16/92 Author: B. Herron [3/24/92]  
Desc: 3M High-Density .050 "D" Ribbon Style Interconnect System  
Res:

X3T9.2/92-69 Date: 3/13/92 Author: B. Bellino [3/24/92]  
Desc: Madison Cable Impedance Variations  
Res:

X3T9.2/92-70 Date: 3/16/92 Author: L. Lamers [3/24/92]  
Desc: ATA Extensions Working Group Minutes 3/16/92  
Res:

X3T9.2/92-71 Date: 3/18/92 Author: Lamers/Lohmeyer [3/24/92]  
Desc: X3T9.2 General Working Group Minutes 3/16-18/92  
Res:

X3T9.2/92-72 Date: 3/17/92 Author: Lamers/Spence [3/24/92]  
Desc: SPI Working Group Minutes for March 1992  
Res:

X3T9.2/92-73 Date: 2/27/92 Author: D. Shoemaker [3/24/92]  
Desc: ltr to Don Laughry re IEE MSC/X3T9 Memory Attach Strategy  
Res:

X3T9.2/92-74 Rev 1 Date: 3/18/92 Author: S. Shah [7/15/92]  
Desc: Public Review Comment on AT Attachment (BSR X3.221)  
Res:

X3T9.2/92-75 Date: 3/18/92 Author: J. Gallant [3/24/92]  
Desc: Creating a TIB for SCSI-2 Tag Queuing working model.  
Res:

X3T9.2/92-76 Date: 3/16/92 Author: G. Penokie [3/24/92]  
Desc: Connector Contact Working Group Meeting Minutes 3/16/92  
Res:

X3T9.2/92-77 Date: 4/13/92 Author: John Lohmeyer [5/14/92]  
Desc: Response to M. Freeman of MSC on his 4/6/92 letter  
Res:

X3T9.2/92-78 Date: 4/6/92 Author: M. Freeman [5/14/92]  
Desc: Letter to John Lohmeyer on MAT/MSF P1265  
Res:

X3T9.2/92-79 Rev 1 Date: 6/19/92 Author: Charles Monia [7/15/92]  
Desc: SCSI-3 Architecte Model (SAM)  
Res:

X3T9.2/92-80 Date: 4/27/92 Author: F. Crowell [5/14/92]  
Desc: DS-Links Technical Information  
Res:

X3T9.2/92-81 Date: 4/6/92 Author: Lynn Barra [5/14/92]  
Desc: Transmittal of Public Review Comment #1 ATA  
Res:

X3T9.2/92-82 Date: 4/7/92 Author: Lynn Barra [5/14/92]  
Desc: Approval of Project Proposal for AT Attachements Extensions  
Res:

X3T9.2/92-83 Rev 2 Date: 5/4/92 Author: S. Washburn [7/15/92]  
Desc: Request for Sequential Access Density Codes  
Res: Accepted for SCSI-3

X3T9.2/92-84 Rev 1 Date: 4/24/92 Author: L. Lamers [5/14/92]  
Desc: Preparing Documents for Committee Mailings  
Res:

X3T9.2/92-85 Rev 1 Date: 6/20/92 Author: G. Penokie [7/15/92]  
Desc: CHANGE INQUIRY Command  
Res:

X3T9.2/92-86 Date: 4/27/92 Author: D.W. Spence [5/14/92]  
Desc: SCSI Implementation in a 3.3 volt Environment  
Res:

X3T9.2/92-87 Date: 4/27/92 Author: D.W. Spence [5/14/92]  
Desc: Key Changes Proposed for the SPI Standard  
Res:

X3T9.2/92-88 Date: 4/23/92 Author: J. Gallant [5/14/92]  
Desc: Two Changes for the CAM document  
Res: Accepted for CAM rev 3.0

X3T9.2/92-89 Date: 4/13/92 Author: D. Rundle [5/14/92]  
Desc: Status of IEC 48B Standards Efforts  
Res:

X3T9.2/92-90 Date: 4/27/92 Author: F. Crowell [5/14/92]  
Desc: Presentation Foils of Serial DS-Link Technology  
Res:

X3T9.2/92-91 Date: 4/8/92 Author: J. McGrath [5/14/92]  
Desc: Tolerance Analysis of P-cable Connection  
Res:

X3T9.2/92-92 Date: 4/28/92 Author: J. Lohmeyer [5/14/92]  
Desc: Letter to M. Freeman on Grass Roots  
Res:

X3T9.2/92-93 Rev 2 Date: 6/22/92 Author: B. Ham [7/15/92]  
Desc: SCSI-3 Connector Framework  
Res:

X3T9.2/92-94 Date: 3/13/92 Author: I. Dal Allan [5/14/92]  
Desc: Information Package on 1988 Connector Decision  
Res:

X3T9.2/92-95 Rev 1 Date: 5/14/92 Author: Lamers/Lohmeyer [5/14/92]  
Desc: Minutes of X3T9.2 Plenary Meeting #99  
Res:

X3T9.2/92-96 Date: 4/27/92 Author: T. Asami [5/14/92]  
Desc: Pin Capacitance of a SCSI Controller LSI  
Res:

X3T9.2/92-97 Date: 4/27/92 Author: B. Ham [5/14/92]  
Desc: Requirement for Glitch Free Power Up/Down  
Res:

X3T9.2/92-98 Date: 4/29/92 Author: M. Freeman [5/14/92]  
Desc: IEEE P1285 PAR  
Res:

X3T9.2/92-99 Date: 4/13/92 Author: I. Dal Allan [5/14/92]  
Desc: Connector Agenda Items  
Res:

X3T9.2/92-100 Date: 5/4/92 Author: Spence/Lamers [5/14/92]  
Desc: SPI Working Group Minutes for April 1992  
Res:

X3T9.2/92-101 Date: 5/1/92 Author: I. Dal Allan [5/14/92]  
Desc: Project Proposal for SCSI-3 Generic Packetized Protocol  
Res:

X3T9.2/92-102 Date: 5/1/92 Author: I. Dal Allan [5/14/92]  
Desc: Project Proposal for SCSI-3 Serial Bus Protocol  
Res:

X3T9.2/92-103 Date: 5/1/92 Author: I. Dal Allan [5/14/92]  
Desc: Project Proposal for SCSI-3 Fiber Channel Protocol  
Res:

X3T9.2/92-104 Date: 5/1/92 Author: I. Dal Allan [5/14/92]  
Desc: Project Proposal for SCSI-3 Architecture Model  
Res:

X3T9.2/92-105 Date: 5/1/92 Author: I. Dal Allan [7/15/92]  
Desc: Project Proposal for SCSI-3 Core Commands  
Res:

X3T9.2/92-106 Date: 5/1/92 Author: I. Dal Allan [7/15/92]  
Desc: Project Proposal for SCSI-3 Block Commands  
Res:

X3T9.2/92-107 Date: 5/1/92 Author: I. Dal Allan [7/15/92]  
Desc: Project Proposal for SCSI-3 Stream Commands  
Res:

X3T9.2/92-108 Date: 5/1/92 Author: I. Dal Allan [5/14/92]  
Desc: Project Proposal for SCSI-3 Graphic Commands  
Res:

X3T9.2/92-109 Date: 5/1/92 Author: I. Dal Allan [5/14/92]  
Desc: Project Proposal for SCSI-3 Medium Changer Commands  
Res:

X3T9.2/92-110 Date: 4/13/92 Author: D. Smythe [5/14/92]  
Desc: IDE (ATA) Document Changes  
Res:

X3T9.2/92-111 Date: 4/28/92 Author: Peter Dougherty [5/14/92]  
Desc: Additional ASC/ASCQ Codes for Data Compression  
Res:

X3T9.2/92-112 Date: 5/5/92 Author: Scott Smyers [5/14/92]  
Desc: Proposal for Alternate 68 Position P Connector  
Res:

X3T9.2/92-113 Date: 5/5/92 Author: John A. Gallant [5/14/92]  
Desc: April 28 SCSI-2 Queuing TIB Working Group Meeting Minutes  
Res:

X3T9.2/92-114 Date: 5/7/92 Author: Kurt Chan [5/15/92]  
Desc: Transceiver skew recommendations  
Res:

X3T9.2/92-115 Date: 5/7/92 Author: Kurt Chan [5/15/92]  
Desc: Cable length requirements  
Res:

X3T9.2/92-116 Rev 1 Date: 5/18/92 Author: Charles Monia [7/15/92]  
Desc: Pacetized SCSI System Models  
Res:

X3T9.2/92-117 Date: 5/18/92 Author: D. W. Spence [7/15/92]  
Desc: Fast SCSI Stubs Dimensions & Specifications Format  
Res:

X3T9.2/92-118 Date: 4/27/92 Author: Robert Herron [5/15/92]  
Desc: 3M Presentation on MDR Connector  
Res:

X3T9.2/92-119 Date: 5/14/92 Author: Thomas Newman [7/15/92]  
Desc: ATA Extensions Proposal -- ATA 68 Pin Connection  
Res:

X3T9.2/92-120 Date: 5/18/92 Author: John Geldman [7/15/92]  
Desc: Mapping the ATA Interface onto thd SFF 68-pin Connector  
Res:

X3T9.2/92-121 Date: 5/14/92 Author: Thomas Newman [7/15/92]  
Desc: ATA Command 0 (No Operation) Proposal  
Res:

X3T9.2/92-122 Date: 5/18/92 Author: D.W. Bill Spence [7/15/92]  
Desc: Proposal for Additional Annex for SPI Standard  
Res:

X3T9.2/92-123 Date: 5/14/92 Author: Kevin Gingerich [7/15/92]  
Desc: Proposed Change to SPI  
Res:

X3T9.2/92-124 Date: 5/15/92 Author: Steve Hunley [7/15/92]  
Desc: Proposed Change to SPI  
Res:

X3T9.2/92-125 Date: 5/14/92 Author: I. Dal Allan [7/15/92]  
Desc: Letter on Patents to Steve Cornaby  
Res:

X3T9.2/92-126 Date: 5/21/92 Author: L. Lamers [7/15/92]  
Desc: Minutes of the X3T9.2 May General Working Group  
Res:

X3T9.2/92-127 Date: 5/21/92 Author: Lamers/Spence [7/15/92]  
Desc: SPI Working Group Minutes for May 1992  
Res:

X3T9.2/92-128 Date: 5/27/92 Author: Rich Mizia [7/15/92]  
Desc: Raw Cable Impedance and Bend Radius Test Results  
Res:

X3T9.2/92-129 Date: 5/26/92 Author: R. Whiteman [7/15/92]  
Desc: P-Cable connector dimension & tolerance study  
Res:

X3T9.2/92-130 Date: 5/29/92 Author: Kyle Robison [7/15/92]  
Desc: Sychronization Status & Errors  
Res:

X3T9.2/92-131 Date: 6/16/92 Author: Scott Smyers [7/15/92]  
Desc: Common Command Unit Architecture  
Res:

X3T9.2/92-132 Date: 6/4/92 Author: Lynn Barra [7/15/92]  
Desc: Transmittal of Public Review Comment #2 (ATA)  
Res:

X3T9.2/92-133 Date: 6/4/92 Author: Scott Smyers [7/15/92]  
Desc: Proposal to add a disconnect unconditionally after command phase  
Res:

X3T9.2/92-134 Date: 6/22/92 Author: Jeffrey Williams [7/15/92]  
Desc: Response to 92-111  
Res:

X3T9.2/92-135 Date: 7/20/92 Author: Ed Gardner [9/15/92]  
Desc: SCSI-3 Serial Bus Protocol  
Res:

X3T9.2/92-136 Date: 6/19/92 Author: H. Waltersdorf & S. Roland [7/15/92]  
Desc: Internal Non-Shielded Connectors  
Res:

X3T9.2/92-137 Date: 5/19/92 Author: B. Ham [7/15/92]  
Desc: Hot Plugging Requirements for SPI  
Res:

X3T9.2/92-138 Rev 1 Date: 6/23/92 Author: B. Ham [7/15/92]  
Desc: Single SCSI cable for all forms of SCSI  
Res:

X3T9.2/92-139 Date: 5/15/92 Author: S. Cornaby [7/15/92]  
Desc: Blind-pluggable connector  
Res:

X3T9.2/92-140 Date: 6/10/92 Author: Lynn Barra [7/15/92]  
Desc: Transmittal of Public Review Comment #3 (ATA)  
Res:

X3T9.2/92-141 Date: 6/23/92 Author: G. Penokie [7/15/92]  
Desc: SCSI-3 I/O Process Queuing  
Res:

X3T9.2/92-142 Date: 6/23/92 Author: J. McGrath [7/15/92]  
Desc: ATA Public review comments  
Res:

X3T9.2/92-143 Date: 6/23/92 Author: J. P. McGrath [7/15/92]  
Desc: Capacitance on SCSI Signal Wires  
Res:

X3T9.2/92-144 Date: 6/25/92 Author: L. Lamers [7/15/92]  
Desc: Minutes of X3T9.2 Plenary Meeting #100  
Res: