Accredited Standards Committee*
X3, Information Processing Systems

To: Membership of X3T10
From: R. Reisch/R. Roberts
Subject: Minutes of X3T10 MMC Working Group - July 16,17, 1996

Agenda
1.0   Opening Remarks
2.0   Introductions
3.0   Document Distribution
4.0   Call for Patents
5.0   Approval of Agenda
6.0   Meeting Agenda
  6.1 - Review Mike Yokoyama (SONY) comments to Rev 7.0G.
  6.2 - Review John Hanmann (Western Digital) comments.
  6.3 - Reviewed Tony Pione (Oak Technology) comments.
  6.4 - Reviewed Masa Morizumi (Yamaha) comments.
  6.5 - Reviewed Rob Sims (HP) comments.
  6.6 - Reviewed Ricoh's comments.
  6.7 - Yamaha presented two pages of additional comments.
  6.8 - Mike Yokoyama presented Ricoh's comments Blank command.
  6.9 - Reviewed change bars in rev 7.0H
7.0   New Business
8.0   Review of Action Items
9.0   Future Meeting Schedule
10.0   Adjournment

Minutes
1.0   Opening Remarks
R. Roberts called the meeting to order at 9:00 AM on Tuesday 7/16/96. He thanked Symbios for hosting the meetings. Ron asked Mr. Rob Reisch of Kodak to act as recording secretary for the meetings.
2.0   Introductions/Attendance
Introductions of attendees were made and a sign-up sheet was distributed. List of attendees is attached.
3.0   Document Distribution
Philips distributed Revision 7.0G both hard copies and electronic copies of the document were distributed to attendees. Copies of comments from Mike Yokoyama (SONY) distributed copies of comments from SONY and RICOH.
Ron Roberts distributed a copy of the new project proposal for MMC-2.
Ron explained his plan to incorporate all new comments into rev 8.0 that will be presented at the Plenary Meeting Thursday 7/18/96.
4.0   Call for Patents
The normal request for patent disclosures was made. No patents were identified.

5.0   Approval of Agenda
No modifications were made.
6.0   Meeting Agenda
    6.1   Review Mike Yokoyama (SONY) comments to Rev 7.0G.
    6.1.1   First byte in Table 63 was added. The first byte is the same as byte 4 of table 62.
    6.1.2   Agreed to remove default Write type as track at Once. This was the only default
        parameter specified.
    6.1.3   Open issue, E-mail to Ricoh.
    6.1.4   Modified read buffer capacity by deleting "only" and adding TAO is an option. The
        modifications were accepted.
    6.1.5   Accepted the use of the error code defined 02/04/04 as "in the process of becoming
        ready, writing." for all commands.
    6.1.6   Same as 5.0 accepted.
    6.1.7   Same as 5.0 accepted.
    6.1.8   Accepted with the following modifications. "If this is a partially recorded recorded reserved
        track or an empty reserved track, the drive shall pad the track."
    6.1.9   Accepted with no modifications.
    6.1.10 Accepted with minor editorial changes.
    6.1.11 Modified the proposal to clarify that the FP bit is for the result data from the Read Track
        Info command. Also, the free blocks field shall report a value assuming variable packets.
        Accepted with following modifications: "When RT, Blank and Packet flags are set to one,
        FP flag of a real Track Information result data is set to zero." After table 139 add
        following sentence: "If this track is the first track of a session the session at once
        recording is allowed."
    6.1.12 Add to table 139 the following bit definitions:
        RT. Blank. Packet.

RT	Blank	Packet	
0.	0.	0	Can't write to stamped disc or during track at once on invisible track or writing session at once mode.
1.	0.	0	Can't write to recorded track or during Track at Once on reserved track.

    6.1.13 Modified the change to table 140 as follows: Value   Definition   " Fh   Data block
        type is unknown(no Track Descriptor Block)"
    6.1.14 Add table ??? Track Status Indications, with the following content:

RT	Blank	Packet	FP	Write Method	Track Status
0	0	0	-	Uninterrupted TAO SAO	Complete during TAO/SAO
0	0	1	0	Variable	Incomplete
0	0	1	1	Fixed	Incomplete
0	1	0	-	TAO/Variable/Fixed(*)	Invisible
0	1	1	0	-	Invalid
0	1	1	1	-	Invalid
1	0	0	-	TAO	Complete/During TAO
1	0	1	0	Variable	Complete/ Partially recorded Reserve
1	0	1	1	Fixed	Complete/ Partially recorded Reserve
1	1	1	-	TAO	Empty Reserved
1	1	1	0	Variable/Fixed	Empty Reserved
1	1	1	1	-	Invalid

   * In case last session is empty, SAO is also valid.
    6.1.15 Page 121 Table 141 Next Writable Address Definition Delete "This address is dependent
        upon the setting of Write. in Table 141."
        Add   "Next Writable Address is independent upon the setting of Write Type in Write
        Parameters Mode page. It shall be associated with the RT, Blank, Packet and FP flags
        as defined in Table XXX".

Table XXX: Next Writable Address
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===============================================================================
RT + Blank + Packet + FP + NWA_V  +       definition of Next Writable Address
------------------+---------------------------------------------------------
0    0      0       -    0(*4)      LBA that shall be specified by next write command(*2)
0    0      1       0    1(*1)      LBA that shall be specified by next write command(*2)
0    0      1       1    1(*1)      LBA that shall be specified by next write command(*2)(*3)
0    1      0       -    1          LBA of the first data block after pre-gap
0    1      1       0    -          -
0    1      1       1    -          -
1    0      0       -    0(*4)      LBA that shall be specified by next write command(*2)
1    0      1       0    1(*1)      LBA that shall be specified by next write command(*2)
1    0      1       1    1(*1)      LBA that shall be specified by next write command(*2)(*3)
1    1      0       -    1          LBA of the first data block after pre-gap
1    1      1       0    1          LBA of the first data block after pre-gap
1    1      1       1    -          -
===============================================================================
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*1: When "Free Blocks" is 0 (data full), NWA_V is 0.
*2: NWA shall be taken account of data blocks in buffer that has not yet been written to media. If the drive can write the data of next write command without interrupting of current data streaming (no underrun condition), NWA shall be contiguous to last address data in buffer. If WCE in Mode Cache Page is zero, NWA shall be taken account of Link Blocks (2 Run-out blocks, 1 Link block and 4 Run-out blocks) in case of Addressing Method-1.
*3: NWA shall follow the Addressing Method-2 if Method-2 flag in Mode CD Capabilities and Mechanical Status Page is set to one.
*4: During TAO (SAO), NWA_V is 1.

6.1.17 Page 123 the 2nd paragraph from the bottom. The paragraph will be changed:
"Reserving shall be allowed when the track is invisible. Attempting to reserve an existing incomplete track shall cause a CHECK CONDITION status, ILLEGAL REQUEST, COMMAND SEQUENCE ERROR."

6.1.18 Page 123 "If the reserved size is smaller than 4 seconds excluding pregap length , drive shall return a CHECK CONDITION STATUS and the sense is set to a sense key of 05, ASC of 24 and a ASCQ of 00, Invalid field in CDB.

6.1.19 Page 136, six paragraph second sentence to the following: "In case of WCE=1(Write Cache Page) and FUA=0 with variable packet writing, if the LBA is equal to the Next Writable Address in the same track as a previous Write, writing should continue without interruption of streaming."

6.1.20 Page 137, make the following changes to item 4 READ TRACK INFO: "4) READ TRACK INFO (for current track). If the LBA specified is not within the current track, the drive may return a CHECK CONDITION Status with the sense data set to a key of 05, ASC of 24 and ASCQ of 00, Invalid field in CDB"

6.1.21 Page 155 change Invisible Area to Invisible Track. Search document for any references to Invisible Area and change to Invisible Track.

6.1.22 Page 160 the following changes were made to Figure 0.5:
-Two places EFW changed to EFM
-Bottom of figure change NO to YES and YES to No.
-Add the following note below figure 0.5: "Note: Sectors that contain sub Q mode 0 shall be considered as no EFM."

6.2   Review John Hanmann (Western Digital) comments.
6.2.1. Page 144, All control bytes are reserved and set to zero.
6.2.2   Table B.1 ATAPI CD Commands make the following changes:
-Mechanism Status changed to mandatory.
-Remove Seek and Test Unit Ready.
-Stop Play/Scan will be mandatory.
6.2.3   Modify Table 11 as follows (changes are made so that ATAPI and MMC are consistent):
-Delete seek.

-Mechanism Status will be Mandatory
-Set CD Speed will be R and add definition for R, Mandatory for CDR/E.
-Stop Play/Scan will be A.

6.2.4 Page 78 between Table 86 and 87 add the following new paragraph: "Issuing a stop play/scan command when no play operation is in progress shall not be considered an error."

6.2.5 Page 77 Set CD Speed command make the following changes:
-Table 84 bytes 2 &3 changed Drive speed to Drive read speed.
-Table 84 byte 5 add "(reserved for CD ROM readers)."
-Between table 84 and 85 make the following changes: "The Drive Write and Read Speed parameters contain the requested data rates the drive should use. The device may choose to select the speed specified or any slower rate. A value of FFFFh will set the Drive Speed to the maximum supported. Requesting a speed faster than the drive supports shall not generate an error. The actual speed set is returned in the Capabilities Mode Sense page.(See Table 100- CD Capabilities and Mechanical Status Page)."

6.2.6 Page 103, Table 112 the following changes were made:
-Code 001, the description, last sentence, "used" was replaced with "exercised".
-Code 010, the description, last sentence was replaced with the following:
 "The track to be erased shall be in an incomplete session."
-Code 011b, the description, first sentence is changed as follows: "This is valid only when the last recorded track is incomplete, reserved, or is complete and in an incomplete session."
-Code 100b, description, third and forth sentences are changed as follows: "This blank type is valid for only a Packet track. This may be used to prepare for writing to a packet track to a CD-E disc with the same write process as a CD-R. The track to be erased shall be in an incomplete session."

6.2.7 Page 108, last sentence first paragraph is to be modified and made into a separate paragraph as follows: " If the last session on a disc is not complete when this command is issued, a CHECK CONDITION status with the sense data set to a key of 05, ASC of 2C and ASCQ of 00, Command Sequence Error."

6.2.8 Page 108 last paragraph, is changed as follows: "The session bit shall be ignored when the Grow bit is set."

6.2.9 Page 142, Add the following error code to Table A.1.:

Sense Key	ASC	ASCQ	Description
05	10	05	Current Program Area is not empty. The program area of the current session is written and does contain reserved tracks.

Page 143 Add the following error code to Table A.1:

Sense Key	ASC	ASCQ	Description
05	71	05	Can not write session at once, no cue sheet.

6.3 Reviewed Tony Pione (Oak Technology) comments.

6.3.1 Pages 145, to table B.1 make the following changes: Format Unit, Operation code 04h., type O.

6.3.2 Page 101 Table 110 the following changes were made: Format Unit command Operational Code 04h.

6.4 Reviewed Masa Morizumi (Yamaha) comments.

6.4.1 Page 97, Table 105 Packet/Session Size changed to Packet Size.

6.4.2 Page 104 changes made to specification.

6.4.3 Page 125 changes made to specification.

6.4.4 Page 126 changes made to specification.

6.4.5 Page 148 changes made to specification.
(details for above in editors marked up spec.)

6.5 Reviewed Rob Sims (HP) comments.

6.5.1 Page 134 send OPC, a bit was added to CDB to support Do OPC. See rev 8 for details.
Rob had further comments that occurred during all of the reviews of other comments.

6.6 Reviewed Ricoh's comments

6.6.1   Already taken care of.

6.6.2   Format Unit Command changes were made, Neil please review the changes submitted.

6.6.3   CLV recording speed changed to 4 bits.

6.6.4   Blank definition has been further defined such that a track that has just the pre-gap recorded shall not be considered to be blank.

6.6.5   The group would not support a open, re-open function within Close Track/Session.

6.6.6   Blank command, Erase Session (blanking type=110b) will be an optional part of the command.

6.7   Yamaha presented two pages of additional comments

6.7.1   Yamaha presented New formulas for page 121 on the free blocks for a fixed packet track and free blocks for the invisible track.

6.7.2   Page 104, after Table 115 remove the next paragraph.

6.7.3   Page 119 Damage flag, add the following: "When the damage ...... the drive may ......"

6.7.4   Small editorial change to sample que sheet.

6.8   Mike Yokoyama presented Ricoh's comments concerning Blank command and Format Unit command. After a brief discussion the specification was modified.

6.9   Reviewed change bars in Rev 7.0H that will become Rev 8.0.

6.9.1   Add 02/04/04 to all command error tables. (added to Rev 8.0)

6.9.2   Table 63 64 and 65 needs further modification.(added to Rev 8.0)

6.9.3   Page 103 add Ricoh's Blank session function.(110b).(added to Rev 8.0)

6.9.4   Page 121, new formulas for caculating free blocks.(added to Rev 8.0)

6.9.5   Recemonded sense data table missing from the following commands:

-Send OPC (added to Rev 8.0)

-Synchronize Cache (added to rev 8.0)

7.0   New Business

7.1   A vote was conducted to recommend the forwarding Rev 8.0, with change bars from the July working group meeting, for further processing by X3T10. The vote was unanimous to forward the document ! ! ! ! !(11-0)

8.0   Review of Action Items

-The group to actively review Rev 8.0.

-Neil S. and Bill M. review the Blank Session functionality added to Rev 8.0.

9.0   Future Meeting Schedule

- No MMC August working group meeting.

- MMC September working group meeting scheduled for September 10 and 11 1996, Crowne

- Plaza, Natick MA.

10.0   Adjournment

The meeting adjourned at 4:30 PM on July 17th.

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