

Voting Results on T10 Letter Ballot 97-015r0 on  
Forwarding SSC to first public review

Organization	Name	S Vote	Add'l Info
Adaptec, Inc.	Norman H. Harris	P Yes	
AMP, Inc.	Charles Brill	P Yes	
Amphenol Interconnect	Michael L. Wingard	P Yes	
Ancot Corp.	JAN DEDEK	P Yes	
Apple Computer	Ronald K. Roberts	A Yes	
Berg Electronics	Doug Wagner	P Yes	
Cable Design Technologies	Richard H. Wagner	P Yes	
Ciprico Inc.	Gerry Johnsen	P Yes	
Circuit Assembly Corp.	Ian Morrell	P Yes	
Cirrus Logic Inc.	Ken Wolfgang	P Yes	
CMD Technology	Edward Haske	P Yes	
Congruent Software, Inc.	Peter Johansson	P Yes	
Dallas Semiconductor	Michael Smith	P Yes	
Data General / Clariion	Gregory McSorley	P Yes	
Digital Equipment Corp.	Charles Monia	P Yes	
Distributed Processing Tech.	Roger Cummings	P Yes	
Eastman Kodak Co.	Robert Reisch	P Yes	
ENDL	I. Dal Allan	P Yes	
Exabyte Corp.	Constance L. Kephart	P Yes	
Fujitsu Computer Products, Am	Robert Liu	P Yes	
Harting Elektronik Inc.	Martina Kuhlmeier	A Yes	
Hewlett Packard Co.	J. R. Sims, III	P Yes	
Hitachi Cable Manchester, Inc	Zane Daggett	P Yes	
Hitachi Micro Systems, Inc.	Nedi Nadershahi	P Yes	
Hitachi Storage Products	Anthony Yang	P Yes	
Honda Connectors	Thomas J. Kulesza	P Yes	
IBM Corp.	George Penokie	P No	Cmnts
Iomega Corp.	Geoffrey L. Barton	P Yes	
KnowledgeTek, Inc.	Dennis Moore	P Yes	
Linfinity Micro	Dean Wallace	P Yes	
Madison Cable Corp.	Robert A. Bellino	P Yes	
Maxtor Corp.	Pete McLean	P Yes	
Molex Inc.	Joe Dambach	P Yes	
NEC Electronics, Inc.	Jake Berzon	P Yes	
Oak Technology, Inc.	Robin Freeze	P Yes	
Ophidian Designs	Edward A. Gardner	P No	IV Cmnts
Philips Key Modules	Bill McFerrin	P Yes	
QLogic Corp.	Skip Jones	P Yes	
Quantum Corp.	Mark Evans	A Yes	DUP
Quantum Corp.	James McGrath	P Yes	
Seagate Technology	Gene Milligan	P YesC	IV Cmnts
Silicon Systems, Inc.	Dave Guss	P Yes	
Sony Electronics, Inc.	Dennis I. Pak	P Yes	
Storage Technology Corp.	Erich Oetting	P YesC	Cmnts
Sun Microsystems Computer Co	Robert Snively	P Yes	
Symbios Logic Inc.	Ralph Weber	A No	IV Cmnts
SyQuest Technology, Inc.	Pat Mercer	P Yes	
Tandem Computers	Pete Tobais	P Yes	
Toshiba America	Tokuyuki Totani	P Yes	
UNISYS Corporation	Ken Hallam	P Yes	
Unitrode Corporation	Paul D. Aloisi	P Yes	
Western Digital Corporation	Jeffrey L. Williams	P Yes	
Woven Electronics	Doug Piper	P Yes	

Key:

- P Voter indicated he/she is principal member
- A Voter indicated he/she is alternate member
- 0 Voter indicated he/she is observer member
- ? Voter indicated he/she is not member or does not know status
- YesC Yes with comments vote
- Abs Abstain vote
- DNV Organization did not vote
- IV Individual vote (not organizational vote)
- Cmnts Comments were included with ballot
- NoCmnts No comments were included with a vote that requires comments
- DUP Duplicate ballot (last ballot received from org. is counted)
- PSWD The password was not correct (vote not counted)
- ORG? Organization is not voting member of T10 (vote not counted)

Ballot totals:

- 49 Yes
- 3 No
- 0 Abstain
- 0 Organization(s) did not vote
- 52 Total voting organizations
- 1 Duplicate ballot(s) not counted
- 5 Ballot(s) included comments

This 2/3rds majority ballot passed.

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Comments attached to No ballot from George Penokie of IBM Corp. :

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

1-(T) - The Set Capacity Command - This was added in based on a proposal by Gary Stephens. At the working meeting it was decided that rather than add a new command, a field should be added to the Format Medium command instead. However the command was added to SSC without any vote (of at least none I can find) on it by the committee. Also the original document 96-178r0, that was supposed to be reved to show a field in the Format Medium command was not. This issue needs to be resolved.

2-(G) - Throughout the document acronyms (e.g. SBC, SPC) are used to reference other standards. I would like the full name of the standard. (e.g. SCSI-3 Block Commands standard, SCSI-3 Primary Commands standard) Or at the very least the word 'standard' should be after the acronym (e.g. SBC standard, SPC standard)

3-(G) - X3 should be removed from everywhere except for ANSI document numbers (e.g. ANSI X3.xxx-199x).

4-(E) page 3 - 2 - This sections wording should be changed to the new format defined in 96-241.

5-(E) page 3 - 2.1 - There is a reference to the EIA RS-232C standard

within the SSC but it is not in the reference list.

6- (E) page 4 - The '(SAM)' should be removed and the word 'Standard' should be placed after 'SCSI-3 Architecture Model'.

7- (E) page 4 - 3.1.10 - I do not understand our definition of peripheral device. I think it should be defined as follows:  
'Any addressable device identifiable as a SCSI peripheral device type. See the IDENTIFY command description in the SCSI-3 Primary Commands Standard for the list of SCSI peripheral device types.'

8- (E) page 6 - 3.4 - second paragraph - Should be changed from '(e.g., a) red...' and '(e.g., 1) red...' to '(e.g., (a) red...' and '(e.g., (1) red...'

9- (E) page 9 - 4.1 - first paragraph - 3rd sentence - Should be changed from 'Both have the...' to 'All have the...' because there are more than two things.

10- (E) page 22 - 5.1.10 - table 1 and table 2 - The term 'clause' should be 'subclause'.

11- (E) page 22 - 5.1.10 - 1st paragraph after table 2 - 3rd sentence - Should be changed from '... OPERATION IN PROGRESS or NOT READY, FORMAT IN ...' to '...OPERATION IN PROGRESS, NOT READY, FORMAT IN...'

12- (E) page 25 - 5.2.2 - 3rd paragraph - Beginning of Tape and Beginning of Partition should not be capitalized.

13- (E) page 26 - 5.2.2 - 2nd paragraph - 1st sentence - Should be changed from '...data from medium partition pages ...' to '... data from medium partition mode pages...'

14- (E) page 26 - 5.2.2 - 4th paragraph - 1st sentence - Data-Out buffer should not be capitalized.

15- (E) page 27 - 5.2.2 - 3rd paragraph after note - The retention bit of zero case is not defined.

16- (E) page 29 - 5.2.5 - 2nd paragraphs after both notes - There is no ASC defined for the error condition.

17- (E) page 30 - 5.2.5 - 2nd paragraph and 1st and 2nd paragraphs after note - There is no ASC defined for the error condition.

18- (E) page 31 - 5.2.6 - table 11 - There is no cross-reference to this table.

19- (E) page 31 - 5.2.6 - 1st paragraph - Should be changed from '...and n is greater than...' to '...and n shall be greater than...'

20- (E) page 33 - 5.2.7 - 5th paragraph after note - Position Error should not be capitalized.

21- (E) page 34 - 5.2.7 - 2nd paragraph - Mark Position Unknown should not be capitalized.

22- (E) page 35 - 5.2.8 - 2nd paragraph after table - 1st sentence - In

a effort to reduce executions 'The execution of this command...' should be changed to 'This command ...'.

23- (E) page 36 - 5.2.9 - 2nd paragraph from bottom - last sentence - There is no sense key or ASC defined for the error condition.

24- (E) page 37 - 5.2.10 - 2nd paragraph after table 17 - last sentence - There in no ASC defined for the error condition.

25- (E) page 37 - 5.2.10 - 4th paragraph after table 17 - 2nd sentence - Density should not be capitalized and in the 3rd sentence Density Support should not be capitalized.

26- (E) page 37 - 5.2.10 - table 18 - Bytes 4-n - The name of this field should be changed to 'Density support data blocks for supported densities descriptor'.

27- (E) page 38 - 5.2.10 - 1st paragraph - 2nd sentence - Available should not be capitalized. 3rd sentence should be change to read '... (52 is the size for a single density support data block descriptor).'

28- (E) page 38 - 5.2.10 - table 19 header - Add 'descriptor' at end of header.

29- (E) page 38 - 5.2.10 - 1st paragraph after table - 3rd sentence - DENSITY NAME is not in small caps.

30- (E) page 38 - 5.2.10 - 2nd paragraph after table - last sentence - should have a cross-reference to mode select command.

31- (E) page 38 - 5.2.10 - last paragraph - Mode Sense command, Mode Select command, and Report Density Support command should be MODE SENSE command, MODE SELECT command, and REPORT DENSITY SUPPORT command.

32- (E) page 39 - 5.2.10 - 1st paragraph after note 13 - Mode Select command should be MODE SELECT command.

33- (E) page 39 - 5.2.10 - 4th paragraph after note 13 - last sentence - Should be change to '...shall accept a MODE SELECT header with a density code...'

34- (E) page 39 - 5.2.10 - last paragraph - 1st sentence - This should be changed to 'If the MEDIA bit is zero, the ...'. 2nd sentence - This should be changed to 'If the MEDIA bit is one, the...'

35- (E) page 40 - 5.2.10 - 2nd paragraph - 4th sentence - Vendor Identification should not be capitalized. And the it should read '...the vendor identification list (see SCSI-3 Primary Commands Standard).'

36- (E) page 40 - 5.2.10 - 2nd paragraph - The term 'ABC' should be changed to 'x'.

37- (E) page 40 - 5.2.10 - Note 15 - Change X3T10 to T10.

38- (E) page 41 - 5.2.10 - 1st paragraph - 2nd sentence - Should be changed to ' ...have completed and the command descriptor...'

- 39- (E) page 41 - 5.2.12 2ne paragraph after table - Beginning of Tape and Beginning of Partition should not be capitalized.
- 40- (E) page 42 - 1st paragraph - 2nd sentence - 65535 should be 65 535.
- 41- (E) page 42 - 5.2.13 - paragraph before table 22 - There is no ASC defined for the error condition.
- 42- (E) page 43 - 5.2.13 - 2nd paragraph, paragraph before note 20 and second to the last paragraph - There is no ASC defined for the error conditions.
- 43- (E) page 44 - 5.2.13 - 2nd, 3rd, and 5th paragraphs after letter list - There is no ASC defined for the error conditions.
- 44- (E) page 44 - 5.2.14 - last paragraph - last sentence - Data-Out should not be capitalized.
- 45- (E) page 45 - 5.2.14 - 2nd paragraph after note - There is no ASC defined for the error condition.
- 46- (E) page 46 - 5.2.15 - 1st paragraph after note 22 - Valid should not be capitalized and there is no ASC defined for the error condition.
- 47- (E) page 47 - 5.2.15 - 1st paragraph after note 25 - Data-Out should not be capitalized.
- 48- (E) page 47 - 5.2.16 - 2nd paragraph after table - Write Setmark should not be capitalized.
- 49- (E) page 48 - 5.2.16 - 1st paragraph after note 27 - There is no ASC defined for the error condition.
- 50- (E) page 50 - 5.3.3 - paragraph before table 30 - There is no space between 'Table 30' and 'for'.
- 51- (E) page 52 - 5.3.3 - table 33 - Note 1 - Should read '...by MODE SENSE commands if ...'
- 52- (E) page 53 - 5.3.3.1 - 2nd paragraph after table - 2nd sentence - Should be changed to 'When this bie is one, data...'
- 53- (E) page 54 - 5.3.3.1 - There are no ASC defined in table 36 or in the 1st, 2nd, 3rd, or 4th paragraphs.
- 54- (E) page 54 - 5.3.3.1 - 1st, 2nd, and 3rd paragraphs - 'RED = 0', 'RED = 1', and 'RED = 2' should be in normal text not bold.
- 55- (E) page 55 - 5.3.3.1 - 1st paragraph after note 31 - There is no ASC defined for the error condition.
- 56- (E) page 57 - 5.3.3.2 - 1st paragraph before note 33 - There is no ASC defined for the error condition.
- 57- (E) page 58 - 5.3.3.2 - 2nd paragraph after note 35 - There is no ASC defined for the error condition.
- 58- (E) page 59 - 5.3.3.2 - second paragraph - 2nd sentence - There is

no key defined for the error condition.

59- (E) page 60 - 5.3.3.3 - table 40 - The text 'Partition size descriptor(s)' should be in normal text not bold.

60- (E) page 60 - 5.3.3.3 - 3rd paragraph - 3rd sentence - Should read '... returned by **MODE SENSE** command shall...'.  
 (Note: The original text has 'MODE SENSE' in bold, which is being corrected to normal text.)

61- (E) page 60 - 5.3.3.3 - note 36 - Mode Sense should not be capitalized.

62- (E) page 60 - 5.3.3.3 - 1st paragraph after note 36 - last sentence - Should read '...ignored by **MODE SELECT** command when the...'.  
 (Note: The original text has 'MODE SELECT' in bold, which is being corrected to normal text.)

63- (E) page 62 - 5.3.3.3 - 1st and 2nd paragraph - There are five places where '**MODE SELECT**' should be changed to '**MODE SELECT** command'.  
 (Note: The original text has 'MODE SELECT' in bold, which is being corrected to normal text.)

63- (E) page 63 - 5.3.3.3 - 1st paragraph - There is one place where '**MODE SELECT**' should be changed to '**MODE SELECT** command'. There is one place where '**MODE SENSE**' should be changed to '**MODE SENSE** command'.  
 (Note: The original text has 'MODE SELECT' and 'MODE SENSE' in bold, which are being corrected to normal text.)

64- (E) page 64 - 5.3.3.4 - table 43 - The text 'Partition size descriptor(s)' should be in normal text not bold.

65- (E) page 64 - 5.3.3.4 - 2nd paragraph after table - 3rd sentence - 'PAGE CODE' should be in normal text not small caps.

66- (E) page 65 - 5.3.3.4 - 1st paragraph after note 46 - There is no key or ASC defined for the error condition.

67- (E) page 65 - 5.3.3.4 - note 47 - '**MODE SELECT**' should be '**MODE SELECT** command'.  
 (Note: The original text has 'MODE SELECT' in bold, which is being corrected to normal text.)

68- (E) page 71 - 6.1 - 6th paragraph after figure - There is no ASC defined for the error condition.

72- (E) page 72 - 6.2 - Table 45 Keys - Should be changed to 'SMC = SCSI-3 Medium Changer Command Set Standard.

73- (E) page 74 - 6.2.3 - 3rd paragraph after table 49 - There is no ASC defined for the error condition.

74- (E) page 75 - 6.2.4 - 2nd paragraph - There is not ASC defined for the error condition.

75- (E) page 79 - 6.3.3.1 - 4th paragraph after table - '**MODE SELECT**' should be '**MODE SELECT** command' and '**MODE SENSE**' should be '**MODE SENSE** command'.  
 (Note: The original text has 'MODE SELECT' and 'MODE SENSE' in bold, which are being corrected to normal text.)

76- (E) page 81 - 6.3.3.2 - table 62 - 10b - There is a strange character between CHANL and bit in the 1st sentence.

77- (E) page 81 - 6.3.3.2 - 1st paragraph after table - '**MODE SENSE**' should be '**MODE SENSE** commands'.  
 (Note: The original text has 'MODE SENSE' in bold, which is being corrected to normal text.)

78- (E) page 81 - 6.3.3.2 - 3rd paragraph after table - 'in **MODE SELECT**' should be 'in the **MODE SELECT** command' and '**MODE SENSE**' should be '**MODE SENSE** commands'.  
 (Note: The original text has 'MODE SELECT' and 'MODE SENSE' in bold, which are being corrected to normal text.)

79- (E) page 82 - 6.3.3.2 - table 63 and table 64 - 0h - There is no ASC defined for the error condition.

80- (E) page 84 - 6.3.3.2 - 3rd paragraph - Clear to Send should not be capitalized.

81- (E) page 85 - 7.1 - 5th paragraph - 'MODE SELECT' should be 'MODE SELECT command' and 'MODE SENSE' should be 'MODE SENSE command'.

82- (E) page 86 - 7.1 - 5th paragraph - There is no ASC defined for the error condition.

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Comments attached to No ballot from Edward A. Gardner of Ophidian Designs:

Recently I received the following email message in response to some reflector discussion of tape operation over FC-AL. The gist of this is as follows. With "normal" tape read or write operations, it is in principle possible for host software to recover from failed commands (assume an interconnect failure for simplicity). Host software may retry a failed read or write command by repositioning the tape and re-issuing the command. Yes, there are practical problems in that most host software doesn't implement this, or that it requires optional features, but it is in principle possible to do.

With Recover Buffer Data this is not possible at all. If a Recover Buffer Data command fails for any reason (e.g. an interconnect problem), there is no mechanism defined in the SSC command set to reposition and retry the command. The host gets exactly one chance at issuing the command, if it fails then it is a hard or unrecoverable failure.

I believe that SSC needs to include one of the following:

1. Define some means to reposition within the buffer, so that a Recover Buffer Data command can be reissued after a failure.
2. A statement that the error recovery model of using Recover Buffer Data is undesirable, flawed, or obsolete, and support for it will be removed in a future version of SSC. That is, state that the Recover Buffer Data command is obsolete.
3. A statement that Recover Buffer Data is a problem and/or an incomplete solution, and will be remedied in SCC-2.

My personal inclination is that we should do everything possible to hide buffering from the initiator, and thus adopt choice 2, but I appreciate that vendors who have committed to this functionality may disagree. My fundamental position is that if we are going to continue to include Recover Buffer Data, then we need to ensure it can be used reliably.

From: robbyb@VNET.IBM.COM

Subject: Recover Buffer Data

Thank you for your note on command level error recovery. I represent the very high end of open systems attach here at IBM. The high end employs Recover Buffer Data command and we were wondering what you had in mind for recovery for this command. This is a trick question because today I know of know way to do a position type command for buffered data.

Let me emphasize that this is a high-end concern. For my mid-range and low-end products this is not an issue. I will add I see this as a market that is growing to a nice size so that I don't think I can just ignore it. I will also add that the problem exists in SCSI-2 parallel as well.

Your thoughts?

Rob

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Comments attached to YesC ballot from Gene Milligan of Seagate Technology:

- 1) Clause 3.1.10 defines a peripheral device as "A physical peripheral device that can be attached to an SCSI device, which connects to the SCSI bus." This seems like a circuitous definition with a confusing twist.
- 2) In addition to the problems with the root definition, this is the first of many instances of the term "can" which is usually problematic in standards.
- 3) In former times I would have commented on the numerous instances of "which" which could be replaced with "that. However I just received a copy of a draft standard from an ANSI editor with the request to replace a "that with which. So, I know not which is correct.

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Comments attached to YesC ballot from Erich Oetting of Storage Technology Corp.:

- 1. Clause 1, item a: Change "and communications device" to "or communications device".
- 2. Clause 5.1.10, table 1. Delete Write Filemarks from the table. (Since a Write Filemarks command with Immediate bit set does not force any action such as writing buffered data to tape that can be tested for progress.)
- 3. Clause 5.1.10, paragraph 2: Change "by interpreting" to "using".
- 4. Clause 5.1.10, paragraph 2: Change "device service" to "device server".
- 5. Clause 5.1.10, paragraph 4: Change "by interpreting" to "using".



6. Clause 5.1.10, paragraph 4: Change "device service" to "device server".
7. Clause 5.1.10, note 2: Note is confusing, but could be removed.
8. Clause 5.2, table 3: Change READ BUFFER to MAY Flush Write data.
9. Clause 5.2, table 3: Change RECOVER BUFFERED DATA to MAY Flush Write data.
10. Clause 5.2.3, paragraph 6: Change first sentence to "A retention (RETEN) bit of one indicates that the device shall perform a retention function on the current medium
11. Clause 5.2.3, paragraph 8: Change "if the previous" to "if a previous".
12. Clause 5.2.10, just before table 19: Change "of 52 (52 is the" to "of 50 (the".
13. Clause 5.2.10, WRTOK bit description: Change first sentence to " A WRTOK bit of zero shall indicate that the logical unit does not support writing to the media with this density.
14. Clause 5.2.13, paragraph after table 23. Change last sentence to "When the count field is zero, and the code field is not 011b (End-of-data) a device server is not required to transfer all buffered data, filemarks and setmarks to the media.
15. Clause 5.3.3, paragraph after table 30. Change "not defined" to "ignored".
16. Clause 5.3.3, table 33: Add line to indicate codes 01 to 2Bh are used by "Historical Density Codes".
17. Clause 5.3.3.5, PER bit paragraph, last sentence: Change "small also" to "shall also".
18. Clause 6.2, table 45: Remove MOVE MEDIUM ATTACHED and READ ELEMENT STATUS from the printer commands table.
19. Clause 6.3.3: Add text indicating the WP bit is reserved for printer devices.
20. Clause A.1, table 79: Reference for code 09h should be X3.180.
21. Clause A.1, table 79: Remove codes 19h, 1Ah and 1Bh from the table unless we know what they are.
22. Clause A.1, table 79: Reference for code 28h should be X3.224.
23. Clause A.1, table 79: Codes 29h and 2Ah were reserved by IBM for products that are now released. These should be removed from the table unless information on the densities is provided.
24. Clause A.1, table 79: Information on code 2Bh should be [12, 7 (0, 5), 3, 0, -, X3.267, 5].

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Comments attached to No ballot from Ralph Weber of  
Symbios Logic Inc.:

N.B. These comments do NOT cover the communications device clauses.  
I don't have time right now to review that clause.

#### Symbios Logic Technical Comments

#1 (T) Clause 5.1.4 - para 2

Add the following as the second sentence in the paragraph:

"Proper recording and detection of filemarks is the responsibility of the device server."

This carries the definition of responsibilities found in the last sentence of paragraph 1 to filemarks.

#2 (T) Clause 5.1.8 - list at the top of page 19

Does condition "Invalid logical block request" belong in this list? The only command that could generate an invalid logical block condition is the LOCATE command, and sense key information relating to invalid block address is discussed in clause 5.2.4.

#3 (T) Clause 5.1.9 - missing additional sense code

There is no additional sense code defined for the DATA PROTECT sense key in the case where the positioning of the media within unrecoverable data causes the write protection state.

#4 (T) Clause 5.1.9 - para 3

I have several concerns regarding the sentence: "Buffered write data may or may not be written to the media, indicated by associated sense data."

- 1) Does this statement apply during the temporary write protection or after the device server releases it?
- 2) What does "associated sense data" mean? This is an even more troubling question since the introduction of "Associated Write Protect".
- 3) Is the contents of the sense data something that an application client can reliably use to determine what has happened to the buffered write data? If yes, then where are the sense data contents specified? If the specification already exists, can a clause or document reference be added to this sentence? If the sense data contents are unreliable, why mention them here?
- 4) Will there be sense data in which to communicate this information? Once the temporary write protection is cleared, what error condition will result in the availability of sense data that contains the information implied by this sentence?

#5 (T) Clause 5.1.10 - para 1

Change "... where the device server will remain ready, ..." to "... where the device server shall remain ready, ..." or to "... where the device server remains ready, ..."

#6 (T) Clause 5.1.10 - 1st para after Table 1

Regarding the sentence: "The sense key specific function for progress indication may be used by the device server to provide information on the completion of the operation."

It is disappointing to see this service defined with an "optional, no preference" requirement. T10 should consider changing the "may" to "should".

#7 (T) Clause 5.2.1 - para 1

Delete the last four words in the sentence: "As used here, erased means either the medium shall be erased or a pattern shall be written on the medium that appears as a gap to the logical unit." to produce "As used here, erased means either the medium shall be erased or a pattern shall be written on the medium that appears as a gap."

No clarity is sacrificed by removing any attempt to name the entity to which what is written on the medium appears as a gap. However, removing the attempt to name the entity eliminates all arguments regarding exactly what entity should be named.

#8 (T) Clause 5.2.1 (several locations) and Clause 5.2 - Table 3

There is no consistency in how flushing of write data is defined for the ERASE command. Table 3 requires that write data be flushed always. However, the following three statements appear in Clause 5.2.1:

- p3 An IMMED bit of one indicates that the device server shall return status as soon as the command has been validated.
- p4 If the IMMED bit is one, the device server shall return status as soon as all buffered commands have completed execution and the command descriptor block of the ERASE command has been validated.
- p6 If the IMMED bit is one, the device server shall return status as soon as the command descriptor block has been validated.

If the contents of Table 3 were to determined by majority vote, it looks like the Table 3 "flush column" should contain "No" for the ERASE command. However, it's probably not that easy and Symbios recommends that the ERASE entry in Table 3 be changed to "May".

In addition Clause 5.2.1, paragraph 3 must have the last two sentences changed from:

An IMMED bit of one indicates that the device server shall return status as soon as the command has been validated. If CHECK CONDITION status is returned for an ERASE command with an IMMED bit of one, the erase operation shall not be performed.

to:

Interpretation of an IMMED bit of one depends on the value of the LONG bit, see below. However, for all values of the LONG bit, if CHECK CONDITION status is returned for an ERASE command with an IMMED bit of one, the erase operation shall not be performed.

#9 (T) Clause 5.2.1, 5.2.3, 5.2.4, and 5.2.11

In the definitions of the ERASE, LOAD UNLOAD, LOCATE, and REWIND commands, change "If the IMMED bit is one, the device server shall return status as soon as all buffered commands have completed execution and the command descriptor block of the ..." to "If the IMMED bit is one, the device server shall return status as soon as all buffered data, filemarks and setmarks have been written to the medium and the command descriptor block of the ..."

Technically, the current statement "... all buffered commands have completed execution" is wrong. It is highly probable that all the commands completed execution sometime ago. From an editorial point of view, the commands are not the entities in the buffer, the data described by the commands is what is in the buffer and must be processed. The current wording is clearly SCSI-2 vintage prose and must go. Finally, the proposed new wording currently is used frequently revision 9 of SSC.

#10 (T) Clause 5.2.1 - para 7

Change "Any buffered erases are not reported as part of the information field." to "Any buffered erases shall not be reported as part of the information field."

While one might view this change as editorial, it also might be viewed as adding a new requirement. Thus, the technical classification.

#11 (T) Clause 5.2.2 - para 1 and 4

Consider the following two statements from Clause 5.2.2:

- p1 Prior to performing the format medium operation, the logical unit shall ensure that all buffered data, filemarks, and setmarks have been transferred to the medium.
- p4 The FORMAT MEDIUM command shall be accepted only when the medium is at Beginning of Tape (BOT) or Beginning of Partition 0 (BOP 0). If the medium is logically at any other position, the command shall be rejected with CHECK CONDITION status. The sense key shall be ILLEGAL REQUEST with the additional sense code set to POSITION PAST BEGINNING OF MEDIUM

It would appear that receipt of a FORMAT MEDIUM command when there is information in the drive's buffer is guaranteed to result in a CHECK CONDITION. So, why not simplify implementations by changing the statement in paragraph 1 to read:

If buffered data, filemarks, or setmarks are stored by the device server when processing of a FORMAT MEDIUM command begins, the command shall be rejected with CHECK CONDITION status. The sense key shall be ILLEGAL REQUEST with the additional sense code set to POSITION PAST BEGINNING OF MEDIUM

Note: this change would have the additional effect of requiring that the "flush column" entry for the FORMAT MEDIUM command in Table 3 be changed from "Yes" to "No".

#12 (T) Clause 5.2.2 - second to the last para on page 25

The last part of the following sentence is unclear: "A VERIFY bit of one indicates that the logical unit shall verify that the format was successfully accomplished if formatting of the medium actually occurred." At first glance, the phrase "if formatting of the medium actually occurred" seems redundant. Perhaps the following more clearly conveys the intent: "A VERIFY bit of one indicates that the logical unit shall verify that the format was successfully accomplished after the formatting of the medium occurs."

#13 (T) Clause 5.2.2 - para 1, 2, and 3 after Table 6

Is all prior data on the volume lost after completion of a FORMAT MEDIUM with a FORMAT value of 1h? The effects of a FORMAT MEDIUM with a FORMAT value of 1h must be described in para 2 after Table 6.

In para 1 after Table 6, change "A valid FORMAT MEDIUM command shall cause all data on the entire physical volume to be lost." to "A valid FORMAT MEDIUM command with 0h in the FORMAT field shall cause all data on the entire physical volume to be lost."

In para 2 after Table 6, add the following text at the end of the paragraph: "A valid FORMAT MEDIUM command with 1h in the FORMAT field shall cause data on the physical volume to be lost as specified by applicable fields in the medium partition mode page (see 5.3.3.3)."

In para 3 after Table 6, and the following at the end of the paragraph: "A valid FORMAT MEDIUM command with 2h in the FORMAT field shall cause all data on the entire physical volume to be lost."

#14 (T) Clause 5.2.2 - new paragraph after para 3 after Table 6  
Add the following new paragraph after para 3 after Table 6:

When the FORMAT field contains 1h or 2h, some errors related to mode page field contents may not be detected until the FORMAT MEDIUM command is processed. Therefore, some error conditions described in 5.3.3.3 and 5.3.3.4 may be returned in response to a FORMAT MEDIUM command with 1h or 2h in the FORMAT field.

#15 (T) Clause 5.2.2 - para 4 after Table 6 and Note 4  
Remove note 4 and add the following text at the end of para 4 after Table 6: "Use of format information is restricted to vendor-specific values in the FORMAT field and the contents of the format information is vendor-specific."

#16 (T) Clause 5.2.3 and 5.2.11  
The LOAD UNLOAD and REWIND command definitions both contain the following conflicting statements:

- p1 Prior to performing the xxxxxx operation, the logical unit shall ensure that all buffered data, filemarks, and setmarks have been transferred to the medium.
- pn When operating in buffered mode 1h or 2h (see 5.3.3), the logical unit shall discard any unwritten buffered data after the XXXXXX command is validated if the previous command was terminated with CHECK CONDITION status and the device is unable to continue successfully writing.

Based on my reading of 5.3.3, the following changes make the most sense. Delete the last paragraph in Clauses 5.2.3 and 5.2.11 (the pn text shown above). In the first paragraph of Clauses 5.2.3 and 5.2.11 replace the text shown as p1 above with:

If the buffered mode is not 0h (see 5.3.3) and the previous command was terminated with CHECK CONDITION status and the device is unable to continue successfully writing, the logical unit shall discard any unwritten buffered data, filemarks, and setmarks prior to performing the xxxxxx operation. Otherwise, prior to performing the xxxxxx operation, the logical unit shall ensure that all buffered data, filemarks, and setmarks have been transferred to the medium.

The proposed new wording assumes that future definitions for buffered mode code values 3h thru 7h will be more like the definitions for code values 1h and 2h than they will be like the definition for code value 0h. A quick inspection of Table 31 should validate this assumption.

This change has the additional effect of requiring that the "flush column" entry for the LOAD UNLOAD and REWIND commands in Table 3 be changed from "Yes" to "May".

#17 (T) Clause 5.2.3 - para 5 on page 27

Add the following text at the end of the paragraph: "When the RETEN bit is 1, the LOAD and EOT bits shall be ignored." [small caps for RETEN, LOAD and EOT]

If this change is not made, I see no mechanism that allows the medium to have the correct tension applied except immediately after the volume is mounted or immediately before it is de-mounted. This would seem to defeat the purpose of the RETEN bit.

#18 (T) Clause 5.2.4 - para 3

Change non-keyword verbs to "shall" such that the text changes from:

A change partition (CP) bit of one indicates that a change to the partition specified in the PARTITION field is to occur prior to positioning to the block specified in the block address field. A CP bit of zero indicates no partition change is to be made and the PARTITION field is to be ignored.

to:

A change partition (CP) bit of one indicates that a change to the partition specified in the PARTITION field shall occur prior to positioning to the block specified in the block address field. A CP bit of zero indicates no partition change shall occur and the PARTITION field shall be ignored.

#19 (T) Clause 5.2.5 - para 1

Change "... beginning with the next block on the logical unit." to "... beginning with the next block."

No clarity is sacrificed by removing any attempt to name the entity on which the next block is located. However, removing the attempt to name the entity eliminates all arguments regarding exactly what entity should be named.

#20 (T) Clause 5.2.6 - Table 10

How can the READ BLOCK LIMITS command return READ BLOCK LIMITS data when there is no ALLOCATION LENGTH field in the CDB?

#21 (T) Clause 5.2.6 - para 2 after table 11

If possible, requirements should be stated in terms of what the device server shall do. With this in mind, change "In this case the FIXED bit shall be set to one in the WRITE and READ commands." to "In this case, READ and WRITE commands with the FIXED bit equal to zero shall result in CHECK CONDITION status and the sense key shall be set to INVALID REQUEST."

#22 (T) Clause 5.2.7 - para 1

Change "... reports the current position of the logical unit and any data blocks in the buffer." to "... reports the current position and provides information about any data blocks in the buffer."

There are two changes proposed. First, no clarity is sacrificed by

removing any attempt to name the entity whose position is being reported. However, removing the attempt to name the entity eliminates all arguments regarding exactly what entity should be named. Second, the phrase following "and" is nonsense without the addition of some clarifying text. Suppose for a moment that the position reporting phrase is removed. Then, the sentence would read "... reports any data blocks in the buffer." What does it mean to "report a data block"?

#23 (T) Clause 5.2.7 - Note 9

Given all the information presented in Clause 5.1, note 9 seems either incomplete or unnecessary. Remove note 9.

#24 (T) Clause 5.2.7 - para 5 on page 33

Regarding:

If the logical unit is not capable of reporting block locations, the BPU bit shall be set to one in the returned data. Support for this option of the READ POSITION command is indicated by a BIS bit set to one in the device configuration page (see 5.3.3.2).

It's very difficult to see how this paragraph adds any information that is not present in the paragraph that precedes it, to wit:

A block position unknown (BPU) bit of one indicates that the first and last block locations are not currently known or not otherwise obtainable. A BPU bit of zero indicates that the first and last block location fields contain valid position information.

There is an additional problem because the paragraph 5 text seems to assume the case where BT is equal to zero in the READ POSITION CDB. The seeming assumption is based on the fact that BIS equal to 1 means that the device supports block identifiers, which only has meaning when BT is equal to 0.

Perhaps, the intent is to grand-father devices that do not support block identifiers. If this is not the intent, then paragraph should be removed completely. If some kind of grand-father clause is intended, then paragraph 5 should be removed and the following text should be added at the end of paragraph 4:

If the BT bit is zero and the BIS bit in the device configuration page (see 5.3.3.2) is zero, the device server may return incorrect values in the first and last block location fields but not set the BPU bit to one.

#25 (T) Clause 5.2.7 - Note 11

This note contains the word "shall". Therefore, it appears that note 11 should not be a note at all, but instead should be a normative part of the standard.

Also, change "The MPU and BPU bits shall only be set if ..." to "The MPU and BPU bits shall be set to one only if ..." Based on the current SSC definitions, "set" can mean either "set to zero" or "set to one".

#26 (T) Clause 5.2.7 - para 8 after Table 14

Are the contents of the SET NUMBER field affected by the value of the RSMK bit in the device configuration page? Regardless of the answer, adding a statement describing the relationship to this paragraph is strongly recommended.

#27 (T) Clause 5.2.8 - para 1

Change "... beginning at the current position on the logical unit." to "... beginning at the next block."

This change matches the READ REVERSE wording to the READ wording, see comment #19.

#28 (T) Clause 5.2.10 - para 1 and para 3

Regarding the following two sentences:

p1 Most of the information reported by the REPORT DENSITY SUPPORT command is static.

p3 The data returned by the device server shall be static if the MEDIA bit is zero.

Exactly what is meant by the phrase "the data is (or shall be) static"? Even if one grants that "static" means "unchanging", there are still questions. Over what period of time is the data unchanging? Forever? Until the next bus reset? Until the next microcode download? At a minimum, the wording here needs to be clarified, particularly in the case of the requirement statement.

However, a better choice would be to remove both statements completely. p1 is, at best, informative for the developers of application clients. But, it really tends to lead said developers down the garden path to inadequate implementations. p3 is unnecessarily restrictive, unless the time interval over which "static" is persistent is uselessly short. Suppose that loading new microcode in a device somehow allows it to write a density that it could not previously write. The p3 requirement prohibits this capability.

The developers of application clients should be encouraged to let the device server maintain up to date density support information, to avoid wasting initiator memory with redundant copies of same, and to ask the device server about its capabilities in reasonable time proximity to their need for such information. Device implementors should be given the maximum flexibility to provide maximum capabilities, not constrained by flowery requirements on a data reporting format. Removed both p1 and p3 from SSC.

#29 (T) Clause 5.2.10 - para 1

Regarding:

All supported densities shall be supported for reading.

If this requirement is truly needed, it belongs in the device model, not in the command definition for REPORT DENSITY SUPPORT. However, one strongly suspects that market requirements will influence this design decision more strongly than any standard. Who's going to buy a tape drive that can't read the tapes it writes?

#30 (T) Clause 5.2.10 - bottom of page 38 and top of page 39

Regarding:

All density code values returned by the Report Density Support command shall support read operations based on the setting of the MEDIA bit in the CDB.



See comment #135 regarding "Report Density Support". Next, the phrase "based on the setting of the MEDIA bit in the CDB" does not provide sufficient detail regarding the effect the MEDIA bit has on the requirement portion of the sentence. Upon further consideration, it is impossible to see how the state of the MEDIA bit has any effect on the fact that any density described in a Density Support data block must be a read density. The one and only fact that this sentence can be trying to communicate is the fact that, by design, the REPORT DENSITY SUPPORT command assumes that no device will implement a write-only density. The state of the MEDIA bit does not alter this fact in any way.

Lastly, this statement is out of place in the description for the PRIMARY DENSITY CODE field. It should be closer to the WRTOK bit, since it demonstrates the reasoning behind the absence of a RDOK bit.

So, 1) remove the sentence described above, and 2) add the following sentence to the end of para 4 on page 39 (the para that begins "A WRTOK bit of zero ..."): "All density code values returned by the REPORT DENSITY SUPPORT command shall support read operations."

#31 (T) Clause 5.2.10 - para 6 on page 39

Change "A DEFLT bit of one shall indicate that this density is the default density of the logical unit." to "A DEFLT bit of one shall indicate that this density is the default density."

No clarity is sacrificed by removing any attempt to name the entity whose default density is being reported. However, removing the attempt to name the entity eliminates all arguments regarding exactly what entity should be named.

#32 (T) Clause 5.2.13 - Note 19

Note 19 should be made normative (not a note) and the text should be added to the end of the preceding paragraph. Also, "never results in" should be changed to "shall never result in". N.B. comment #145 also concerns Note 19.

#33 (T) Clause 5.2.14 - para 1

Change "... verify one or more block(s) beginning with the next block on the logical unit." to "... verify one or more block(s) beginning with the next block."

No clarity is sacrificed by removing any attempt to name the entity housing the next block. However, removing the attempt to name the entity eliminates all arguments regarding exactly what entity should be named.

#34 (T) Clause 5.2.15 - para 1

Change "The WRITE command (see Table 25) requests that the device server write the data that is transferred from the application client to the current position on the logical unit." to "The WRITE command (see Table 25) requests that the device server write the data supplied by the application client to the current logical position."

The application client doesn't transfer data, that's a service delivery subsystem duty. Also, comment #62 provides a definition for 'current logical position', which is a term coined specifically for use in this and similar circumstances. Deletion of the phrase "on the logical unit" is based on the same argument advanced in comment #7.

#35 (T) Clause 5.2.15 - para 3 on page 46  
Change "... the current position on the logical unit shall not be changed."  
to "... the current logical position shall not be changed."

Comment #62 provides a definition for 'current logical position.' Deletion of the phrase "on the logical unit" is based on the same argument advanced in comment #7.

#36 (T) Clause 5.2.15 - para 4 on page 46  
Change "For unbuffered operation (BUFFERED MODE 0h), ..." to "When operating in unbuffered mode (see 5.x.x), ..." Also, change "For buffered operation (BUFFERED MODE 1h or 2h), ..." to "When operating in buffered mode (see 5.4.3), ..." 5.x.x is a clause reference to the definition proposed in comment #64.

#37 (T) Clause 5.2.15 - para 8 on page 46  
also Clause 5.2.16 - para 5 on page 48  
Change "If unbuffered mode is reported in the mode parameter header and ..." to "If the device is operating in unbuffered mode (see 5.x.x) and ..." 5.x.x is a clause reference to the definition proposed in comment #64.

#38 (T) Clause 5.2.15 - para 9 on page 46  
Change "If unbuffered mode is reported and ..." to "If the device is operating in unbuffered mode and ..."

#39 (T) Clause 5.2.15 - para 10 on page 46  
also Clause 5.2.16 - para 6 on page 48  
Change "If buffered mode is reported in the mode parameter header and ..." to "If the device is operating in buffered mode (see 5.4.3) and ..."

#40 (T) Clause 5.2.15 - para 11 on page 46  
also Clause 5.2.16 - para 7 on page 48  
Change "If buffered mode is reported and ..." "If the device is operating in buffered mode and ..."

#41 (T) Clause 5.2.15 - note 25  
Regarding:

Reporting the MEDIUM ERROR sense key, as was done in some SCSI-1 implementations, may cause confusion as to whether there was really defective medium encountered during execution of the last write command.

There is no SCSI-1 any more, it was superseded by SCSI-2. Would it be appropriate to change "... in some SCSI-1 implementations ..." to "... in some implementations of an obsolete standard ..."?

#42 (T) Clause 5.2.15 - para 5 on page 47  
Change "... shall be discarded by the logical unit." to "... shall be discarded."

No clarity is sacrificed by removing any attempt to name the entity doing the discarding. However, removing the attempt to name the entity eliminates all arguments regarding exactly what entity should be named.

#43 (T) Clause 5.2.16 - para 1  
Change "... to the current position on the logical unit." to "... to the current logical position." See the justifications provided in comment #34.

#44 (T) Clause 5.2.16 - para 2 after Table 26

Add the following as the second to the last sentence in the paragraph:

It shall not be considered an error for the TRANSFER LENGTH field to contain zero.

[small caps TRANSFER LENGTH]

#45 (T) Clause 5.3.3 - Table 31

In the definition of code 2h, change "All buffered data from different application clients has been successfully written to the medium." to "All buffered data from different initiators has been successfully written to the medium."

It is not possible for a device server to differentiate between the application clients running on a single initiator. The revised requirement is the tightest possible requirement that can be placed on a device server.

#46 (T) Clause 5.3.3 - para 2 thru 12 after Table 32

How does "principal density code" relate to the information returned by the REPORT DENSITY SUPPORT command? How does "principal density code" relate to the density code or codes that have the DEFLT bit set in the data returned by REPORT DENSITY SUPPORT? How does "principal density code" relate to the contents of the PRIMARY DENSITY CODE field? Normative text describing these relationships must be added.

#47 (T) Clause 5.3.3.1 - para 4 after Table 36

Replace:

A RED field of three is undefined and shall result in a CHECK CONDITION status with the sense key set to ILLEGAL REQUEST.

with:

A RED field of three is reserved. If a mode page containing a RED field of three is received, the MODE SELECT command shall be terminated with a CHECK CONDITION status and the sense key shall be set to ILLEGAL REQUEST.

Unless a RED field of three is vendor-specific, "undefined" should be changed to "reserved". "Undefined" has no normative meaning, but "reserved" is a precisely defined keyword.

Based, on the current text after "and", a device server could return RED equals 3 to a MODE SENSE, but it would also have to return CHECK CONDITION. Surely, this is not the intention.

#48 (T) Clause 5.3.3.1 - para 5 after Table 36

Change "The device shall be positioned on the EOP side of ..." to "The logical position shall be on the EOP side of ..." This change makes the wording similar to that used in the SPACE command and makes use of the new definition proposed in comment #62.

#49 (T) Clause 5.3.3.1 - Note 32

Regarding:

Table 37 shows the compression algorithm identifiers registered under

the International Register of Processing Algorithms [to be] established by ISO/IEC JTC1.

Has ISO/IEC JTC1 established anything yet?

#50 (T) Clause 5.3.3.1 - Table 37

If "not assigned" means "vendor specific" then change "not assigned" to "vendor specific". If "not assigned" means "reserved" then change "not assigned" to "reserved". If "not assigned" has a meaning different from either "vendor specific" or "reserved" then add a keyword definition for "not assigned" to Clause 3.3. Similarly, replace "unused" with a clearly defined term or unambiguous English such as "prohibited".

#51 (T) Clause 5.3.3.2 - para 2 on page 57

Regarding: "This bit is target-defined." Actually, this bit is defined by SSC. The definition directly precedes this sentence in this paragraph. If this thought must remain in SSC, then perhaps it could be rewritten to convey a clear meaning, for example, "Most device servers consider this bit to be not changeable." (Avoid making the new sentence a requirement.)

#52 (T) Clause 5.3.3.2 - para 5 on page 57

Regarding:

This implies that the device differentiates between data blocks and filemarks in the buffer.

It would seem that SOCF equals 00b implies that the device does not differentiate between data blocks and filemarks in the buffer, which is the exact opposite of what this sentence says. The easiest resolution would be to remove the obfuscating sentence. However, it might be better to replace the sentence with:

Devices that do not differentiate between data blocks and filemarks in the buffer shall restrict SOCF to 00b.

#53 (T) Clause 5.3.3.2 - Note 35

This note would be more appropriate as normative text at the end of the preceding paragraph. The information in the note provides suitable normative clarification of the intent of the BUFFER SIZE AT EARLY WARNING field.

#54 (T) Clause 5.3.3.3 - Note 37

This note would be more appropriate as normative text, probably as a separate paragraph, perhaps immediately before Table 40.

#55 (T) Clause 5.3.3.3 - Note 39

Remove this note. It is a repeat of the normative text above, specifically:

The logical unit is not required to maintain the PSUM used to format any given media.

repeats:

A logical unit is not required to retain the method used to partition the medium.

#56 (T) Clause 5.3.3.3 - Note 40

This note would be more appropriate as normative text at the end of the preceding paragraph. The information in the note provides suitable normative clarification of the PARTITION UNITS field.

#57 (T) Clause 5.3.3.3. - para 6 after Table 41

Since SCSI-2 offers no definition for the CLEAR and ADDP bits, the behavior when these bits are zero must be vendor specific. Therefore, change:

The logical unit may logically erase any or all partitions when one of the IDP, FDP, or SDP fields is set to one by a MODE SELECT command.

to:

Based on vendor-specific definitions, the logical unit may logically erase any or all partitions when one of the IDP, FDP, or SDP fields is set to one by a MODE SELECT command.

#58 (T) Clause 5.3.3.3 - para 1 on page 62

The following sentence appears to repeat the definition provided in para 6 after Table 41: "An ADDP field set to zero indicates that the logical unit may logically erase any or all partitions if any of the IDP, FDP, or SDP bits is set to one." Alternatively, the sentence conflicts with or weakens the requirement specified in para 7 after Table 41. Suggest that the sentence in question be removed.

#59 (T) Clause 5.3.3.3 - last para before Table 42 and Note 41

Many things are wrong with this paragraph. "A logical-unit defined value" is an ill-defined concept in SSC (see also comment #51). What is "an unknown volume"? Finally, the last sentence in Note 41 is normative and should be included in this paragraph. Change the paragraph from:

The MEDIUM FORMAT RECOGNITION field is a logical unit-defined value indicating the logical unit's capability to automatically identify the medium format and partition information when reading an unknown volume. The MEDIUM FORMAT RECOGNITION field values are shown in Table 42.

to:

The MEDIUM FORMAT RECOGNITION field indicates the logical unit's capability to automatically identify the medium format and partition information when reading a volume. The value in this field may be different following a medium change. The MEDIUM FORMAT RECOGNITION field values are shown in Table 42.

Remove the last sentence in Note 41, it is normative and has been inserted in the proposed text above.

#60 (T) Clause 5.3.3.4 - Note 45

This note should be moved to Clause 5.3.3.3, it applies to all medium partition pages, not just to medium partition page (2-4).

#61 (T) Clause 5.3.3.5 - para 2 after Table 44

It appears that the TB bit applies only to read operations. However, the only hint in the text is the phrase, "shall be transferred to the application client". Perhaps more specific wording should be used. For example, maybe "... a data block that is not recoverable ..." should be changed to "... a data block that cannot be read ..."

#62 (T) Clause 5.4 - new definition (current logical position)  
Add the following definition that is specific to sequential access devices:

logical position: The position relationship that would exist between the recording media and the write mechanism if all data buffered by the device (see 5.1.5) were reflected in the media position (if all buffered write data were written to the medium).

#63 (T) Clause 5.4.15  
Regarding: "The entire usable region of recording and reading paths in a volume or in a portion of a volume, ..." What is the meaning of "paths" as used in this phrase? My best guess is that "paths" is a synonym for "track groups", but I honestly don't have a clue what "paths" means.

#64 (T) Clause 5.4 - new definition (buffered mode)  
Add the following definition that is specific to sequential access devices:

unbuffered mode: The mode of operation where write data is written directly to the medium without being buffered, indicated by 0h in the BUFFER MODE field in the mode parameter header (see 5.3.3), the opposite of buffered mode (see 5.x.x).

[small caps BUFFER MODE]

N.B. My inspection of Table 31 suggests that 0h will be the only code ever used to represent unbuffered mode, whereas it seems entirely probable that the reserved code values may at some future date be used to define new buffered modes of operation. This assessment influenced the wording proposed above.

#65 (T) Clause 5.4  
Move this entire clause to between clauses 5.1 and 5.2. Or, better still, merge the definitions in this clause with the SSC glossary clause, 3.1. The presence of glossary information at the end of the tapes requirements was a surprise to me and left me making a long list of proposed additions to 3.1. Other SSC readers also may miss the tape-specific definitions, if they remain at the end of the section.

#66 (T) Clause 6.1 - para 5 after Figure 11  
Change "Extents are not supported by this model." to "Extent and element reservations are not supported by this model."

#67 (T) Clause 6.2 - Table 45  
What is "OM" in the Type column? Either change these entries to something listed in the Key, or add OM to the Key with a description.

#68 (T) Clause 6.3.3 - Table 55  
Change "WP" to "Rsvd". Surely, printers are not subject to write protection. Comment #76 proposes that Rsvd be defined as an abbreviation for Reserved.

#69 (T) Clause 6.3.3.1 - Notes 48 thru 51  
All of these notes should be made part of the normative text. There is nothing wrong with including clearly identified examples, such as the VFU control byte description, in the normative text. To make matters worse, these notes are not separate topics, but instead they are paragraphs within the description of the VFU. Lastly, the presence of a reference to Table

59 in Note 48 suggests that Note 51 can be entirely removed from SSC.

#70 (T) Clause 6.3.3.2 - Table 65

Change "The logical unit shall issue a zero line slew command to the printer device." to "The logical unit shall print any buffered data and then issue a zero line slew command to the printer device."

end Symbios Logic Technical Comments

Symbios Logic Editorial Comments

#71 (E) Clause 3.1 - Add several definitions

The following definitions should be added to simplify and clarify the connection between several phrases used throughout SSC that are implicit references to SPC.

additional sense code: two fields (Additional sense code and Additional sense code qualifier) in the sense data.

information field: the Command-specific information field in the sense data.

sense data: the data returned by a REQUEST SENSE command (see SPC).

sense key: a field in the sense data.

#72 (E) Clause 3.1.4 - CDB definition

Change "The structure used to communicate commands from an initiator to a target." to "The structure used to communicate a command from an application client to a device server."

#73 (E) Clause 3.1.10 - peripheral device definition

Change "... the SCSI bus." to "... the SCSI service delivery subsystem."

#74 (E) Clause 3.1.12 - target definition

Change "... that receive and execute commands ..." to "... that receive and perform commands ..."

#75 (E) Clause 3.2

Force new page before beginning of clause.

#76 (E) Clause 3.2 - additional text

Add definition for Rsvd acronym, so that it can be used in single byte fields of tables. Specifically, add: "Rsvd Reserved"

#77 (E) Clause 3.2 - additional text

Add definition for SBC acronym, which is used in clause 4.1. Specifically, add: "SBC SCSI-3 Block Commands standard"

#78 (E) Clause 3.2 - SCS acronym

Change acronym from "SCS" to "SCSI"

#79 (E) Clause 3.2 - additional text

Add definition for SMC acronym, which is used in Table 3 and elsewhere. Specifically, add: "SMC SCSI-3 Medium Changer Commands standard"

#80 (E) Clause 3.3.1

Add a blank line before clause 3.3.1.

**#81 (E) Clause 3.3.2 - invalid keyword**

Change "A keyword used to describe ..." to "used to describe ..." This change makes the syntax in 3.3.2 match the syntax in 3.3.1.

**#82 (E) Clause 3.4 - para 2**

The use of parentheses in the lists examples seems odd, specifically:

(e.g., a) red; (b) blue; (c) green) and

(e.g., 1) red; (2) blue; (3) green)

I would expect the examples to be structured in one of the following two ways:

(e.g., (a) red; (b) blue; (c) green) and

(e.g., (1) red; (2) blue; (3) green)

or

(e.g., a) red; b) blue; c) green) and

(e.g., 1) red; 2) blue; 3) green)

I believe the second choice is more common in SCSI standards.

**#83 (E) Clause 3.4 - bullets b and c**

Reverse the order of these two bullets. Then the quote marks are unnecessary around NAME. The result of these changes would be:

b) Field names are in SMALL CAPS to distinguish them from normal English.

c) Fields containing only one bit are referred to as the NAME bit instead of the NAME field.

**#84 (E) Clause 3.4 - bullet f**

Change to:

f) Numbers and uppercase letters A, B, C, D, E, and F immediately followed by lower-case h (xxh) are hexadecimal values.

**#85 (E) Clause 4.1 - para 1**

Change "Both have the common characteristic of ..." to "All have the common characteristic of ..."

**#86 (E) Clause 4.1 - para 2**

Change "Commands to read and write on a sequential-access device do not contain any absolute location." to "Commands to read and write on a sequential-access device do not contain any positioning information fields."

**#87 (E) Clause 4.1 - para 2**

Change "There may be restrictions on where the write may be initiated as well." to "There may be restrictions on where the write may be initiated."

**#88 (E) Clause 5.1 - para 4**

Change "A complete unit composed of the recording medium and its physical carrier (e.g. reel, cartridge, cassette) is called a volume." to "A volume is composed of the recording medium and its physical carrier (e.g. reel, cartridge, cassette)."

**#89 (E) Clause 5.1 - para 6**

Change "Some devices may have a physical control that places the device in a not ready state even when a volume is mounted." to "Devices may have a physical control that places the device in a not ready state even when a volume is mounted."

**#90 (E) Clause 5.1.4 - para 1**

Change "These elements are controlled and transferred between the initiator



and the medium using READ, READ REVERSE, WRITE, and WRITE FILEMARKS commands." to "These elements are controlled and transferred between the application client and the medium using READ, READ REVERSE, WRITE, and WRITE FILEMARKS commands."

#91 (E) Clause 5.1.4 - para 3, 4, and 6 on page 16  
also Clause 5.1.6 - para 4 and 5

The term "format" is vague. By common usage in other parts of SSC, the term "format" should be replaced with "recording format." There are six sentences needing this change in clauses 5.1.4 and 5.1.6. After the change is made the sentences will read as follows:

Minimum and maximum lengths for inter-block gaps are defined by the recording format.

Minimum and maximum lengths for erase gaps are defined by the recording format.

The length of a physical block may or may not be recorded as an exact byte count, depending on the recording format.

Some recording formats may carry both physical and logical block identifiers recorded on the medium.

Filemarks and setmarks may or may not have recorded identifiers, but if identifiers are used in the recording format, then each mark is assigned a value even if it is not explicitly recorded.

The READ POSITION and LOCATE commands use four-byte fields to hold these recording format dependent identifiers.

#92 (E) Clause 5.1.6 - para 5

Change "... and the initiator may use this value with a LOCATE command ..." to "... and the application client may use this value with a LOCATE command ..."

#93 (E) Clause 5.1.8 - para 2, 3, and 4 after the list on page 19

In the phrase "fixed bit", fixed is a field name and should be in small caps. There are six occurrences of "fixed bit" in these three paragraphs, two occurrences in each paragraph.

#94 (E) Clause 5.1.8 - para 2, 3, and 4 after the list on page 19

The phrase "valid bit", refers to the valid bit in the sense data. If the new definitions proposed in comment #71 are added, the phrase "valid bit" should be changed to "sense data valid bit" to clarify the location of the bit. (N.B. valid should not be in small caps to maintain a consistent style of reference to fields outside the SSC standard.) There are four occurrences of "valid bit" in these three paragraphs, two occurrences in paragraph 2 and one each in paragraphs 3 and 4.

#95 (E) Clause 5.1.8 - para 3 on page 20

Change "(see Write Protection, clause 5.1.9)" to "(see 5.1.9)".

#96 (E) Clause 5.1.9 - para 2

Change "... including the writing of previously buffered write data." to "... including potentially the writing of previously buffered write data." with the resulting sentence to read: "If allowed by the drive, changing the hardware write protect while the medium is mounted results in vendor-

specific behavior, including potentially the writing of previously buffered write data."

#97 (E) Clause 5.1.9 - para 4

The following: "Four optional means of setting a software write protected state are available to an application client through the device configuration and control mode pages: software write protect for the device server across mounts, associated write protect for the currently mounted volume, persistent write protect of a volume across mounts, and permanent write protect of a volume across mounts." should be changed to a list (for readability). To wit:

Four optional means of setting a software write protected state are available to an application client through the device configuration and control mode pages:

- a) software write protect for the device server across mounts;
- b) associated write protect for the currently mounted volume;
- c) persistent write protect of a volume across mounts; and
- d) permanent write protect of a volume across mounts.

#98 (E) Clause 5.1.9 - para 4 & Clauses 5.1.9.1 thru 5.9.1.4

Change "... (see section 5.3.3.2)." to "... (see 5.3.3.2)." There is one occurrence in each named clause.

#99 (E) Clause 5.1.9 - para 5 and list following it

"ASC/ASCQ" is not defined, but "additional sense code" is (at least if the proposal in comment #71 is accepted). So, change the four occurrences of "ASC/ASCQ" to "additional sense code" in the paragraph and list heading.

#100 (E) Clause 5.1.9.1

Change all occurrences of "field" to "bit". In all instances, the field being described is a single bit field, which by convention SCSI standards call a bit. Also change "(if the associated field is alterable)" to "(if the bit is changeable)". There are three occurrences of "field", not counting the specific occurrence just mentioned.

#101 (E) Clause 5.1.9.2

Change "... (if the associated field is alterable) ..." to "... (if the ASOCWP bit is changeable) ..."

#102 (E) Clause 5.1.9.2 thru 5.9.1.4

Change "... demounted ..." to "... de-mounted ..." to match the defining instance of the term in clause 5.1.1. There is one occurrence in each clause named.

#103 (E) Clause 5.1.9.3 and 5.1.9.4

Change "... may be specified in another interchange standard ..." to "... may be specified in the applicable recording format standard ..." There is one occurrence in each named clause.

#104 (E) Clause 5.1.10 - Tables 1 and 2

Change "Immediate = 1" and "Immed = 1" to "IMMED = 1" [small caps]. Change "Long = 1" to "LONG = 1" [small caps]. Change "Load = 1" to "LOAD = 1" [small caps]. Change "EOT = 0" and "EOT = 1" to "EOT = 0" and "EOT = 1" [small caps], respectively. This makes the bit names consistent with the small caps convention adopted by SSC.

#105 (E) Clause 5.1.10 - 1st paragraph after each of Table 1 and Table 2

Change "If the immediate function is used, ..." to "If the IMMED bit is one, ..." [small caps IMMED]. N.B. two occurrences of this change are described.

#106 (E) Clause 5.1.10 - 1st paragraph after each of Table 1 and Table 2  
Change "... an application client may test the progress of the operation by interpreting the progress indication information of the REQUEST SENSE command." to "... an application client may test the progress of the operation by interpreting the progress indication information in the sense-key specific field of the sense data."

#107 (E) Clause 5.1.10 - Note 2  
There are too many things wrong with note 2 to make an exhaustive list useful. Rewrite note 2 to read:

NOTE 2 A TEST UNIT READY command has very restricted reporting capabilities following one of the immediate operations listed in Table 2. It may provide information, which if acted upon, could lead to unexpected conditions. For example, progress indication reporting is useful when a medium changer is used to service a sequential peripheral device following an unload immediate operation. A TEST UNIT READY command may respond with a CHECK CONDITION status and a NOT READY sense key, which might be taken to mean that the unload operation is finished. Based on such an assumption, the application client might send an EXCHANGE MEDIUM or MOVE MEDIUM command (see SMC) to move a volume away from the device. However, since the unload operation is not finished, the EXCHANGE MEDIUM or MOVE MEDIUM would fail to grab a volume.

#108 (E) Clause 5.2 - Table 3  
Change "FORMAT" to "FORMAT MEDIUM".

#109 (E) Clause 5.2.1 - para 6  
Change "... (5.3.3.2)." to "... (see 5.3.3.2)."

#110 (E) Clause - para 7  
Change "... (5.2.15)." to "... (see 5.2.15)."

#111 (E) Clause 5.2.1 - para 7  
Change "... return sense data ..." to "... set the sense data ..."

The ERASE command does not return sense data. It simply sets up sense data so that it can be returned by a the link's autosense capability or by a REQUEST SENSE command.

#112 (E) Clause 5.2.2 - para 1 after Table 5  
Delete this paragraph, specifically delete: "The FORMAT MEDIUM command is an optional command for sequential access devices."

This information already appears in Table 3.

#113 (E) Clause 5.2.2 - para 4 after Table 5  
Change "Any prior data on the volume shall become inaccessible if the FORMAT field is set to 0h." to "The accessibility of any prior data on the volume is dependent on the contents of the FORMAT field."

The current statement does not fully describe the accessibility of the prior data in all possible cases. Furthermore, it is clear that new definitions of code values in the FORMAT field may result in further lack

of clarity in the current statement. The proposed replacement refers the reader to a place where all the details will be spelled out.

#114 (E) Clause 5.2.2 - second to last para on page 25

Change "If the VERIFY field is zero, ..." to "If the VERIFY bit is zero, ..."

#115 (E) Clause 5.2.2 - para 2 after Table 6

Change "... nor ..." to "... or ..."

#116 (E) Clause 5.2.3 - para 1, para 1 on page 27

Change "... the load or unload operation ..." to "... the load, unload or retension operation ..." The occurrence of this text in Clause 5.2.3 paragraph 1 is embedded in the text changed by comment #16. The text appears once revision 9 and twice in the changes proposed in comment #16. There are two occurrences of this text in the paragraph at the top of page 27.

#117 (E) Clause 5.2.3 - para 3 on page 27

Change "... (load bit set to zero) ..." to "... (LOAD bit set to zero) ..." [small caps].

#118 (E) Clause 5.2.3 - para 4 on page 27

Change "... the sense key shall be set to ILLEGAL REQUEST in the sense data." to "... the sense key shall be set to ILLEGAL REQUEST." Based on the additional definitions proposed in comment #71, the phrase "in the sense data" is unnecessary. Also, the proposed change is consistent with the wording used throughout SSC to communicate requirements such as this one.

#119 (E) Clause 5.2.4 - para 1

Change "... causes the logical unit to position the logical unit to the specified block address ..." to "... causes the logical unit to position the medium to the specified block address ..." I have no desire to see tape logical units moving themselves across the computer room floor.

#120 (E) Clause 5.2.4 - para 2 and 5 on page 28

In para 2, change "... block address field ..." to "... BLOCK ADDRESS field ..." [small caps]. There are two occurrences of this text. Also in para 2, change "... device-specific ..." to "... vendor-specific ..." Device-specific is not a defined term. Also, in para 2, change "... an SCSI logical block address." to "... a block identifier (see 5.1.6)." Disks have SCSI logical block addresses, but as clause 5.1.6 clearly describes, tapes have block identifiers.

In para 5, remove "(see 5.1.6)". The clause reference now appears in para 2, which is a much more sensible place for it to appear.

#121 (E) Clause 5.2.4 - para 5 and 6 on page 28

Change "... EOM bit ..." to "... sense data EOM bit ..." This utilizes the definitions proposed in comment #71 to clarify the location of the EOM bit. There is one occurrence of this text in each of para 5 and 6.

#122 (E) Clause 5.2.5 - second to last para on page 29

also - para 2 on page 30

Change "... INFORMATION field ..." to "... information field ..." This allows the definitions proposed in comment #71 to apply to this text. There are two occurrences each on page 29 and 30.

## #123 (E) Clause 5.2.6 - Table 10

In the table heading, change "READ BLOCK LIMIT command" to "READ BLOCK LIMITS command"

## #124 (E) Clause 5.2.7 - para 4 on page 32

Change "... device-specific ..." to "... vendor-specific ..." See comment #120. Also, change "... as an SCSI logical block address (relative to a partition)." to "... as block identifier values (see 5.1.6), relative to a partition." This second change makes the description of data fields in the READ POSITION command similar to the equivalent field description in the LOCATE command and ties both to the device model. Again, see comment #120.

## #125 (E) Clause 5.2.7 - Table 13

Change "RSVD" [small caps] to "Rsvd" [no small caps]. There are two occurrences of RSVD in byte 0 of the table. This change uses the acronym proposed in comment #76 to eliminate the impression that RSVD is a field name.

## #126 (E) Clause 5.2.7 - last para on page 33

Change "Table 14 indicates the READ POSITION data that shall be returned The following READ POSITION data shall be returned if the TCLP and LONG bits are set to 1." to "Table 14 indicates the READ POSITION data that shall be returned if the TCLP and LONG bits are set to 1."

## #127 (E) Clause 5.2.7 - para 5 after Table 14

Remove all of paragraph 5 after Table 14, specifically "The PARTITION NUMBER shall report the partition number as specified by the short-format Read Position data." This information is a redundant copy of the information in paragraph 1 after Table 14.

## #128 (E) Clause 5.2.8 - para 4 after Table 15

also Clause 5.2.9 - para 3 after Table 16

Change "Refer to the READ command (see 5.2.5) for a description of the FIXED bit, the SILI bit, the TRANSFER LENGTH field, and any associated error conditions." to "Refer to the READ command (see 5.2.5) for a description of the FIXED bit, the SILI bit, the TRANSFER LENGTH field, and any conditions that may result from incorrect usage of these fields."

## #129 (E) Clause 5.2.8 - para 6 after Table 15

Change "... INFORMATION field ..." to "... information field ..." This allows the definitions proposed in comment #71 to apply to this text. There are two occurrences in this paragraph.

## #130 (E) Clause 5.2.9 - para 1

Change "It is normally used to recover from error or exception conditions that make it impossible to write the buffered data to the medium." to "It is normally used to recover after error or exception conditions make it impossible to write the buffered data to the medium." N.B. there are two changes here: 1) change "from" to "after", and 2) remove "that".

## #131 (E) Clause 5.2.9 - para 6, 7, 8, and 9 after Table 16

Change "... INFORMATION field ..." to "... information field ..." This allows the definitions proposed in comment #71 to apply to this text. There is one occurrence each in para 6 and 7, and two occurrences each in para 8 and 9.

## #132 (E) Clause Clause 5.2.10 - para 1

Remove "Support of this command is mandatory for sequential access devices."

This information already appears in Table 3.

#133 (E) Clause 5.2.10 - para 4 after Table 17

Change "The Density Support data blocks shall be in numerical ascending order of the primary density code value for each block." to "The Density Support data blocks shall be in numerical ascending order of the primary density code value."

#134 (E) Clause 5.2.10 - para 1 after Table 19

DENSITY NAME is in all caps, not small caps.

#135 (E) Clause 5.2.10 - para 3 after Table 19 and para 3 on page 39

Mode Sense, Mode Select, and Report Density Support are all names of commands and should be in all caps, not capitalized. MODE SENSE, MODE SELECT, and REPORT DENSITY SUPPORT appear once each in para 3 after Table 19. N.B. comment #30 concerns the sentence containing Report Density Support. MODE SELECT appears once in para 3 on page 39.

#136 (E) Clause 5.2.10 - Note 13

Move note 13 to between para 1 and para 2 after Table 19. It reads better there.

#137 (E) Clause 5.2.10 - Note 14

Change "... unit may vary depending on the media installed." to "... unit may vary depending on the currently mounted media.", to match terminology used elsewhere in SSC. Also, change "... media bit ..." to "... MEDIA bit ..." [small caps].

#138 (E) Clause 5.2.10 - Note 15

Change "X3T10" to "T10". There are two occurrences of "X3T10".

#139 (E) Clause 5.2.10 - Note 16

Change "... Logical Unit ..." to "... logical unit ..."

#140 (E) Clause 5.2.12 - para 1

Change "... may be specified in an interchange standard or may be vendor-specific." to "... may be specified in a recording format standard or may be vendor-specific." to make the wording consistent with terminology elsewhere in SSC.

#141 (E) Clause 5.2.12 - Table 21

If possible, align the "Reserved" in byte 1 with the "Reserved" in byte 2.

#142 (E) Clause Clause 5.2.12 - para 1 after Table 21

Remove "The SET CAPACITY command is an optional command for sequential access devices."

#143 (E) Clause 5.2.13 - para 1

Change "... that are determined by the code and count." to "... that are determined by the CODE and COUNT fields." [small caps]

This information already appears in Table 3.

#144 (E) Clause 5.2.13 - para 2 and 4 on page 43

Change "CHECK CONDITION status shall be returned to the application client,

..." to "CHECK CONDITION status shall be returned, ..." A strict constructionist might interpret the current wording as requiring the device server to verify that the status made it all the way back to the application client, a tough thing to do in this serial bus world. This phrase occurs once in each of para 2 and 4 on page 43.

#145 (E) Clause 5.2.13 - para 2, 3 (Note 19), 4, 5, 7, and 8 on page 43  
Change "... INFORMATION field ..." to "... information field ..." This allows the definitions proposed in comment #71 to apply to this text. There is one occurrence each in para 2, 3 (Note 19), 4, 5, 7, and 8 on page 43. N.B. comment #32 also concerns Note 19.

#146 (T) Clause 5.2.13 - Note 20  
Change "Setting the REW bit is not recommended ..." to "Setting the REW bit to one is not recommended ..." Based on the current SSC definitions, "set" can mean either "set to zero" or "set to one".

#147 (E) Clause 5.2.13 - para 7 on page 43  
Change "... the EOM bit shall be set to one if ..." to "... the sense data EOM bit shall be set to one if ..." This allows the definitions proposed in comment #71 to clarify the location of the EOM bit.

#148 (E) Clause 5.2.13 - para 8 on page 43  
Change "... the EOM bit shall be set to one, and the VALID bit shall be set to one." to "the sense data EOM and VALID bits shall be set to one." This allows the definitions proposed in comment #71 to clarify the location of the EOM and VALID bits.

#149 (E) Clause 5.2.13 - para 4 on page 44  
Change "... the VALID bit shall be set to zero." to "... the VALID bit shall be set to zero in the sense data." This allows the definitions proposed in comment #71 to clarify the location of the VALID bit (and the FILEMARK bit, which was omitted from the text fragment above for brevity).

#150 (E) Clause 5.2.13 - para 4 on page 44  
Change "... or if this option is not supported." to "... or if setmarks are not supported." to clarify the optional option.

#151 (E) Clause 5.2.13 - para 5 and 8 on page 44  
Change "... the VALID bit shall be set to zero." to "... the VALID bit shall be set to zero in the sense data." This allows the definitions proposed in comment #71 to clarify the location of the VALID bit (and the EOM bit, which was omitted from the text fragment above for brevity). This text occurs once in each of para 5 and 8 on page 44.

#152 (E) Clause 5.2.13 - para 6 on page 44  
Change "... the VALID bit shall be set ..." to "... the sense data VALID bit shall be set ..." Also, change "... the EOM bit shall be set ..." to "... the sense data EOM bit shall be set ..." This allows the definitions proposed in comment #71 to clarify the locations of the VALID and EOM bits.

#153 (E) Clause 5.2.13 - para 7 on page 44  
Change "... the count field ..." to "... the COUNT field ..." [small caps]

#154 (E) Clause 5.2.13 - para 8 on page 44  
Change "... the VALID bit shall be set to zero." to "... the VALID bit shall be set to zero in the sense data." This allows the definitions proposed in comment #71 to clarify the location of the VALID bit (and the

EOM bit, which was omitted from the text fragment above for brevity).

#155 (E) Clause 5.2.14 - para 3 on page 45  
 Change "... WRITE command." to "... WRITE command (see 5.2.15)."

#156 (E) Clause 5.2.14 - para 4 on page 45  
 Change "Refer to the READ command (see 5.2.5) for a description of the FIXED bit and any associated error conditions." to "Refer to the READ command (see 5.2.5) for a description of the FIXED bit and any error conditions that may result from its incorrect usage."

#157 (E) Clause 5.2.14 - para 6 on page 45  
 Change "... the VALID bit shall be set ..." to "... the sense data VALID bit shall be set ..." This allows the definitions proposed in comment #71 to clarify the location of the VALID bit.

#158 (E) Clause 5.2.14 - para 6 on page 45  
 Change "... INFORMATION field ..." to "... information field ..." This allows the definitions proposed in comment #71 to apply to this text. There are two occurrences of this text in para 6.

#159 (E) Clause 5.2.15 - para 6 on page 46  
 Change "Valid" [small caps] to "VALID" [small caps].

#160 (E) Clause 5.2.15 - para 7, 8, 9, 10, 11, 12 and 14 on page 46  
                   also - para 1, 2 and 3 on page 47  
                   also Clause 5.2.16 - para 4, 5, 6, 7 and 9 on page 48  
 Change "... INFORMATION field ..." to "... information field ..." This allows the definitions proposed in comment #71 to apply to this text.

The following list showed the number of occurrences of this text in each of the paragraphs needing changes:

46/7	1	46/10	2	46/14	1	47/3	1	48/6	2
46/8	1	46/11	1	47/1	1	48/4	1	48/7	2
46/9	1	46/12	1	47/2	1	48/5	1	48/9	2

Note, comments 161, 164#, #162 and #161, 164 also concern this text as it appears in para 7, 10 and 12 on page 46, para 1 on page 47 and para 4 on page 48.

#161 (E) Clause 5.2.15 - para 7 on page 46  
           also Clause 5.2.16 - para 4 on page 48  
 Change "The INFORMATION field shall be defined as follows:" to "The contents of the information field shall be set as follows:" See also comment #160.

#162 (E) Clause 5.2.15 - para 10 and 12 (Note 23) on page 46  
 The following two statements duplicate each other:

- p10 Note that the value in the INFORMATION field may exceed the transfer length.
- p12 NOTE 23 The value in the INFORMATION field may exceed the transfer length.

Remove one of the two statements, preferably Note 23.

#163 (E) Clause 5.2.15 - Note 24  
           also Clause 5.2.16 - Note 28



Change "... after the first early-warning indication has been returned to the application client." to "... after the first early-warning indication has been returned to the application client (see 5.1.2)."

#164 (E) Clause 5.2.15 - para 1 on page 47

Change "... and the INFORMATION field shall be defined as follows:" to "... and the contents of the information field shall be set as follows:"  
See also comment #160.

#165 (E) Clause 5.2.15 - Note 26

Change "While device-specific, ..." to "Although vendor-specific, ..."

#166 (E) Clause 5.2.16 - para 2 after Table 26

Change "... bit to one, the transfer length ..." to "... bit to one, the TRANSFER LENGTH ..." [small caps]

#167 (E) Clause 5.2.16 - para 3 after Table 26

Change "... buffered mode is reported in the mode parameter header (see 5.3.3)." to "... if the device is operating in buffered mode (see 5.4.3)."

#168 (E) Clause 5.3.2.1 - Table 29, Parameter Code 0003h

Change "... Data-Out buffers during READ command operations." to "... Data-In buffers during READ command operations." Read data passed through a Data-In buffer not a Data-Out buffer.

#169 (E) Clause 5.3.3 - Table 30

Change the field names in all three fields (WP, Buffered mode, and Speed) to small caps.

#170 (E) Clause 5.3.3 - last para on page 50

also - para 1 after Table 31

Change "... buffered mode field ..." to "... BUFFERED MODE field ..." [small caps]. Also, Change "... speed field ..." to "... SPEED field ..." [small caps]

#171 (E) Clause 5.3.3 - para 2 after Table 32

Change "... either because no medium is installed or because the density of the installed medium has not been determined, ..." to "... either because no medium is mounted or because the density of the currently mounted medium has not been determined, ..." I know of no normative text defining "installed medium", however, Clause 5.1.1 defines mounted.

#172 (E) Clause 5.3.3.1 - Table 35, byte 0

also Clause 5.3.3.2 - Table 38, bytes 0 and 2

also Clause 5.3.3.3 - Table 40, byte 0

also Clause 5.3.3.4 - Table 43, byte 0

also Clause 5.3.3.5 - Table 44, byte 0 and 2

Change "RSVD" [small caps] to "Rsvd" [no small caps]. There is one occurrence of RSVD in each of the locations cited above. This change uses the acronym proposed in comment #76 to eliminate the impression that RSVD is a field name.

#173 (E) Clause 5.3.3.1 - para 1 after Table 35

also Clause 5.3.3.2 - para 1 after Table 38

also Clause 5.3.3.3 - para 2 after Table 40

also Clause 5.3.3.4 - para 1 after Table 43

also Clause 5.3.3.5 - para 1 after Table 44

Change "A PS bit of one ..." to "A PS bit of one ..." [all caps] to [small

caps]

#174 (E) Clause 5.3.3.1 - para 2 and 4 after Table 35

Change "... is to be ..." to "... is ..." There are two occurrences of this text in each of para 2 and 4.

#175 (E) Clause 5.3.3.1 - para 2 after Table 35

Are there extra spaces in "... before being written to the medium.?"

#176 (E) Clause 5.3.3.1 - para 3 after Table 35

Change "This shall be a non-changeable field." to "This shall be a non-changeable bit."

#177 (E) Clause 5.3.3.1 - para 5 after Table 36

Change "On any of the boundary conditions described in table which results in a CHECK CONDITION status, ..." to "On any of the boundary conditions described in Table 36 which results in a CHECK CONDITION status, ..."

#178 (E) Clause 5.3.3.1 - para 5 after Table 36

also - Note 31

Change "... the COMMAND-SPECIFIC INFORMATION field ..." to "... and the information field ..." [no small caps] in para 5 on after Table 36. Change "... the INFORMATION field ..." to "... and the information field ..." [no small caps] in Note 31. This allows the definitions proposed in comment #71 to apply to this text.

#179 (E) Clause 5.3.3.1 - para 2 on page 55

Change "Algorithm identifiers are shown in table ." to "Algorithm identifiers are shown in table 37."

#180 (E) Clause 5.3.3.1 - para 3 and 4 on page 55

Change "... the decompression algorithm field ..." to "... the DECOMPRESSION ALGORITHM field ..." [small caps] There is one occurrence of this text in each of para 3 and 4. Also, change "... the decompression algorithm value ..." to "... the DECOMPRESSION ALGORITHM value ..." [small caps] in its one occurrence in para 4.

#181 (E) Clause 5.3.3.2 - para 6, 7, and 8 after Table 38

also - para 5 on page 57

Change "... logical unit ..." to "... device server ...". There is one occurrence of this text in each of para 6, 7, and 8 after Table 38 and two occurrences in para 5 on page 57. I believe these are the only occurrences of "logical unit" in the named paragraphs.

In para 5 on page 57, also change "... 11b specify that the device shall terminate the pre-read operation if ..." to "... 11b specify that the device server shall terminate the pre-read operation if ..."

#182 (E) Clause 5.3.3.2 - para 8 on page 57

Change "... with the EOM bit set in the sense data ..." to "... with the EOM bit set to one in the sense data ..." See comment #146.

#183 (E) Clause 5.3.3.2 - para 3 on page 58

Change "... (see the WRITE command, 5.2.13, and the WRITE FILEMARKS command, 5.2.14)." to "... (see 5.2.13 and 5.2.14)."

#184 (E) Clause 5.3.3.2 - para 5 on page 58

Change "... device specific." to "... vendor specific."

#185 (E) Clause 5.3.3.2 - para 8 on page 58

also - para 1 and 2 on page 59

Change "... demounted ..." to "... de-mounted ..." See comment #102.

There are two occurrences of "demounted" in para 8 on page 58 and one in each of para 1 and 2 on page 59.

#186 (E) Clause 5.3.3.2 - para 2 on page 59

Change "... Device Configuration Page ..." to "... device configuration page ..." to match the nomenclature everywhere else in SSC.

#187 (E) Clause 5.3.3.3 - para 1

also Clause 5.3.3.4 - para 1

Change "... when the medium state changes from unmounted to mounted." to "... when the medium state changes from de-mounted to mounted. Clause 5.1.1 defines the term "de-mounted", so it should be the preferred term.

#188 (E) Clause Clause 5.3.3.3 - para 3 after Table 40

Change "... maximum additional partitions field." to "... MAXIMUM ADDITIONAL PARTITIONS field." [small caps]

#189 (E) Clause Clause 5.3.3.3 - Note 36

Change "... Mode Sense ..." to "... MODE SENSE ..." [all caps]

#190 (E) Clause 5.3.3.3 - para 2 on page 61

Change "The MODE SENSE data shall return one and only one of the IDP, FDP or SDP fields set to one." to "The MODE SENSE data shall have one and only one of the IDP, FDP or SDP fields set to one."

#191 (E) Clause 5.3.3.3 - para 2 on page 61

Change "If partitioned by FDP or SDP, a logical unit may return IDP set to one in the MODE SENSE data." to "If partitioned by FDP or SDP, a device server may set IDP to one in the MODE SENSE data."

#192 (E) Clause 5.3.3.3 - para 4 after Table 41

Replace:

If POFM is set to one, actual media partitioning occurs with a subsequent FORMAT MEDIUM command (see 5.2.2) using the mode data for medium partition pages (1-4).

with:

If POFM is set to one, actual media partitioning occurs when the device server receives a subsequent FORMAT MEDIUM command (see 5.2.2). When the FORMAT MEDIUM command partitions the media, it shall do so based on the contents of the mode data for medium partition pages (1-4).

The revision 9 text is just trying to say too much in one sentence.

#193 (E) Clause 5.3.3.3 - para 4 after Table 41

Change "However, no guarantee that any subsequent partitioning during a FORMAT MEDIUM command will complete with no errors shall be made by the device server." to "However, there is no guarantee that any subsequent partitioning during a FORMAT MEDIUM command will complete with no errors."

#194 (E) Clause 5.3.3.3 - para 1 on page 62

Change "... both before and after the MODE SELECT, ..." to "... both before and after the MODE SELECT or FORMAT MEDIUM, ..."

#195 (E) Clause 5.3.3.3 - para crossing from bottom of page 62  
to top of page 63

Change "The partition size descriptors for partitions 64 and greater may be defined in medium partition pages(2-4) ..." to "The partition size descriptors for partitions 64 and greater are defined in medium partition pages(2-4) ..." There is no conditional status regarding where the partition size descriptors are defined, they are defined in SSC. The application client may choose not to use said mode pages, but that has no bearing on their definition.

#196 (E) Clause 5.3.3.4

There is no need to force this clause to start at the top of a page.

#197 (E) Clause 5.3.3.4 - para 2 after Table 43

Change "The units of size used by the PARTITION SIZE field is specified ..." to "The units of size used by the PARTITION SIZE field are specified ..." Throwing out all the dependent phrases, the phrase boils down to "... units ... are ..." (not "... units ... is ...").

#198 (E) Clause 5.3.3.5 - para 1

Change "... and do not affect message system retries ..." to "... and do not affect protocol-level retries ..."

#199 (E) Clause 5.3.3.5 - para 5 after Table 44

Change the first two occurrences of "... read-write ..." to "... read or write ..." Do not change the third occurrence of "read-write" because it is part of the name of the mode page, which is 'Read-write error recovery'.

#200 (E) Clause 5.4.3

Change "(5.1.5)" to "(see 5.1.5)" and change "(5.3.3)" to "(see 5.3.3)"

#201 (E) Clause 5.4.4

Make several nit corrections and additional clause references to change the definition from:

A physical mark or device computed position near but logically before the end-of-partition (independent of physical direction). See the REW bit in the device configuration page in 5.3.3.2.

to:

A physical mark or device computed position near but logically before the end-of-partition, independent of physical direction (see 5.1.2). See the REW bit in the device configuration page (5.3.3.2).

#202 (E) Clause 5.4.5

Change "... EOD defined field ..." to "... EOD DEFINED field ..." [small caps]

#203 (E) Clause 5.4.6

Add "... (see 5.2.3)." to the end of the last sentence of the definition.

#204 (E) Clause 5.4.11

If comments #120, #124 and #205 are accepted, then the term "logical block address" is no longer used in SSC. So, remove this definition.

#205 (E) Clause 5.4.12

Change "Each logical element has an unique logical block address, ..." to "Each logical element has an unique block identifier (see 5.1.6), ..."

#206 (E) Clause 5.4.15

Change "... defined in a device-specific manner." to "... defined in a vendor-specific manner."

#207 (E) Clause 5.4.16

Change "Setmarks are optionally ignored using a mode parameter (RSMK)." to "Setmarks are optionally ignored based on the RSMK bit in the device configuration mode page (see 5.3.3.2)."

#208 (E) Clause 6.1 - para 1

Change "This command set ..." to "The printer command set ..." Change "... to be functionally separate ..." to "... that may be functionally separate ..." Change "... as well as ..." to "... or ..."

#209 (E) Clause 6.1 - para 1 after Figure 11

Change "No mode page was defined ..." to "No mode page is defined ..."

#210 (E) Clause 6.1 - para 3 after Figure 11

Change "... escape code sequences. commands for the operation ..." to "... escape code sequences. Commands for the operation ..."

#211 (E) Clause 6.2.1 - para 1

Change "The format information is peripheral-device specific." to "The format information is vendor specific."

#212 (E) Clause 6.2.3 - para 3 after Table 49

Change "... bits shall be set to one. The information bytes shall be set ..." to "... bits shall be set to one in the sense data. The information field shall be set ..." This allows the definitions proposed in comment #71 to apply to this text.

#213 (E) Clause 6.2.4 - para 1 on page 75

Change "... the printer options page in the MODE SELECT command provides ..." to "... the printer options page (see 6.3.3.2) provides ..."

#214 (E) Clause 6.2.4 - para 2 on page 75

Agglomerate this sentence on the end of the preceding paragraph.

#215 (E) Clause 6.2.5 - Table 51

Change "VENDOR-SPECIFIC" to "Vendor-specific" [remove small caps] Vendor-specific is not a field name, it's a keyword.

#216 (E) Clause 6.2.6 - para 3 after Table 52

Change "The printer options page in the MODE SELECT command, ..." to "The printer options page (see 6.3.3.2), ..."

#217 (E) Clause 6.3.3.1 - Table 57, bytes 0 and 2

also Clause 6.3.3.2 - Table 60, byte 0

also Clause 6.3.3.3 - Table 66, bytes 0 and 3

Change "RSVD" [small caps] to "Rsvd" [no small caps]. There is one occurrence of RSVD in each of the locations cited above. This change uses the acronym proposed in comment #76 to eliminate the impression that RSVD is a field name.

#218 (E) Clause 6.3.3.1 - para 2 after Table 57

Change "The PARITY SELECT field specifies parity generation on the printer interface is defined in Table 58." to "The PARITY SELECT field specifies parity generation on the printer interface and is defined in Table 58."

#219 (E) Clause 6.3.3.1 - para 4 after Table 59

also Clause 6.3.3.2 - para 1 after Table 61

also - para 1 after Table 62

also Clause 6.3.3.3 - para 2 after Table 67

also - para 3 after Table 67

It is not appropriate for SSC to describe how MODE SENSE and MODE SELECT handle the mode pages, that information is in SPC. In most cases, SSC does not attempt to describe MODE SENSE and MODE SELECT, but there are a few exceptions. The following instructions are not as specific as in other comments, so that they can apply to all instances of this problem. N.B. this problem occurs exactly once in each of the paragraphs cited above.

Remove the text that reads: "For the MODE SELECT command," and capitalize the first word of the sentence that is left after the text is removed (either "An", "The", or "A"). Removed the subsequent sentence in the same paragraph that describes the behavior of the MODE SENSE command.

Examples of the MODE SENSE sentence to be removed are: "For MODE SENSE, the device server shall return the current value of this bit." and "For the MODE SENSE command, this field reports the current slew mode."

#220 (E) Clause 6.3.3.2 - Table 62

Change "SLEW AND PRINT commands with a CHANL 1 bit of zero are ..." to "SLEW AND PRINT commands with a CHANL bit of zero are ..."

#221 (E) Clause 6.3.3.2 - para 3 after Table 62

Change "... maximum transfer length ..." to "... maximum TRANSFER LENGTH ..." [small caps]

#222 (E) Clause 6.3.3.2 - Table 65

Change "... (MODE SELECT)" to "... (MODE SELECT only)"

end Symbios Logic Editorial Comments

The following additional comments were submitted by Ralph Weber on May 15, 1997:

I have finished reviewing SSC (Clause 7 and Annex A) and have the following additional comments. Note: I've started the comments numbers at 400 so that they will not be confused with the previous Symbios comments.

Ral ph...

Symbios Logic Technical Comments

#400 (T) Clause 7.1 - para 5

Change "... by transmitting a SEND MESSAGE command." to "... using the SEND MESSAGE command." Also, change "... by transmitting a GET MESSAGE command." to "... using the GET MESSAGE command." Let's keep the transmitting on the communications medium and the commands between the application client and the device server.

#401 (T) Clause 7.1 - para 4 on page 86

Change "Extents are not supported by this model." to "Extent and element reservations are not supported by this model."

#402 (T) Clause 7.1.1.1 - para 2

also Clause 7.1.1.2 - para 1 on page 87

also Clause 7.1.1.3 - para 2

As used in these paragraphs, the words "selects", "disconnect", and "reconnect" are specific to the parallel SCSI protocol. The words need to be replaced with more generic terminology. The following changes are recommended.

In 7.1.1.1 - para 2: Change "Comm A takes the initiator role and selects a communications device (comm B), ..." to "Comm A takes the initiator role and addresses a communications device (comm B), ...". Also change "... comm B assumes the initiator mode and selects comm A ..." to "... comm B assumes the initiator mode and addresses comm A ..."

In 7.1.1.2 - para 1 on page 87: Change "A host system, host A, takes the initiator role and selects a communications device (comm A) ..." to "A host system, host A, takes the initiator role and addresses a communications device (comm A) ..." Change "... may disconnect until a packet arrives." to "... may delay processing of the command until a packet arrives." Change "Comm A can then complete the transaction and return the requested data packet to host A."

In 7.1.1.3 - para 2: Change "Comm A takes the initiator role and selects a communications device (comm B)." to "Comm A takes the initiator role and addresses a communications device (comm B)."

#403 (T) Clause 7.2 - Table 69

What is "OM" in the Type column? Either change these entries to something listed in the Key, or add OM to the Key with a description. See Symbios comment #67.

#404 (T) Clause 7.2.4 - para 2 after Table 73

Change "The TRANSFER LENGTH specifies the length in bytes of data that shall be located in the data-out buffer." to "The TRANSFER LENGTH specifies the length in bytes of data located in the data-out buffer." SCSI generally does not place requirements on the host.

#405 (T) Clause 7.2.5 - para 3 after Table 74

also Clause 7.2.6 - para 3 after Table 75

Change

The ALLOCATION LENGTH specifies the maximum length in bytes of data that shall be transferred to the data-in buffer. An ALLOCATION LENGTH of zero indicates that no data shall be sent.

to

The TRANSFER LENGTH specifies the length in bytes of data located in the data-out buffer. A TRANSFER LENGTH of zero indicates that no data shall be sent.

Warning, the last sentence in each paragraph requires no changes and has not been included in the text above. See also comment #404.

#406 (T) Clause A.1 - para 1

Change "The addition of the REPORT DENSITY SUPPORT command has removed the

requirement that density codes be allocated in the stream command set." to "The addition of the REPORT DENSITY SUPPORT command has removed the requirement that density codes be specifically named in the stream command set."

While I appreciate that some type of allocation function was involved in creating the data in the sequential-access device density codes table, the table itself only represented the results of the allocation function. The SCSI-2 table did not allocate density codes, but rather is specified the density codes that has been allocated by X3T9.2.

#407 (T) Clause A.1 - para 1

Change "These codes are specified in or returned by the density code field in the device block descriptor of the mode parameter data." to "These codes are specified in or returned by the density code field in the block descriptor in the mode parameter data (see SPC) and in the data returned by the REPORT DENSITY SUPPORT command (see 5.2.10)."

#408 (T) Clause A.1 - Table 79 codes 19h, 1Ah and 1Bh

Do these codes need to be in the table? If yes, should they still be marked TBD?

#409 (T) Clause A.1 - Table 79 codes 24h, 25h, and 26h

Can the question marks in the Code column be removed? If not, would it be better to leave the column blank for these codes?

#410 (T) Clause A.1 - Table 79 code 27h

Can the TBD in the Reference column be removed? If not, would it be better to leave the column blank?

end Symbios Logic Technical Comments

Symbios Logic Editorial Comments

#411 (E) Clause 7.1 - para 2

Change "... MODE pages ..." to "... mode pages ..."

#412 (E) Clause 7.1 - para 5

Change "... MODE SENSE and MODE SELECT are ..." to "... MODE SENSE and MODE SELECT (see SPC) are ..."

#413 (E) Clause 7.1 - para 8 (list item b)

Change "The sense key shall be set to NOT READY and the appropriate additional sense code for the condition." to "The sense key shall be set to NOT READY and the additional sense code shall be set appropriately for the condition." The sense key cannot be set to both NOT READY and the appropriate additional sense code.

#414 (E) Clause 7.1 - para 2 on page 86

Change "... REQUEST SENSE command." to "... REQUEST SENSE command (see SPC)."

#415 (E) Clause 7.1 - para 3 on page 86

Change "... distinguished from an SCSI processor device by ..." to "... distinguished from an SCSI processor device (see SPC) by ..."

#416 (E) Clause 7.1 - para 4 on page 86

Change "The Reserve and Release commands (see SPC) ..." to "The RESERVE and



RELEASE commands (see SPC) ..."

#417 (E) Clause 7.1 - para 5 on page 86

Change "... is ready when send commands may ..." to "... is ready when SEND MESSAGE commands may ..."

#418 (E) Clause 7.1.1.2 - para 1 on page 87

Change "Note that Host A need not support logical unit mode ..." to "Note that Host A need not support target mode ..."

#419 (E) Clause 7.2 - para 1 after Table 69

Change "All other operation codes for communications devices are reserved for future standardization." to "For communications devices, all other operation codes are reserved for future standardization."

#420 (E) Clause 7.3.3 - Table 78

Change "obsolete" to "Obsolete" so that it matches capitalization used for "Reserved".

#421 (E) Clause A.1 - Table 79

The table should be called Table A.1.

#422 (E) Clause A.1 - Table 79, code value 0Eh

Add a definition for the abbreviation ECMA to clause 3.2. ECMA stands for European Computer Manufacturers Association.

#423 (E) Clause A.1 - Table 79, code value 07h

Why is IMFM in small caps?

end Symbios Logic Editorial Comments

\*\*\*\*\* End of Ballot Report \*\*\*\*\*