

ENDL T E X A S

Date: 17 October 2000
 To: SNIA Backup Working Group & T10 Technical Committee
 From: Ralph O. Weber
 Subject: Extended Copy issues in SPC-2 letter ballot

This document contains the SPC-2 letter ballot comments related to EXTENDED COPY. The purpose of this list is facilitation of interaction between T10 and the SNIA Backup Working group for the resolution of these comments.

As I understand it, the discarding of held data when needs exceed resources may be an area where changes are proposed. Several comments relate to that topic, please review them carefully.

- Brocade 27) Resource exhaustion question
- Brocade 31) "Oldest held data" is relative
- Brocade 32) Discard mechanism is ill-defined
- IBM 103) What states have changed?
- IBM 188) What does 'immediately' mean?
- Seagate 94) What does 'immediately' mean?

Next, please verify the restructuring changes proposed for "Seagate 74) Identify where 'processing' is described" closely.

As time permits, discussion of any comment or response will be helpful starting with the following:

- Brocade 20) EXTENDED COPY parameter length
- Brocade 21) EXTENDED COPY priority
- Brocade 24) Residual count
- Brocade 30) Use correct units
- IBM 89) Remove 'most'
- IBM 90) Change 'dictated' to 'defined'
- IBM 98) Clarify what's changed
- IBM 109) Remove protocol specific stuff
- IBM 115) Rewrite to eliminate parenthetical phrase
- Quantum 30) Change 'need not' to 'may not'
- Quantum 31) Remove 'need to'
- Quantum 36) Breakup complex sentence
- Quantum 59) Segment descriptors don't hold data
- Seagate 68) Remove 'sensible'
- Seagate 69) Unclear requirement in a note 11
- Seagate 97) Note describing the 50 reserved FAILED SEGMENT DETAILS bytes
- O24) Weber - 'stream' s/b 'sequential-access'
- O26) Elliott - N_Port means Fibre Channel
- O27) Elliott - World Wide Name is not just for Fibre Channel

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1. Brocade Communications

The following Brocade comments concern the EXTENDED COPY command.

1.19 Brocade 19) Concurrent COPY & EXTENDED COPY (Rejected)

PDF page 77, page 49, clause 7.5

COPY and EXTENDED COPY may create interactions that cause data integrity problems. I propose that it be made explicit that the receipt of a COPY command while an EXTENDED COPY command is queued or in process or the receipt of an EXTENDED COPY command while a COPY command is queued or in process be considered an INVALID COMMAND error of some sort. This is another good reason to make COPY and its partners obsolete.

Reason for rejection:

This is grasping at straws. Both COPY and EXTENDED COPY permit multiple instances of the command to be in process concurrently. While COPY and EXTENDED COPY have different ways of communicating the functions to be performed, both perform essentially the same function. The EXTENDED COPY command is essentially a superset of the COPY command, which means that anything that can be done with COPY can be done with EXTENDED COPY. So, if a COPY command is being processed concurrently with an EXTENDED COPY command, the exact same condition is achievable with two appropriately constructed EXTENDED COPY commands are performed concurrently, a situation that no one I know of wishes to prohibit.

1.20 Brocade 20) EXTENDED COPY parameter length (Accepted, Substantive)

PDF page 77, page 49, clause 7.5

The parameter list length of zero is considered to be not an error. However, there is no mechanism to tell what is to be copied from what when no parameters are provided. If this is not an error, I do not know what is. I propose that a zero length parameter field should be treated as some type of INVALID PARAMETER FIELD error.

If this solution is not acceptable, then the behavior of the copy manager when it receives a parameter field length of zero should be specified. I would expect that the explicit behavior would be of the nature:

No commands are executed to any attached SCSI target. No internal states of the copy manager are changed or established. GOOD status is presented.

I would propose that a parameter field length that truncates a parameter list should also be an INVALID PARAMETER FIELD error of some sort, since an incomplete copy function will be specified.

Editor's Notes:

The two sentences at issue currently read:

"A parameter list length of zero indicates that no data shall be transferred. This condition shall not be considered as an error."

They will be changed to read:

"A parameter list length of zero indicates that copy manager shall not transfer any data or alter any internal state, this shall not be considered an error. If the parameter list length causes truncation of the parameter list in a target descriptor or segment descriptor, no data shall be transferred and the EXTENDED COPY command shall be terminated with a CHECK CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to PARAMETER LIST LENGTH ERROR."

1.21 Brocade 21) EXTENDED COPY priority (Accepted, Editorial)

(key technical comment)
PDF page 79, page 51, clause 7.5.1

The priority field establishes a relative priority of the command. However, the interaction of the priority field with the obligatory SCSI task queuing requirements is not specified. As a result, it is not clear whether or not priority can over-ride queue ordering, head of queue behavior, or queued commands ordered from another initiator. I propose that the relative priority field be deleted on the assumption that copy functions between a particular pair of devices will be single-threaded.

Alternatively, a model must be provided for the behavior of a command with a specified priority field relative to other commands. I am not sure what the reviewers would consider an appropriate model.

Editor's Notes:

There was never any intention that the PRIORITY field would alter the command queuing behavior. Rather, the intention is to establish a relationship between the I/O operations resulting from the command, i.e., all the effects of command queuing have done their thing before the PRIORITY field takes effect. The sentence referenced by the comment currently reads:

"The PRIORITY field establishes the priority of this EXTENDED COPY command relative to other commands being executed by the same device server."

It will be changed to read:

"The PRIORITY field establishes the priority data transfer operations resulting from this EXTENDED COPY command relative to data transfer operations resulting from other commands being executed by the same device server."

1.22 Brocade 22) Stripped vs. Striped (Accepted, Editorial)

Global & PDF page 79, page 51, clause 7.5.1
SEE ALSO comment 6.5 LSI 5)

In a number of places, "stripped" (naked) should be changed to "striped" (formatted in bands).

1.23 Brocade 23) Supported target devices (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1

The sixth paragraph on the page specifies that not all target devices are supported. A cross reference to 7.17 should be provided to hint to people that there is a mechanism to determine which are supported.

Editor's Note:

The sentence at issue currently reads:

"A copy manager need not support all target descriptor formats."

It will be changed to read:

"A copy manager need not support all target descriptor formats and shall list all target descriptor formats supported in response to the RECEIVE COPY RESULTS command with OPERATING PARAMETERS service action (see 7.17.4)."

1.24 Brocade 24) Residual count (Accepted, Editorial)

(key technical comment)

PDF page 81, page 53, clause 7.5.3, item d

The definition of residual count should be refined. It should only indicate data as having been transferred if the transferring CDB was properly executed and resulted in GOOD status. Data that has flowed across the transport protocol but not been acknowledged with GOOD status should not be considered as having been transferred. If transfers were out of order and some were successful but others were not, then the residual count should be based on the highest displacement byte of data that contiguously from byte 0 was successfully transferred.

Editors's notes:

It appears to the editor that the requirement stated first in the comment includes the second requirement stated in the comment. Therefore, the second requirement has been omitted from the proposed text additions.

The following text will be placed between the second and third sentences of the paragraph (list entry d).

Any command sent by the copy manager that has not been completed by the destination device with a GOOD status shall not be included in computations for the residual count. If the copy manager has used out of order transfers the residual count shall be based solely on the contiguous completed transfers with GOOD status starting at relative byte zero of the segment. (i.e., any successfully completed transfers farther from relative byte zero than the first incomplete or unsuccessful transfer shall not contribute to the computation of the residual count).

1.25 Brocade 25) Assumption of single fabric (Accepted, Editorial)

PDF page 86, page 58, clause 7.5.6.3

PDF page 87, page 59, clause 7.5.6.4

The assumption that all these ports are in the same fabric must be explicitly stated. If this is not stated, an additional "fabric name" parameter must be defined and included.

Editor's Note:

The following note will be added in both subclauses.

Note n: Use of N_PORT addressing restricts this target descriptor format to a single fabric.

1.26 Brocade 26) Additional note for LUN identified devices (Rejected)

PDF page 89, page 61, clause 7.5.6.6

The handy note in section 7.5.6.2 (Note 10) should be paraphrased in 7.5.6.6 to indicate that the copy manager is burdened with identifying available paths, N_Ports, and logical units that will access the specified LUN.

Reason for rejection:

The normative text clearly indicates the burdens on the copy manager in statements such as, "The target descriptor format shown in table 30 **instructs the copy manager to locate** a target and logical unit that returns a device identification VPD page (see 8.4.4) containing an Identification descriptor having the specified CODE SET, ASSOCIATION, IDENTIFIER TYPE, IDENTIFIER LENGTH, and IDENTIFIER field values," and "If multiple N_Port, ... combinations access matching VPD field values, the copy manager ... shall try other combinations in the event that one combination becomes non-operational during the processing of an EXTENDED COPY command."

1.27 Brocade 27) Resource exhaustion question (Accepted, Editorial)

PDF page 105, page 77, clause 7.5.7.8

The fourth paragraph indicates that data should be saved up for the application client. What happens if there are insufficient resources in the copy manager to save that information at the time the particular segment descriptor is processed?

Editor's Note:

The following sentence occurs in 7.5.7.2 (PDF page 97), 7.5.7.3 (PDF page 98), 7.5.7.4 (PDF page 99), 7.5.7.5 (PDF page 101), and 7.5.7.8 (PDF page 105):

"For descriptor type code ... shall be held for delivery to the application client upon completion of the EXTENDED COPY command in response to a RECEIVE COPY RESULTS command with RECEIVE DATA service action as described in 7.17.3."

The following sentence will be added after the sentence listed above in all five instances listed:

"The maximum amount of held data supported by the copy manager is returned in the response data for the RECEIVE COPY RESULTS command with OPERATING PARAMETERS service action (see 7.17.4)."

Note: the description in 7.17.4 includes a description of what happens when the held data resource is exhausted.

The following Brocade comments concern the RECEIVE COPY RESULTS command.

1.30 Brocade 30) Use correct units (Accepted, Editorial)

PDF page 156, page 128, clause 7.17.2, table 96

SEE ALSO comments 5.186 IBM 186), 7.58 Quantum 58), and 8.95 Seagate 95)

The table should use the proper [prefix] bytes binary abbreviations and names. There is a proposed binary byte count (10^{10} , 10^{20}) etc. defined as "kilo byte binary" (Kibe). I have been trying to find the referent, but we should use that.

The reference has been reported as: IEC 60027-2, passed in Jan. 99.

One source is: <http://physics.nist.gov/cuu/Units/binary.html>

Editor's notes:

A normative reference will be added for:

Letter symbols to be used in electrical technology - Part 2: Telecommunications and electronics
(Amendment 2)

ISO/IEC 60027-2-am2 (1999-01)

Table 96 will be changed to appear as follows:

Table 96 — COPY STATUS TRANSFER COUNT UNITS values

Value	Meaning	Binary Multiplier Name [1]	Multiplier to convert TRANSFER COUNT field to bytes
00h	Bytes		1
01h	<u>Ki bytes</u>	<u>Kilobinary</u>	2^{10} or 1024
02h	<u>Mi bytes</u>	<u>Megabinary</u>	2^{20}
03h	<u>Gi bytes</u>	<u>Giabinary</u>	2^{30}
04h	<u>Ti bytes</u>	<u>Terabinary</u>	2^{40}
05h	<u>Pi bytes</u>	<u>Petabinary</u>	2^{50}
06h	<u>Ei bytes</u>	<u>Exabinary</u>	2^{60}
07h - FFh	Reserved		
Note: [1] Nomenclature defined in ISO/IEC 60027-2-am2 (1999-01), Letter symbols to be used in electrical technology - Part 2: Telecommunications and electronics (Amendment 2)			

Nominally, the editor would prefer to omit the note since the normative reference would be expected to be obvious. In this case, however, the reference is not likely to be obvious.

1.31 Brocade 31) "Oldest held data" is relative (Accepted, Substantive)

PDF page 157, page 129, clause 7.17.3

Held data should not be identified as "oldest to newest". It should be identified as beginning with the lowest byte number for the first descriptor requiring data to be held, going up through the highest byte number for the last descriptor asking for data to be held. The data may or may not have actually been obtained in that order, depending on the particular segment descriptors and their relationships.

Editor's note:

Because "oldest" and "newest" are convenient short hand terms for the bytes (particularly in describing the discard requirements), the current text will be modified to make local definitions for these terms. The text currently reads:

The held data is the data held by the copy manager for delivery to the application client as proscribed by several segment descriptor type codes. The oldest byte read and held is returned in byte 4 and the byte most recently read and held is returned in byte n.

It will be changed to read:

The held data is the data held by the copy manager for delivery to the application client as proscribed by several segment descriptor type codes. Unless the copy manager's held data limit (see 7.17.4) is exceeded, the first byte held in response to the first segment descriptor in the EXTENDED COPY parameter list proscribing the holding of data (called the oldest byte held) is returned in byte 4. The last byte held in response to the last segment descriptor in the EXTENDED COPY parameter list proscribing the holding of data (called the newest byte held) is returned in byte n.

1.32 Brocade 32) Discard mechanism is ill-defined (Unresolved)

PDF page 157, page 129, clause 7.17.3

SEE ALSO comment 5.191 IBM 191)

Need SNIA-BWG discussion

The discard mechanisms for held data are somewhat primitive. Why is data held? If it is held to be read, it should not be thrown away, since the application may need it. It would be better to prohibit the discarding of data or to warn before discarding the data. If no change is to be made, the model requiring this behavior needs to be explained so that it will not be misused.

Editor's notes:

The SNIA-BWG is considering rewriting the held data discard requirements. **Care should be taken to avoid ...ly words in the revised text to address comment 5.191 IBM 191).**

1.33 Brocade 33) FAILED SEGMENT DETAILS is redundant (Rejected)

PDF page 160, page 132, clause 7.17.5

What does RECEIVE COPY RESULTS (FAILED SEGMENT DETAILS) do for you that the sense information developed by the rules in 7.5.3, rule e) does not?

If nothing, the FAILED SEGMENT DETAILS service action should be deleted. If something, the text in 7.5.3 or 7.17.5 should make this clearer. Similarly, rule i) should be deleted unless there is some functionality not provided by rule e).

Reason for rejection:

As described to me by the SNIA-BWG (Storage Networking Industry Association - Backup Working Group) the FAILED SEGMENT DETAILS service action serves two purposes. In the long term, the reserved 50 bytes will be replaced by various counters and other status information that will assist the initiator in determining what failed. In the near term (SPC-2), some host adapters do not preserve **all** the autosense data for the very large sense data blocks returned by EXTENDED COPY as described in 7.5.3 and the FAILED SEGMENT DETAILS provides a mechanism for retrieving all the sense data. Since it is inappropriate to discuss specific implementations in SPC-2, this explanation cannot be added as requested by the comment.

3. Crossroads Systems, Inc.

The following Crossroads comments generally concern the Extended Copy feature. Note that it is my intent to reject Crds 1), but if the SNIA-BWG wants to provide an annex of the type described in the comment, here's a hook to hang your hat on.

3.1 Crds 1) EXTENDED COPY Informative Annex (Unresolved)

There should be an expository annex on use of Extended Copy. It would be exceedingly difficult for an implementor to use the command correctly from the text.

Reason for rejection:

The editor is in no position to write such an annex. If someone else should write one and propose it for inclusion in an SPC version, then that activity could be viewed as acceptance of this comment.

3.2 Crds 2) RECEIVE COPY RESULTS requires tagged queuing (Rejected)

PDF pages 153-161, pages 125-133, clause 7.17

The Send Copy Results (sic) command appears to be unusable on devices that do not support tagged queuing.

Reason for rejection:

The statement is not correct as regards the majority of RECEIVE COPY RESULTS usage and even when correct it is not an issue. Consider the following description of the RECEIVE COPY RESULTS command:

The RECEIVE COPY RESULTS command (see table 92) provides a means for the application client to receive information about the copy manager or the results of a previous (or current) EXTENDED COPY command (see 7.5).

The only function described above requiring tagged queuing is receiving information about the results of the current EXTENDED COPY command, and if the results cannot be received overall system operation is degraded but the system does not become non-operational. Furthermore, an initiator can determine that the command cannot be sent before attempting to send it as only one untagged command can be outstanding at anytime.

Well over 90% of the RECEIVE COPY RESULTS command's functions can be performed with untagged queuing, with the only exception being the COPY STATUS service action as applied to a current command. All the other RECEIVE COPY RESULTS service actions (RECEIVE DATA, OPERATING PARAMETERS, and FAILED SEGMENT DETAILS) and uses are functional when no EXTENDED COPY commands are active, in fact, the RECEIVE DATA and FAILED SEGMENT DETAILS service actions cannot be performed if the referenced EXTENDED COPY command is still active.

5. IBM

The following IBM comments concern the EXTENDED COPY command.

5.84 IBM 84) Eliminate parentheses (Accepted, Editorial)

PDF page 77, page 49, clause 7.5.1, 1st paragraph

The statement '...device (in fact all the devices and the copy manager may be the same logical unit).' should be changed to '...device. It is possible that all the SCSI devices and the copy manager are the same logical unit).'

Editor's note:

The parentheses are unbalanced in the proposed replacement text. The text will be changed to: '...device. It is possible that all the SCSI devices and the copy manager are the same logical unit.'

5.85 IBM 85) Eliminate 'execute' (Accepted, Editorial)

PDF page 77, page 49, clause 7.5.1, 1st paragraph after table

The statement '...execute any activities necessary...' should be changed to '...take any necessary actions required...'

5.86 IBM 86) Change 'activities' to 'actions' (Accepted, Editorial)

PDF page 77, page 49, clause 7.5.1, 1st paragraph after table

The statement 'These activities may...' should be changed to 'These actions may...'

5.87 IBM 87) The identification is unique, not the value (Accepted, Editorial)

PDF page 78, page 50, clause 7.5.1, paragraph under note 6

The statement '...is a unique value selected by the application client to identify the extended...' should be changed to '...is a value selected by the application client to uniquely identify the extended...'

5.88 IBM 88) 'zero' not '0' & 'one' not '1' (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, 1st paragraph of page

The statement '...priority of 1. Priority 0 is...' should be changed to '...priority of one. Priority zero is...'

Editor's note:

The text will be changed to '...priority of 1h. Priority 0h is...'

5.89 IBM 89) Remove 'most' (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, 2nd paragraph of page

The term most is used. But there is not clear definition of how many most is. What I consider to be most could be very different than what the next person thinks is most. This needs to be fixed but since I have no reference to pick from I will replace most with 99%.

Editor's note:

The phrase '...that most of the disk references...' will be changed to '...that the majority of the disk references...'

5.90 IBM 90) Change 'dictated' to 'defined' (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, 3rd paragraph from top of page
See also comment 8.66 Seagate 66)

The statement '...actions and dictated by the...' should be changed to '...actions and defined by the...'.
defined

Editor's note:

This comment and 8.66 Seagate 66) have highlighted several problems with paragraph containing the identified text. With respect to this comment a better replacement word for 'dictated' is 'specified'. The current text reads:

If the No Receive Copy Results (NRCR) bit is zero, the copy manager shall hold data for retrieval by the application client using the RECEIVE COPY RESULTS command (see 7.17) as described by the RECEIVE COPY RESULTS command service actions and dictated by the segment descriptors. If NRCR is one, the copy manager may discard any data accessible to the application client via the RECEIVE COPY RESULTS command and respond to RECEIVE COPY RESULTS commands with a matching value in the LIST IDENTIFIER field as if no EXTENDED COPY command has been processed.

The text will be modified as follows:

If the No Receive Copy Results (NRCR) bit is zero, the copy manager shall hold data for retrieval by the application client using the RECEIVE COPY RESULTS command with the RECEIVE DATA service action (see 7.17.3) (see 7.17) as described by the RECEIVE COPY RESULTS command service actions and dictated specified by the segment descriptors. If NRCR is one, the copy manager may discard any all data accessible to the application client via the RECEIVE COPY RESULTS command with the RECEIVE DATA service action. If application client requests delivery of data that has been discarded as a result of NRCR being one, the copy manager shall respond as if the EXTENDED COPY command has not been processed. and respond to RECEIVE COPY RESULTS commands with a matching value in the LIST IDENTIFIER field as if no EXTENDED COPY command has been processed.

The change from 'any' to 'all' intends to avoid the copy manager discarding randomly selected parts of the data.

5.91 IBM 91) Eliminate parentheses (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, 5th paragraph from top of page

The statement '...devices (which are the source and/or the destination logical units).' should be '...devices that are the source and/or the destination logical units).'

Editor's note:

The intent of this text is to make an in-line *glossary* definition of 'target device'. The use of a definition that does not appear in the glossary is appropriate because entering the EXTENDED COPY definition of 'target device' would serve only to produce confusion. Since the in-line definition of a term thoroughly qualifies as digressive text as described in the response to comment IBM 61) (see 00-267r2), the definition will be enclosed in parentheses. The current text reads:

An EXTENDED COPY command may reference one or more target devices (which are the source and/or the destination logical units).

To more clearly indicate presences of a definition, the text will be changed to:

An EXTENDED COPY command may reference one or more target devices (which are the name given by the EXTENDED COPY command description to source and/or the destination logical units).

5.92 IBM 92) Eliminate parentheses (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, 3rd paragraph from bottom of page

The statement '...the descriptors (both target and segment) permitted...' should be changed to '...the target and segment descriptors permitted...'

5.93 IBM 93) Don't capitalize 'Inline' (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1

The term Inline should not be capitalized.

5.94 IBM 94) Eliminate 'in the manner' (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, last paragraph of page

The statement '...in the manner...' should be changed to '...as...'

5.95 IBM 95) Eliminate parentheses (Accepted, Editorial)

PDF page 79, page 51, clause 7.5.1, last paragraph of page

The statement '(particularly stream devices)' is out of place. I suggest a note after this paragraph indicating that is an important feature with streaming devices be added and the statement in ()s be deleted.

Editor's note:

The parenthetical expression is not out of place in this sentence. In fact, the sentence exists to define the behavior relative to stream devices. Clearly, the parenthetical text is not digressive as described in the response to comment IBM 61) (see 00-267r2). Therefore, the parentheses will be changed to commas.

5.96 IBM 96) Parity is out of date (Accepted, Editorial)

PDF page 80, page 52, clause 7.5.2

The statement '...include parity errors...' is dated. Most new devices use CRC not parity for detecting error. The statement should be changed to '...include CRC or parity errors...'

5.97 IBM 97) Eliminate parentheses (Rejected)

PDF page 80, page 52, clause 7.5.3

The statement '...the ACA condition (if any)...' should be changed to '...any ACA condition...'

Reason for rejection:

The expression "... (if any) ..." is a ubiquitous method of highlighting the possibility that a condition being discussed may not exist. Indeed, the expression is so ubiquitous that comment IBM 21) (see 00-267r2) employs it. As such, the precise form, "... (if any) ...," conveys meaning and fits (however loosely) the concept of a digressive expression described in the response to comment IBM 61) (see 00-267r2).

5.98 IBM 98) Clarify what's changed (Accepted, Editorial)

PDF page 81, page 53, clause 7.5.3, item e and f

Here, as in the copy command there is the term (unchanged) which makes just as little sense here as it did in the copy command. This needs to be fixed and/or explained.

Editor's note:

The phrase in question currently reads:

...an area that contains (unchanged) the source [destination] logical unit's status byte and sense data.

"source" is for item e) and "destination" is for item f).

The phrase will be clarified by changing it to read:

...an area that contains the status byte and sense data delivered to the copy manager by the source [destination] logical unit. The status byte and sense data shall not be modified by the copy manager or device server.

5.99 IBM 99) 'zero' not '0' & 'one' not '1' (Accepted, Editorial)

PDF page 81, page 52, clause 7.5.3, the a,b,c list

There are a few cases where a 1 or 0 are used. These should be changed to one or zero.

Editor's notes:

There is one 0, in item d. There is one 1, in item d, see also 10.23 O23).

5.100 IBM 100) Eliminate '(tape)' (Rejected)

PDF page 82, page 54, clause 7.5.5, table 23, footnote

The term '(tape)' is redundant and should be deleted.

Reason for rejection:

The parenthetical expression "(tape)" is necessary to provide definition for the term as used in the shorthand column of the table (e.g., "filemark→tape").

5.101 IBM 101) Force table to one page (Unresolved)

PDF page 82, page 54, table 23

This table should be made to fit on one page.

5.102 IBM 102) Spellout 'NUL=1' (Accepted, Editorial)

PDF page 84, page 56, clause 7.5.6.1, 2nd paragraph of page

The statement 'NUL=1' should be changed to 'a NUL bit of one'.

Editor's note:

"NUL=1" will be changed to "the NUL bit set to one".

5.103 IBM 103) What states have changed? (Unresolved)

PDF page 84, page 56, clause 7.5.6.1, 1st paragraph after table

Need SNIA-BWG & T10 discussion

The statement 'change the state' is not clear. What states are there to be changing from or to. To this point I have read nothing to help in the understanding of this.

Editor's notes:

At first I thought this phrase was intended to be as restrictive as the Verify Device Operation segment description with TUR=0. However, tightening the requirement to that degree would prohibit verifying all the device specific fields because MODE SENSE commands may be needed to do a complete verification. Therefore, I believe that "...change the state..." should be changed to "...change the read/write positioning...".

5.104 IBM 104) Eliminate parentheses (Accepted, Editorial)

PDF page 85, page, 57, clause 7.5.6.2, 2nd paragraph after table

The statement '...the target (source or destination)...' should be changed to '...the source or destination...'.

5.105 IBM 105) Reference FC-FS not FC-PH (Accepted, Editorial)

PDF page 85, page 57, clause 7.5.6.2, 3rd paragraph after table

SEE ALSO comment 10.27 O27) Elliott

This paragraph references where to find the WWID. There are several problems with this. For one not all SCSI protocols have a WWID port address so how what happens with those. For another FC-PH is the wrong standard to reference, FC-FS would be better. But it would be better to reference the device identifier VPD page which has the same WWID in it.

Editor's notes:

The Parallel Interface T_L target descriptor format is provided for the protocol that does not have a World Wide Name. The Identification descriptor target descriptor format is provided for those implementations that desire to use the identifiers in VPD page 83h.

The reference to FC-PH in the description of the WORLD WIDE NAME field will be changed to FC-FS (as shown in the response to comment 10.27 O27) Elliott). Note that no changes are needed in the normative references clause because FC-FS is already listed there.

5.106 IBM 106) Reference FC-FS not FC-PH (Accepted, Editorial)

PDF page 86, page 58, clause 7.5.6.3

Why is this protocol specific stuff in this document. It should be moved to the specific protocol document or made generic. Also there should be no references to FC-PH in this standard. All references should be to FC-FS or FC-PI as appropriate.

Editor's notes:

The definition of the N_PORT field currently reads as follows:

The N_PORT field shall contain the FC-PH port D_ID to be used to transport frames including PLOGI and FCP-2 related frames.

It will be changed to:

The N_PORT field shall contain the FC-FS port D_ID to be used to transport frames including PLOGI and FCP-2 related frames.

Note that no changes are needed in the normative references clause because FC-FS is already listed there.

For reference, D_ID (the object being referenced in the field description) is defined in FC-FS not in FC-PI.

See 5.109 IBM 109) for resolution of issue regarding protocol specific discussions in SPC-2.

5.107 IBM 107) Eliminate parentheses (Accepted, Editorial)

PDF page 86, page, 58, clause 7.5.6.3, 2nd paragraph after table

The statement '...the target (source or destination)...' should be changed to '...the source or destination...'.

5.108 IBM 108) Remove references to FC-PH (Accepted, Editorial)

PDF page 87, page 59, clause 7.5.6.4

Why is this protocol specific stuff in this document. It should be moved to the specific protocol document or made generic. Also there should be no references to FC-PH in this standard. All references should be to FC-FS or FC-PI as appropriate.

Editor's notes:

The reference to FC-PH in the description of the WORLD WIDE NAME field will be handled as described in the resolution for comment 5.105 IBM 105). The reference to FC-PH in the description of the N_Port field will be handled as described in the resolution for comment 5.106 IBM 106). See 5.109 IBM 109) for resolution of issue regarding protocol specific discussions in SPC-2.

5.109 IBM 109) Remove protocol specific stuff (Rejected)

PDF page 88, page 59, clause 7.5.6.5

Why is this protocol specific stuff in this document. It should be moved to the specific protocol document or made generic.

Reason for rejection:

Since the editor of SPI-4 has refused to incorporate protocol specific parameter data format information in his standard and thus established a precedent, the chances of moving these target descriptor formats out of SPC-2 and into a protocol specification document are next to nil. Since T10 approved these formats for incorporation in SPC-2 in July, 1999, changing them now would represent an unreasonable burden on the companies that have been implementing EXTENDED COPY for the past 1+ years. Therefore, no changes will be made.

5.110 IBM 110) Eliminate parentheses (Accepted, Editorial)

PDF page 88, page, 60, clause 7.5.6.5, 2nd paragraph after table,

The statement '...the target (source or destination)...' should be changed to '...the source or destination...'.
'...type (i.e., the copy manager may perform read operations from a source disk at any time and in any order during processing of an EXTENDED COPY command, provided that the relative order of writes and reads on the same blocks within the same target descriptor does not differ from their order in the segment descriptor list).'

5.111 IBM 111) Add parentheses (Rejected)

PDF page 90, page 62, clause 7.5.6.7, The statement '...type.

'...type. That is, the copy manager may perform read operations from a source disk at any time and in any order during processing of an EXTENDED COPY command, provided that the relative order of writes and reads on the same blocks within the same target descriptor does not differ from their order in the segment descriptor list.'

Reason for rejection:

The clarity of the text is not enhanced by splicing two sentences into a single, paragraph long sentence.

5.112 IBM 112) Eliminate parentheses (Rejected)

PDF page 91, page 63, clause 7.5.6.8

The statement '(device type code value 01h)' should be deleted as it contains no useful information. Specific device type are used throughout this standard and in those places the code value is not specified so way is it here.

Reason for rejection:

Similar parenthetical expressions in the first sentences of 7.5.6.7 and 7.5.6.9 appear to contain sufficient useful information to have been unworthy of comment. In the editor's opinion, all three parenthetical expressions serve to specify the exact device types being discussed and thus have merit.

5.113 IBM 113) Eliminate 'will' (Accepted, Editorial)

PDF page 91, page 63, clause 7.5.6.8, note 11

See also comment 8.69 Seagate 69)

The term will is used. It needs to be replaced or removed.

Editor's note:

The response to comment 8.69 Seagate 69) is a rewrite of note 11, including corrections based on this comment.

5.114 IBM 114) Add parentheses (Rejected)

PDF page 91, page 63, clause 7.5.6.8

The following statement '...type. That is, the read operations required by a segment descriptor for which the source is a stream device shall not be started until all write operations for previous segment descriptors have completed.' should be changed to '...type (i.e., the read operations required by a segment descriptor for which the source is a stream device shall not be started until all write operations for previous segment descriptors have completed.'

Reason for rejection:

The clarity of the text is not enhanced by splicing two sentences into a single, paragraph long sentence.

5.115 IBM 115) Rewrite to eliminate parenthetical phrase (Accepted, Editorial)

PDF page 93, page 65, clause 7.5.7.1, 2nd paragraph after table

The statement 'structure (block or stream).' should be changed to 'structure (e.g., block or stream).'

Editor's note:

The paragraph in question will be changed to read:

The destination count (DC) bit is only applicable to segment descriptors with descriptor type code values of 02h and 0Dh. The DC bit is reserved for all other segment descriptors. Details of usage for the DC bit appear in the subclauses defining the segment descriptors that use it.

5.116 IBM 116) Which hunt (Accepted, Editorial)

PDF page 93, page 65, clause 7.5.7.1, item b in list

The which should be changed to a that.

Editor's notes:

Changing 'which' to 'that' will change the meaning of item b. So some other rewording is necessary. Item b currently reads as follows:

To process data, which generally designates data as destination data intended for transfer to the destination device; and

It will be changed to:

To process data, which an operation that generally designates data as destination data intended for transfer to the destination device; and

5.117 IBM 117) Change parentheses to commas (Accepted, Editorial)

PDF page 93, page 65, clause 7.5.7.1, item a in second list

The () should be replaced with ,,

5.118 IBM 118) Eliminate parentheses (Rejected)

PDF page 94, page 66, clause 7.5.7.1, table 36, 3rd row and last row

Reword to get rid of the ()s.

Reason for rejection:

The parenthetical text definitely qualifies as 'supplementary facts' as described in the response to IBM 61) (see 00-267r2). Also because commas are already used extensively, rewriting the text to eliminate the parentheses produces an unreadable mishmash of ideas.

5.119 IBM 119) Indent footnote (Unresolved)

PDF page 94, page 66, clause 7.5.7.1, table 36

indent the footnote

Editor's notes:

As far as the editor can tell, the note format in this table follows the note format used in the body text. In the body text, notes are indented, but if only one note is present the note number is inline with the note text. If the body contains multiple notes, the note numbers form a column with the same intent for the header of the numbers column as for single note body entries.

This table note has the same intention as for the notes header is a list of table notes, with the note number inline with the note text, and the remainder of the note is indented.

5.120 IBM 120) Force table to one page (Unresolved)

PDF page 95, page 67, clause 7.5.7.1, table 37

Make this table fit on one page.

5.121 IBM 121) Spellout CAT=1 and PAD=1 (Accepted, Editorial)

PDF page 95, page 67, clause 7.5.7.1, table 37, footnote 1

The 'CAT=1' should be 'the CAT bit is set to one'. and the 'PAD=1' should be 'the PAD bit is set to one'

5.122 IBM 122) Add i.e. to parenthetical phrase (Rejected)

PDF page 96, page 68, clause 7.5.7.1, 1 paragraph after table 37

All the ()s should start with '(i.e.,'.

Reason for rejection:

The parenthetical text is an elaborate and more informative form of cross reference that fits the description of an "amplifying or digressive element" as described in the response to comment IBM 61) (see 00-267r2).

5.123 IBM 123) 'dc=0/1' s/b 'if DC is set to 0/1' (Unresolved)

PDF page 100, page 72, clause 7.5.7.4

The statement '...processed (if DC=0) or to be written to the destination device (if DC=1).' should be changed to '...processed if DC is set to zero or to be written to the destination device if DC is set to one.'

Editor's notes:

Because this is not the paragraph defining the DC bit, the parenthetical text is digressive as described in the response to comment IBM 61) (see 00-267r2) and the parentheses are appropriate. However, the use of the equal sign may be inappropriate.

5.124 IBM 124) Eliminate parentheses (Accepted, Editorial)

PDF page 104, page 76, clause 7.5.7.7, 3rd paragraph after table

The statement '...field (including embedded data).' should be changed to 'field. The DESCRIPTOR LENGTH field includes embedded data.'

Editor's notes:

The proposed change is unnecessarily wordy. The phrase '...field (including embedded data).' will be changed to '...field, including the embedded data.'

5.125 IBM 125) Eliminate parentheses (Rejected)

PDF page 106, page 78, clause 7.5.7.9, last paragraph on page

The statement '(Test Unit Ready)' should be deleted. No where else is the bit acronym repeated after the initial definition.

Reason for rejection:

The editor can find only one instance of "(Test Unit Ready)" acting as a bit acronym definition in the cited paragraph.

5.126 IBM 126) 'field' should be 'fields' (Accepted, Editorial)

PDF page 111, page 83, clause 7.5.7.14, last paragraph of page

The first field should be fields.

The following IBM comments concern the RECEIVE COPY RESULTS command.

5.179 IBM 179) Eliminate parentheses (Accepted, Editorial)

PDF page 153, page 125, clause 7.17.1

The statement '...previous (or current)...' should be '...previous or current...'

5.180 IBM 180) What does 'immediately' mean? (Accepted, Substantive)

PDF page 154, page 126, clause 7.17.1, table 93
See also comment 8.94 Seagate 94)

The term 'immediately' is used but what does it mean? As part of the current connection? As the first thing on the next connection? What? This needs to be quantified.

Editor's note:

The response to comment 8.94 Seagate 94) describes the resolution for this comment.

5.181 IBM 181) Remove 'then' (Accepted, Editorial)

PDF page 155, page 127, clause 7.17.2

The statement '...command, then it shall...' should be '...command, it shall...'

5.182 IBM 182) Use 'vendor specific' not 'vendor-specific' (Accepted, Editorial)

Global & PDF page 155, page 127, clause 7.17.2

In some cases the term vendor specific is written as 'vendor specific' and in other cases as 'vendor-specific' this needs to be made consistent throughout the document.

Editor's note:

'vendor specific' (not dash) will be used throughout.

5.183 IBM 183) Clarify 'matching list identifier' (Accepted, Editorial)

PDF page 155, page 127, clause 7.17.2, a,b,c list, a item

The statement '...with a matching list identifier;' should be '... and the list identifier matches the list identifier associated with the preserved COPY STATUS service actions data;'

5.184 IBM 184) What does 'eight' refer to? (Accepted, Editorial)

PDF page 155, page 127, clause 7.17.2, paragraph after a,b,c list

The sentence 'The AVAILABLE DATA field shall contain the number of bytes present in the parameter data that follows, eight.' does not make sense and references something that 'follows'. It is not clear if that is data or something in the standard. And what is 'eight' referring to?

Editor's notes:

The number of bytes that follow is eight. However, since that information is presented in the table above, the simplest fix is to delete "eight".

5.185 IBM 185) Change 'Operating' to 'Operation' (Accepted, Editorial)

PDF page 155, page 127, clause 7.17.2, table 95, 1st row
SEE ALSO comments 7.57 Quantum 57)

The statement 'Operating in progress' should be 'Operation in progress'.

5.186 IBM 186) 'megabytes' not 'mega-bytes' etc. (Accepted, Editorial)

PDF page 156, page 128, clause 7.17.2, table 96
SEE ALSO comments 1.30 Brocade 30), 7.58 Quantum 58), and 8.95 Seagate 95)

I do not believe there should be '-'s between Kilo, mega, giag(sic), tera, peta, and bytes.

Editor's note:

The response to comment 1.30 Brocade 30) contains the resolution for this comment.

5.187 IBM 187) 'held data' is a field name (Accepted, Editorial)

PDF page 157, page 129, clause 7.17.3, table 97

The term 'held data' should be small caps.

5.188 IBM 188) What does 'immediately' mean? (Accepted, Editorial)

PDF page 157, page 129, clause 7.17.3, 1st paragraph after table

The term 'immediately' is used but what does it mean? As part of the current connection? As the first thing on the next connection? What? This needs to be quantified.

Editor's note:

"immediately" will be changed to "as soon as practical".

5.189 IBM 189) 'zero' not '0' (Accepted, Editorial)

PDF page 157, page 129, clause 7.17.3, a.b.c list, item b

The statement '...field set to 0;' should be '...filed(sic) set to zero;'

Editor's note:

"0" will be changed to "0h".

5.190 IBM 190) Clarify 'same list identifier' (Accepted, Editorial)

PDF page 157, page 129, clause 7.17.3, a.b.c. list, items c

The statement '...the same list identifier;' should be '... and the list identifier matches the list identifier associated with the preserved RECEIVE DATA service actions data;'

5.191 IBM 191) Kill the ly (immediately) words (Accepted, Editorial)

PDF page 157, page 129, clause 7.17.3, last paragraph on page
SEE ALSO comment 1.32 Brocade 32)

The statement '...bytes than are needed immediately, but...' should be '...bytes than are needed, but...'. The term immediately in not quantified and not necessary in this case as it add no additional information.

Editor's note:

The response to comment 1.32 Brocade 32) contains the resolution for this comment.

5.192 IBM 192) 'one' not '1' (Accepted, Editorial)

PDF page 159, page 131, clause 7.17.4

The statement 'set to 1' occurs several times in this section. All these should be changed to 'set to one'.

Editor's notes:

The phrase appears in the descriptions of the MAXIMUM SEGMENT LENGTH, DATA SEGMENT GRANULARITY, and INLINE DATA GRANULARITY fields. Also, in the descriptions of MAXIMUM SEGMENT LENGTH and DATA SEGMENT GRANULARITY fields, "pad" should be "PAD".

5.193 IBM 193) Add i.e. to parenthetical phrase (Accepted, Editorial)

PDF page 159, page 131, clause 7.17.4, 5th paragraph from bottom of page

The statement '...descriptor (segment descriptors...)' should be '...descriptor (i.e., segment descriptors...)'.

5.194 IBM 194) 'power of two' not 'power of 2' (Accepted, Editorial)

PDF page 159, page 131, clause 7.17.4

The statement 'power of 2' should be 'power of two' in several places in this section.

Editor's notes:

The phrase appears in the descriptions of the DATA SEGMENT GRANULARITY, INLINE DATA GRANULARITY, and HELD DATA GRANULARITY fields.

5.195 IBM 195) Don't capitalize 'list' (Accepted, Editorial)PDF page 160, page 132, clause 7.17.4, **1st and 2nd** paragraphs on page

The term 'List' should not be capitalized.

5.196 IBM 196) Add i.e. to parenthetical phrase (Rejected)

PDF page 160, page 132, clause 7.17.5, 2nd paragraph

The statement '...target devices (in particular stream...)' should be '...target devices (i.e., stream...)'.

Reason for rejection:

Making the proposed change would water down the meaning of the sentence. The parenthetical text is an "amplifying or digressive element" as described in the response to comment IBM 61) (see 00-267r2).

5.197 IBM 197) 'zero' not '0' (Accepted, Editorial)

PDF page 160, page 132, clause 7.17.5, a.b.c list, item b

The statement '...field set to 0;' should be '...field set to zero;'.

Editor's note:

"0" will be changed to "0h".

5.198 IBM 198) Delete the last sentence (Accepted, Editorial)

PDF page 161, page 133, clause 7.17.5, note 33
SEE ALSO comments 7.62 Quantum 62) and 8.97 Seagate 97)

The last sentence should be deleted as it has not(sic) significant value.

Editor's note:

The response to comment 8.97 Seagate 97) contains the resolution for this comment.

6. LSI Logic Corp.**6.5 LSI 5) Misspelling of 'striped' (Accepted, Editorial)**

Global & PDF page 79, page 51, clause 7.5.1
SEE ALSO comment 1.22 Brocade 22)

The second paragraph on page 51 uses the word 'stripped' twice. I believe both instances should be 'striped' instead.

7. Quantum Corp.

The following Quantum comments concern the EXTENDED COPY command.

7.29 Quantum 29) 'read-ahead' not defined (Accepted, Editorial)

PDF page 79, page 51, clause 7.5, 2nd paragraph on this page

In the second sentence the term "read-ahead" is used without any definition as to what this is. A good description may be found on page 62 (PDF page 90) in the second sentence of the third paragraph below Table 31 - Device type specific target descriptor parameters for block device types. I recommend that some words like this be used after the first occurrence of the term on page 51, as well.

7.30 Quantum 30) Change 'need not' to 'may not' (Accepted, Editorial)

PDF page 51, page 79, clause 7.5, 5th paragraph on this page

In the fourth sentence there is another "...need not..." that I would recommend be changed to "...may not..."

7.31 Quantum 31) Remove 'need to' (Rejected)

PDF page 80, page 52, clause 7.5.3, note 8

In the last sentence I would recommend that the words "...need to..." be deleted.

Reason for rejection:

The proposed change would alter the meaning of the sentence in an undesirable way. As currently written, the sentence suggests (weakly with 'may') that the copy manager try multiple ports to find one that does not encounter a RESERVATION CONFLICT. If the change were made, the sentence would state that the copy manager is allowed to try multiple ports to find one that does not encounter a RESERVATION CONFLICT.

7.32 Quantum 32) Add missing 'the' & replace 'indicate' (Accepted, Editorial)

PDF page 81, page 53, clause 7.5.3, list item (h)

An article ("the") is missing near the end of the first sentence ("...the byte in error...").

There is an opportunity to improve an occurrence of "indicate". I recommend that this sentence be change to. "If, during the processing of a segment descriptor, the copy manager detects an error in the segment descriptor, then the SENSE-KEY SPECIFIC field shall be set as described in 7.23.3, with the content of the FIELD POINTER field specifying the byte in error."

I think that, in the other occurrences of "indicate" in this list item, the way the word is used are correct.

Editor's note:

The missing "the" will be added. "indicating" will be changed to "specifying" and "to indicate" will be changed to "to specify".

7.33 Quantum 33) Missing preposition 'of' (Accepted, Editorial)

PDF page 91, page 63, clause 7.5.6.8, table 33, 1st row

The second sentence in the first Description (FIXED bit = 0, STREAM BLOCK LENGTH field = 0) is missing a preposition and should be, "The number of bytes for each read or write is specified by the STREAM DEVICE TRANSFER LENGTH field in the segment descriptor."

7.34 Quantum 34) Change 'bits' to 'bit' (Rejected)

PDF page 95, page 67, clause 7.5.7.1, 1st paragraph after table 36

Since the third sentence has a couple of issues, I recommend that it be changed to, "If so, the residue shall be handled as specified by the value in the CAT bit in the segment descriptor and the PAD bits in the source and destination target descriptors, as defined in table 37."

Reason for rejection:

There are two PAD bits, one in each of the source and destination target descriptors. Also, if adding the phrase "value in" is important for the CAT bit then why not increase the sentence size when describing the PAD bits? The answer is that the sentence is clear without the extra "value in" words.

7.35 Quantum 35) Missing preposition 'if' (Accepted, Editorial)

PDF page 96, page 68, clause 7.5.7.1, 1st paragraph after table 37

The last sentence is missing a preposition and should be changed to, "For segment descriptor types 06h and 0Fh (stream→discard and stream→discard+application client, see 7.5.7.8), handling shall be as if the PAD were equal to zero for the destination target descriptor."

7.36 Quantum 36) Breakup complex sentence (Accepted, Editorial)

PDF page 102, page 74, clause 7.5.7.5, last paragraph in clause

The second sentence seems cumbersome to me. I would recommend changing it to something like, "A value of zero shall not be considered as an error. A value of zero shall indicate that no source blocks shall be read and no source data shall be processed. However, any residual destination data from a previous segment shall be written if possible to the destination in whole-block transfers, and any residual data shall be handled as described in 7.5.7.1."

Editor's note:

The sentence in question is overly complex because it is trying to describe all the BYTE COUNT equals 0h specifics in a single sentence to show that they are all related. This is not common practice in SCSI standards and breaking the sentence up is appropriate. However, the proposed change slices the sentence to unnecessarily small pieces. The sentence will be changed to:

A value of zero shall not be considered as an error, and shall specify that no source blocks shall be read and no source data shall be processed. However, a value of zero shall specify that any residual destination data from a previous segment shall be written if possible to the destination in whole-block transfers, and any residual data shall be handled as described in 7.5.7.1.

7.37 Quantum 37) Rewrite sentence (Rejected)

PDF page 103, page 75, clause 7.5.7.6

I think what the first sentence of this paragraph is trying to say is something like, "The value in the INLINE DATA OFFSET field is added to the byte number of the location of the first byte of inline data in the EXTENDED COPY parameter list (see table 22). The result is the byte number of the first byte of inline data in the EXTENDED COPY parameter list to be written to the stream device."

Reason for rejection:

The sentence as written acknowledges the possibility address computations might be used by the copy manager. The proposed rewrite not only makes the wording more cumbersome by fails to acknowledge that an address is what's being computed.

7.38 Quantum 38) Change 'the' to 'a' (Accepted, Editorial)

PDF page 113, page 85, clause 7.5.7.16, last paragraph on this page

Since I think the first article in the first sentence of this paragraph is incorrect, I recommend that the sentence be changed to, "A COUNT field containing a value of zero specifies that the EXTENDED COPY command shall not terminate due to any number of consecutive filemarks or setmarks."

The following Quantum comments concern the RECEIVE COPY RESULTS command.

7.57 Quantum 57) Misspelled 'Operation' (Accepted, Editorial)PDF page 155, page 127, clause 7.17.2, table 95, first row
SEE ALSO comments 5.185 IBM 185)

In the first entry in the Meaning column I think that "Operating in progress" should be changed to "Operation in progress".

7.58 Quantum 58) 'megabytes' not 'mega-bytes' etc. (Accepted, Editorial)

PDF page 156, page 128, clause 7.17.2, table 96

SEE ALSO comments 1.30 Brocade 30), 5.186 IBM 186), and 8.95 Seagate 95)

None of the words in the Meaning column should be hyphenated. They should be "Kilobytes", "Megabytes", "Gigabytes", "Terabytes", and "Petabytes", respectively.

Editor's note:

The response to comment 1.30 Brocade 30) contains the resolution for this comment.

7.59 Quantum 59) Segment descriptors don't hold data (Accepted, Editorial)

PDF page 157, page 129, clause 7.17.3, 1st paragraph

I think the first phrase should be changed to, "If the copy manager supports those segment descriptors that require read data to be held for transfer to the application client,..." as the segment descriptors don't hold the data.

Editor's note:

Actually, 00-211r2 changed the data being held from 'read data' to 'processed data' and I believe that dropping the 'read' from the text in clause 7.17.3 will be the easiest way to reflect that change here. Thus, the rewritten text would be, "If the copy manager supports those segment descriptors that require data to be held for transfer to the application client,..."

There are five other occurrences of 'read' that need correction:

- a) 2nd sentence of 1st paragraph: "If a copy manager supports any of the segment descriptor type codes that require ~~read~~-data to be held for the application client..."
- b) 2nd sentence of 2nd paragraph after list: "The oldest byte ~~read and~~-held is returned in byte 4 and the byte most recently ~~read and~~-held is returned in byte n."
- c) 2nd sentence of 3rd paragraph after list: "If the processing of segment descriptors requires more data to be held, the copy manager shall discard the oldest held data bytes to accommodate the new ~~read~~-data."
- d) 3rd sentence of 3rd paragraph after list: "When making room for new ~~read~~-held data, the copy manager may discard more old data bytes than are needed immediately, but at any one time the copy manager shall never discard more than the smaller of 64 times the HELD DATA GRANULARITY value (see 7.17.4) or one quarter of the HELD DATA LIMIT value."

7.60 Quantum 60) Use 'number of bytes' not 'length' (Accepted, Editorial)

PDF page 158, page 130, clause 7.17.4, 5th paragraph on page

I think the sentence should be changed to something like, "The AVAILABLE DATA field shall contain the number of bytes that is the total length of the parameter data minus 4."

Editor's note:

The sentence identified by the comment currently reads:

The AVAILABLE DATA field shall contain the length of the total length of the parameter data minus 4.

It will be changed to:

The AVAILABLE DATA field shall contain the length of the total length of the number of bytes following the AVAILABLE DATA field in the parameter data (i.e., the total number of parameter data bytes minus 4).

7.61 Quantum 61) Add article 'the' (Accepted, Editorial)

PDF page 159, page 131, clause 7.17.4, 5th paragraph on page

I think there is an article missing in the first sentence (i.e., "...the largest amount of inline data that the copy manager supports...").

7.62 Quantum 62) Questionable description of copy devices (Accepted, Editorial)

PDF page 161, page 133, clause 7.17.5, Note 33

SEE ALSO comments 5.198 IBM 198) and 8.97 Seagate 97)

I think there is something wrong with the end of the second sentence (i.e., "...and indeterminate transfer operations to source and destination copy targets device."). I think that maybe this is supposed to be, "...and indeterminate transfer operations to source and destination copy devices."

Editor's note:

Resolution will be as per comment 8.97 Seagate 97)

8. Seagate Technology

The following Seagate comments concern the EXTENDED COPY command.

8.66 Seagate 66) Value that matches what? (Accepted, Editorial)

PDF page 79

See also comment 5.90 IBM 90)

<<RECEIVE COPY RESULTS commands with a matching value>> Matching what?

Editor's note:

The description of relationships between EXTENDED COPY commands and RECEIVE COPY RESULTS commands is well described in the subclause defining the RECEIVE COPY RESULTS command (no comments were made about it). Therefore, the rewording shown in the resolution for 5.90 IBM 90) avoids defining that relationship in this text, relying instead on the RECEIVE COPY RESULTS command definition.

8.67 Seagate 67) What is arithmetic precedence of +16/32? (Accepted, Editorial)

PDF page 79

<<The index for a target descriptor is the starting byte number for the target descriptor in the parameter data minus 16 divided by 32.>>

Does that mean minus 0.5. A formula with appropriate parenthesis would be clear.

Editor's note:

Owing to the war on parentheses waged by IBM, the editor is reluctant to combine mathematical and English structures. Therefore, the sentence identified by the comment will be changed to:

The index for a target descriptor is computed by subtracting 16 from the starting byte number for the target descriptor in the parameter data ~~minus 16~~ and ~~divided~~ dividing the result by 32.

8.68 Seagate 68) Remove 'sensible' (Accepted, Editorial)

PDF page 80

<<The copy manager is assumed to employ a sensible vendor-specific policy to decide when to stop retrying.>>
Delete "sensible". Both notes 7 and 8 are of questionable value - typical for notes.

Editor's note:

The sentence identified by the comment will be changed to: "The copy manager is assumed to employ a vendor specific retry policy that minimizes time consuming and/or fruitless repetition of retries."

Note the use of "vendor specific" in accordance with the resolution to 5.182 IBM 182).

8.69 Seagate 69) Unclear requirement in a note 11 (Accepted, Editorial)

PDF page 91

See also comment 5.113 IBM 113)

<<after it established how the copy manager shall process tape reads of unknown block length without error.>>
What is "it"? Mandatory requirements are not allowed to be hidden in notes.

Editor's note:

Note 11 currently reads as follows:

It is anticipated that bit 1 of byte 28 in the device type specific target descriptor parameters for stream device types will be used to indicate the value of the SILI bit for read commands, after it established how the copy manager shall process tape reads of unknown block length without error.

It will be changed to read:

It is anticipated that future versions of this standard may use bit 1 of byte 28 in the device type specific target descriptor parameters for stream device types ~~will be used~~ to indicate the value of the SILI bit for read commands, after ~~it is~~ T10 ~~establishes~~ how the copy manager ~~shall~~ is to process tape reads of unknown block length without error.

8.70 Seagate 70) Add specific reference to table 36 (Accepted, Editorial)

PDF page 94

Change <<general rules are described the clauses>> to "general rules are described in the subclauses referenced in Table 36"

8.71 Seagate 71) Is EXTENDED COPY residual data handling statement clear? (Rejected)

PDF page 94

<<If residual destination data is sufficient to perform the output then no data shall be processed. Otherwise, just as much data as needed shall be processed (which may involve reading data from the source device) so that the destination data (which includes any residual destination data from the previous segment) is sufficient. >>

Is this clearer than "do what needs to be done"?

Response:

Yes.

8.72 Seagate 72) Add cross references (Accepted, Editorial)

PDF page 94

<<The specified number of bytes of inline or embedded data>>

What is "inline data"? What is "embedded data"?

Editor's note:

Cross references to the applicable subclauses will be added.

8.73 Seagate 73) Identify where 'processing' is described (Accepted, Editorial)

PDF page 95

<<The data movement shall not involve "processing" as described here.>> Where?

Editor's note:The text identified by the comment will be changed to: "The data movement shall not involve processing as described ~~here~~ in this subclause."**8.74 Seagate 74) Identify where 'processing' is described (Accepted, Editorial)**

PDF page 98

Global/Clause 7.5.7

<<The BLOCK DEVICE NUMBER OF BLOCKS field specifies the length, in source logical blocks, of data to be processed in the segment.>>

What does processed mean?

Editor's note:

The following steps will be taken to resolve this comment.

1) create a new subclause numbered 7.5.7.2 such that:

- 7.5.7.1 = Segment descriptors introduction <was overview>
- 7.5.7.2 = Segment descriptor processing <new subclause>
- 7.5.7.3 = Block device to stream device operations <was 7.5.7.2>

2) Place in the new 7.5.7.2 all the text marked with change bars in the current 7.5.7.1. (N.B. this is all the text added recently to clarify PAD/CAT processing.)

3) In the vacancy left by the text moved to 7.5.7.2 (where a description of the CAT bit should be, place the following paragraph/sentence: "The CAT bit is described in 7.5.7.2."

4) At the end of the sentence quoted in the comment, add "(see 7.5.7.2)". Also, add a similar cross reference to the first usage of the word "processed" in each subclause describing a segment descriptor type.

5) All cross references to 7.5.7.1 will be check and those related to the processing of data will be changed to 7.5.7.2.

8.75 Seagate 75) How can the TUR bit be optional? (Rejected)

PDF page 106

<<If a TUR value of one is supported and the TUR bit contains one, then a TEST UNIT READY command (see 7.28) shall be used to determine the readiness of the device. If a TUR value of one is not supported and the TUR bit contains one,>>

But the TEST UNIT READY command is mandatory. What gives?

Reason for rejection:

The TEST UNIT READY command is mandatory but support for the TUR bit in the segment descriptor is optional.

The following Seagate comments concern the RECEIVE COPY RESULTS command.

8.94 Seagate 94) What does 'immediately' mean? (Accepted, Substantive)

PDF page 154

See also comment 5.180 IBM 180)

Requires SNIA-BWG Review

In Table 93 what does <<immediately>> mean in terms of the SCSI architecture?

Editor's notes:

The following changes will be made to address this comment.

- 1) The heading for the fourth column of the table will be changed from "Returns Data" to "Returns Data While EXTENDED COPY Is In Progress".
- 2) The fourth column entries for codes 0h and 3h will be changed from "Immediately" to "Yes".
- 3) The fourth column entry for code 01h will be changed from "When identified command has completed" to "No".
- 4) The fourth column entry for code 04h will be changed from "Immediately" to "No". This is undoubtedly a substantive (but common sense) change.

Notes to the SNIA-BWG:

I feel fairly strongly that the change described in 4) above is required.

There is an optional additional change to consider. The effect of making this change is to require the device server (or copy manager) to terminate RECEIVE COPY RESULTS commands requesting data while an EXTENDED COPY is in progress. The effect of not making the change is to allow the device server to take any action it wants when RECEIVE COPY RESULTS command requests data while an EXTENDED COPY is in progress (e.g., terminate the command, stall the command until the EXTENDED COPY finishes, or stall the command for a short time and the terminate). I am unsure about the benefits of stalling RECEIVE COPY RESULTS commands and/or leaving the device server's actions unspecified, but will honor you all's wishes.

5) In 7.17.3 and 7.17.5 before the parameter data format table, add the following:

If the LIST IDENTIFIER field of a RECEIVE COPY RESULTS CDB identifies an EXTENDED COPY command that still is being processed by the copy manager, the command shall be terminated with a CHECK

CONDITION status. The sense key shall be set to ILLEGAL REQUEST and the additional sense code shall be set to INVALID FIELD IN CDB.

8.95 Seagate 95) Values => 02h conflict with ISO/IEC standards (Accepted, Editorial)

PDF page 156

SEE ALSO comments 1.30 Brocade 30), 5.186 IBM 186), and 7.58 Quantum 58)

In Table 96 values => 02h are wrong according to international standards.

Editor's notes:

As far as the editor can tell, value 01h is wrong too. The response to comment 1.30 Brocade 30) contains the resolution for this comment.

8.96 Seagate 96) Insufficient allocation length in FAILED SEGMENT DETAILS (Rejected)

PDF page 161

<<the AVAILABLE DATA field shall not be altered and the failed segment details shall not be discarded.>>

Does this mean the details transferred are also retained? If all the details were transferred is anything discarded?

Reasons for rejection:

The editor is hard pressed to see what's wrong with the identified text, particularly since very similar text describing held data (PDF page 157) caused no comment.

Regarding the question: "If all the details were transferred is anything discarded?" The answer is "yes" and the requirement is covered in list entry a) on the previous page.

Regarding the question: "Does this mean the details transferred are also retained?" The intended answer is "yes" and that might be clarified by changing: "...the failed segment details shall not be discarded" to "...none of the failed segment details shall be discarded" However, the editor believes that such a change degrades the clarity of the text because the negative has been moved several words away from the "shall" requirement. Wording changes that do not rely on the use of "discarded" might also be considered, however the concept of discarding data was well established by the lettered list and thus abandoning it should be based on a stronger reason than this.

8.97 Seagate 97) Note describing the 50 reserved FAILED SEGMENT DETAILS bytes (Accepted, Editorial)

PDF page 161

SEE ALSO comments 5.198 IBM 198) and 7.62 Quantum 62)

Delete <<The fields still being discussed are not good candidates for inclusion in a separate service action because they need to be created and discarded under the same circumstances as the fields already defined. The inclusion of an indefinite length sense data field is a step of significant value.>> and consider deleting <<Possible uses include indicating the number of successful, failed, and indeterminate transfer operations to source and destination copy targets device. >>

Editor's note:

The authors of the corrections to EXTENDED COPY had anticipated being required to remove note 33 in its entirety. They will be pleased to see that they get to keep the first sentence.

10. Other comments

During the processing of the letter ballot response, several addition issues surfaced. These have been gathered in this section to be handled as if they had been made as comments on the letter ballot.

The following other comments concern the EXTENDED COPY command.

10.2 O2) Suhler - Change 'and etc.' to just 'etc.' (Accepted, Editorial)

PDF page 77, page 49, clause 7.5.1, 2nd sentence after table 21

The sentence ends in "...and etc." "And" is redundant as "et cetera" means "and other." Therefore, the "and" should be deleted.

10.23 O23) Weber - 'valid' s/b small caps (Accepted, Editorial)

PDF page 81, page 53, clause 7.5.3, item d

"...and the valid bit shall be set to 1." should be "...and the VALID bit shall be set to one."

10.24 O24) Weber - 'stream' s/b 'sequential-access' (Accepted, Editorial)

PDF page 91, page 63, clause 7.5.6.8

In the subclause heading replace 'stream' with 'sequential-access'.

10.26 O26) Elliott - N_Port means Fibre Channel (Accepted, Editorial)

PDF pages 86-87, pages 58-59, 7.5.6.3 and 7.5.6.4, subclause and table titles

Since 7.5.6.5 is call "Parallel Interface ...", 7.5.6.3 and 7.5.6.4 should be called "Fibre Channel ...". This affects both the subclause headings and the table titles.

10.27 O27) Elliott - World Wide Name is not just for Fibre Channel (Accepted, Editorial)

PDF page 85, page 57, 7.5.6.2

SEE ALSO comment 5.105 IBM 105)

In section 7.5.6.2 the text and note 10 refers to N_Port and FC-PH. I don't think anything in this target descriptor is Fibre Channel specific, so a generic term like "transport address" should be used instead and Fibre Channel should be an example.

Proposed rewording:

The WORLD WIDE NAME field shall contain the port World Wide Name. For Fibre Channel, this is defined by the Physical Log In (PLOGI) extended link service in FC-PH.

NOTE 10 The World Wide Name target descriptor format burdens the copy manager with translating the World Wide Name to a transport address (for Fibre Channel, the N_Port identifier (see 7.5.6.3)).

Editor's Notes:

The current text reads:

The WORLD WIDE NAME field shall contain the port World Wide Name defined by the Physical Log In (PLOGI) extended link service, defined in FC-PH.

NOTE 10 The World Wide Name target descriptor format burdens the copy manager with translating the World Wide Name to an N_Port identifier (see 7.5.6.3).

Including the changes made in response to comment 5.105 IBM 105) the text will be changed to read:

The WORLD WIDE NAME field shall contain the port World Wide Name (e.g., the World Wide Name defined by the Physical Log In (PLOGI) extended link service, defined in FC-~~PH~~FS).

NOTE 10 The World Wide Name target descriptor format burdens the copy manager with translating the World Wide Name to a transport address. When the target device is accessed using Fibre Channel, this means translating the World Wide Name to an FC-FS port D ID.