

Accredited Standards Committee*
X3, Information Technology

Doc. No.: X3T10/96-038

Date: September 4, 1996
Project: 855-D,1048-D,1212-D
Ref. Doc.: X3T10/96-30,36,37
Reply to: Mr. John Lohmeyer
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The results of X3T10 letter ballots 96-030 on forwarding MMC to 1PR, 96-036 on forwarding SES to 1PR, and 96-037 on forwarding SPI Amendment #1 to 1PR are shown below:

Results of Letter Ballot 96-030 on forwarding MMC to First Public Review

Organization	Stat	Name	Yes	No	Abs	DNR	IV	Comments
Adaptec, Inc.	P	Mr. Norm Harris		1				w/comments
Amdahl Corp.	P	Mr. Edward Fong	1					
AMP, Inc.	P	Mr. Charles Brill	1					
Amphenol Interconnect	P	Mr. Michael Wingard	1					
Ancot Corp.	P	Mr. Jan V. Dedek	1					
Apple Computer	A	Mr. Ron Roberts	1					
Berg Electronics	P	Mr. Douglas Wagner	1					
BusLogic						1		
Ciprico Inc.	P	Mr. Gerry Johnsen	1					
Circuit Assembly Corp.	P	Mr. Ian Morrell	1					
Cirrus Logic Inc.	P	Mr. Joe Chen	1					
CMD Technology	P	Mr. Edward Haske	1					
Congruent Software, Inc.	P	Mr. Peter Johansson	1					
Dallas Semiconductor	P	Mr. Louis Grantham	1					
Digital Equipment Corp.	P	Mr. Charles Monia	1				IV	
Distributed Processing Tech.						1		
Eastman Kodak Co.	P	Mr. Robert Reisch	1					
ENDL	P	Mr. I. Dal Allan	1					
Exabyte Corp.	P	Mr. Edward Lappin	1				IV	
FSI Consulting Services						1		
Fujitsu Computer Products,Am	P	Mr. Robert Liu	1					
Hewlett Packard Co.	P	Mr. J. R. Sims	1					
Hitachi Micro Systems, Inc.						1		
Hitachi Cable Manchester, Inc	P	Mr. Zane Daggett	1					
Honda Connectors	P	Mr. Thomas J. Kulesza	1					
IBM Corp.	P	Mr. George Penokie		1				w/comments
Iomega Corp.	P	Mr. Geoffrey Barton	1					
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1				IV	
Linfinity Micro	P	Mr. Dean Wallace	1					
Madison Cable Corp.	P	Mr. Robert Bellino	1					by fax
Maxtor Corp.	P	Mr. Pete McLean	1					
Methode Electronics, Inc.	P	Mr. John Cannon	1					
Molex Inc.	P	Mr. Joe Dambach	1					
Oak Technology, Inc.	P	Mr. Anthony E. Pione	1				IV	
Ophidian Designs	P	Mr. Edward A. Gardner	1				IV	
Panasonic Technologies, Inc	P	Mr. Stephen F. Heil	1					
Phillips KMG	P	Mr. Bill McFerrin	1				IV	
QLogic Corp.	P	Mr. Skip Jones	1					
Quantum Corp.	A	Mr. Mark Evans	1					
Seagate Technology	P	Mr. Gene Milligan	1				IV	w/comments
Silicon Systems, Inc.	P	Mr. Dave Guss	1					
Sony Electronics, Inc.	P	Mr. Mike Yokoyama	1					
Storage Technology Corp.	P	Mr. Erich Oetting	1					
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1					

*Operating under the procedures of The American National Standards Institute.
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Organization	Stat	Name	Yes	No	Abs	DNR	IV	Comments
Symbios Logic Inc.	A#	Mr. Ralph O. Weber		1				w/comments
SyQuest Technology, Inc.	P	Mr. Patrick Mercer	1					
Tandem Computers	P	Mr. John Moy	1					
Toshiba America	P	Mr. Tokuyuki Totani	1					w/comments
UNISYS Corporation	P	Mr. Kenneth J. Hallam	1					
Unitrode Integrated Circuits	P	Mr. Paul D. Aloisi	1					
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1					
Woven Electronics	P	Mr. Doug Piper	1				IV	
			45	3	0	4	=	52
Key: Abs Abstain (not allowed on this ballot) DNR Did Not Return Ballot IV Individual Vote (not Organizational Vote)								

Adaptec Comments on forwarding MMC to 1PR:

1. Document requires editorial work to get the language in acceptable format for standards.
2. The STOP/PLAY/SCAN (4eh) and SET CD SPEED (BBh) are documented as 12-byte commands in a 10-byte group code.

IBM Comments on forwarding MMC to 1PR:

(E)=Editorial (T)=Technical (G)=General editorial comment that applies to entire standard.

1-(E) page 1 - 1 - Remove item 5 it is not necessary.

2-(E) page 2 - 1 - Remove the list of list of standards. It is not accurate and could only be made accurate for a short period of time.

3-(E) page 3 - 2 - Make sure the normative reference list only contains standards that are needed to use this standard.

4-(E) page 11 - 4.1.3.2 - figure 3 - All the numbers in the definitions need a 'b' after them to indicate they are binary.

5-(E) page 11 - 4.1.3.2.1 - figure 4 - figure 5 - All the ADR values need a 'b' after them.

6-(E) page 11 and 12 - 4.1.3.2.1 - All the TNO values need a 'bcd' after them.

7-(E) page 12 - 4.1.3.2.1 - The 'ZERO (00000000 binary).' should be ZERO (0000000b).'

8-(E) page 12 - 4.1.3.2.1 - last 3 paragraphs - The 'POINT=A0' give me no indication at what the A0 is. (hex or bcd or something else) Same is true for 'POINT=A1' and 'POINT=A2'.

9-(E) page 13 - 4.1.3.2.2 - figure 6 - 4.1.3.2.3 - figure 7 - All the ADR values need a 'b' after them.

10-(E) page 19 - 4.2 - 3rd para - The 'an-other' should be 'another'.

11-(G) All references in text to check conditions that give a specific sense key and additional sense code should follow the following format:

for whatever reason the command shall be terminated with a CHECK CONDITION status. The sense key shall be set to PLACE SENSE KEY HERE, and the additional sense code set to PLACE ADDITIONAL SENSE CODE HERE.

An example of this format is: ...a Disc in the playing position shall be rejected with a CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code set to MECHANICAL POSITIONING OR CHANGER ERROR.

Note that the hex values are not given for the sense key nor the additional sense codes.

12-(E) page 24 - 5.1 - table 11 - This table should list all the commands used by MMC devices not just the ones defined in MMC standard. Commands that are defined elsewhere should reference the appropriate standard.

13-(E) page 25 - 5.1.1 - 1st para - The statement 'changer posts STATE=(00) READY will' does not make sense because it is not clear what STATE=(00) READY is.

14-(G) - All definitions of bits should follow the following format:

A(n) special meaning bit (SPEMEAN) of one(zero) indicates

All the future references to the special meaning bit should then be as follows:

.... SPEMEAN bit of zero(one)

You could also use in place of zero and one, cleared and set which would then read as follows:

The special meaning bit (SPEMEAN) when set(cleared)

All the future references to the special meaning bit should then be as follows:

.... SPEMEAN bit when set(cleared) ...

Which ever method is selected must be used consistently throughout the standard. Do not which between one/zero and set/clear.

15-(G) All tables and figures must a a reference to them.

16-(E) - page 25 - 5.1.1 - 2nd para after table 12 - table 13 - There is no need to define the START bit twice. I suggest you remove the paragraph and replace it with: The start bit (START) and load/unload bit (LOUNLO) are defined in the load/unload operations table (see table xxx).

17-(E) - page 25 - 5.1.1 - last para - There must be a reference to the software slot selection (bit ?). And it should read 'reports a Software Slot Selection bit (SSS) of one, then....If the device reports a SSS of zero then the...'.
'.

18-(G) - All fields and bits should be use a small caps font (if possible). If you can't do this then expect allot of capitalization changes being requested from the ANSI editors.

19-(G) - All the sense key, ASC, ASCQ tables, that are placed after each command should be remove. These lists are constantly being updated, added to, and changed are only accurate for a short period of time. If they are scattered all over the place there will be inconsistencies and error within a short time of the standard being published. The only way to solve this is that have all ASC/ASCQs defined in a single place. The x3t10 committee is setting up a location on the web where this information will always be current. The standards will reference this location for people waiting to find out the latest version of that list.

One more consideration is that the actual hex values for the sense keys, ASCs, and ASCQs should not be listed in any command standard except SPC. To find out the hex value for a particular ASC, etc. the best thing to do is to go to the web site. This is do for the same reasons as above. Also in is not unusual for a vendor specific ASC/ASCQ to be added to the list. When this occurs one of the reserved code is assigned to that ASC/ASCQ. Then for some period of time a single ASC/ASCQ may actually have two codes; on assigned by the committee and another may be being used by a vendor. Over time the users of the vendor specific code should migrate to the standardized code.

20-(G) - When in doubt do not capitalize. For example initiator and target are never capitalized (except if at beginning of sentence).

21-(E) - page 27 - 5.1.2 - last para - The slot table data needs a cross reference.

22-(E) - page 28 - 5.1.2 - 1st para - 1st sentence - Should read 'The mechanism status parameter list (see table xxx) contains a mechanism status header (see table xxx), followed by zero or more fixed-length slot tables (see table xxx).

23-(G) - All bits and fields in all tables must be defined at least once and cross referenced from then on.

24-(E) - page 28 - 5.1.2 - para above table 18 - Remove 'bits 6-5, byte 0,'.

25-(E) - page 28 - 5.1.2 - table 18 - Remove the bit 6, bit 5 and hex columns and replace with a single column labeled 'changer state' and place 00b, 01b, 10b, 11b in the rows.

26-(G) - Do not reference the bit/byte location of a field or bit. For example: 'The current slot field, bits 4-0, indicates' should be 'The current slot field indicates'.

27-(E) - page 29 - 5.1.2 - table 19 - Remove the bit 7, bit 6, and bit 5 columns and rename the hex column to 'CD mechanism state'.

28-(E) - page 29 - 5.1.2 - para above table 20 - First sentence should read 'The slot stable response data format is defined in table 20.'

29-(E) - page 29 - 5.1.2 - table 20 - Byte 0, bits 1-6 need to be labeled reserved.

30-(E) - page 32 - 5.1.4 - The second sentence is very confusing and should be changed to: 'The command function and the output audio signals shall be as specified by the CD audio control mode page (see xxx).'

31-(E) - page 32 - 5.1.4 - 1st para after table 24 - This paragraph would be better above table 24. It should also be changed to read 'specified in Annex C.'

32-(G) - Always list the sense key and additional sense code when giving the response to a check condition. Always capitalize the actual sense key and additional sense code.

33-(E) - page 34 - 5.1.5 - The second sentence is very confusing and should be changed to: 'The command function and the output audio signals shall be as specified by the CD audio control mode page (see xxx).'

and delete the last sentence because it points to a place that has no additional information about this command.

34-(E) - page 34 - 5.1.5 - 1st para after table 24 - This paragraph would be better above table 24. It should also be changed to read 'specified in Annex C.'

35-(E) - page 36 - 5.1.6 - The second sentence is very confusing and should be changed to: 'The command function and the output audio signals shall be as specified by the CD audio control mode page (see xxx).'

36-(E) - page 36 - 5.1.6 - 1st para after table 24 - This paragraph would be better above table 24. It should also be changed to read 'specified in Annex C.'

37-(E) - page 38 - 5.1.7 - The 1st sentence should read 'defines the way digital CD data shall be sent to an external port.'

38-(E) - page 38 - 5.1.7 - table 30 - The transfer length in blocks field should be renamed to 'transfer length/ending address'.

39-(E) - page 38 - 5.1.7 - 1 para after table 30 - 'The Sector that' should read 'The sector that'.

40-(E) - page 38 - 5.1.7 - 1 para after table 30 - Table 31 should be placed right after 1 paragraph after table 30.

- 41-(E) - page 38 - 5.1.7 - 3rd para after table 30 - 'CMSF=1' should be 'CMSF is one' and 'CMSF=0' should be 'CMSF is zero'.
- 42-(E) - page 38 - 5.1.7 - 4rd para after table 30 - A description of the ending address alternate (when CMSF is one) for this field needs to be added.
- 43-(E) - page 39 - 5.1.7 - 1st and 2nd paragraphs after table 31 appear to be duplicates of paragraphs on page 38. Delete one or the other.
- 44-(E) - page 41 - 5.1.8 - 2nd para - The second sentence should be changed to; 'Each type of data is enabled via the fields in the READ CD command descriptor block (see table xxx). These fields indicate which information....If a field contains a zero then that particular information is not returned. If all the fields contain zeros then no information is returned...'
- 45-(T) - page 41 - 5.1.8 - table 34 - The use of byte 9 of a 12 byte CDB for something other than transfer length, when transfer length is needed by the command, violates the general rules for CDBs and could cause problems for automated hardware. I suggest moving the current byte 9 to byte 10 and moving the sub-channel selection field to byte 1 bits 7-5.
- 46-(G) - All fields need a definition of all possible values for that field. This includes all 1 bit fields.
- 47-(G) - SCSI standards do not have 'flags', we have bits and fields.
- 48-(E) - page 42 - 5.1.8 - table 35 - 'Hdr' should be 'header' the acronym hdr is not defined anywhere in this standard.
- 49-(E) - page 42 - 5.1.8 - 2nd paragraph above table 36 - It should read 'The error flags field (see table 36)...' and the next paragraph should be deleted.
- 50-(E) - page 42 - 5.1.8 - 1st para after table 36 - It should read 'The sub-channel data selection field (see table xxx)...' and the next paragraph should be deleted.
- 51-(E) - page 43 - 5.1.8 - table 37 - The first column should be titled 'sub-channel data selection value'.
- 52-(E) - page 43 - 5.1.8 - table 38 - This table seems to come out of nowhere. There is no description of what it is supposed to represent or where the bytes come from or go to?
- 53-(E) - page 43 - 5.1.8 - 1st para after table 38 - What bytes are being referred to and where are they returned from?
- 54-(E) - page 43 - 5.1.8 - last para - 'and treated as illegal.' should be 'and treated as illegal.' and 'responds to many of the requests possible.' should be 'responds to many of the requests.'
- 55-(E) - page 44 - 5.1.8 - table 39 - There is no cross reference for or definition of CD-DA, Mode 1, Mode 2, Mode 2 Form 1, or Mode 2 Form 2. There is no explanation of the meaning of the + or & symbols.
- 56-(E) - page 44 - 5.1.8 - note 2 after table 39 - This note should read 'Byte 9 of the READ CD command descriptor block.'
- 57-(E) - page 45-49 - 5.1.8 - All the information on these pages looks like it should be part of the model. I recommend to be placed in the model section and some additional words about the usage of this information.
- 58-(E) - page 46 - 5.1.8 - table 41 - What is a b0, b1, etc. that is not the standard way of listing fields. It should be changed to field name with MSB and LSB in the appropriate locations.
- 59-(E) - page 46 - 5.1.8 - para after table 41 - 1st sentence should be 'capability as described in the CD Capabilities and Mechanical Status page (see xxx).'
- 60-(E) - page 50 - 5.1.9 - There is no description of what this command does.

- 61-(E) - page 50 - 5.1.9 - last para - The last sentence should be made into it's own paragraph.
- 62-(E) - page 52 - 5.1.10 - 1st para - The 'CD Table of Contents' needs to either be defined in the glossary or a cross reference to where it is defined. The last sentence should be deleted or made into an Implementors note.
- 63-(E) - page 52 - 5.1.10 - paragraphs between tables 47 and 48 - The first sentence of the second paragraph should be placed right after table 47. Next should come the PMI bit description as a paragraph. Then the read cd recorded paragraph and the last sentence of the second paragraph should be deleted.
- 64-(E) - page 52 - 5.1.10 - 1st paragraph after table 47 - The 1st sentence should read 'The read CD recorded capacity parameter list (see table xxx) shall be the ...' and the title of table 48 should be changed to 'Read CD recorded capacity parameter list'.
- 65-(E) - page 54 - 5.1.11 - Delete 1 st sentence after table 50. Move paragraph before table 53 to right after table 50.
- 66-(E) - page 54 - 5.1.11 - Combine the 2nd and 3rd paragraphs after table 50 and delete the first sentence of 3rd paragraph.
- 67-(E) - page 54 - 5.1.11 - para before table 51 - Change to: 'If the MSF bit is zero the read header LBA parameter list (see table 51) defines the CD data block address header of the requested logical block. If the MSF bit is one the read header MSF parameter list (see table 53) defines the CD data block address header of the requested logical block.'
- 68-(E) - page 55 and 56 - 5.1.11 - table 51 and 53 - Change 'data format' to 'parameter list'.
- 69-(E) - page 56 - 5.1.12 - note under table 55 - Move note to before table 55.
- 70-(E) - page 57 - 5.1.12 - The MSF bit is not described.
- 71-(E) - page 57 - 5.1.12 - 2nd note under table 55 - Delete this note. The statement is true for all reserved fields in SCSI and need not be stated here.
- 72-(E) - page 57 - 5.1.12 - para before table 56 - Delete last sentence of this paragraph. It gives the same information as table 56.
- 73-(E) - page 57-59 - 5.1.12 - Need some kind of parameter list definition that can allow for the different sub-channel formats that are returned.
- 74-(E) - page 57 - 5.1.12 - 2nd para after table 57 - The last sentence needs a cross reference for the 'Audio Control Mode Page'.
- 75-(E) - page 58 - 5.1.12.2 - table 61 - These four bits should be named and defined as individual fields.
- 76-(E) - page 59 - 5.1.12.3 - 1st paragraph after table 62 - The MCVAl bit is not defined nor cross referenced.
- 77-(E) - page 59 - 5.1.12.3 - 1st para before table 63 - The AFRAME field values of 4Bh to FFh are not defined.
- 78-(E) - page 60 - 5.1.12.4 - 1st paragraph after table 64 - The MCVAl bit is not defined nor cross referenced.
- 79-(E) - page 60 - 5.1.12.4 - 2nd para after table 64 - Move this paragraph to right before the paragraph that starts with 'ISRC data returned...' and change the 1st sentence to 'Track ISRC data (see table 65) may be from any...' and change the 'can' in the last sentence to 'shall'.
- 80-(E) - page 60 - 5.1.12.4 - 3rd para from bottom - There is no cross reference to the ADR field nor the Control fields.

- 81-(E) - page 61 - 5.1.12.4 - table 65 - There is no description of any of the fields in table 65. They need to be described.
- 82-(E) - page 63 - 5.1.13 - 1st para after table 67 - Make second sentence a new paragraph. Place table 68 right after the new paragraph.
- 83-(E) - page 64-67 - 5.1.13 - There needs to be an overall parameter list set up for the READ TOC/PMA/ATIP command.
- 84-(E) - page 65 66, and 67 - 5.1.13.1, 5.1.13.2, and 5.1.13.3 - 1st para after table 69 - The first sentence should read 'The TOC data length field indicates the length in byte of the following TOC data.'
- 85-(E) - page 65, 66, and 67 - 5.1.13.1, 5.1.13.2, and 5.1.13.3 - 4th para after table 69 - Change to 'The ADR field indicates the attributes of the track. (see table 61).'
- 86-(E) - page 65, 66, and 67 - 5.1.13.1 - 5.1.13.2 - 5.1.13.3 - 5th para after table 69 - Change to 'The control field indicates the attributes of the track. (see table 61).'
- 87-(E) - page 67 - 5.1.13.3 - Table 71 - Fields in bytes 2-10 are not defined. Why are those fields labeled 'Byte x or'?
- 88-(E) - page 67 - 5.1.13.3 - 1st sentence after table 71 - This sentence does not have any meaning. What is it supposed to be talking about.
- 89-(E) - page 67 - 5.1.13.3 - 2nd para after table 71 - Should the should be a shall?
- 90-(E) - page 67 - 5.1.13.3 - 4th para after table 71 - The 'is' should be a 'shall be'.
- 91-(G) - The term 'device' is used throughout this standard. What is meant by this? It probably should be device server or target.
- 92-(E) - page 68 - 5.1.13.3 - table 72 - There are several formatting problems with this table that need to be fixed.
- 93-(E) - page 68 - 5.1.13.3 - sentence after table 73 - It should read 'The disc byte field (see table 74) contains...'
- 94-(E) - page 68 - 5.1.13.3 - sentence after table 73 - The term 'definition' does not make it very clear as to what is contains in the table.
- 95-(E) - page 69 - 5.1.13.3 - sentence after table 74 - There are two cross references in this sentence. There should only be one.
- 96-(E) - page 70 - 5.1.13.4 - Table 75 - Fields in bytes 2-10 are not defined. Why are those fields labeled 'Byte x or'?
- 97-(E) - page 70 - 5.1.13.4 - 1st sentence after table 71 - This sentence does not have any meaning. What is it supposed to be talking about.
- 98-(E) - page 70 - 5.1.13.4 - 2nd para after table 69 - The first sentence should read 'The PMA data length field indicates the length in ...'.
- 99-(E) - page 71 - 5.1.13.5 - 2nd and 3rd para after table 76 - Field is missing.
- 100-(E) - page 71 - 5.1.13.5 - 3rd para after table 76 - The reference speed fields values 2-7 are not defined.
- 101-(E) - page 72 - 5.1.13.5 - 4th, 5th, and 6th para - The A1, A2, and A3 bits should be placed in a table with all combinations listed.

102-(E) - page 72 - 5.1.13.5 - 7th and 8th para - All the ATIP start time of lead-in and ATIP last possible start time of lead-out fields should be listed and defined.

102-(E) - page 72 - 5.1.13.5 - There are two tables on this page without titles or table numbers. This needs to be fixed.

103-(E) - page 72 - 5.1.13.5 - The last several paragraphs are unclear as to what they are trying to accomplish.

104-(T) - page 66 and 69 - 5.1.13.2 and 5.1.13.3 - The READ TOC command with a format flag=4 (Format=0100b) returns the LBA of the last session (table 70 in section 5.1.13.2). If this command also returned the CD disc type (i.e., mode 1, mode 2, CDI, or CD-DA CD.), then an initiator could be ready to use the disc after a single READ TOC command. Without this information, an additional command (READ HEADER or READ TOC with a different format flag) is required to get this information.

The disc type information, given in table 74, could go into any one of the two currently reserved bytes (byte 0 or byte 3 of the TOC track descriptor) in the data (table 70) which the READ TOC command returns for format flag=4.

These comments do not represent a review of the entire MMC standard. I fully expect I will have further comments on problems occurring beyond page 74 but I have run out of time. It appears to me that this standard is in need of an editors meeting or meetings to get the bugs out of it. Until such a review is complete I would strongly suggest not moving this standard into public review.

Milligan (Seagate) Comments on forwarding MMC to 1PR:

1) On the cover page replace "Any commercial or for-profit use is strictly prohibited." with "Any commercial or for-profit replication or republication is prohibited."

2) In the abstract replace "shall define" with "define".

3) In the foreword change:

"The SCSI-3 Multimedia Commands specification at present consists of five major clauses. Additional clauses will be added as necessary to describe multimedia extensions for additional devices. This document describes the CD device class (common to all CD devices) in clause 4 and the CD-R/E device class (Write Once devices) in clause 5. All other clauses will be applicable to any device class described in this document unless explicitly stated otherwise."

with

"The SCSI-3 Multimedia Commands standard consists of six clauses and three annexes. In addition there are three informative annexes. This standard describes the CD device class (common to all CD devices) in clause 4 and the CD-R/E device class (Write Once devices) in clause 5. All other clauses are applicable to any device class described in this standard unless explicitly stated otherwise."

4) Why do the annex designations jump from C to N?

5) In the Clause 4, 5, and 6 description delete "extensions" or change it to "multimedia extensions". I am not sure which since I have not yet determined to what extent this is a freestanding document versus a delta document.

6) Change "Where possible, this standard is consistent with the accepted industry standards that were consulted." to "Where practical, this standard is consistent with the accepted industry standards that were consulted."

7) In the introduction change "the SCSI-3 Architectural Model Specification." to "the SCSI-3 Architecture Model (X3.270-199x) (SAM) standard."

- 8) Change "All standard updates are subject to the rules of ANSI for such procedures and involve a public review period and balloting process." to "All standard updates are subject to the X3 policies and procedures accredited by ANSI and involve a public review period and balloting process."
- 9) In the scope change "This standard defines the multimedia command set extensions for all classes of SCSI devices. The commands specified within this standard shall specify standard access and control to those features of the device that are used in multimedia applications (audio, video, animation). The entire standard command set available for a subject device shall be fully specified by the clause/clauses of this standard pertaining to that device, the applicable clauses of SCSI-3 Primary Commands, and any additional command set specifications pertaining to the subject device as documented in the SCSI-3 standard." to "This standard defines the multimedia command set extensions for all classes of SCSI devices. The commands specified within this standard define standard access and control to those features of the device that are used in multimedia applications (audio, video, animation). The entire standard command set available for a subject device is fully specified by the clause/clauses of this standard pertaining to that device, the applicable clauses of SCSI-3 Primary Commands, and any additional command set standards pertaining to the subject device as documented in the SCSI-3 family of standards."
- 10) Delete "This document provides focus on CD device class instruction sets. It is anticipated that it will be updated with additional clauses to define multimedia instructions for other classes of devices commensurate with technological advances in the multimedia field. It is anticipated that the need to specify device profiles will arise."
- 11) Change "The SCSI-3 command set and these extensions are transport independent and may be implemented across a wide variety of environments for which a SCSI-3 command mapping and delivery vehicle has been specified. To date these may be SSA, Fibre Channel, SCSI Parallel Interface, and IEEE 1394. Reference these documents as listed in clause Normative References for a complete specification of these environments." to "The SCSI-3 command set and these extensions are transport independent and may be implemented across a wide variety of environments for which a SCSI-3 command mapping and delivery vehicle has been defined. To date these include Fibre Channel, High Performance Serial Bus, SCSI Parallel Interface, and Serial Storage Architecture."
- 12) Change "1) To provide a specification of command format and functionality independent of delivery, protocol/signaling or transport mechanism. Architectural constraints regarding command function across the various transports are addressed in SCSI-3 Architectural Model and the document specific to the transport in question." to "1) To provide a definition of the command format and functionality independent of the delivery, protocol/signaling or transport mechanism. Architectural constraints regarding command function across the various transports are addressed in the SCSI-3 Architecture Model and the standards for the specific to the physical transport." In addition the correction of the name of SAM should be a global change.
- 13) Change "Thus, different disk drives, tape drives, printers, optical media drives, and other devices can be added to host computers without requiring modifications to generic system hardware and software." to "Thus, different tape drives, optical media drives, and other devices can be added to host computers without requiring modifications to generic system hardware and software."
- 14) Change "4) To provide compatibility such that properly conforming SCSI-2 devices may inter-operate with SCSI-3 devices given that the systems engineering is correctly done. Properly conforming SCSI-2 devices should respond in an acceptable manner to reject SCSI-3 protocol extensions, as defined within the SCSI-3 specifications for that environment. SCSI-3 protocol extensions are designed to be permissive of such rejections and thus allow the SCSI-2 device to continue operation without requiring the use of the extension." to "4) To provide compatibility such that conforming SCSI-2 devices may inter-operate with SCSI-3 devices given that the systems engineering is correctly done. SCSI-3 protocol extensions are designed to be permissive of rejections by conforming SCSI-2 devices and thus allow the SCSI-2 device to continue operation without requiring the use of the extension."
- 15) I like the construction of Figure 1 but do not fully agree with the description of Figure 1. However the implication that CAM relates to the physical layers is questionable in my mind and I welcome input regarding the CAM relationships. However I assume X3T10 will arrive at a standard Figure 1 along with a standard description.
- 16) ANSI does not approve standards. They publish standards and approve development processes.

17) Change "The term SCSI is used wherever it is not necessary to distinguish between the versions of SCSI. The original Small Computer System Interface Standard, X3.131-1986, is referred to herein as SCSI-1. SCSI-1 was revised resulting in the Small Computer System Interface - 2 (X3.131-1994), referred to herein as SCSI-2 and approved by ANSI on January 31, 1994.

The term SCSI-3 refers collectively to the following documents that fall under the jurisdiction of X3T10 (formerly X3T9.2)"

with

"The term SCSI is used wherever it is not necessary to distinguish between the versions of SCSI. The Small Computer System Interface -2 (X3.131-1994) is referred to herein as SCSI-2.

The term SCSI-3 refers collectively to the following documents:"

18) Replace "SCSI-3 Parallel Interface (SPI) X3T10/855D
 SCSI-3 Interlocked Protocol (SIP) X3T10/856D
 SCSI-3 Fiber Channel Protocol (FCP) X3T10/993D
 SCSI-3 Serial Bus Protocol (SBP) X3T10/992D
 SCSI-3 Architecture Model (SAM) X3T10/994D
 SCSI-3 Primary Commands (SPC) X3T10/995D
 SCSI-3 Block Commands (SBC) X3T10/996D
 SCSI-3 Stream Commands (SSC) X3T10/997D
 SCSI-3 Graphic Commands (SGC) X3T10/998D
 SCSI-3 Medium Changer Commands (SMC) X3T10/999D
 SCSI-3 Multimedia Command Set (MMC) X3T10/1048D"

with

"SCSI-3 Parallel Interface [X3T10/855D][X3.253]
 SCSI-3 Interlocked Protocol [X3T10/856D]
 Serial Storage Architecture Transport Layer 1 [X3T10/989D]
 SCSI Common Access Method-2 [X3T10/990D]
 SCSI-3 Fibre Channel Protocol [X3T10/993D][X3.269]
 SCSI-3 Serial Bus Protocol [X3T10/992D][3.268]
 SCSI-3 Architecture Model [X3T10/994D][X3.270]
 SCSI-3 Primary Commands [X3T10/995D]
 SCSI-3 Block Commands [X3T10/996D]
 SCSI-3 Stream Commands [X3T10/997D]
 SCSI-3 Graphic Commands [X3T10/998D]
 SCSI-3 Medium Changer Commands [X3T10/999D]
 SCSI-3 Controller Commands [X3T10/1047D][X3.276]
 SCSI-3 Fast-20 Parallel Interface [X3T10/1071D][X3.277][X3.277]
 SCSI-3 Multimedia Command Set [X3T10/1048D]
 Serial Storage Architecture SCSI-3 Protocol [X3T10/1051D]
 Serial Storage Architecture Physical Layer 1 [X3T10/1145D]
 Serial Storage Architecture Physical Layer 2 [X3T10/1146D]
 Serial Storage Architecture Transport Layer 2 [X3T10/1147D]"

Make the equivalent change to those SCSI-3 documents which are normative in Clause 2.

19) I agree with the definition of obsolete but I am surprised to see it in MMC since there was not a prior version of MMC to obsolete something.

20) In 4.1.1 and if there are other instances there also, change "this International Standard" to "this standard".

21) Several places in MMC values are written as something of the form "address 00/02/00". According to the conventions these numbers are decimal. However I think they actually should be of the form "address 00/02/00". If I am correct make a global change of the form " 00h/02h/00h".

22) I think MMC needs to be scrubbed for the consistency of how numbers are called out, In 4.1.3.2.2 "ADR = 1 (0010)" I think should be "ADR = 1 (0010bcd)" but on the other hand why isn't it "ADR = 2 (0010bcd)"?

23) In 4.1.5 change "SCSI BLOCK COMMANDS DOCUMENT" to SCSI-3 Block Commands standard".

24) In Table 11 the use of "R = mandatory command for CD-R/E devices" may cause confusion with reserved. Some other letter (e.g. E would avoid this problem). (E is used elsewhere but I forget if it is used for this set or another.)

25) In Table 39 what does the "9" in the Byte column refer to?

26) Referring to Table 63, where is MCVAl defined?

27) Under Table 63 change "All Nxx bytes are specified in ASCII." to "All Nxx bytes are ASCII." An analogous change should be global.

28) In Table 77 and other tables, what is the meaning of blank ASCQs?

29) Regarding Table 93 the reference column is missing the entries.

30) Below Table 94 change "NOTE: It is recommended that a Logical Unit type RESERVE be issued prior to starting audio play operations with an Immed bit of one in any multiple initiator environment." to "NOTE: It is recommended that a Logical Unit reservation be established prior to starting audio play operations with an Immed bit of one in any multiple initiator environment."

In addition I think notes are supposed to be numbered.

31) What is the meaning of "(60)" and "(75)" in Table 96? The text is clear on these values but their use in the table seems inappropriate.

32) The note under Table 96 is not clear "NOTE: Higher values in this parameter may have an adverse effect on the drive MTBF, in some implementations." Higher than what? Does a values of 1 cause a lower MTBF than zero? If so, the note is clear.

33) The inactivity timer multiplier does not seem to be a multiplier but a set of values. Why isn't it called inactivity timer value?

34) The statement under Table 98 "The error recovery parameter bits are defined in SCSI Block Commands." seems inappropriate since the allowed values are given in Table 99. The terminology for this parameter is inconsistent between Table 98, the text, and Table 99. In addition it seems odd to mix bit significance (implied by reserved bits) and hex values which encompass the reserved bits.

35) For Table 100, why is there two definitions for Byte 5 bit 1?

36) Why is there a discrepancy in bit numbering between the text and Table 101?

37) Regarding Table 102 it is not clear what the Speed entries are. Most of the values can be inferred (if they are multipliers) but I can not infer what the values is for X2.2.

38) Under Table 102 delete "It is also important to understand that".

39) In Table 113, 116, 122 and any other tables it is in, change "In process of becoming ready - writing" to all caps.

40) Under Table 114 change "sesnse data set to 05/10/04" and "05/71/04" to the text definition.

41) Change "(table x+1)" to Table 118.

- 42) For Table 131 the OPC value definition is not clear.
- 43) Make a global change from "An Allocation Length of zero is not to be considered an error." to "An Allocation Length of zero is not an error."
- 44) Under Table 142 what does "The Track Start Address is the starting address for the track as is specified or would be specified in the PMA." mean?
- 45) In 6.2.13 change "The SYNCHRONIZE CACHE command (Table 167) is inserted here for reference. reference. See SCSI-3 BLOCK COMMANDS for complete description." to "The SYNCHRONIZE CACHE command (Table 167) is shown for reference. See SCSI-3 BLOCK COMMANDS for a complete description."
- 46) Regarding Annex A, add a statement as to how ASC/ASCQs are added after publication.
- 47) In addition to Annex B, host has been used in the main body of MMC rather than initiator or application client. I didn't comment on this until I saw Annex B.
- 48) Something strange happened to Table B.2. This may be a PDF artifact.
- 49) In B4.2 change "All parameters are the same as defined for SCSI devices, except that the IMMED shall be set to 1." to "All parameters are the same as defined for SCSI devices, except that the IMMED flag shall be set to 1."
- 50) In B4.3 change "In the Write Parameters Mode Page, (Write Type field) support for Packet and Track at Once shall be mandatory. Sessin at Once and Raw are optional." to "In the Write Parameters Mode Page, (Write Type field) support for Packet and Track at Once shall be mandatory. Session at Once and Raw are optional." This suggests a need to run a spelling check.
- 51) Other than being a statement in a meeting, In O1.1 what does "The working group should use the initiator/target hierarchy." mean?
- 52) Same comment for "The MMC working group is attempting to develop a document listing a set of commands that will provide for accessing a CD-ROM, CD-R, and other technologies incorporating video, audio, and data. The working group determined that a set of functional requirements should be developed in order provide a means of merging multiple proposals in to one document."
- 53) Change the note under Figure O.5 from "Note: Sectors that contain Sub Q Mode 0 shall be considered as no EFM." to "Note: Sectors that contain Sub Q Mode 0 should be considered as no EFM." or "Note: Sectors that contain Sub Q Mode 0 is considered as no EFM."
- 54) Annex O has numerous other "shall" requirements that need to be changed to an informative style or the annex changed to normative.

Symbios Logic Comments on forwarding MMC to 1PR:

#1 (E) pg: 101, table 110
pg: 155, table N.1

Change "BLANK Command" to "BLANK". Delete the blank row at the bottom of the table.

#2 (T) pg: 150, table B.1

Is it really intended that Prevent/Allow Medium Removal be mandatory? It was not mandatory in previous version of the CD-ROM definition.

#3 (T) pg: 151, table B.1

pg: 155, table N.1

pg: 156, table N.2

SBC recently made the SEEK command obsolete. MMC cannot reference SBC for the description of the SEEK command. MMC cannot list the SEEK command as being defined, without including that definition in MMC.

#4 (T) pg: 151, table B.1
pg: 157, table N.3

Is it really intended that Start/Stop Unit be mandatory? It was not mandatory in previous version of the CD-ROM definition.

#5 (T) pg: 155, table N.1
pg: 156, table N.2

Change the operation code for FORMAT UNIT from 56h to 04h.

#6 (T) pg: 155, table N.1

Change the operation code for READ DISC INFORMATION from 52h to 51h.

#7 (E) pg: 155, table N.1
pg: 156, table N.2

Change "SYNCHRONIZE CACHE (FLUSH)" to "SYNCHRONIZE CACHE".

#8 (E) pg: 156, table N.2

Add BLANK and RESERVE TRACK to table N.2.

#9 (T) pg: 157, table N.3

SBC has made REZERO UNIT and the SEARCH DATA xxx commands obsolete. MMC cannot reference these commands without adding text describing them to MMC.

#10 (T) pg: 157, table N.3

Most of the rest of SCSI is making READ(6) optional. Should table n.3 continue to show it as mandatory?

#11 (E) pg: 157, table N.3

Change "RESERVE" to "RESERVE(6)". Change "RELEASE" to "RELEASE(6)". Add RESERVE(10).

Toshiba Comments on forwarding MMC to 1PR:

1) P 78 Section 5.1.16. Table 86 STOP PLAY/SCAN Command This command (4Eh) is a group 2 command. Group 2 command must be 10 bytes long but the Table 86 describes this command as a 12 bytes long command. This should be corrected.

Results of Letter Ballot 96-036 on forwarding SES to First Public Review

Organization	Stat	Name	Yes	No	Abs	DNR	IV	Comments
Adaptec, Inc.	P	Mr. Norm Harris	1					
Amdahl Corp.	P	Mr. Edward Fong	1					
AMP, Inc.						1		
Amphenol Interconnect	P	Mr. Michael Wingard	1					
Ancot Corp.	P	Mr. Jan V. Dedek	1					
Apple Computer	A	Mr. Ron Roberts	1					
Berg Electronics	P	Mr. Douglas Wagner	1					
BusLogic						1		
Ciprico Inc.	P	Mr. Gerry Johnsen	1					
Circuit Assembly Corp.	P	Mr. Ian Morrell	1					
Cirrus Logic Inc.	A#	Mr. Chi Wang	1					
CMD Technology	P	Mr. Edward Haske	1					
Congruent Software, Inc.	P	Mr. Peter Johansson	1					
Dallas Semiconductor	P	Mr. Louis Grantham	1					
Digital Equipment Corp.	P	Mr. Charles Monia	1					
Distributed Processing Tech.						1		
Eastman Kodak Co.						1		
ENDL	P	Mr. I. Dal Allan	1					
Exabyte Corp.	P	Mr. Edward Lappin	1				IV	w/comments
FSI Consulting Services						1		
Fujitsu Computer Products,Am	P	Mr. Robert Liu	1					
Hewlett Packard Co.	P	Mr. J. R. Sims	1					
Hitachi Micro Systems, Inc.						1		

Organization	Stat	Name	Yes	No	Abs	DNR	IV	Comments
Hitachi Cable Manchester, Inc	P	Mr. Zane Daggett	1					
Honda Connectors	P	Mr. Thomas J. Kulesza	1					
IBM Corp.	P	Mr. George Penokie		1				w/comments
Iomega Corp.	P	Mr. Geoffrey Barton	1					
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1				IV	
Linfinity Micro	P	Mr. Dean Wallace	1					
Madison Cable Corp.	P	Mr. Robert Bellino	1					
Maxtor Corp.	P	Mr. Pete McLean	1					
Methode Electronics, Inc.	P	Mr. John Cannon	1					
Molex Inc.	P	Mr. Joe Dambach	1					
Oak Technology, Inc.	P	Mr. Anthony E. Pione	1					
Ophidian Designs	P	Mr. Edward A. Gardner	1				IV	
Panasonic Technologies, Inc	P	Mr. Stephen F. Heil	1					
Philips KMG	P	Mr. Bill McFerrin	1					
QLogic Corp.	P	Mr. Skip Jones	1					
Quantum Corp.	A	Mr. Mark Evans	1					
Seagate Technology	P	Mr. Gene Milligan	1				IV	w/comments
Silicon Systems, Inc.	P	Mr. Dave Guss	1					
Sony Electronics, Inc.	P	Mr. Mike Yokoyama	1					
Storage Technology Corp.	P	Mr. Erich Oetting	1					
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1					w/comments
Symbios Logic Inc.	A#	Mr. Ralph O. Weber		1				w/comments
SyQuest Technology, Inc.	P	Mr. Patrick Mercer	1					
Tandem Computers	P	Mr. John Moy	1					
Toshiba America	P	Mr. Tokuyuki Totani	1					
UNISYS Corporation	P	Mr. Kenneth J. Hallam	1					
Unitrode Integrated Circuits	P	Mr. Paul D. Aloisi	1					
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1					
Woven Electronics	P	Mr. Doug Piper	1					by fax
			44	2	0	6	=	52
Key:	Abs	Abstain (not allowed on this ballot)						
	DNR	Did Not Return Ballot						
	IV	Individual Vote (not Organizational Vote)						

Lappin (Exabyte) Comments on forwarding SES to 1PR:

1. The cover sheet has the wrong middle initial for Larry.
2. Pg 18. The table locations are confusing. In particular, table 7 follows heading 6.1.4 "Help text page" (probably due to pagination). The table should proceed the new heading.
3. Pg 18. In table 8, byte 1 is reserved. In Annex A, this field is used for the Number of sub-enclosures (table A4, pg 63). It is better to identify byte 1 of table 8 as Number of sub-enclosures with a footnote (see table 4, pg 11). Alternatively, a global comment somewhere about that field (an explanation in the model for example) could replace the footnote.
4. Pg 18. As with comment 6, tables 9 through 11, 13, and 17 should identify byte 1 as the number of sub-enclosures.
5. Pg 30. The turn disconnect in the explanation of Maximum task completion time in section 6.2.2 on the bottom of pg 30 seems interface dependent. Maybe it should state something about what should happen if the timeout occurs as in "The maximum task completion time indicates the maximum time that a device server shall delay after the associated task becomes current and before the task completes. In the event that the task cannot be completed during that time, the device server shall report CHECK CONDITION with a sense key of NOT READY and an ASC/Q of ENCLOSURE SERVICES UNAVAILABLE" (something like that).
6. Pg 41. Missing a space under table 35 "is defined intable 36".
7. Pg 43. Under 7.2.7, door lock element, table is capitalized in "lock element is defined in Table 40.". Table is not capitalized in like statements throughout the document.

8. Pg 47. Should the note on the bottom of the page be a real note as in "Note 1: Failures of the nonvolatile ..." and in small font? The statement reads like a real note.

9. Pg 48. The battery status field has no value for unknown time but could provide power. Maybe a value of 0 should indicate this with the BATT FAIL field set indicating that the battery is not operating or not available.

10. Pg 50. Why does disable move around in bit position. In particular, tables 56 and 57 (SCSI port/transceiver for enclosure) has disable in bit 4 of byte 3. Tables 60, 61 (Communication Port element for enclosure) has disable in bit 0 of byte 3. Maybe LSR fail and Disable should be reversed in Tables 56 and 57.

11. Pg 50. For the SCSI port/transceiver element (section 7.2.15, tables 56 and 57, pg 50), the acronyms for transmitter and receiver failures seem to be slanted towards fibre channel. Is it not possible that other interfaces could detect failures? Therefore, using a less interface specific acronym for the field definition is appropriate. In particular, LOL does not have any text in the definition, other than the name, specific to the interface.

12. Pg 51. The language code field seems useless since only one language has been specified. Should the "more common" languages be specified with specific codes in a table? Otherwise, how would a driver pick a language other than ANSI standard?

13. Pg 53. Why do some elements have disable (see #10) and others enable as in tables 66, 67, 68, 69? Why not use either disable or enable instead of using both?

I like the style of the document for readability. The font usage seems to help clarify the parameter text, both with the field name in bold italic for the paragraph start and with the use of small caps.

IBM Comments on forwarding SES to 1PR:

1-(E) page 4 - 3.3.1 - 'one bit field' should be changed to 'single bit field'.

2-(E) page 4 - 3.3.8 - 'one bit field' should be changed to 'single bit field'.

3-(E) page 4 - 3.4 - 3rd paragraph - This is a general statement about using small caps. When using small caps you should not use big caps in any part of the name. For example the s in the status code in this paragraph is a big cap.

4-(E) page 5 - 4.1 - 1st paragraph - The term 'elements' is used. This term should be defined in the glossary. Also the term 'component' should be defined in the glossary.

5-(E) page 5 - 4.1.2 - The term 'port' is not clearly defined.

6-(E) page 5 - 4.1.2 - It seems there are two ways defined to determine if the enclosure services are supported; by Inquiry and/or a configuration page. Why not only have one way. I would suggest Inquiry be the way.

7-(E) page 6 - 4.1.3 - 4th para - You are allowing the 'rounding of values'. Are you sure this is what you want? When rounding is used a check condition must be generated.

8-(E) page 12 - 6.1.1 - generation code - Put in the hex value of the configuration page.

9-(E) page 12 - 6.1.1 - enclosure descriptor length - Make 'product identification' into small caps.

10-(E) page 12 - 6.1.1 - type descriptor header - Change 'enclosure are listed' to 'enclosure shall be listed'.

11-(E) page 12 - 6.1.1 - type descriptor test - Change '0' to 'zero'.

12-(E) page 13 - 6.1.2 - Change 'enclosure' to 'Enclosure' in the section title.

13-(E) page 14 - 6.1.2 - Change 'page code 2' to 'page code 02h'.

- 14-(E) page 14 - 6.1.2 - non-crit - The sentence 'If the enclosure services process has not detected a noncritical condition, the non-crit bit may be cleared by any application client.' does seem to make sense. Isn't the enclosure services process on the device server side of things? If so then the statement 'any application client' should be 'any device server'.
- 15-(E) page 15 - 6.1.2 - crit - See comment 14.
- 16-(E) page 15 - 6.1.2 - un-recov - See comment 14.
- 15-(E) page 15 - 6.1.2 - overall control - In the last sentence the 'should' should be a 'shall'.
- 16-(E) page 16 - 6.1.3 - invop - '(invop bit)' should be '(invop)'.
- 17-(E) page 16 - 6.1.3 - info - '(info bit)' should be '(info)'.
- 18-(E) page 17 - 6.1.3 - non-crit - 'condition (non-crit)' should be condition bit (non-crit)'.
- 19-(E) page 17 - 6.1.3 - non-crit, crit, and un-recov - There should be a ', and' at the end of each of the a) statement.
- 20-(E) page 21 - 6.1.7 - 1st paragraph after low critical threshold - In line with my comment on rounding I suggest you change 'round' to 'set'.
- 21-(E) page 21 - 6.1.7 - 2nd to last paragraph - There is no indication as to how the information is reported for those commands that do NOT use check condition to indicate enclosure failures.
- 21-(E) page 21 - 6.1.7 - last paragraph - There is no indication as to how the information is reported for those commands that do NOT use check condition to indicate enclosure failures.
- 22-(E) page 29 - 6.1.12 - first para - Move this paragraph to right before table 19.
- 23-(E) page 30 - 6.1.12 - last para - Move this paragraph to right before table 21.
- 24-(E) page 32 - 7.1 - 2nd para - The sentences 'The enclosure is not required to act on any optional control bit and may ignore or override an control bit if required to maintain a proper operating environment in the enclosure.' should be changed to 'The enclosure is not required to act on any optional control bit. All control bits are advisory and may be ignored or overridden to maintain a proper operating environment in the enclosure.'
- 25-(E) page 32 - 7.1.1 - select - Should read 'The select bit (select)'.
- 26-(E) page 32 - 7.1.1 - prdfail - Should read 'The predicted failure bit (prdfail)'.
- 27-(E) page 32 - 7.1.1 - prdfail - There is no cross reference to the predicted failure state indicator.
- 28-(E) page 32 - 7.1.1 - prdfail - last sentence - 'the bit' should be changed to 'the prdfail bit'.
- 29-(E) page 32 - 7.1.1 - disable - Should read 'The disable bit (disable)'.
- 30-(E) page 33 - 7.1.1 - prdfail - Should read 'The predicted failure bit (prdfail)'.
- 31-(E) page 33 - 7.1.1 - swap - Should read 'The swap bit (swap)'.
- 32-(E) page 34, 35, and 36 - 7.2.2 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 74-(E) page 35 - 7.2.2 - table 29 - hard address - This field should be renamed to slot address.

- 75-(E) page 35 - 7.2.2 - hard address - This should be renamed to slot address and the description changed to read: '..the slot address field is set to the value...'
- 33-(E) page 36, 37, 38, and 39 - 7.2.3 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 34-(E) page 39, and 40 - 7.2.4 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 35-(E) page 40 - 7.2.4 - temp warm - Delete paragraph starting with 1=, it looks like left over stuff.
- 36-(E) page 41 - 7.2.4 - rqst fail - 'the bit is cleared' should be 'the rqst fail bit is cleared'.
- 37-(E) page 41, and 42 - 7.2.5 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 38-(E) page 41 - 7.2.5 - rqst on - 'the bit is cleared' should be 'the rqst on bit is cleared'.
- 39-(E) page 41 - 7.2.5 - requested speed code - 'code value is' should be 'code field is'.
- 40-(E) page 42 - 7.2.5 - actual speed code - 'code indicates the' should be 'code field indicates the'.
- 41-(E) page 43 - 7.2.6 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 42-(E) page 43 - 7.2.6 - Remove the ',' from all the bit acronyms.
- 43-(E) page 43 - 7.2.6 - ot,failure - ot,warning - ut,failure - ut,warning - 'The bit is cleared' should be 'The xxxxx bit is cleared'.
- 44-(E) page 43 - 7.2.6 - ot,failure - ot,warning - ut,failure - ut,warning - 'threshold.' should be 'threshold field (see xxxx).
- 44-(E) page 43 - 7.2.6 - ot,failure - ot,warning - ut,failure - ut,warning - 'the xxx xxxx threshold is detected by the' should be 'the xxx xxxx threshold value is detected by the'. Also, in this case the xxx xxxx threshold should not be in small caps because you are describing the value in the field not stating the fields name.
- 45-(E) page 43 and 44 - 7.2.7 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 46-(E) page 43 and 44 - 7.2.7 - unlock - unlocked - 'The bit' should be 'The xxxx bit'.
- 47-(E) page 44 and 45 - 7.2.8 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 48-(E) page 44 and 45 - 7.2.8 - info - non-crit - crit - unrecov - There is no definition for the cleared condition of those bits.
- 49-(E) page 44 - 7.2.8 - tone urgency control - 2nd para - The element control field needs a cross reference.
- 50-(E) page 44 - 7.2.8 - tone urgency control - 3rd para - 'Remind or Muted' should be 'remind or muted'.
- 51-(E) page 45 - 7.2.8 - rqst mute - muted - remind - 'The bit' should be 'The xxxx bit'.
- 52-(E) page 45 - 7.2.8 - info - non-crit - crit - unrecov - There is no definition for the cleared condition of those bits.
- 53-(E) page 48 - 7.2.12 - battery status - 'status field is set to indicate the time' should read 'status field indicates'.

- 54-(E) page 48 and 49 - 7.2.12 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 55-(E) page 50 - 7.2.15 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym.
- 56-(E) page 50 - 7.2.15 - disabled - 'The bit' should be 'The disabled bit'.
- 57-(E) page 51 - 7.2.15 - table 59 - language code - Where are the language codes defined?
- 58-(E) page 52 and 53 - 7.2.18 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym. Some of the field and bits names are not in small caps.
- 59-(E) page 52 - 7.2.18 - table 63 - I suggest changing the name of the voltage value field to voltage. This would change the description of that field to 'The voltage field indicates the ... The voltage value is expressed as a 16-bit 2's complement number. (End of description see next comment).
- 60-(E) page 52 - 7.2.18 - under table 63 - The following description should be added after voltage: 'sign: The sign bit (sign) is set to indicate the voltage value is a negative value. The sign bit is cleared to indicate the voltage value is a positive value.
- 61-(E) page 52 - 7.2.18 - voltage value (threshold) - This should have the 'voltage value (threshold)' removed and the remaining paragraph moved to above table 63.
- 62-(E) page 52 - 7.2.18 - over - under - 'The bit' should be 'The xxxxx bit'.
- 63-(E) page 53 - 7.2.19 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym. Some of the field and bits names are not in small caps.
- 64-(E) page 53 - 7.2.19 - table 65 - I suggest changing the name of the current value field to current. This would change the description of that field to 'The current field indicates the ... The current value is expressed as a 16-bit 2's complement number. (End of description see next comment).
- 65-(E) page 53 - 7.2.19 - under table 65 - The following description should be added after current: 'sign: The sign bit (sign) is set to indicate the current value is a negative value. The sign bit is cleared to indicate the current value is a positive value.
- 66-(E) page 53 - 7.2.19 - voltage value (threshold) - This should have the 'voltage value (threshold)' removed and the remaining paragraph moved to above table 63.
- 67-(E) page 53 - 7.2.19 - over - 'The bit' should be 'The over bit'.
- 68-(E) page 54 - 7.2.20 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym. Some of the field and bits names are not in small caps.
- 69-(E) page 54 - 7.2.20 - enable - enabled - 'The bit' should be 'The xxxxx bit'.
- 70-(E) page 54 and 55 - 7.2.21 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym. Some of the field and bits names are not in small caps.
- 71-(E) page 54 and 55 - 7.2.21 - enable - enabled - 'The bit' should be 'The xxxxx bit'.
- 72-(E) page 55 - 7.2.22 - All the bit definitions should be changed to read 'The xxxxxx bit (vvvvv)' where xxxxxx is the english name of the bit and vvvvv is the small caps acronym. Some of the field and bits names are not in small caps.

73-(T) page 55 - annex a - Annex A should be removed from this standard. There is already a way to address sub-enclosures using the SCC model. There is no need to have two methods defined in the SCSI standards to do the same thing.

Milligan (Seagate) Comments on forwarding SES to 1PR:

- 1) The cover page should be replaced with one matching the X3T10 draft cover page format.
- 2) On PDF page 8 "INSERT CODE HERE" needs to be replaced.
- 3) The table of contents needs minor tweaking for alignment. There are some other editorial nits like this which I am not sure are not just PDF artifacts. Examples are the lack of space between the Table 1 box and the notes and LUN =81 rather than LUN = 81 in Figure A.1.
- 4) In the foreword replace "by Task Group X3T10" with "by Technical Committee X3T10" or with "by X3T10".
- 5) In the foreword delete "The standards approval process started in 199n."
- 6) The patent statement is misplaced. It should not be in the middle of the X3 membership but should be on the backside of the ANS cover page in a CAUTION statement. In addition this backside page should have the following material:

"American
National
Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer. Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that effort be made towards their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give interpretation on any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

CAUTION: " <<location for the patent statement>>

- 7) I don't think the document title should be repeated on the page above SCOPE.
- 8) I think in the SCOPE "and other elements installed in an enclosure." with "and other non-SCSI elements installed in an enclosure." Also change "and then to set and sense standard bits" to ""and to set and sense standard bits".

- 9) In the normative references "ANSI X3.T10/Project 995-D, Revision 9B, SCSI-3 Primary Commands (SPC)" should be changed to "ANSI X3T10/Project 995-D, Revision 10, SCSI-3 Primary Commands (SPC)". In addition the editor should make a note to change this callout to an X3.XXX callout during the ANSI pre-edits when the SPC number should be available.
- 10) It is not clear how the definition of "see" in 3.1 matches the use of "see" in "See SAM."
- 11) In 3.1 synonym is defined but it is not used. Delete the definition.
- 12) I am surprised that a fault has to be an accident. I also am unable to successfully contrast it with failure.
- 13) As I understand it the italics will need to be changed to other forms of text.
- 14) Change "3.1.17 logical unit: A target-resident entity which implements a device model and executes SCSI commands sent by an application client." to "3.1.17 logical unit: A target-resident entity which implements a device model and executes SCSI commands originated by an application client."
- 15) There are requirements which apply to a SCSI device when it is not connected, consequently I suggest changing 3.1.19 to "SCSI device: A device that is, or can be, connected to a service delivery subsystem and supports an SCSI application protocol." Ask Larry if this "can" can be used.
- 16) Change 3.1.23 "vendor specific: Functions, code values, and bits not defined by SES and set aside for private usage between parties using SES. Caution: Different implementations of SES may assign different meanings to these functions, code values, and bits." to "vendor specific: Functions, code values, and bits not defined by a standard and set aside for private usage between parties using SES. Caution: Different implementations of SES may assign different meanings to these functions, code values, and bits."
- 17) I think 3.3.1 "cleared - A keyword indicating that a value of zero has been placed in a one bit field." should be "cleared - A keyword indicating that a value of zero has been placed in a bit field."
- 18) Please ignore. This comment has been deleted. It was a misread and this statement is just to preserve the comment numbering.
- 19) Change 3.3.8 to "set - A keyword indicating that a value of one has been placed in a bit field."
- In comments 16 and 18 if "one" is especially important and needed to be redundant change it to "single".
- 20) With ASCII comments it is difficult to illustrate this comment but in 3.4 change the first S in (e.g. STATUS CODE) to a small cap.
- 21) Why are exceptions to precedence convention needed? The standard should only inadvertently have conflicts.
- 22) In 4.1 I think Model should be singular.
- 23) In 4.1.1 change "The commands for this model are described in clause 5." to "The commands for this device type are described in clause 5."
- 24) In 4.1.2 change "SCSI devices use the EncServ (Enclosure Services) bit in the INQUIRY command (see SPC) to indicate that they may transport enclosure services information." to "SCSI devices use the EncServ (Enclosure Services) bit in the INQUIRY command (see SPC) to indicate that they are capable of transporting enclosure services information."
- 25) Is the concept of ignoring instructions in 4.1.3 contrary to the congruent with the definition of mandatory (e.g. are bits and other realizations of advisory only instructions adequately distinguished from mandatory requirements)? Does this cause confusion with what invalid means?
- 26) Is the simple processor capable of evaluating all the invalid fields of 4.1.5?

27) The construction of the note in Table 1 indicates that SES applies only to Fibre Channel devices. I do not think this is intended. Change

"a. The identifier type in the INQUIRY device identification page shall be 3h, indicating that enclosure contains an 8-byte FC-PH name identifier field."

to

"a. If the enclosure contains an 8-byte FC-PH name identifier field, the identifier type in the INQUIRY device identification page shall be 3h."

This is still awkward and I assume those that better understand the requirement can propose what the real if statement should be.

28) Note c. "All enclosure services control pages shall be transferred by the SEND DIAGNOSTIC command. Device servers are only required to accept a single diagnostic page in each command." Seems confusing. I suggest "Enclosure services control pages shall be transferred by the SEND DIAGNOSTIC command. Device servers are only required to accept a single diagnostic page in each command."

29) In Table 2 page codes 40h-7Fh should be reserved.

30) If there are no Fibre Channel devices in the enclosure and all the devices are parallel SCSI devices is it appropriate to have the requirement "ENCLOSURE LOGICAL IDENTIFIER: The ENCLOSURE LOGICAL IDENTIFIER field shall use the world wide name format defined by FC-PH. The ENCLOSURE LOGICAL IDENTIFIER is unique to the enclosure and may be different from the world wide name of the device providing the enclosure services." rather than using the SCSI-3 world wide identifier?

The same comment applies to the sub-enclosure version.

31) In 6.1.7 change "The format of the threshold in page is shown in table 11. Implementation of this page is optional." to "The format of the threshold out page is shown in table 11. Implementation of this page is optional."

32) Under Table 11 what specific type does the statement "If the threshold information in the element threshold field is not valid or if individual thresholds for each element are not implemented, the threshold information in the OVERALL THRESHOLD field shall be applied to all elements of that type." refer to?

33) Regarding Table 11, if the thresholds values are advisory why is the requirement "shall" of they are exceeded? With advisory requirements it seems like the operative word should be "may" or at most "should".

34) A sentence above Table 13 states "The threshold out page is transmitted by the RECEIVE DIAGNOSTIC RESULTS command." I assume this should be "The threshold in page is transmitted by the RECEIVE DIAGNOSTIC RESULTS command."

35) I doubt that footnote 2 on page 28 is necessary. Rather than tempt the ANSI editors, why not leave this reference to the bibliography?

36) In 6.2.2 is the phrase "The page code selected for the enclosure services management page overlaps with the medium partition 4 page defined for tape drives, " correct or should it be "The page code selected for the enclosure services management page overlaps with the medium partition page code 04h defined for tape drives, "?

37) In 7.2.9 what is the purpose of a page that is entirely reserved except for one bit? Same comment for the next table. This comment of course applies to subsequent tables which are entirely reserved.

38) It appears that the Sign bit in Tables 63 and 65 are not defined.

39) Does the sentence "As sub-enclosures are added or deleted from the primary sub-enclosure, the configuration, configuration generation, and relationship between sub-enclosure identifier and sub-enclosure may

change." in A.2 require some other qualifier with the last "sub-enclosure"? If not what does the "sub-enclosure" may change mean?

40) Regarding the statement below Table A.1 "The portions of the enclosure services configuration page that are added to clause 6.1.1 to support sub-enclosure identifiers are described in table A.2 and described in the text that follows that table." What does "added to clause 6.1.1" mean. This is a normative portion of the standard but this phrase sounds like a revision description. Does it mean "that are in addition to the definitions in clause"?

41) In Table A.2 isn't the notation (m+11) more standard than (11+m)? With the first byte being 0, do we all know in this instance whether m is 48 or 49 and is (11+m) the new m or the new byte number?

42) What is "p"?

43) Regarding A.5 "The help text page is mandatory if any sub-enclosure help text strings are implemented. Any of the help text strings may have a length of 0000h.", if all the help text strings have a length of 0000h are they implemented and does this infer that the help text page is always mandatory? Note the difference in this requirement versus the one for vendor specific in A.7 as well as A.9.

44) Add Length to the last row of Table A.7.

45) In A.11 is "If an enclosure providing the short status page is used as a sub-enclosure <<on>> a primary sub-enclosure," correct or should it be ""If an enclosure providing the short status page is used as a sub-enclosure <<or>> a primary sub-enclosure,"?

42) In B.1 delete "and distinguished".

43) The shall requirements in Annex B need to be eliminated or the Annex needs to be Normative.

44) Change "ENCLOSURE SERVICES FAILURE: This ENCLOSURE SERVICES FAILURE ASC/ASCQ is provided to indicate that the enclosure services device has failed in an unknown manner." to "ENCLOSURE SERVICES FAILURE: The ENCLOSURE SERVICES FAILURE ASC/ASCQ is provided to indicate that the enclosure services device has failed in an unknown manner."

45) Add a statement in Annex B similar to SPC that tells how new ASC/ASCQs are added after publication.

Sun Microsystems Comments on forwarding SES to 1PR:

Technical comments

Clause 7.2.4 Power supply "on" indication.

There is no explicit mechanism defined to indicate whether a power supply is actually on or off. I suggest defining byte 3, bit 4 as a status indication labeled ON. The accompanying text should read:

"On: The on bit is set to indicate the power supply is turned on and attempting to provide output. The on bit is cleared to indicate the power supply is turned off and is not attempting to provide output. The presence of certain errors and warnings may cause the power supply to be turned off in a vendor specific manner."

Alternative solutions, including an expansion of the definition of the "not available" status code are also possible, but less desirable.

Clause 7.2.16

The values of the language codes should be referenced or specified.

Clause 7.2.18

The voltage sensor does not provide for distinguishing warning and critical threshold violations. Two bits should be added to distinguish these. Byte 1 would then contain:

Byte 1, bit 0	Critical Undervoltage
Byte 1, bit 1	Critical Overvoltage
Byte 1, bit 2	Warning Undervoltage
Byte 1, bit 3	Warning Overvoltage

The text would then indicate:

"Warning overvoltage: The warning overvoltage bit is set to indicate that a warning overvoltage threshold value has been exceeded. The bit is cleared when the overvoltage condition is corrected.

Warning undervoltage: The warning undervoltage bit is set to indicate that a warning undervoltage threshold value has been exceeded. The bit is cleared when the undervoltage condition is corrected.

Critical overvoltage: The critical overvoltage bit is set to indicate that a critical overvoltage threshold value has been exceeded. The bit is cleared when the overvoltage condition is corrected.

Critical undervoltage: The critical undervoltage bit is set to indicate that a critical undervoltage threshold value has been exceeded. The bit is cleared when the undervoltage condition is corrected."

Clause 7.2.18

The description of the 2's complement arithmetic function is not rigorous. The sign bit should be removed from byte 2, bit 7. The text should be modified to read:

"Voltage value: the voltage value indicates the voltage detected by the voltage sensor, measured in units of 10 millivolts. AC voltages are measured in Volts AC, RMS. The value is expressed as a 16-bit number using 2's complement notation to indicate negative numbers. The largest positive voltage that can be expressed is 327.67 volts and the largest negative voltage that can be expressed is -327.67 volts."

Clause 7.2.19

The current sensor does not provide for distinguishing warning and critical threshold violations. Two bits should be added to distinguish these. Byte 1 would then contain:

Byte 1, bit 1	Critical Overcurrent
Byte 1, bit 3	Warning Overcurrent

The text would then indicate:

"Warning overcurrent: The warning overcurrent bit is set to indicate that a warning overcurrent threshold value has been exceeded. The bit is cleared when the overcurrent condition is corrected.

Critical overcurrent: The critical overcurrent bit is set to indicate that a critical overcurrent threshold value has been exceeded. The bit is cleared when the overcurrent condition is corrected.

Clause 7.2.19

The description of the 2's complement arithmetic function is not rigorous. The sign bit should be removed from byte 2, bit 7. The text should be modified to read:

"Current value: the current value indicates the current detected by the current sensor, measured in units of 10 milliamps. AC currents are measured in amps AC, RMS. The value is expressed as a 16-bit number using 2's complement notation to indicate negative numbers. The largest positive current that can be expressed is 327.67 amps and the largest negative current that can be expressed is -327.67 amps."

Editorial comments

Table of Contents, Tables

Several table titles are excessively long and should be shortened as follows:

Table 12:

is

Format for overall threshold field and the element threshold field

s/b

Format for overall threshold and element threshold field

Table 14

is

Format for threshold overall threshold and element threshold fields

s/b

Format for overall threshold and element threshold field

Table 45

is

Enclosure services controller electronics element for enclosure status pages

s/b

ES controller electronics element for enclosure status pages

Page xii

The extraneous word "page" should be removed from this page.

Foreword

The approval process has begun in 1996. The text "199n" s/b "1996".

Introduction

Clause 8 introduction should be removed because of the reformatting of Clause 2.

Introduction

Clause 2 introduction should be modified, deleting the word "normative".

Introduction

Clause 3 introduction should be rewritten to include other conventions in the following manner:

"Clause 3 describes the definitions, symbols, abbreviations, and other conventions used in this standard."

Introduction

The terminology of the functions described in Annex A has been corrected. As a result, the Annex A introduction should be modified in the following manner:

"Annex A is a normative annex that defines an alternate mechanism for accessing enclosure services for sub-enclosures."

Clause 2 Normative references

ANSI has provided new standard text for normative references. The clause should be reformatted and modified to match the ANSI recommendation. Clause 8 is deleted and its contents included as part of clause 2 as part of this modification.

Clause 3.1

The definitions specified here should be removed and any not included in the document should be removed.

Clause 3.1.7

The grammar in this clause should be improved to read:

"enclosure: The box, rack, or set of boxes providing the powering, cooling, mechanical protection, and external electronic interfaces for one or more SCSI devices."

Clause 3.1.15

The grammar in this clause should be improved to read:

"Informational Condition: An enclosure condition that should be presented to the application client. The condition is not an error or an abnormal condition and does not reduce the availability of the devices in the enclosure."

Clause 4.1.1

A diagram of this type of enclosure services access would be helpful to many people.

Clause 4.1.2

A diagram of this type of enclosure services access would be helpful to many people.

Clause 4.1.3

The grammar in the last sentence of this clause should be improved to read:

"The actual state is a vendor specific combination of the indications set by the instructions from application clients and the indications established by the enclosure services process."

Clause 4.1.5

The grammar in the second from the last sentence in this clause should be improved to read:

"The InvOP (Invalid Operation) bit (see clause 6.1.3) shall be returned in the next enclosure status page or array status page. The initiator receiving the InvOp bit may not be the same initiator that requested the invalid operation."

Clause 6.1.1, Table 4

The footnotes to the table should be clarified to read:

- "a. The value of Number of sub-enclosures shall be 0. See Annex A for other uses of this field.
- b. the value of Sub-enclosure identifier shall be 0. See Annex A for other uses of this field."

Clause 6.1.7

The first sentence of the second paragraph references the incorrect page.

"threshold out" s/b "threshold in"

Clause 6.1.12

The first sentence of the last paragraph should be corrected:

"of an control type page" s/b "of a control type page"

Clause 7.2.4

Remove typographic error: "1 = inidcates...shut down."

Clause 7.2.8

Set remind should also be mutable. The following sentence should be added to the clause defining set remind.

"When the set mute bit is set, the reminding tone is also muted."

Clause 7.2.8

The tone urgency control should be clarified with respect to its behavior when set mute or set remind is set. The following text is added to the second paragraph of the tone urgency control clause:

"... or by the enclosure. The tone control bits set by the enclosure are not reset by the set mute or set remind bits, although the tone emitted by the alarm is modified by the bits."

Clause 7.2.8

The tone urgency indicator should be clarified with respect to its behavior when muted or remind is set. The following text is replaces the second paragraph of the tone urgency indicator clause:

"If all bits are cleared or if the muted bit is set, the audible alarm is silent. If the remind bit is set, the audible alarm tone is modified to the remind tone."

Clause 7.2.9

Enclosure Services controller electronics element should be abbreviated where appropriate as ES controller electronics element.

Clause 7.2.12

Correct missing right parentheses in the BPF clause.

Clause A.3

The following clarifications and typographical corrections should be applied to table A.2

- a) In the field name, row 16, the text "(in sub-enclosure)" should be removed.
- b) In the component name column, row 3, the text "sub-" should be removed.
- c) In the component name column, row 4, the word "enclosure" should be changed to "sub-enclosure".
- d) The sub-enclosure descriptor header and the sub-enclosure descriptor should be duplicated and one labeled as first, the second as last.

Clause A.3

In the Enclosure logical identifier (sub-enclosure) clause, the second sentence text "enclosure logical identifier" should be in small caps.

Symbios Logic Comments on forwarding SES to 1PR:

#1 (T) General

How does this standard handle (detect) the sending of a control page that does not match the current configuration page? N.B. this is an issue for serial protocols because the delivery of a control page to the device server can be in transit concurrently with the delivery of a unit attention condition to the application client. It may be necessary to require the sender of a control page to include the GENERATION CODE in the control page header fields. The enclosure services process would then validate the GENERATION CODE before processing the control page.

#2 (T) General

There are many many non-normative statements throughout the standard. For example, "The NUMBER OF POSSIBLE ELEMENTS field indicates the number of elements ..." In order to be normative the statement should read, "The NUMBER OF POSSIBLE ELEMENTS field shall contain the number of elements ..." Some of the comments that follow request changes where the lack of properly phrased requirements is particularly egregious. However, since the lack of normative requirements may be intentional, no attempt has been made to rigorously identify and correct requirement phraseology.

#3 (E) General

Throughout the document, the words "present", "presents", and "presentation" appear to be used to avoid clearly defining the required actions or operations. Furthermore, these words appear to be used in ways that exceed their common English meaning and in ways that are not technically consistent from one usage to the next. I conclude that the SES usage of these words lacks a workable definition. All occurrences of these words should be replaced with clearly described action or operational requirements. Alternatively, a definition of "present" sufficient to give a solid, consistent meaning to all usages of these words should be added to the glossary.

#4 (E) General

Throughout the document references to other document clauses do not conform to ANSI requirements. The word "clause" shall not appear in a reference to another clause, unless the referenced clause number does not contain a period. The following clause references are correct, "see clause 3" and "see 6.1.1". The following clause references are incorrect, "see clause 6.2" and "can be found in clause 6.1.1".

#5 (E) pg: xiii, para: 2

pg: xiii, para: 8

"Task Group X3T10" should be "Technical Committee X3T10"

#6 (T) pg: 1, clause: 2, SPC reference

The SPC reference needs to be restructured to conform to the new ANSI procedure for referencing draft documents, see X3T10/96-199. Or, if we are lucky, SPC will get a BSR number before the next SES draft is prepared.

#7 (T) pg: 2 & 3, clause: 3.1

Based on the existing definitions in 3.1, definitions for the following terms must be added to the glossary: element, application client, abnormal condition, available (and maybe availability), device service request, and operational redundancy.

#8 (E) pg: 2, clause: 3.1.8

Change "... maintenance of the enclosed devices." to "... maintenance of devices within an enclosure." This avoids having to define "enclosed devices."

#9 (T) pg: 2, clause: 3.1.10

Regarding the definition of enclosure services process, to whit: "The object that manages and implements the enclosure services and the device server for the enclosure services device." Is the enclosure services process the same thing as the enclosure services device server, i.e., can the second "and" be replaced with "a.k.a."

without changing the meaning of the definition? It also is worth noting that the relationship between the enclosure services process and the enclosure device server is somewhat complex. In the instance where enclosure services are embedded in the device server for some other device type, the enclosure services process would exist but the enclosure device server would not. Recommend describing the relationship between the enclosure services process and the device server in a separate sentence.

#10 (E) pg: 3, clause: 3.1.16

Change "... by a target SCSI device." to "... by device servers." This change places all terminology in the definition on the same functional level.

#11 (E) pg: 3, clause: 3.1.20

Change "... extra elements ..." to "... duplicate elements ..." or to "... duplicated elements ..." "Extra" does not suggest any functional relationship between elements, but functional similarity is important to redundancy.

#12 (E) pg: 3, clause: 3.1.23

Make "vendor specific" a keyword, not a definition.

#13 (E) pg: 3, clause: 3.2.1, acronym Rsvd

Do not capitalize "reserved".

#14 (T) pg: 4, clause: 3.3.7

Change the last sentence to: "Receipt of reserved code values in defined fields shall be treated as an error or in accordance with future extensions to this or other standards."

#15 (T) pg: 5, clause: 4.1, para: 1

Regarding the sentence: "Many of the individual components of an enclosure may be removable and replaceable while the unit is continuing to operate." What is the meaning of "unit" in this sentence? Can "unit" be replaced with "enclosure"? If not, add a definition of "unit" to the glossary.

#16 (E) pg: 5, clause: 4.1, para: 1

Regarding the sentence: "Many of the individual components of an enclosure may be removable and replaceable while the unit is continuing to operate." Change "... is continuing to operate." to "... continues to operate."

#17 (E) pg: 5, clause: 4.1.1, para: 1

Change "... outbound pages ..." to "... outbound diagnostic pages ..." also change "... inbound pages ..." to "... inbound diagnostic pages ..." also change "The pages and page formats ..." to "The diagnostic pages and page formats ...". These changes are necessary to distinguish diagnostic pages from mode pages.

#18 (T) pg: 5, clause: 4.1.2, para: 1

Change "Such peripheral devices have a port that communicates with the enclosure services process." to "Such peripheral devices have a vendor specific communications connection to the enclosure services process."

#19 (E) pg: 5, clause: 4.1.2, para: 1

Change "The actual enclosure services device is not visible as a SCSI device, but ..." to "The actual enclosure services device is not visible as a SCSI device or logical unit, but ...".

#20 (E) pg: 5, clause: 4.1.2, para: 1

Change "Those devices shall use the same SEND DIAGNOSTIC ..." to "Such devices shall use the same SEND DIAGNOSTIC ...". "Those" can be synonymous with "those other" to some readers.

#21 (T) pg: 5, clause: 4.1.2, para: 1

Change "SCSI devices use the EncServ (Enclosure Services) bit in the INQUIRY command (see SPC) ..." to "SCSI device servers set the EncServ (Enclosure Services) bit in the standard INQUIRY data (see SPC) ...". First, device servers process commands, not devices. Second, using a bit can mean nothing more than interpreting it, which is not true here. Third, the EncServ bit is in the standard INQUIRY data, not in the INQUIRY CDB.

#22 (T) pg: 5, clause: 4.1.2, para: 1

The EncServ bit should be set by any device type that supports the enclosure services usage of SEND DIAGNOSTIC and RECEIVE DIAGNOSTIC RESULTS, including devices that report the enclosure services device type.

#23 (T) pg: 5, clause: 4.1.2, para: 1

Change "If the SCSI device is not able to identify a port to the enclosure services process, an appropriate CHECK CONDITION is posted." to "If the SCSI device is not able to communicate with an enclosure services process, a CHECK CONDITION status is returned and the sense data is set appropriately."

#24 (T) pg: 5, clause: 4.1.2, para: 1

This clause should discuss support for the enclosure services management mode page by non-enclosure services devices. Is support for the enclosure services management mode page required, suggested, or discouraged?

#25 (T) pg: 6, clause: 4.1.3, para: 2nd on pg 6

Regarding, "Enclosure services processors may round the values ..." Does this refer to parameter rounding as practiced by SCSI devices in many other instances? If yes, then a reference to SPC is in order. If no, the differences from SCSI parameter rounding must be clearly stated somewhere in SES.

#26 (E) pg: 6, clause: 4.1.3, para: 3rd on pg 6

Regarding "The actual state is a vendor specific combination of the state indicators and instructions received from all application clients and the state indicators and functions performed by the enclosure services process." This sentence contains a list of four items separated by three occurrences of the word "and". However, the correct relationship of the four items is unclear. It is even possible that the list is really a two-level hierarchy. Perhaps, a bulleted list should be used.

#27 (T) pg: 6, clause: 4.1.5, para: 1

Add a definition for Command Descriptor Block to the glossary and the acronym CDB to 3.2.1.

#28 (T) pg: 6, clause: 4.1.5, para: 1

Change "... shall be detected by the enclosure services process." to "... shall be detected by the device server in an enclosure services device." Unless the wording is changed, the first sentence conflicts with the requirements set forth in the remainder of the paragraph.

#29 (T) pg: 6, clause: 4.1.5, para: 1

Change "... and the command shall be terminated with a CHECK CONDITION status." to "... and, if there is an error, the command shall be terminated with a CHECK CONDITION status."

#30 (T) pg: 6, clause: 4.1.5, para: 1

Change "... the additional sense code shall be set to INVALID FIELD IN PARAMETER LIST." to "... the additional sense code shall identify the location of the invalid fields, CDB or parameter data." The beginning of the paragraph requires that both CDB and parameter data be checked. It would be incorrect to set the additional sense code to INVALID FIELD IN PARAMETER LIST if the CDB were in error.

#31 (T) pg: 6, clause: 4.1.5, para: 2

Change "A non-enclosure services device does not ..." to "The device server in a non-enclosure services device does not ..." Also, change "Instead, the device shall pass ..." to "Instead, the device server shall pass ...". The device server processes CDBs, not the device.

#32 (E) pg: 6, clause: 4.1.5, para: 2

Replace the last two sentences in the paragraph with: "The enclosure services process shall indicate the recent receipt of invalid CDB or parameter data by setting the InvOp (Invalid Operation) bit in the next enclosure status page or array status page it returns. The page containing the set InvOp bit shall be returned on receipt of the next RECEIVE DIAGNOSTIC RESULTS command requesting an enclosure status page or array status page, without regard for the initiator that sent the command. No other indication of the invalid data shall be given."

#33 (E) pg: 7, clause: 5, table 1, note a

Change "... device identification page ..." to "... device identification vital product data page ...".

#34 (T) pg: 7, clause: 5, table 1, note a

Is the requirement to use the FC-PH identifier acceptable to devices that do not support FC-PH?

#35 (E) pg: 7, clause: 5, table 1, notes b & c

Change "... status presentation pages ..." to "... inbound diagnostic pages ..." and change "... control pages ..." to "... outbound diagnostic pages ...". The concept of inbound and outbound diagnostic pages already has been introduced in 4.1.1. Inbound and outbound can be used based on their normal English meanings. On the other hand, status and control pages are not introduced conceptually until at least 6.1.2 and the terms cannot be used based on their normal English meaning (glossary definitions would be required).

#36 (E) pg: 7, clause: 5, paragraph at bottom of page 7

This paragraph should name the clause(s) describing the mode page(s) supported by enclosure services devices.

#37 (E) pg: 9, clause: 6.1, para: 1

Change "This subclause ..." to "This clause ...".

#38 (T) pg: 9, clause: 6.1, para: 1

Change "... that are applicable to enclosure services devices." to "... that are applicable to enclosure services devices and other device types that provide communications access to an enclosure services process."

#39 (T) pg: 9, clause: 6.1, para: 1

Change "Each diagnostic page provides either management or status presentation functions required by the enclosure and the elements within the enclosure." to "Each diagnostic page provides either control (outbound) or status (inbound) data transmission to or from the enclosure process." The word "control" is more consistent with the nomenclature in SES than "management." This is a convenient place to relate "control" to "outbound" and "status" to "inbound". The last half of the rev 7 sentence overstates the range of diagnostic page function. The diagnostic pages provide data communication between the application client and enclosure services process. Beyond that, the interaction with the enclosure and its elements is the responsibility of the enclosure services process. This position is confirmed by SES itself. In several cases, SES states that the enclosure services process may ignore control data for a variety of reasons.

#40 (T) pg: 9, table 2

Would it be better to use "outbound" and "inbound" in the third column, instead of "control" and "status"?

#41 (E) pg: 9, table 2

Change the column header "Defining Subclause" to "Reference" (as used elsewhere in SES) or "Clause" (as is used in SPC).

#42 (T) pg: 9, table 2

Based on the statements made in 6.1.12 I don't see how any row in table 2 can have an M in the "Mandatory or Optional" column.

#43 (T) pg: 9, table 2

In the row described as "Reserved", change "08h-3Fh" to "09h-3Fh".

#44 (E) pg: 9, table 2

Add a definition of the "N/A" acronym to 3.2.1.

#45 (T) pg: 9, clause: 6.1, 1st paragraph after table 2

Regarding: "Check conditions are indicated when a diagnostic command is executed and fails, not when the list of supported pages is generated." First, the phrase "check conditions" has no meaning. SCSI has a condition where the CHECK CONDITION status is returned. But, nowhere in SCSI is the term "check conditions" defined or in anyway related to the returning of a CHECK CONDITION status. Second, non-enclosure services device types do not signal errors with a CHECK CONDITION status. The sentence referenced above cannot refer to non-enclosure services type devices. Third, it would appear that the enclosure status and/or array status pages must always be returned, so that the InvOp bit mechanism will work.

#46 (E) pg: 10, clause: 6.1.1, para: 1st on page 10

Change "... text that drivers may use ..." to "... text that applications clients may use ...". Alternatively, a definition of "drivers" may be added to the glossary.

#47 (E) pg: 11, table 4, notes a & b

Change "For this page, ..." to "As described in this clause, ...". The phrase "for this page" does not clearly bound the meaning of the notes.

#48 (E) pg: 12, clause: 6.1.1, para: 1st on page 12

Replace the entire description of NUMBER OF SUB-ENCLOSURES with: "Unless sub-enclosures are defined (see Annex A), the NUMBER OF SUB-ENCLOSURES field shall be 0."

#49 (T) pg: 12, clause: 6.1.1, para: 2nd on page 12

Change "... is incremented by one by the enclosure services device ..." to "... is incremented by one by the enclosure services process ..."

#50 (E) pg: 12, clause: 6.1.1, para: 2nd on page 12

Change "... is modified such that the configure page would have changed." to "... is modified such that the configure page changes."

#51 (T) pg: 12, clause: 6.1.1, para: 2nd on page 12

Change "Enclosures that do not change in configuration use a fixed value ..." to "Enclosures that do not change in configuration may use a fixed value ...". Surely there should be no absolute statement that a fixed value be used.

#52 (E) pg: 12, clause: 6.1.1, para: 2nd on page 12

Change "... Unit Attention ..." to "... unit attention ...". Add a definition for "unit attention condition" to the glossary.

#53 (T) pg: 12, clause: 6.1.1, para: 2nd on page 12

Regarding "A unit attention condition shall be established ...". What is the additional sense code associated with the unit attention condition? Also, are non-enclosure services device types required to establish the unit attention condition?

#54 (E) pg: 12, clause: 6.1.1, para: 2nd on page 12

The phrase "... occurs for any command except ..." is not at all specific regarding the time at which the requirements described in the remainder of the sentence shall take effect. An example of the needed time specificity would be "... occurs during the execution of any command except ...".

#55 (E) pg: 12, clause: 6.1.1, para: 3rd on page 12

Replace the entire description of SUB-ENCLOSURES IDENTIFIER with: "Unless sub-enclosures are defined (see Annex A), the SUB-ENCLOSURES IDENTIFIER field shall be 0."

#56 (E) pg: 12, clause: 6.1.1, para: 5th on page 12

Change "... number of bytes that follow the enclosure descriptor header." to "... number of bytes contained in the enclosure descriptor."

#57 (T) pg: 12, clause: 6.1.1, para: 5th on page 12

Change "... having allowed values between 0 and 252." to "... having allowed values between 16 and 252." Clearly, the minimum length of an enclosure descriptor is 16 bytes; ENCLOSURE LOGICAL IDENTIFIER plus ENCLOSURE VENDOR IDENTIFICATION plus PRODUCT IDENTIFICATION plus PRODUCT REVISION LEVEL (4 bytes each).

#58 (T) pg: 12, clause: 6.1.1, para: 6th on page 12

Regarding "... shall use the world wide name format defined by FC-PH." See comment #34.

#59 (E) pg: 12, clause: 6.1.1, para: 11th on page 12

Move the last sentence in the paragraph to between the first and second sentences in the paragraph.

#60 (T) pg: 12, clause: 6.1.1, para: 11th on page 12

Regarding: "The elements of an enclosure are listed in the same order in the configuration page, the type descriptor text of the configuration page, the status page, and the control page." First, shouldn't this be a "shall". Second, there are at least 2 status pages and 2 control pages. To which status page and control page does this statement refer? Third, are any requirements to be placed on the listing order in threshold pages?

#61 (E) pg: 12, clause: 6.1.1, para: 11th on page 12

Change "... shall be specified before ..." to "... shall be listed before ...".

#62 (E) pg: 12, clause: 6.1.1, para: 11th on page 12

Change "... may be listed in any order by the configuration page." to "... may be listed in any order in the configuration page."

#63 (E) pg: 12, clause: 6.1.1, para: 12th on page 12

Change "... device driver ..." to "... application client ...". Alternatively, a definition for "device driver" may be added to the glossary.

#64 (E) pg: 12, clause: 6.1.1, para: 12th on page 12

Change "... TYPE DESCRIPTOR TEXT items are placed ..." to "... TYPE DESCRIPTOR TEXT items shall be placed ...".

#65 (E) pg: 12, clause: 6.1.1, para: 12th on page 12

Change "... items of 0 length are omitted." to "... items of 0 length shall be omitted."

#66 (E) pg: 13, clause: 6.1.1, para: 2nd on page 13

Add "(see 7.2.16)" after "... specified by the language element."

#67 (E) pg: 13, clause: 6.1.1, para: 1st after table 5

Change "... described in that particular header." to "... described in a particular header." The word "that" suggests "that one over there."

#68 (E) pg: 13, clause: 6.1.1, para: 2nd after table 5

Change "... may exist for a particular element type." to "... may contain a given element type value."

#69 (E) pg: 13, clause: 6.1.1, para: 2nd after table 5

Change "... for each of the power supply types since they may have separate text descriptions." to "... for each of the +12 volt and +5 volt power supply types." First, the reader should not be expected to infer that +12 volt power supplies and +5 volt power supplies are different types of power supply. Second, the clarity of the standard is not enhanced by offering an explanation of why more than one type descriptor header may contain a given element type value. Such a condition simply is possible. Let the product designers develop their own understandings of why.

#70 (E) pg: 13, clause: 6.1.1, para: 3rd after table 5

Change "... the number of elements of that type ..." to "... the number of elements of the named type ...". The word "that" suggests "that one over there."

#71 (E) pg: 13, clause: 6.1.1, para: 3rd after table 5

Replace "... indicating that type fields may be used in other pages, but that no element fields are defined." with "... indicating that only the OVERALL CONTROL, OVERALL STATUS, or OVERALL THRESHOLD field is present in the applicable control, status, or threshold page, but that individual ELEMENT CONTROL, ELEMENT STATUS, or ELEMENT THRESHOLD fields are absent (see 6.1.2, 6.1.3, 6.1.7, 6.1.8, 6.1.9, and 6.1.10)."

#72 (E) pg: 13, clause: 6.1.1, para: 3rd after table 5

Change "... is 255" to "... shall be 255."

#73 (E) pg: 13, clause: 6.1.1, para: 4th after table 5

Change "... normative Annex A." to "... Annex A."

#74 (E) pg: 13, clause: 6.1.1, para: 5th after table 5

Change "... for the particular element." to "... for the named element."

#75 (E) pg: 13, clause: 6.1.1, para: 5th after table 5

Change "Any standard type may ..." to "Any type descriptor header containing an ELEMENT TYPE value between 00h and 7Fh may ...". Alternatively, a definition for "standard type" may be added to the glossary.

#76 (E) pg: 12, clause: 6.1.1, para: 5th after table 5

Change "... device driver ..." to "... application client ...". Alternatively, a definition for "device driver" may be added to the glossary.

#77 (E) pg: 13, clause: 6.1.2, para: 1

Change "... the same type defined by ..." to "... the same type as defined by ...".

#78 (E) pg: 13, clause: 6.1.2, para: 1

Change "The information allows ..." to "The data allows ...".

#79 (E) pg: 13, clause: 6.1.2, para: 1

Change "... control many standard functions ..." to "... control many functions ...". Alternatively, a definition for "standard function" may be added to the glossary.

#80 (T) pg: 14, clause: 6.1.2, para: 1st on page 14

Change "The relationship shall be fixed for each enclosure configuration." to "The relationship shall not change unless the GENERATION CODE is incremented (see 6.1.2)."

#81 (E) pg: 14, clause: 6.1.2, para: 2nd on page 14

Change "... RECEIVE DIAGNOSTIC RESULTS PAGE CODE 2 ..." to "... RECEIVE DIAGNOSTIC RESULTS command using PAGE CODE 02h ...".

#82 (E) pg: 14, clause: 6.1.2, para: 1st after table 6

Regarding "... detected an unusual condition in the enclosure." Add a definition of "unusual condition" in the glossary.

#83 (T) pg: 14, clause: 6.1.2, para: 2nd after table 6

Regarding "The INFO bit shall be cleared for each initiator when the initiator requests enclosure status or array status." This statement appears to belong in 6.1.3, not in 6.1.2.

#84 (T) pg: 14, clause: 6.1.2, para: 2nd after table 6

Regarding "A copy of the bit shall be maintained for presentation to each initiator known to the enclosure services process." This statement may imply a greater level of initiator knowledge than will be present in all cases. When the enclosure services process is attached to a non-enclosure device server, it would appear that the number of initiators known to the enclosure probably will be one, regardless of the number of initiators that are actually active. If the enclosure services process cannot generate CHECK CONDITION status to report errors, there is every reason to believe that the enclosure services process cannot recognize different initiators.

#85 (E) pg: 14, clause: 6.1.2, para: 3rd after table 6

In the last line of the paragraph, NON-CRIT has all letters of equal height. In all other instances on page 14, NON-CRIT has the first letter taller than the remaining letters.

#86 (E) pg: 15, clause: 6.1.2, para: 1st on page 15

In the last line of the paragraph, CRIT has all letters of equal height. In all other instances on page 14 and 15, CRIT has the first letter taller than the remaining letters.

#87 (E) pg: 15, clause: 6.1.2, para: 2nd on page 15

In the last line of the paragraph, UN-RECOV has all letters of equal height. In all other instances on page 14 and 15, UN-RECOV has the first letter taller than the remaining letters.

#88 (E) pg: 15, clause: 6.1.2, para: 1st on page 15

Change "... may be applied to either ..." to "... may be applied using either ...".

#89 (E) pg: 15, clause: 6.1.3, para: 1

Regarding "... defined by each type descriptor header." "Type descriptor header" should be in small caps.

#90 (E) pg: 15, clause: 6.1.3, para: 1

Change "... status about many standard functions ..." to "... status about many functions ...". Alternatively, a definition for "standard function" may be added to the glossary.

#91 (E) pg: 15, clause: 6.1.3, para: 2

Regarding "... described by a type descriptor header." "Type descriptor header" should be in small caps.

#92 (E) pg: 15, clause: 6.1.3, para: 2

Change "... by the element count value of the configuration page." to "... by the NUMBER OF POSSIBLE ELEMENTS field in the configuration page."

#93 (E) pg: 15, clause: 6.1.3, para: 2

Change "The relationship shall be fixed for each enclosure configuration." to "The relationship shall not change unless the GENERATION CODE is incremented."

#94 (E) pg: 16, clause: 6.1.3, para: 1st after table 7

Change "... may be recovered ..." to "... may be read ...".

#95 (E) pg: 16, clause: 6.1.3, para: 1st after table 7

Change "... length ** 2 ..." where ** is a greater than or equal to sign, to "... length greater than 1 ...".

#96 (T) pg: 16, clause: 6.1.3, para: 1st after table 7

Change "... enclosure services device server ..." to "... enclosure services process ...". In a non-enclosure device type, there will be no enclosure services device server.

#97 (E) pg: 16, clause: 6.1.3, para: 2nd after table 7

Change "... status page or array status page requested by ..." to "... status page or array status page read by ...".

#98 (T) pg: 16, clause: 6.1.3, para: 2nd after table 7

Regarding "The INVOP bit shall be set one time in the first enclosure status page or array status page requested by the same application client that transmitted the invalid control page." First, this requirement contradicts the description of the INVOP bit in 4.1.5 (page 6). As noted in comment #84, there is a real possibility that an enclosure services process connected to a non-enclosure services device server may be unable to differentiate between initiators sending commands. Clause 4.1.5 recognizes this limitation, but this requirement does not. Furthermore, it is a well understood SCSI limitation that device servers cannot distinguish between two different application clients running on the same initiator. For all these reasons, this requirement must be relaxed.

#99 (E) pg: 16, clause: 6.1.3, para: 2nd after table 7

Change "... the INVOP bit shall remain cleared." to "... the INVOP bit shall not be set." There is no reason for the requirement to speculate on the existing state of the INVOP bit.

#100 (E) pg: 16, clause: 6.1.3, para: 3rd after table 7

Change "... information conditions ..." to "... information conditions (see 3.1.15) ...".

#101 (T) pg: 16, clause: 6.1.3, para: 3rd after table 7

Regarding "... since the last time an enclosure status page or array status page was sent to that initiator." See comment #84.

#102 (E) pg: 16, clause: 6.1.3, para: 3rd after table 7

Change "... shall be set as an indication ..." to "... shall be set once as an indication ...".

#103 (E) pg: 17, clause: 6.1.3, para: 1st in OVERALL STATUS definition

Change "... for each type descriptor in the configuration page." to "... for each TYPE DESCRIPTOR HEADER in the configuration page (see table 4)." Note, this change makes the paragraph read similarly to the equivalent paragraph in the OVERALL CONTROL field description.

#104 (T) pg: 17, clause: 6.1.3, para: 1st in ELEMENT STATUS definition

Change "The number of ELEMENT STATUS fields is the same as ..." to "The number of ELEMENT STATUS fields shall be equal to ...".

#105 (E) pg: 17, clause: 6.1.3, para: 1st in ELEMENT STATUS definition

Change "... corresponding type descriptor header in ..." to "... corresponding TYPE DESCRIPTOR HEADER in ...".

#106 (E) pg: 17, clause: 6.1.3, para: 1st in ELEMENT STATUS definition

Delete the sentence "Each standard element type has a fixed format for its status." Alternatively, a definition of "standard element type" may be added to the glossary. However, adding the definition would still fail to answer the question, "Don't vendor specific element types also have fixed (unchanging) formats for their status?"

#107 (E) pg: 17, clause: 6.1.3, para: 2nd in ELEMENT STATUS definition

Delete this one sentence paragraph in its entirety. Instead, add the following sentence to the end of the preceding paragraph: "The general format for an ELEMENT STATUS field is defined by table 24 and clause 7.2."

#108 (E) pg: 17, clause: 6.1.4, para: 1

Change "... help text page transmits a string of characters from the enclosure that describes ..." to "... help text page contains a string of characters that describes ...". The movement of the help text from the enclosure services processor to the application is a transmission of data. However, the help text page contains data.

#109 (E) pg: 17, clause: 6.1.4, para: 1

Regarding "The help text page has the standard enclosure services diagnostic page header." SES contains no definition of a "standard enclosure services diagnostic page header. Since table 8 fully defines the contents of a help text page, the simplest way to resolve the lack of a definition required by this sentence would be to delete the sentence.

#110 (E) pg: 17, clause: 6.1.4, para: 1

Change "... enclosure independent drivers ..." to "... enclosure independent application clients ...". Alternatively, a definition of "drivers" may be added to the glossary.

#111 (E) pg: 17, clause: 6.1.4, para: 1

Change "... defined by the language element." to "... defined by the language element (see 7.2.16)."

#112 (T) pg: 18, clause: 6.1.4, table 8

pg: 19, clause: 6.1.6, table 10

pg: 22, clause: 6.1.8, table 13

Change "Reserved" in byte 1 to "NUMBER OF SUB-ENCLOSURES (see Annex A)".

#113 (E) pg: 18, clause: 6.1.4, para: 1st after table 8

Change "... specified by the language element." to "... specified by the language element (see 7.2.16)."

#114 (E) pg: 18, clause: 6.1.5, para: 1

Change "... from the application client to the enclosure." to "... from the application client to the enclosure services process."

#115 (E) pg: 18, clause: 6.1.5, para: 1

Change "The format is not specified in this standard." to "The format of the string is vendor specific."

#116 (E) pg: 18, clause: 6.1.5, para: 1

Add the following at the end of the paragraph: "The request for a page using the RECEIVE DIAGNOSTIC RESULTS command with PAGE CODE 04h is defined as the request for a string in page."

#117 (T) pg: 18, clause: 6.1.5, table 9

pg: 20, clause: 6.1.7, table 11

Change "Reserved" in byte 1 to "SUB-ENCLOSURE ID (see Annex A)".

#118 (E) pg: 19, clause: 6.1.6, para: 1

Change "... from enclosure to the application client." to "... from enclosure services process to the application client."

#119 (E) pg: 19, clause: 6.1.6, para: 1

Change "The format is not specified by this standard." to "The format of the string is vendor specific."

#120 (E) pg: 19, clause: 6.1.6, para: 1

Add the following at the end of the paragraph: "The transmission of a page using the SEND DIAGNOSTIC command with PAGE CODE 04h is defined as the transmission of a string out page."

#121 (E) pg: 19, clause: 6.1.7, para: 1

Change "... enclosure services processor ..." to "... enclosure services process ...".

#122 (E) pg: 19, clause: 6.1.7, para: 1

Add the following at the end of the paragraph: "The request for a page using the RECEIVE DIAGNOSTIC RESULTS command with PAGE CODE 05h is defined as the request for a threshold in page."

#123 (T) pg: 20, clause: 6.1.7, para: 1st after table 11

Replace the entire paragraph with: "OVERALL THRESHOLD: The OVERALL THRESHOLD field for each element type has the same format as the corresponding ELEMENT THRESHOLD field. There is exactly one OVERALL THRESHOLD field for each TYPE DESCRIPTOR HEADER in the configuration page (see table 4). The OVERALL THRESHOLD field provides threshold control for all elements described in the ELEMENT THRESHOLD fields. Threshold values may be applied using either the OVERALL THRESHOLD field or the ELEMENT THRESHOLD field. Except as required by the enclosure services processor, requests in the ELEMENT THRESHOLD field should override requests in the OVERALL THRESHOLD field." [[N.B. this text is cloned with minor modifications from the description of the OVERALL CONTROL field on page 15.]]

#124 (T) pg: 20, clause: 6.1.7, para: 2nd after table 11

Replace the entire paragraph with : "Following the OVERALL THRESHOLD field, there shall be one ELEMENT THRESHOLD field for each of the possible elements identified by the NUMBER OF POSSIBLE ELEMENTS field in the corresponding TYPE DESCRIPTOR HEADER. The ELEMENT THRESHOLD field shall contain threshold information for the element. [[N.B. this text is cloned and modified from the description of the element control field on page 15.]]

#125 (E) pg: 21, clause: 6.1.7, para: 5th after table 12

Change "The threshold fields are advisory." to "All threshold fields are advisory."

#126 (E) pg: 21, clause: 6.1.7, para: 5th after table 12

Change "... thresholds, round the specified ..." to "... thresholds, may round the specified ...". This keeps a consistent sentence flow, notice the "... value, or may ignore ..." later in the sentence.

#127 (T) pg: 21, clause: 6.1.7, para: 5th after table 12

Regarding: "... may round the specified thresholds to more appropriate values ...". See comment #25.

#128 (T) pg: 21, clause: 6.1.7, para: 5th after table 12

Regarding: "A threshold field with all four thresholds having a value of zero shall be ignored for that element. This allows individual fields to be modified without the requirement for setting all other fields at the same time." First, "... threshold field ..." should be replaced with "... OVERALL THRESHOLD field or ELEMENT THRESHOLD field ...". The term "threshold field" might be confused with the HIGH CRITICAL THRESHOLD field. Second, and more importantly, the second sentence does not follow from the first, as is implied by the phrase "This allows". In order to make the second sentence follow from the first, the first sentence would have to say something like: "Any zero value in a field in an OVERALL THRESHOLD field or ELEMENT THRESHOLD field shall be ignored." These two sentences need a careful rewrite.

#129 (T) pg: 21, clause: 6.1.7, para: 6th after table 12

pg: 23, clause: 6.1.8, para: 7th after table 14

Regarding: "Each 8-bit threshold value shall have the definition specified by the text describing the corresponding element field." What text? Text in the configuration page? Text in this standard? Text in the vendor product documentation? All of the above? This requirement is much too vague to stand as a valid

requirement. If the intent is text in this standard, then several additional comments apply. First, X3T10 has a practice of not stating requirements on standards wording using the word "shall." Second, the SES draft fails to honor the spirit of this requirement by inconsistently describing the threshold value meanings in various obscure places; some in table 22, some at the end of a paragraph in 7.2.6, some in clearly identified paragraphs in 7.2.18 and 7.2.19. A consistent, easily recognizable presentation format must be adopted and used for all instances of threshold field value descriptions. Personally, I prefer the style used in 7.2.18 and 7.2.19.

#130 (E) pg: 21, clause: 6.1.7, para: 7th after table 12

Change "... increases to the high critical threshold or falls below the low critical threshold ..." to "... increases to the HIGH CRITICAL THRESHOLD field value or falls below the LOW CRITICAL THRESHOLD field value ..."

#131 (T) pg: 21, clause: 6.1.7, para: 7th after table 12

pg: 21, clause: 6.1.7, para: 8th after table 12

Regarding: "For those commands that use CHECK CONDITION to indicate enclosure failures ...". First, change "... CHECK CONDITION ..." to "... CHECK CONDITION status ...". Second, to what commands is this statement referring? To the first command after the event? To enclosure services device types, which in effect, extends the model in 4.1.5 to processing thresholds? (N.B. 4.1.5 places no requirements on processing for conditions that occur when thresholds are exceeded.) This matter needs substantial clarification; certainly here and possibly in 4.1.5.

#132 (E) pg: 21, clause: 6.1.7, para: 8th after table 12

Change "... increases to the high warning threshold or falls below the low warning threshold ..." to "... increases to the HIGH WARNING THRESHOLD field value or falls below the LOW WARNING THRESHOLD field value ..."

#133 (E) pg: 22, clause: 6.1.8, para: 1st on page 22

Change "... enclosure services processor ..." to "... enclosure services process to the application client ...".

#134 (E) pg: 22, clause: 6.1.8, para: 1st on page 22

Add the following at the end of the paragraph: "The transmission of a page using the SEND DIAGNOSTIC command with PAGE CODE 05h is defined as the transmission of a threshold out page."

#135 (T) pg: 22, clause: 6.1.8, para: 1st after table 13

Replace the entire paragraph with: "OVERALL THRESHOLD: The OVERALL THRESHOLD field for each element type has the same format as the corresponding ELEMENT THRESHOLD field. There is exactly one OVERALL THRESHOLD field for each TYPE DESCRIPTOR HEADER in the configuration page (see table 4). The OVERALL THRESHOLD optionally contains a summary of the threshold values for all of the elements of that type. The OVERALL THRESHOLD also may be used to contain the threshold values for those elements whose individual threshold values are not available, but that do have threshold values."

#136 (T) pg: 22, clause: 6.1.8, para: 1st after table 13

Replace the entire paragraph with: "ELEMENT THRESHOLD: Zero or more ELEMENT THRESHOLD fields immediately follow the OVERALL THRESHOLD field for the element type. The number of ELEMENT THRESHOLD fields shall equal the value contained in NUMBER OF POSSIBLE ELEMENTS field in the corresponding TYPE DESCRIPTOR HEADER in the configuration page. Each element threshold field optionally contains the threshold values for the particular element."

#137 (E) pg: 23, clause: 6.1.8, para: 1st after table 14

pg: 23, clause: 6.1.8, para: 2nd after table 14

pg: 23, clause: 6.1.8, para: 3rd after table 14

pg: 23, clause: 6.1.8, para: 4th after table 14

Regarding: "... field indicates the current value at which ...". Only the current value? Not the voltage value or temperature value? Suggest deleting the word "current". Perhaps a synonym replacement could be found, but I can't think of one.

#138 (E) pg: 23, clause: 6.1.8, para: 5th after table 14

Delete this entire one-sentence paragraph. The information it contains is already stated in the previous four paragraphs.

#139 (E) pg: 23, clause: 6.1.8, para: 5th after table 14

Regarding: "The advisory values provided by the threshold out page may have been rounded or ignored by the enclosure processor in preparing the current values." This statement belongs in the description of the threshold out page (where fortunately it already appears). It does not belong in the description of the threshold in page.

#140 (E) pg: 23, clause: 6.1.9, para: 1

Change "... the enclosure control page's device elements and the array control page's device elements ..." to "... the enclosure control page's device elements (see 7.2.2) and the array control page's device elements (see 7.2.3) ...".

#141 (T) pg: 23, clause: 6.1.9, para: 1

Change "... the state of the element or device bay shall be expressed ..." to "... the state of the device element shall be expressed ...". Also, change "... of the two conditions." to "... of the two page settings."

#142 (E) pg: 24, clause: 6.1.9, para: 1st on page 24

pg: 25, clause: 6.1.10, para: 3

Regarding: "... that defines a device type element ...". Add a definition for "device type element" to the glossary.

#143 (E) pg: 24, clause: 6.1.9, para: 2nd on page 24

Change "Only device elements (see clause 7.2.3) ..." to "Only device elements ...". The clause reference was added to an earlier paragraph by comment #140.

#144 (E) pg: 24, clause: 6.1.9, para: 2nd on page 24

Regarding: "The device elements are in the same order as the device elements in the enclosure control pages." Statements made in the description of the configuration page appear to make this statement redundant. If this statement is not removed, two other questions must be asked. First, would it not be prudent to change "are" to "shall be"? Second, should not "pages" be "page"?

#145 (E) pg: 24, clause: 6.1.9, para: 3rd on page 24

Change "... RECEIVE DIAGNOSTIC RESULTS PAGE CODE 06h ..." to "... RECEIVE DIAGNOSTIC RESULTS using PAGE CODE 06h ...".

#146 (E) pg: 24, clause: 6.1.9, para: 2nd after table 15

Change "... may be applied to either the overall control ..." to "... may be applied using either the overall control ...".

#147 (E) pg: 25, clause: 6.1.10, para: 2

Change "... the enclosure status page's device elements and the array status page's device elements ..." to "... the enclosure status page's device elements (see 7.2.2) and the array status page's device elements (see 7.2.3) ...".

#148 (T) pg: 25, clause: 6.1.10, para: 2

Change "In those cases, the state of the device shall be expressed by the logical 'OR' of the two conditions." to "In those cases, the state of the device shall be reported similarly in both pages."

#149 (E) pg: 25, clause: 6.1.10, para: 4

Change "Only device elements (see clause 7.2.3) ..." to "Only device elements ...". The clause reference was added to an earlier paragraph by comment #147.

#150 (E) pg: 25, clause: 6.1.10, para: 4

Regarding: "The device elements are in the same order as the device elements in the enclosure status pages." Statements made in the description of the configuration page appear to make this statement redundant. If this statement is not removed, two other questions must be asked. First, would it not be prudent to change "are" to "shall be"? Second, should not "pages" be "page"?

#151 (E) pg: 25, clause: 6.1.10, para: 5

Change "The transmission of a page with PAGE CODE 06h ..." to "The transmission of a SEND DIAGNOSTIC command with PAGE CODE 06h ...".

#152 (E) pg: 26, clause: 6.1.11, para: 1

Add the following at the end of the paragraph. "The element descriptor page shall be read by the RECEIVE DIAGNOSTIC RESULTS command. If a SEND DIAGNOSTIC command is transmitted using a PAGE CODE of 07h, the command shall be terminated with CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to INVALID FIELD IN PARAMETER LIST."

#153 (T) pg: 28, clause: 6.1.12

Why report anything? There is nothing standard in the short enclosure status page except the page code.

#154 (T) pg: 28, clause: 6.1.12, para: 1

Regarding: "It shall not be an error to respond with a short status page when another enclosure services page has been requested by a RECEIVE DIAGNOSTIC RESULTS command (see SPC)." What information does SPC provide that justifies referring to it here? SPC requires that the page code in the CDB specify the format of the parameter data returned. So, the SES requirement could be viewed as conflicting with the SPC requirement, which is another reason for questioning the reference to SPC here. Recommend removal of "(see SPC)".

#155 (T) pg: 29, clause: 6.1.12, para: 1st on page 29

Regarding "Transmission of an control type page (...) to an enclosure processor that reports the short enclosure status page results in unpredictable behavior." First, change "an control page" to "a control page". Second, change "enclosure processor" to "enclosure services process". Most importantly, however, the behavior associated with a control page under these conditions is not unpredictable. The next two sentences predict the behavior in exact detail.

#156 (E) pg: 29, clause: 6.2.1, para: 1

Change "This subclause ..." to "This clause ...".

#157 (E) pg: 29, clause: 6.2.1, para: immediately before table 20

Delete the line that contains only a period.

#158 (E) pg: 29, clause: 6.2.1, table 20

Change "Defining Clause" to "Reference".

#159 (T) pg: 29, clause: 6.2.1, para: 2nd after table 20

Additional text should be added to describe how device types other than stream and enclosure handle or may handle the enclosure services management mode page. For example, how do block device types handle the enclosure services management mode page?

#160 (T) pg: 30, clause: 6.2.1, para: 2nd after table 21

Add the following at the end of the paragraph: "The PAGE CODE field shall have a value of 14h for the enclosure services management page." If SES is going to specify the value in the PAGE LENGTH field, then it can just as well specify the value in the page CODE FIELD.

#161 (E) pg: 30, clause: 6.2.1, para: 3rd after table 21

Change "... for enclosure services devices." to "... for the enclosure services management page."

#162 (T) pg: 30, clause: 6.2.1, para: 4th after table 21

The TD bit is not required. SES should employ the usual SCSI way to indicate that a mode page function is not implemented. If the time disconnect function is not implemented, then the device server should return ENBLTD equal to zero and report that the bit is not changeable.

#163 (T) pg: 30, clause: 6.2.1, para: 5th after table 21

Delete the sentence: "The application client uses the ENBLTD to enable or disable the used of the timed disconnect function by the device server." SCSI standards specify the actions when a bit is set or cleared. Typically, they do not include commentary on why the bit definition exists.

#164 (E) pg: 30, clause: 6.2.1, para: 6th after table 21

Place "maximum task completion time" in small caps, matching those in table 21. Correct this in two instances in the paragraph.

#165 (T) pg: 30, clause: 6.2.1, para: 6th after table 21

If ENBLTD is set and MAXIMUM TASK COMPLETION TIME is zero, what actions are required of the device server. N.B. without wording covering this condition, one would have to conclude that ENBLTD being set and MAXIMUM TASK COMPLETION TIME being zero is the same as ENBLTD being cleared. We assume that the intent is that zero specify an infinite maximum wait time.

#166 (E) pg: 30, clause: 6.2.1, para: 7th after table 21

Throughout the paragraph change "... device ..." to "... device server ...". There are four occurrences of "device" to be changed in the paragraph.

#167 (E) pg: 30, clause: 6.2.1, para: 7th after table 21

Change "... ENBLTD bit has been set, to enable timed disconnect, the device may ..." to "... ENBLTD bit has been set the device server may ...".

#168 (E) pg: 31, clause: 7, para: 1

Replace the first sentence with: "This clause contains the format definitions for the OVERALL CONTROL, ELEMENT CONTROL, OVERALL STATUS, ELEMENT STATUS, OVERALL THRESHOLD, and ELEMENT THRESHOLD fields. The field formats generally are different for different element types. Field format definitions common to all element types and specific to different element types are contained in this clause."

The existing first sentence is totally inadequate, unclear, or incorrect. The following are examples of problems with the existing first sentence. What is a "standard element type"? What does "environmental services" mean in the context of SES (glossary definition probably required)?

#169 (E) pg: 31, clause: 7, para: 1

Regarding: "Table 22 lists the element type codes and elements for the configuration page." While the element type code does appear in the configuration page, the element type does not.

#170 (T) pg: 31, clause: 7, para: 1

At the end of the paragraph, add wording that describes the contents and meaning of the "DISABLE bit" and "Threshold" columns in table 22.

#171 (E) pg: 31, clause: 7, Table 22

Be sure the usage of "N/A" in table 22 matches the acronym definition added as a result of comment #44.

#172 (E) pg: 31, clause: 7, Table 22

Change "voltage" to "%voltage" and change "current" to "%current".

#173 (T) pg: 32, clause: 7.1.1, para: 1st after table 23

Replace the first sentence with: "If the SELECT bit is set, the enclosure services process should perform the control functions defined by the other bits in the OVERALL CONTROL or ELEMENT CONTROL field. If the SELECT bit is cleared, the enclosure services process shall ignore all other bits in the OVERALL CONTROL or ELEMENT CONTROL field."

#174 (E) pg: 32, clause: 7.1.1, para: 3rd after table 23

Change "... is specific to the element." to "... is vendor specific."

#175 (T) pg: 32, clause: 7.1.1, para: 3rd after table 23

Regarding: "The individual element description indicates how the bit is interpreted for those elements that implement the function." It appears that table 22 contains the only descriptive information about the DISABLE bit. None of the clauses for which table 22 shows potential usage of the DISABLE bit contain any obvious discussion of the bit. Beyond these larger considerations, the sentence has several editorial problems. SES contains no "element descriptions" only descriptions of parameter data formats for various element types. "The function" is non-specific. Presumably, "implement the function" means "allow an element to be disabled."

#176 (T) pg: 32, clause: 7.1.1, para: 4th after table 23

Regarding: "The RST SWAP bit is cleared automatically when the SWAP status bit is cleared." The RST SWAP bit is a bit in parameter data setup by the application client and sent to the device server. This sentence seems to say that the device server reaches into the parameter data memory of the application client and clears the RST SWAP bit. It is impossible for the device server to perform such an action.

#177 (T) pg: 32, clause: 7.1.1, para: 4th after table 23

Change "If the RST SWAP bit is 0, there is no effect on the SWAP bit." to "If the RST SWAP bit is 0, the SWAP bit shall not be changed."

#178 (E) pg: 32, clause: 7.1.1, para: 5th after table 23

Change "... may cause the enclosure services process to present the INVOP bit." to "... may cause the enclosure services process to set the INVOP bit."

#179 (E) pg: 33, clause: 7.1.2, para: 1st on page 33

Change "The PRDFAIL bit, when clear, shall indicate ..." to "The PRDFAIL bit, when clear, indicates ...". Or, change "The PRDFAIL bit, when set, indicates ..." to "The PRDFAIL bit, when set, shall indicate ...".

#180 (E) pg: 33, clause: 7.1.2, para: 2nd on page 33

Change "... since the last time the RST SWAP control bit has been set." to "... since the last time the RST SWAP control bit was set in the corresponding control field."

#181 (E) pg: 33, clause: 7.1.2, para: 2nd on page 33

Change "The SWAP bit is cleared when the RST SWAP control bit has been set ..." to "The SWAP bit is cleared when the RST SWAP control bit is set ...".

#182 (E) pg: 33, clause: 7.1.2, para: 2nd on page 33

Change "... and elements properties ..." to "... and element's properties ...".

#183 (T) pg: 33, clause: 7.1.2, para: 1st on page 33

Add suitable text at the end of the paragraph to describe the meaning of STATUS CODE when it appears in an OVERALL STATUS field.

#184 (T) pg: 33, clause: 7.1.2, table 25

Add entries defining the usage for STATUS CODE values 08h through 0Fh. Are these values reserved, or vendor specific? Are some values reserved and others vendor specific?

#185 (E) pg: 33-55, clause: 7.2.1 through 7.2.22, every even numbered table between 26 and 70 (except table 36).

Add byte 0 to each table with the description "see table 23".

N.B. This change is believed to be critical to giving all readers the same interpretation of SES control field contents.

#186 (E) pg: 34-55, clause: 7.2.1 through 7.2.22, every odd numbered table between 27 and 71 (except tables 35 and 37) and table 36.

Add byte 0 to the table with the description "see table 24".

N.B. This change is believed to be critical to giving all readers the same interpretation of SES status field contents.

#187 (E) pg: 34, clause: 7.2.2, para: 1st after table 28

Change "... bit is set to one ..." to "... bit is set ...". The definition of set (see 3.3.8) makes "set to one" redundant.

#188 (T) pg: 34, clause: 7.2.2, para: 5th after table 28

Change "... the fault indication may be cleared ..." to "... the fault indication should be cleared ..."

#189 (T) pg: 34, clause: 7.2.2, para: 7th after table 28

pg: 35, clause: 7.2.2, para: 1st on page 35

pg: 37, clause: 7.2.3, para: 9th on page 37

pg: 37, clause: 7.2.3, para: 10th on page 37

Change "... the port bypass will be disabled and the device will be included ..." to "... the port bypass shall be disabled and the device shall be included ...".

#190 (E) pg: 35, clause: 7.2.2, para: 2nd after table 29
Change "... overall status ..." to "... OVERALL STATUS ...".

#191 (T) pg: 35, clause: 7.2.2, para: 3rd after table 29
pg: 38, clause: 7.2.3, para: 9th after table 31

Replace the last sentence with: "If the DO NOT REMOVE bit is set, it indicates that mechanical interlocks or visual signals are present and activated to indicate that a device should not be removed. If the DO NOT REMOVE bit is cleared, it indicates that mechanical interlocks or visual signals are not present or not activated, indicating that a device may be removed."

#192 (E) pg: 35, clause: 7.2.2, para: 4th after table 29
Change "... RQST INSERT bit ..." to "... RQST INSERT control bit ...".

#193 (E) pg: 35, clause: 7.2.2, para: 6th after table 29
pg: 39, clause: 7.2.3, para: 1st on page 39

Change "... control bit is cleared or if the bit is not implemented." to "... control bit is cleared or not implemented."

#194 (E) pg: 35, clause: 7.2.2, para: 7th after table 29

Change "... through this device." to "... through the device described by this ELEMENT STATUS field."

#195 (E) pg: 35, clause: 7.2.2, para: 9th after table 29

Change "... RQST FAULT bit ..." to "... RQST FAULT control bit ...". There are three occurrences of the text needing this change in the paragraph.

#196 (E) pg: 36, clause: 7.2.2, para: 1st on page 36

pg: 36, clause: 7.2.2, para: 2nd on page 36

pg: 39, clause: 7.2.3, para: 2nd on page 39

pg: 39, clause: 7.2.3, para: 3rd on page 39

Change "... by request of the application client or by request of the device or enclosure." to "... by request of the application client, the device, or the enclosure."

#197 (E) pg: 36, clause: 7.2.3, para: 1

Change "... use in an array." to "... use in a storage array."

#198 (E) pg: 36, clause: 7.2.3, para: 1st after table 30

pg: 36, clause: 7.2.3, para: 2nd after table 30

pg: 36, clause: 7.2.3, para: 3rd after table 30

pg: 37, clause: 7.2.3, para: 1st on page 37

pg: 37, clause: 7.2.3, para: 2nd on page 37

pg: 37, clause: 7.2.3, para: 3rd on page 37

pg: 37, clause: 7.2.3, para: 4th on page 37

pg: 37, clause: 7.2.3, para: 5th on page 37

pg: 37, clause: 7.2.3, para: 6th on page 37

pg: 38, clause: 7.2.3, para: 1st after table 31

pg: 38, clause: 7.2.3, para: 2nd after table 31

pg: 38, clause: 7.2.3, para: 3rd after table 31

pg: 38, clause: 7.2.3, para: 4th after table 31

pg: 38, clause: 7.2.3, para: 5th after table 31

pg: 38, clause: 7.2.3, para: 6th after table 31

pg: 38, clause: 7.2.3, para: 7th after table 31

pg: 38, clause: 7.2.3, para: 8th after table 31

pg: 38, clause: 7.2.3, para: 9th after table 31

Change "... bit is set to one ..." to "... bit is set ...". See comment #187.

#199 (T) pg: 39, clause: 7.2.4, para: 2nd after table 32

pg: 41, clause: 7.2.5, para: 2nd after table 34

RQST ON and RQST OFF bits should be defined, instead of just RQST ON.

#200 (E) pg: 40, clause: 7.2.4, para: 1st after table 33
 pg: 40, clause: 7.2.4, para: 2nd after table 33
 pg: 40, clause: 7.2.4, para: 3rd after table 33
 pg: 40, clause: 7.2.4, para: 4th after table 33
 pg: 40, clause: 7.2.4, para: 6th after table 33

Change "... RQST FAIL bit ..." to "... RQST FAIL control bit ...".

#201 (E) pg: 40, clause: 7.2.4, para: 5th after table 33

Change "... RQST ON bit ..." to "... RQST ON control bit ...". There are two occurrences of the text needing changes in this paragraph.

#202 (E) pg: 40, clause: 7.2.4, para: 8th after table 33

Regarding the text that starts with, "1=Indicates temperature ...". Either remove this text or restructure it to typical SCSI standards wording.

#203 (E) pg: 42, clause: 7.2.5, para: 1st on page 42

Change "... RQST FAIL bit ..." to "... RQST FAIL control bit ...".

#204 (E) pg: 42, clause: 7.2.5, para: 2nd on page 42

Change "... RQST ON bit ..." to "... RQST ON control bit ...". There are two occurrences of the text needing changes in this paragraph.

#205 (E) pg: 42, clause: 7.2.5, para: table 37

Make the whole title bold (like the other table titles).

#206 (E) pg: 43, clause: 7.2.6, para: 1st after table 39

Change "... Celsius, incremented by 20." to "... Celsius, offset by +20 degrees."

#207 (T) pg: 43, clause: 7.2.6, para: 1st after table 39

Regarding: "The range of the value expresses a temperature between -20 and +245 degrees Celsius." Shouldn't the range be -19 to +245 degrees Celsius? Clause 6.1.7 expressly reserves a zero value to mean no threshold in use.

#208 (E) pg: 43, clause: 7.2.6, para: 2nd after table 39

Change "... temperature falls below the safe operating limit or the HIGH CRITICAL THRESHOLD." to "... temperature falls to a safe operating value or below the HIGH CRITICAL THRESHOLD."

#209 (E) pg: 43, clause: 7.2.6, para: 4th after table 39

Change "... temperature rises above the safe operating limit or the LOW CRITICAL THRESHOLD." to "... temperature rises to a safe operating value or above the LOW CRITICAL THRESHOLD."

#210 (E) pg: 44, clause: 7.2.8, para: 1st after table 42

Change "... will be generated." to "... shall be generated."

#211 (E) pg: 44, clause: 7.2.8, para: 3rd and 4th after table 42

Bring the descriptive text on to the same line as "TONE URGENCY CONTROL", so that the field description has the same appearance as all other field descriptions in SES.

#212 (E) pg: 44, clause: 7.2.8, para: 4th after table 42

Change "... the most urgent of the selected tones is activated." to "... the tone that signals the most urgent of the selected conditions is activated." Alternatively, a definition for "selected tone" can be added to the glossary.

#213 (E) pg: 44, clause: 7.2.8, para: 5th after table 42

Change "... enclosure dependent." to "... vendor specific."

#214 (E) pg: 44, clause: 7.2.8, para: 5th after table 42

Change "... by the enclosure.." to "... by the enclosure processor."

#215 (E) pg: 44, clause: 7.2.8, para: 6th after table 42

Change "... error ..." to "... error condition ...". There are two instances where this change is needed in the paragraph.

#216 (E) pg: 45, clause: 7.2.8, para: 1st after table 43
Change "... the SET MUTE bit." to "... the SET MUTE control bit."

#217 (E) pg: 45, clause: 7.2.8, para: 4th and 5th after table 43
Bring the descriptive text on to the same line as "TONE URGENCY INDICATOR", so that the field description has the same appearance as all other field descriptions in SES.

#218 (E) pg: 45, clause: 7.2.8, para: 5th after table 43
Change "... the most urgent of the selected tones is active." to "... the tone that signals the most urgent of the selected conditions is active." Alternatively, a definition for "selected tone" can be added to the glossary.

#219 (E) pg: 45, clause: 7.2.8, para: 6th after table 43
Change "... the audible alarm is quiet." to "... the audible alarm is silent."

#220 (T) pg: 45, clause: 7.2.8, para: 7th after table 43
Regarding: "The INFO bit is set to indicate that the audible alarm is emitting a tone suitable to warn of an information condition." This statement is not true if the NON-CRIT bit also is set.

#221 (T) pg: 45, clause: 7.2.8, para: 8th after table 43
Regarding: "The NON-CRIT bit is set to indicate that the audible alarm is emitting a tone suitable to warn of a noncritical condition." This statement is not true if the CRIT bit also is set. Also, "noncritical" probably should be "non-critical".

#222 (T) pg: 45, clause: 7.2.8, para: 7th after table 43
Regarding: "The CRIT bit is set to indicate that the audible alarm is emitting a tone suitable to warn of a critical condition." This statement is not true if the UN-RECOV bit also is set.

#223 (E) pg: 46, clause: 7.2.9, para: 1st after table 44
Change "... and interprets the control pages." to "... and interprets all control pages."

#224 (E) pg: 46, clause: 7.2.9, para: 1st after table 45
Replace the first sentence with: "The REPORT bit is set to indicate the enclosure services controller electronics element described by this STATUS INFORMATION is the enclosure services processor for the primary sub-enclosure."

#225 (E) pg: 46, clause: 7.2.9, para: 1st after table 45
Replace the last sentence with: "The REPORT bit is cleared in all other cases."

#226 (E) pg: 47, clause: 7.2.10, para: 1st after table 47
Change "... presentation ..." to "... transmission ...". There are two instances where this change is needed in the paragraph.

#227 (E) pg: 47, clause: 7.2.11, para: 1st after table 47
Change "... changes in the operating mode for the system." to "... changes in the operating mode for elements in the enclosure.". Alternatively, a definition for "system" may be added to the glossary. However, all uses of "system" in SES must be checked for consistency with any definition that is added to the glossary.

#228 (E) pg: 48, clause: 7.2.12, para: 1st after table 50
Change "The battery status value ..." to "The BATTERY STATUS field ...".

#229 (T) pg: 48, clause: 7.2.12, para: 1st after table 50
Regarding: "The BATTERY STATUS field may be compared against the threshold fields as defined in 6.1.7." Which thresholds? Low? High? Warning? Critical?

#230 (E) pg: 48, clause: 7.2.12, para: 4th after table 51

Change "... the AC line voltage returns to its specified value." to "... the AC line voltage quality returns to its specified value."

#231 (E) pg: 49, clause: 7.2.12, para: 1st on page 49

Change "... low warning threshold field ..." to "... LOW WARNING THRESHOLD field ...".

#232 (T) pg: 49, clause: 7.2.12, para: 1st on page 49

How is the LOW CRITICAL THRESHOLD field used with respect to uninterruptible power supplies, if at all?

#233 (E) pg: 49, clause: 7.2.12, para: 1st on page 49

Change "... for at least the required time." to "... for at least the threshold time."

#234 (E) pg: 49, clause: 7.2.12, para: 4th on page 49

Change "... (see clause 7.1.1 and 7.1.2 The BPF ..." to "... (see 7.1.1 and 7.1.2). The BPF ...".

#235 (T) pg: 51, clause: 7.2.16, para: 1st after table 59

Regarding "A value of zero indicates ...". What about other, non-zero, values. Are they reserved? Are they vendor specific? Are some non-zero values reserved and some vendor specific?

#236 (T) pg: 51, clause: 7.2.16, para: 1st after table 59

Regarding "... using ASCII character encoding ...". SCSI usually is more restrictive regarding ASCII character encoding. For example, SPC restricts usage to ASCII codes 20h through 7Eh.

#237 (T) pg: 52, clause: 7.2.17, para: table 61

Why is there no REPORT bit defined?

#238 (T) pg: 52, clause: 7.2.18, para: 1st after table 63

pg: 52, clause: 7.2.18, para: 2nd after table 63

pg: 53, clause: 7.2.19, para: 1st after table 65

Regarding "... threshold value has been exceeded." Which threshold value has been exceeded, warning or critical?

#239 (E) pg: 52, clause: 7.2.18, para: 3rd after table 63

Add text to the end of the paragraph describing the range of values that the VOLTAGE VALUE field (as defined) can represent.

#240 (E) pg: 52, clause: 7.2.18, para: 1st after table 63

Change "...in units of 0.5%." to "...in units of 0.5% from a vendor specific nominal voltage or nominal voltage range."

#241 (E) pg: 53, clause: 7.2.19, para: 2nd after table 65

Add text to the end of the paragraph describing the range of values that the CURRENT VALUE field (as defined) can represent.

#242 (E) pg: 53, clause: 7.2.19, para: 3rd after table 65

Change "...in units of 0.5%." to "...in units of 0.5% from a vendor specific maximum normal operating current."

Remove the sentence that begins: "The high threshold fields are specified ...".

#243 (T) pg: 53, clause: 7.2.19, para: 3rd after table 65

Why is a vendor specific maximum normal operating current being used? Why not use a vendor specific normal operation current? Such a change would allow the application client to have some say in defining the maximum normal operating current.

#244 (T) pg: 57-68, Annex A - general

Many of the comments that follow could be ignored, and the contents of Annex A would be much easier to understand if the terminology were changed so that "primary sub-enclosure" would be known as the "primary enclosure". However, such a change would require a careful reading and analysis of Annex A, since a global replace might produce undesirable results.

#245 (E) pg: 57, clause: A.1, para: 1

Change "The hierarchical mechanism allows ..." to "The SCC hierarchical mechanism allows ...".

#246 (T) pg: 57, clause: A.1, para: 2

Regarding: "... may instead be accessed through the enclosure services logical unit ...". Why is access to SES sub-enclosures limited to the enclosure device type? Is there any reason why enclosure services embedded in a disk device type cannot access SES sub-enclosures?

#247 (E) pg: 57, clause: A.1, para: 2

Change "... a single set of enclosure services information." to "... a single group of enclosure services diagnostic pages."

#248 (E) pg: 58, clause: A.2, para: 1

Replace: "The primary sub-enclosure is the enclosure that is accessed directly by the enclosure services command set." with "The primary sub- enclosure is the enclosure that contains the enclosure services processor responsible for transmitting the enclosure configuration page to the application client."

#249 (E) pg: 58, clause: A.2, para: 1

Replace: "Sub-enclosure are those enclosures, if any, that are not addressed directly, but are accessed through or by the primary sub- enclosure." with "Sub-enclosures are those zero or more enclosures that contribute to the contents of the enclosure configuration page but do not transmit it to the application client."

#250 (E) pg: 58, clause: A.2, para: 1

Replace: "As sub-enclosures are added or deleted from the primary sub- enclosure, the configuration, configuration generation, and the relation- ship between sub-enclosure identifier and sub-enclosure may change." with "As sub-enclosures are added or removed, the configuration and configura- tion generation shall change. The addition or removal of a sub-enclosure also may result in a change in the relationship between sub- enclosure identifier and sub-enclosure."

#251 (E) pg: 58, clause: A.3, para: 2

Change "... all the sub-enclosures managed by ..." to "... all the sub- enclosures communicating with ...".

#252 (E) pg: 58, clause: A.3, para: 2

Regarding: "The configuration page is expanded to contain an enclosure descriptor (see 6.1.1) for the primary sub-enclosure ...". This statement is not true. The enclosure descriptor for the primary sub-enclosure already is present in the configuration page description found in 6.1.1. No expansion occurs with respect to the enclosure descriptor for the primary sub-enclosure.

A similar concern exists regarding: "... an enclosure descriptor for zero or more sub-enclosures ...". If the number of enclosure descriptors added for sub-enclosures is truly zero, then the format of the configuration page is identical to that shown in 6.1.1.

A similar concern exists regarding: "... the TYPE DESCRIPTOR HEADER fields ...". There is no expansion of the number of fields in a TYPE DESCRIPTOR HEADER that results from the introduction of sub-enclosures. Previously zero fields within the TYPE DESCRIPTOR HEADER are changed to contain non- zero values, but there is no expansion (addition) of fields.

#253 (E) pg: 58, clause: A.3, para: 2

Change "... is identified with a sub-enclosure by the sub-enclosure identifier." to "... is matched to a sub- enclosure by the sub-enclosure identifier."

#254 (E) pg: 59, clause: A.3, para: 1st on page 59

Change "The format of the configuration page may be constructed ..." to "The content of the configuration page may be constructed ...".

#255 (E) pg: 59, clause: A.3, para: 1st after table A.1

Regarding: "The portions of the enclosure services configuration page that are added to 6.1.1 to support sub- enclosure identifiers are described in table A.2 ...". It appears to me that table A.2 describes the whole configuration page, not just the portions that are added to support sub- enclosures.

#256 (E) pg: 60, clause: A.3, table A.2

Change "Primary sub-sub-enclosure descriptor header" to "Primary sub- enclosure descriptor header".

#257 (E) pg: 60, clause: A.3, table A.2

Change "Primary enclosure descriptor" to "Primary sub-enclosure descriptor".

#258 (T) pg: 60 & 61, clause: A.3, table A.2

Add repetition of sub-enclosure descriptor header and sub-enclosure descriptor fields. Add ellipses. Add field representation for sub- enclosure descriptor header (last) and field representation for sub- enclosure descriptor (last).

#259 (E) pg: 61, clause: A.3, para: 1st after table A.2

Change "... defined by the configuration page in addition to the primary sub-enclosure." to "... defined by the configuration page, not including the primary sub-enclosure." Note, this text is a case where the applying the comment in #244 would simplify the standard.

#260 (E) pg: 61, clause: A.3, para: 1st after table A.2

Change "That number of sub-enclosure descriptors shall be included immediately following ..." to "That number of sub-enclosure headers and descriptors shall be included immediately following ...".

#261 (E) pg: 61, clause: A.3, para: 2nd after table A.2

The phrase "... occurs for any command except ..." is not at all specific regarding the time at which the requirements described in the remainder of the sentence shall take effect. An example of the needed time specificity would be "... occurs during the execution of any command except ...". See comment #54.

#262 (E) pg: 61, clause: A.3, para: 3rd after table A.2

Change "... shall be assigned by the primary sub-enclosure ..." to "... shall be assigned by the primary sub- enclosure enclosure services process ...".

#263 (E) pg: 61, clause: A.3, para: 3rd after table A.2

Change "... for all pages in a given configuration, ..." to "... for all enclosure diagnostic pages associated with a given configuration, ...".

#264 (E) pg: 61, clause: A.3, para: 4th after table A.2

Change "NUMBER OF ELEMENT TYPES SUPPORTED: ..." to "NUMBER OF ELEMENT TYPES SUPPORTED (in sub-enclosure): ..." to match the text in table A.2.

#265 (E) pg: 61, clause: A.3, para: 4th after table A.2

Change "... with that sub-enclosure identifier." to "... with this sub- enclosure identifier.". The word "that" suggests "that one over there."

#266 (E) pg: 61, clause: A.3, para: 4th after table A.2

Change "... for the primary sub-enclosure and for all of the sub- enclosures." to "... for the primary sub-enclosure and all of the sub- enclosures."

#267 (T) pg: 61, clause: A.3, para: 5th after table A.2

Regarding "... shall use the world wide name format defined by FC-PH." See comment #34.

#268 (T) pg: 61, clause: A.3, para: 5th after table A.2

Regarding: "If the sub-enclosure information is accessed through a device other than an enclosure services device type, there is no mechanism for accessing the information about that device through the sub-enclosure accessing structure." First, A.1 does not allow sub-enclosure information to be accessed though any device type other than enclosure services devices (see comment #246). Second, what does this sentence mean?

#269 (E) pg: 62, clause: A.3, para: 3rd on page 62

Regarding: "The elements of an enclosure are listed in the same order in the configuration page, the type descriptor text of the configuration page, the status page, and the control page." Which status and control pages? Should threshold pages be added to the list?

#270 (E) pg: 62, clause: A.3, para: 1st after table A.3

pg: 62, clause: A.3, para: 2nd after table A.3

pg: 62, clause: A.3, para: 4th after table A.3

Replace the field definition text with: "See 6.1.1 for a description of this field."

#271 (E) pg: 62, clause: A.4, para: 1

Change "... pages are not modified ..." to "... page formats are not modified ...".

#272 (E) pg: 62, clause: A.4, para: 1

Change "... in the order required by the configuration page." to "... in the order matching the configuration page."

This change avoids an improper use of the standardize word "required".

#273 (E) pg: 63, clause: A.5, para: 1st after table A.4

Regarding: "That number of sub-enclosure help texts shall be included immediately following the primary sub-enclosure help text." This requirement is not shown in table A.4. Table A.4 makes it appear as if the NUMBER OF SUB-ENCLOSURES field contains the total count of the number of sub-enclosure help text fields present in the parameter data, including the primary sub-enclosure.

Two alternative corrections are offered. Modify table A.4 to show the primary sub-enclosure help text, the first sub-enclosure help text and the last sub-enclosure help text. Or, change the sentence quoted above to read: "That number of sub-enclosure help text fields plus one shall be included immediately following the diagnostic page header field."

#274 (T) pg: 63, clause: A.5, para: following 1st after table A.4

The description of the SUB-ENCLOSURE IDENTIFIER field in A.3 is specific to usage in the type descriptor header and cannot be referenced by table A.4. Change such references in A.4 and add the following description between the first and second paragraphs after table A.4: "SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the help text that follows it. The SUB-ENCLOSURE IDENTIFIER value shall match at least one of the SUB-ENCLOSURE IDENTIFIER values found in the configuration page, or the configuration page shall report a changed configuration and incremented GENERATION CODE (see A.3)."

#275 (T) pg: 63, clause: A.5, para: 2nd after table A.4

Add the following sentence at the end of the paragraph: "If a sub-enclosure has no help text, the HELP TEXT LENGTH field shall contain zero."

#276 (E) pg: 63, clause: A.6, para: 1

Change "... the diagnostic page transmitted ..." to "... the string out diagnostic page transmitted ...".

#277 (E) pg: 64, clause: A.6, table A.5

Change "clause A.3" to "A.6". This change removes the word clause (as required by ANSI editing conventions) and changes the reference to A.6, which is where the defining text appears.

#278 (T) pg: 64, clause: A.6, para: 1st after table A.5

Replace the paragraph with: "SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the sub-enclosure to which the application client wants the vendor specific string out information sent. The SUB-ENCLOSURE IDENTIFIER value shall match a SUB-ENCLOSURE IDENTIFIER value found in the configuration page, or enclosure services process shall treat the request as one containing an error in the parameter data. The exact mechanics for handling errors in parameter data depend on how the enclosure services process communicates with the application client (see 4.1)."

#279 (E) pg: 64, clause: A.7, para: 1

Change "... the information returned by ..." to "... the string in diagnostic page returned by ...".

#280 (E) pg: 65, clause: A.7, para: 1st after table A.6

Regarding: "That number of sub-enclosure string in fields shall be included immediately following field for the primary sub-enclosure." This requirement is not shown in table A.6. Table A.6 makes it appear as if the

NUMBER OF SUB-ENCLOSURES field contains the total count of the number of sub- enclosure string in fields present in the parameter data, including the primary sub-enclosure.

Two alternative corrections are offered. Modify table A.6 to show the primary sub-enclosure string in field, the first sub-enclosure string in field and the last sub-enclosure string in field. Or, change the sentence quoted above to read: "That number of sub-enclosure string in fields plus one shall be included immediately following the diagnostic page header field."

#281 (T) pg: 65, clause: A.7, para: following 1st after table A.6

The description of the SUB-ENCLOSURE IDENTIFIER field in A.3 is specific to usage in the type descriptor header and cannot be referenced by table A.6. Change such references in A.6 and add the following description between the first and second paragraphs after table A.6: "SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the string in field that follows it. The SUB-ENCLOSURE IDENTIFIER value shall match at least one of the SUB-ENCLOSURE IDENTIFIER values found in the configuration page, or the configuration page shall report a changed configuration and incremented GENERATION CODE (see A.3)."

#282 (T) pg: 65, clause: A.7, para: 2nd after table A.6

Add the following sentence at the end of the paragraph: "If a sub-enclosure has no string in field, the VENDOR SPECIFIC LENGTH field shall contain zero."

#283 (E) pg: 65, clause: A.8, para: 1

Change "... the diagnostic page transmitted ..." to "... the threshold out diagnostic page transmitted ...".

#284 (T) pg: 66, clause: A.8, para: following table A.7

The description of the SUB-ENCLOSURE IDENTIFIER field in A.3 is specific to usage in the type descriptor header and cannot be referenced by table A.7. Change such references in A.7 and add the following description immediately following table A.7: "SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the sub- enclosure to which the application client wants the threshold out page sent. The SUB-ENCLOSURE IDENTIFIER value shall match a SUB-ENCLOSURE IDENTIFIER value found in the configuration page, or enclosure services process shall treat the request as one containing an error in the parameter data. The exact mechanics for handling errors in parameter data depend on how the enclosure services process communicates with the application client (see 4.1)."

#285 (E) pg: 66, clause: A.9, para: 1

Change "... the information returned by ..." to "... the threshold in diagnostic page returned by ...".

#286 (E) pg: 66, clause: A.9, para: 1

Change "... from the primary sub -enclosure." to "... from the primary sub-enclosure."

#287 (E) pg: 67, clause: A.9, para: 1st after table A.8

Change "That number of sub-enclosure string in fields shall be included immediately following the primary sub-enclosure threshold in field." to "That number of sub-enclosure threshold in fields shall be included immediately following the primary sub-enclosure threshold in field."

#288 (E) pg: 67, clause: A.9, para: 1st after table A.8

Regarding: "That number of sub-enclosure threshold in fields shall be included immediately following the primary sub-enclosure threshold in field." This requirement is not shown in table A.8. Table A.8 makes it appear as if the NUMBER OF SUB-ENCLOSURES field contains the total count of the number of sub-enclosure threshold in fields present in the parameter data, including the primary sub-enclosure.

Two alternative corrections are offered. Modify table A.8 to show the primary sub-enclosure threshold in field, the first sub-enclosure threshold in field and the last sub-enclosure threshold in field. Or, change the sentence quoted above to read: "That number of sub-enclosure threshold in fields plus one shall be included immediately following the diagnostic page header field."

#289 (T) pg: 67, clause: A.9, para: following 1st after table A.8

The description of the SUB-ENCLOSURE IDENTIFIER field in A.3 is specific to usage in the type descriptor header and cannot be referenced by table A.8. Change such references in A.8 and add the following description

between the first and second paragraphs after table A.8: "SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the threshold in field that follows it. The SUB-ENCLOSURE IDENTIFIER value shall match at least one of the SUB-ENCLOSURE IDENTIFIER values found in the configuration page, or the configuration page shall report a changed configuration and incremented GENERATION CODE (see A.3)."

#290 (T) pg: 67, clause: A.9, para: 2nd after table A.8

Add the following sentence at the end of the paragraph: "If a sub-enclosure has no threshold in field, the THRESHOLD LIST LENGTH field shall contain zero."

#291 (E) pg: 67, clause: A.10, para: 1

Change "... the information returned by ..." to "... the element descriptor diagnostic page returned by ...".

#292 (E) pg: 68, clause: A.10, para: 1st after table A.9

Change "That number of sub-enclosure descriptor lists shall be included immediately following the primary sub-enclosure descriptor list." to "That number of sub-enclosure element descriptor lists shall be included immediately following the primary sub-enclosure element descriptor list."

#293 (E) pg: 68, clause: A.10, para: 1st after table A.9

Regarding: "That number of sub-enclosure element descriptor lists shall be included immediately following the primary sub-enclosure element descriptor list." This requirement is not shown in table A.9. Table A.9 makes it appear as if the NUMBER OF SUB-ENCLOSURES field contains the total count of the number of sub-enclosure element descriptor lists present in the parameter data, including the primary sub-enclosure.

Two alternative corrections are offered. Modify table A.9 to show the primary sub-enclosure element descriptor list, the first sub-enclosure element descriptor list and the last sub-enclosure element descriptor list. Or, change the sentence quoted above to read: "That number of sub-enclosure element descriptor lists plus one shall be included immediately following the diagnostic page header field."

#294 (T) pg: 68, clause: A.10, para: following 1st after table A.9

The description of the SUB-ENCLOSURE IDENTIFIER field in A.3 is specific to usage in the type descriptor header and cannot be referenced by table A.9. Change such references in A.9 and add the following description between the first and second paragraphs after table A.9: "SUB-ENCLOSURE IDENTIFIER: The SUB-ENCLOSURE IDENTIFIER field specifies a vendor specific identifier for the element descriptor list that follows it. The SUB-ENCLOSURE IDENTIFIER value shall match at least one of the SUB-ENCLOSURE IDENTIFIER values found in the configuration page, or the configuration page shall report a changed configuration and incremented GENERATION CODE (see A.3)."

#295 (T) pg: 68, clause: A.10, para: 2nd after table A.9

Add the following sentence at the end of the paragraph: "If a sub-enclosure has no element descriptor list, the DESCRIPTOR LIST LENGTH field shall contain zero."

#296 (E) pg: 69, clause: A.11, para: 1

Change "Enclosures reporting the short status page shall not be defined using the sub-enclosure identifier." to "Enclosures reporting the short status page shall not be primary sub-enclosures."

#297 (E) pg: 69, clause: A.11, para: 1

Change "If an enclosure providing the short status page is used as a sub- enclosure on a primary sub-enclosure, the enclosure shall be define as a simple sub-enclosure element (see clause 7.2.22)." to "If an enclosure providing the short status page is used as a sub-enclosure by a primary sub-enclosure, the enclosure shall be represented as a simple sub-enclosure element (see 7.2.22)."

#298 (E) pg: 71, clause: B.1, para: 2

pg: 71, clause: B.1, para: 8

Change "... has been detected by the enclosure." to "... has been detected by the enclosure services process."

#299 (E) pg: 71, clause: B.1, para: 2

Change "... REQUEST DIAGNOSTIC RESULTS ..." to "... RECEIVE DIAGNOSTIC RESULTS ...".

#300 (E) pg: 71, clause: B.1, para: 2

pg: 71, clause: B.1, para: 8

Change "... enclosure services in page." to "... enclosure status page."

#301 (T) pg: 71, clause: B.1, para: 2

pg: 71, clause: B.1, para: 8

Change "This condition shall only be presented by an enclosure services type device for a command other than SEND DIAGNOSTIC or RECEIVE DIAGNOSTIC RESULTS." to "This additional sense code shall only be returned by an enclosure services type device in the sense data for a CHECK CONDITION status returned for a command other than RECEIVE DIAGNOSTIC RESULTS." Note: this comment would be editorial if SEND DIAGNOSTIC has been kept in the list of affected commands. However, I feel that the additional sense codes described using this sentence should be returned as a result for SEND DIAGNOSTIC commands because there is no guarantee that an application client will follow a SEND DIAGNOSTIC with a command that senses enclosure status.

#302 (E) pg: 71, clause: B.1, para: 3

pg: 71, clause: B.1, para: 4

pg: 71, clause: B.1, para: 5

pg: 71, clause: B.1, para: 6

pg: 71, clause: B.1, para: 7

Change "This condition may be presented by any device that provides enclosure services." to "This additional sense code may be returned by any device that provides enclosure services."

#303 (E) pg: 71, clause: B.1, para: 5

pg: 71, clause: B.1, para: 6

Change "... enclosure services function ..." to "... enclosure services process ...".

#304 (E) pg: 71, clause: B.1, para: 6

Change "... depending on the detected cause of the error." to "... depending on the cause of the error."

#305 (E) pg: 71, clause: B.1, para: 7

Change "this is provided using the Sense Key ..." to "This is provided using the Sense Key ...".

Results of Letter Ballot 96-037 on forwarding SPI Amendment #1 to First Public Review

Organization	Stat	Name	Yes	No	Abs	DNR	IV	Comments
Adaptec, Inc.	A	Mr. Lawrence J. Lamers	1					w/comments
Amdahl Corp.	P	Mr. Edward Fong	1					
AMP, Inc.						1		
Amphenol Interconnect	P	Mr. Michael Wingard	1					
Ancot Corp.	P	Mr. Jan V. Dedek	1					
Apple Computer	A	Mr. Ron Roberts	1					
Berg Electronics	P	Mr. Douglas Wagner	1					
BusLogic						1		
Ciprico Inc.	P	Mr. Gerry Johnsen	1					
Circuit Assembly Corp.	P	Mr. Ian Morrell	1					
Cirrus Logic Inc.	A#	Mr. Chi Wang	1					
CMD Technology	P	Mr. Edward Haske	1					
Congruent Software, Inc.	P	Mr. Peter Johansson	1					
Dallas Semiconductor	P	Mr. Louis Grantham	1					
Digital Equipment Corp.						1		
Distributed Processing Tech.						1		
Eastman Kodak Co.						1		
ENDL	P	Mr. I. Dal Allan	1					
Exabyte Corp.	P	Mr. Edward Lappin	1				IV	
FSI Consulting Services						1		
Fujitsu Computer Products,Am	P	Mr. Robert Liu	1					
Hewlett Packard Co.	P	Mr. J. R. Sims	1					
Hitachi Micro Systems, Inc.						1		
Hitachi Cable Manchester,Inc	P	Mr. Zane Daggett	1					
Honda Connectors	P	Mr. Thomas J. Kulesza	1					

Organization	Stat	Name	Yes	No	Abs	DNR	IV	Comments
IBM Corp.	P	Mr. George Penokie	1					
Iomega Corp.	P	Mr. Geoffrey Barton	1					
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1				IV	
Lifinity Micro	P	Mr. Dean Wallace	1					
Madison Cable Corp.						1		
Maxtor Corp.	P	Mr. Pete McLean	1					
Methode Electronics, Inc.	P	Mr. John Cannon	1					
Molex Inc.	P	Mr. Joe Dambach	1					
Oak Technology, Inc.	P	Mr. Anthony E. Pione	1					
Ophidian Designs	P	Mr. Edward A. Gardner	1				IV	
Panasonic Technologies, Inc	P	Mr. Stephen F. Heil	1					
Philips KMG	P	Mr. Bill McFerrin	1					
QLogic Corp.	P	Mr. Skip Jones	1					
Quantum Corp.	A	Mr. Mark Evans	1					
Seagate Technology	P	Mr. Gene Milligan	1				IV	w/comments
Silicon Systems, Inc.	P	Mr. Dave Guss	1					
Sony Electronics, Inc.	P	Mr. Mike Yokoyama	1					
Storage Technology Corp.	P	Mr. Erich Oetting	1					
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1					
Symbios Logic Inc.	P	Mr. John Lohmeyer	1					
SyQuest Technology, Inc.	P	Mr. Patrick Mercer	1					
Tandem Computers	P	Mr. John Moy	1					
Toshiba America	P	Mr. Tokuyuki Totani	1					
UNISYS Corporation	P	Mr. Kenneth J. Hallam	1					
Unitrode Integrated Circuits	P	Mr. Paul D. Aloisi	1					
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1					
Woven Electronics	P	Mr. Doug Piper	1					by fax
			44	0	0	8	=	52
Key:	Abs	Abstain (not allowed on this ballot)						
	DNR	Did Not Return Ballot						
	IV	Individual Vote (not Organizational Vote)						

Adaptec Comments on forwarding SPI Amendment #1 to 1PR:

1. The ANSI style and wording guidelines need to be applied to Annex B. See 96a114 for details.
2. The ISO CD comments that indicate corrections should be incorporated into the ammendment. The following references are to SPI.
3. C2 - delete EIA/TIA RS-485 reference
4. C2 - revise ISO 8482:1987 to ISO 8482:1993
5. C2 - change reference on SCSI-2 to ISO/IEC 9316:1995
6. C3.1.17 - change (1, 3, 5, or 7) to (1, 3, 5, 7, or 9)
7. C5.2 P3 - change to "...consist of #2-56 threaded jack screws à 1.2 Nm (11 inch-pounds)."
8. C7.2.6 P1 b) - change reference to ISO
9. C8 P4 S2 - change to "A hyphen ("-") represents a logical zero bit (i.e., a released signal)."
10. Table 9 - revise SCSI Bus Phase to SCSI Service and delete row for Setup
11. C10.6.19 b) - correct reference to "see 10.11"
12. C10.9.31 b) - see item 11.
13. C 10.11.39 P6 c) S2 - change "...shall not have a new service.." to "...shall not start a new service.."

Milligan (Seagate) Comments on forwarding SPI Amendment #1 to 1PR:

- 1) Change "Introduction The SCSI-3 Parallel (SPI) Interface ammendment is divided into eight major clauses:
 - Clause 1 is the scope.
 - Clause 2 enumerates the normative references that apply to this standard.
 - Clause 3 describes the changes to clause
 - Clause 4 is a replacement for Annex B
 - Clause 5 describes the changes to Annex D."

to:

"Introduction The SCSI-3 Parallel (SPI) Interface amendment is divided into three major clauses:
 Clause 1 is the scope.
 Clause 2 enumerates the normative references that apply to this amendment.
 Clause 3 describes the changes to X3.253-1996"

I am undecided if Clause 3 is adequate to reference Annex A or if Annex A should be cited separately but I had a micro leaning as above.

Included in the above change is an implication that a spell check should be run on the document.

2) This comment is generic to all SCSI standards. As far as I know this is the first time I have seen Figure 1. I agree that we should have a common figure for all of the standards leaving our portal in 4Q96 but I have a problem with this one. I recognize that it is a document (though not all documents) roadmap and not a block diagram. However some relationships are inferred. If not, some of the physical documents would be randomly sprinkled among the command documents. Consequently I am bothered by the placement of SAM. I prefer to place SAM vertically to the side. But assuming this is bothersome from a software standpoint, my second preference would be to see it on top above CAM, and the fourth preference would be below CAM. What meaning do the dashed lines convey? Probably the Fibre Channel box should be more general by leaving out the specific reference to FC-PH. This seems simpler than adding FC-AL. And to really nit-pick, is it an error or an artifact of the PDF that the various sides of the boxes have differing line widths?

3) Having made the deletion under Figure 1, does SPI use the Term SCSI-3 without defining it? I would answer this question for myself if the SPI Rev 15a PDF did not have the artifact that search can not find SCSI-3 (not even the one to be deleted).

4) Regarding the change to 10.11.3 :

The full text of SPI is:

"During 8-bit data transfers, the logical data byte for each data service shall be transferred across the DB(7-0,P) signals on the primary SCSI bus. The DB(15-8,P1) signals are undefined and parity may not be valid. Subsequent data bytes are likewise transferred using DB(7-0,P)."

The full text of the amended SPI would be:

"During 8-bit data transfers, the logical data byte for each data service shall be transferred across the DB(7-0,P) signals on the primary SCSI bus. At the receiving device the DB(15-8,P1) signals are undefined and parity may not be valid. Subsequent data bytes are likewise transferred using DB(7-0,P)."

As far as I know this text refers to at least five cases.

a) One case is implementations that are 8 bit only. In this case DB(15-8,P1) signals do not exist and perhaps match "are undefined" but if so this is at both the transmitter and the receiver.

b) Another case is implementations that are 8 bit only but employ a wide connector with phantom pull up resistors. In this case DB(15-8,P1) signals are false and parity would be invalid but since there is no listener in the sense of Services I assume it is neither valid nor invalid.

c) Another case is implementations that are mixed. I assume this is the case described in the amendment when going from a narrow connector device to a wide receiving device. But even in this case I think the wide device portion is terminated with the signals false and parity invalid.

d) The fourth case is all 16 bit devices with negotiation using narrow. Does the undefined mean the transmitter may be high impedance, driving ones, or driving zeros?

e) A fifth case may in fact be mixed with the above with a secondary cable - even if rare.

I assume the vagaries here can not be addressed in the amendment and should be addressed in SPI-2 unless the suggestion below is fully adequate. Since this clause is a services clause and not a signals clause for the amendment I suggest modifying the full text to:

"During 8-bit data transfers, the logical data byte for each data service shall be transferred across the DB(7-0,P) signals on the primary SCSI bus. At the receiving device the DB(15-8,P1) signals, if any, of the primary cable and all signals of the secondary cable, if any, shall be ignored."

The secondary cable portion also needs to be added to the 16-bit data transfers portion.

5) I seem to recall someone (I think) Gerry Houlder pointing out an inadvertent use of "may" that should have been "may not" or verse visa but I do not notice this in the amendment. Is the recollection correct? Is it covered?

6) In Annex A, I think:

"Level 1 SCAM defines a subset that requires less capable hardware and software; although it does not support all of the advanced features of level 2 (such as hot plugging) it is intended to solve most configuration problems com-mon to the single-user system."

Should be changed to:

"Level 1 SCAM defines a subset that does not support all of the advanced features of level 2 (such as hot plugging). It is intended to solve most configuration problems common to the single-user system."

7) It is too late to change now, but to be prepared to answer the questions, why in the case of SCAM did we use the opposite signal convention (asserted low) that has been used, I think, in all of our other standards?